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Self-regulation and resilience: the role on active procrastination of young adults

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ABSTRACT

Our current dynamic digital era has generated active procrastination which is a popular trend of behaviour among young adults. Deciphering this reckless habit reveals a fascinating truth in which active procrastination thrives on strategic planning for task completion. This study examined i) self-regulation and resilience as the significant predictors of active procrastination among young adults, ii) the significant difference in active procrastination among university students and working young adults, iii) significant gender differences among university students, and iv) among working young adults. A total of 192 respondents completed the questionnaires, Self-Regulation Scale, Connor-Davidson Resilience Scale, and Active Procrastination Scale. Through quantile regression, results show that self-regulation is a significant predictor of active procrastination among young adults. Independent *t*-tests shows there is no significant differences in active procrastination among university students and working young adults. However, there are significant gender differences in active procrastination among university students, but not among working young adults. These findings indicate that self-regulation plays a significant role in cultivating active procrastinating among young adults. Furthermore, interesting findings are discovered for gender differences as males have relatively higher active procrastination scores. Hence, the findings emphasize the need for workshops to transform young adults to become active procrastinators through enhancing self-regulation.

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1. INTRODUCTION

Active procrastination is a behaviour often practiced by young adults which can prove to be an effective strategy for task completion when it is supplemented with a well-defined plan and realistic goals [1]. Characterised by flexible forms of self-regulation, active procrastination is a deliberate and purposeful delay in task completion which allows individuals to adapt their effort for successful deadline adherence [2], [3]. In other words, active procrastinators are able to engage themselves in effective time management with assigned tasks. Lack of self-regulation plays a prominent role in procrastination as those struggling with self-regulation tend to succumb to passive procrastination due to difficulties managing their behaviours, thoughts, time management and inefficient use of their resources [4], [5]. Hence, self-regulation can assist young adults in adapting their actions by enhancing their flexibility in completing assigned tasks.

Self-regulation encompasses a crucial set of abilities that help individuals to decide goal outcomes amidst challenging and stressful environments. Extensive research highlights self-regulation's profound impact in promoting positive behaviours while dampening negative ones. Stadler *et al.* [6] concluded that students with strong self-regulation are better equipped to resist brief temptations and stay focused on fulfilling their long-term academic goals, such as obtaining a university degree. As a result, students prioritise academic tasks like assignments and homework. Past studies revealed that self-regulation improve young adults' work performance and productivity in both direct and indirect ways as they are more motivated to set goals and achieve them through their own approach [7], [8]. In relation to this, young adults who are active procrastinators tend to have high self-regulation that promotes goals and productivity while deliberately delaying tasks which seems to be unappealing to them due to low perceived task value [9], [10]. Tasks will be perceived as having low value when the task is simple and dull [9]. On the other hand, inability to use effective learning strategies and having maladaptive motivational beliefs among learners with poor self-regulation usually lead to experiencing anxiety and dread of failure which then causes them to procrastinate passively [11]. Hence, self-regulation can be considered as a potential significant predictor for active procrastination. Other than self-regulation, resilience can also be linked with procrastination.

Resilience is a characteristic related with procrastination in socialisation contexts, encompassing the dynamic and interactive processes of community, school, and family. This trait equips individuals with a protective instinct, empowering them to overcome stress and adversities, ultimately yielding positive outcomes [12]. Central to resilience is its capability to foster personal strength from within, a quality cultivated through a dynamic process that empowers individuals to overcome stressful situations [13]. Among university students, those with resilience shows successful adaptability when facing challenges which hinges on their proficiency in critical thinking, emotion management, and behavioural direction [14]. In this case, resilient university students who procrastinate actively can achieve satisfactory academic results [15]. Resilience will equip university students with a wide repertoire of effective coping strategies which sets them apart from those without resiliency. In addition, resilient young adults tend to be strong learners, fueled by motivated to engage in strategic behaviours which will enable them to sustain focus on their tasks and adhering to the deadline with excellent results [16].

Furthermore, resilient active procrastinators have a distinctive trait in their planning approach which is characterized by adaptability and capability for effective time management [17]. Despite their inclination toward procrastination, young adults who engage in active procrastination have exhibited their ability to meet deadlines while deriving satisfaction from their excellent results, attributed to their effective time management and resilience [18]. Consequently, situations with a more adaptable time structure combined with increased resiliency in individuals could possibly yield better results through active procrastination compared to non-procrastination approaches [17]. Nevertheless, when faced with the need to complete a task with deadlines, those who lack confidence and resilience may react impulsively, leading to a diminished sense of positive feelings [19]. This impulsivity combined with anxiety can inadvertently trigger passive procrastination, where tasks are delayed unintentionally [19]. Hence, this study intends to examine self-regulation and resilience as the significant predictors of active procrastination among young adults.

Moreover, it is imperative to study the difference in active procrastination among university students and working young adults. Active procrastination is assumed to be flexible, deliberate, and advantageous in terms of producing positive outcomes [2], [3]. University students who are active procrastinators show that they are excellent in time-related coping strategies because even when they complete their task at the last moment, they can come up with creative ideas under time pressure [1], [20]. Moreover, some studies show that university students are more likely to be active procrastinators due to the number of tasks they receive at the same time and can complete them within the deadline [21]. In addition, according to past research, approximately 70% to 75% of students are passive procrastinators [18], [22]–[24]. The findings indicated that university students procrastinate more due to the number of given tasks. This is because they have a lot on their hands. Hence, some students may be active procrastinators because of multiple tasks and assignments [20], [21].

Employees may engage in active procrastination, such as intentionally delaying difficult tasks that could benefit from more time to create innovative ideas or delaying projects that they do not feel like completing until the last minute [18]. Some employees who are motivated and willing to work effectively bringing its success to the organization because they have been engaging themselves in challenging tasks all this while [25]. This is because active procrastinators are creative in ideas, therefore they can manage their tasks and solve them efficiently [26]. However, according to the past research, approximately 15% to 30% of employees passively procrastinate [17], [27]. Nevertheless, some employees may be active procrastinators because of many years of experience in work setting, thus decreasing burnout [28].

In addition, past research showed that the tendency to procrastinate was similar for university students and employees (e.g., [18]). It could be that some students actively procrastinate because they receive more assignments. On the other hand, employees do receive work tasks everyday, but they are slightly more

organised on what they want to do. Therefore, students could actively procrastinate more compared to young working adults. However, there is no past research on precisely knowing the difference between active procrastination among university students and working young adults in Malaysia or other countries. Hence, this study intends to examine the significant difference in active procrastination among university students and working young adults.

Besides that, the role of gender in procrastination has been studied in a plethora of past research. However, past research reported contradicting findings as some studies reported significant gender differences (e.g., [4], [29]), while others reported no significant gender difference (e.g., [30], [31]). For studies concluding with significant gender differences, males are often reported to procrastinate more compared to females [4], [32], [33]. It must be noted that past studies with contradictory findings are specifically studying on academic and passive procrastination. The current literature often focuses on academic and passive procrastination with little attention given to active procrastination [34]. Hence, this study intends to address the scarcity of studies by including two additional research objectives. Firstly, this study intends to investigate the gender differences in active procrastination among university students. Secondly, this study intends to investigate the gender differences in active procrastination among working young adults.

In summary, the literature underscores two crucial problems, which are deficiency in understanding young adults' active procrastination and conflicting research outcomes. Hence, the current study intends to examine i) self-regulation and resilience as the significant predictors of active procrastination among young adults, ii) significant difference in active procrastination among university students and working young adults, iii) gender differences in active procrastination among university students, and iv) gender differences in active procrastination among working young adults.

2. METHOD

2.1. Study design and participants

Based on the objectives of this study, quantitative design is the most suitable design to address the research objectives. The research methodology adopted in this study is a prediction design. Self-regulation and resilience are the predictor variables, and active procrastination is the criterion variable. This is a cross-sectional study because the data is only collected at one point of time. It is also a reliable way to collect data from respondents based on the inclusion criteria, which are full-time students and full-time working young adults. Data are collected online through Google Form and administered to university students and working adults. The survey questionnaire Google Form link is sent to respondents through either Facebook, Instagram or WhatsApp.

Prior to data collection, ethical clearance and approval to collect data were obtained from faculty ethics committee of Faculty of Social Science and Humanities, Tunku Abdul Rahman University of Management and Technology, in which the main and co-authors are affiliated with. A total of 192 respondents, 98 undergraduate university students from 3 private universities and 94 working young adults from 3 private organizations, participated in this study. Based on an *a* priori power analysis conducted through G*Power, it was proposed that a total of 176 sample size is considered ideal to obtain a minimum effect size of .50 (medium effect size) with 95% power for independent *t*-test analysis [35]. Thus, the obtained sample size of 192 respondents is considered adequate to address the research objectives. Young adults who are chosen for this study ranged from 18-35 years old. Purposive sampling technique is adopted to recruit the respondents from 3 private universities and 3 private organisations in Kuala Lumpur, Malaysia.

2.2. Instruments

Self-Regulation Scale was developed by Schwarzer *et al.* [36] to assess the regulation of attention in the pursuit of the goal. This instrument has 10 items with a Cronbach Alpha of .76. There are 3 reverse-coded items which are item number 5,7, and 9. Sample items from the instrument are “I can concentrate on one activity for a long time, if necessary” and “If I am distracted from an activity, I don't have any problem coming back to the topic quickly”. It consists of a 4-point Likert scale that indicates 1 as Not at all true, 2 as Barely true, 3 as Moderately true and 4 as Exactly true. Self-Regulation Scale showed good criterion validity [36]. Higher score represents high self-regulation for an individual.

Connor-Davidson Resilience Scale 25 (CD-RISC-25) was developed by Connor and Davidson [37]. CD-RISC is used to assess multiple aspects within people that demonstrate the resiliency of an individual over time. This instrument has 25 items with a Cronbach Alpha of .89. There are no reverse-coded items. Sample items from the instrument are “I am able to adapt when changes occur” and “I have at least one close and secure relationship that helps me when I am stressed”. It consists of a 5-point Likert scale that indicates 1 as Not true at all, 2 as Rarely true, 3 as Sometimes true, 4 as Often true and 5 as True nearly all the time. Convergent validity was ascertained for CD-RISC-25 [37]. The higher the score obtained by the individual, the greater degree of resilience is present within the individual [37].

Active Procrastination Scale (APS) was developed by Choi and Moran [38]. It was proposed that procrastination manifest its intent in specific areas such as actively procrastinating on schoolwork or work projects. This instrument consists of 16 items with a Cronbach Alpha of .80. There are 12 reverse-coded items. Sample items are "My performance tends to suffer when I have to race against deadlines" and "I don't do well if I have to rush through a task". It consists of a 7-point Likert scale that indicates 1 as Not all true, 2 as Not true, 3 as Somewhat not true, 4 as Neutral, 5 as Somewhat true, 6 as True and 7 as Very true. Convergent validity was ascertained for Active Procrastination Scale [38]. Higher scores represent greater degree of active procrastination within the individual.

2.3. Statistical analysis

Statistical data analysis is computed in IBM SPSS Statistics Version 26. Quantile Regression analysis is used to answer the first research objective, which is to examine self-regulation and resilience as the significant predictors of active procrastination among young adults. Quantile regression analysis is a statistical technique that yields conditional regression coefficients for each quantile, allowing for a more detailed investigation of the connection between the dependent variable and its independent variables [39]. In addition, when the data violates the normality assumption, quantile regression can be used to supplement parametric analysis [40]. In addition, independent test is used to answer the second, third, and fourth research objectives, which are to examine the significant differences in active procrastination among university students and working young adults, examine the gender differences among university students, and among working young adults. According to Rasch *et al.* [41], independent *t*-test can be used to analyse data that violates the normality assumption due to its robustness. Prior to conducting an independent *t*-test analysis, Levene's Test for Equality of Variances is reported to fulfil the requirement for equality of variances.

3. RESULTS AND DISCUSSION

Table 1 summarises the demographic data of respondents who participated in this study. A total of 192 respondents are from private organizations and private universities in Malaysia. Females (51.60%) slightly outnumbered males (48.40%). In terms of ethnicity, the Chinese (42.20%) and Indian (43.70%) make up majority of the respondents, with a minority of Malay (12.50%) respondents. Full time students (51%) are somewhat similar with the total of Full time workers (49%) who participated in this study. As for the age range, majority of the respondents are from the age range of 18-25 years old.

Table 1. Demographic information (*N*=192)

Characteristics	*n*	%
Gender		
Male	93	48.40
Female	99	51.60
Ethnicity		
Malay	24	12.50
Chinese	81	42.20
Indian	84	43.70
Others	3	1.60
Occupation		
Full time students	98	51.00
Full time workers	94	49.00
Age range		
18-25 years old	135	70.30
26-35 years old	57	29.70

Table 2 presents the results of the Kolmogorov-Smirnov normality test. The significant values for self-regulation ($p<.05$), resilience ($p<.05$) and active procrastination ($p>.05$) respectively. Only active procrastination does not violate the normality test. Hence, non-parametric tests are adopted to analyse the results related with self-regulation and resilience but parametric tests are adopted for analysis related to active procrastination.

3.1. Self-regulation and resilience as predictors for active procrastination among young adults

As illustrated in Table 3, from 25th to the highest quantile, self-regulation significantly predicted active procrastination among young adults. The highest coefficient (β) obtained from the results is 1.21 at 90th quantile with a p-value <.05. Therefore, as the Pseudo R2 increases from the 25th to the highest quantile, the coefficient (β) increases. It shows that self-regulation is a significant predictor for active procrastination among young adults.

In Table 3, from 25th to the highest quantile, resilience does not significantly predict active procrastination among young adults. The lowest coefficient (β) obtained from the results is .06 at 25th quantile with a p-value >.05. As the Pseudo R2 increases from the 25th to the highest quantile, the coefficient (β) also increases. However, results shows that resilience is not a significant predictor for active procrastination among young adults.

3.2. Difference in active procrastination among university students and working young adults

Kolmogorov-Smirnov test on active procrastination based on the occupation of young adults indicated that the normality assumption is not violated (p>.05). Thus, independent *t*-test is used for analysis. Prior to conducting an independent *t*-test analysis, Levene's Test for Equality of Variances indicated that the variances are equal, *F*=.06, p>.05. Independent *t*-test analysis revealed that there are no significant differences between university students and working young adults in active procrastination, *t*(192)=1.20, p>.05. This result indicates that university students and working young adults do not significantly differ in the active procrastination scores.

Table 2. Kolmogorov-Smirnov test for the study variables (*N*=192)

	Kolmogorov-Smirnov		
Study variables	Statistic	*df*	Sig.
Self-regulation	.08	192	.00
Resilience	.09	192	.00
Active procrastination	.05	192	.20

Table 3. Quantile regression for self-regulation and resilience as predictors of active procrastination among young adults (*N*=192)

Study variables	10th quantile		25th quantile		50th quantile		75th quantile		90th quantile	
	β	*p*	β	*P*	β	*p*	β	*p*	β	*p*
Self-regulation	.54	.14	.71	.01	.75	.00	.64	.04	1.21	.01
Resilience	.31	.01	.06	.53	.10	.08	.11	.29	.16	.30
Constant	6.20	.61	33.15	.00	34.90	.00	42.53	.00	28.69	.07

3.3. Gender differences in active procrastination among university students

Kolmogorov-Smirnov test on active procrastination based on the gender of university students indicates that the normality assumption is violated for males (p<.05) but not violated for females (p>.05). However, independent *t*-test will still be used for analysis due to its robustness with data which violates normality assumptions (e.g., [40]). Prior to conducting an independent *t*-test analysis, Levene's Test for Equality of Variances indicates that the variances are equal, F=.74, p>.05. Independent *t*-test analysis reveals that there are significant gender differences among university student's active procrastination, *t*(98)=2.45, p<.05. The effect size is .50, which can be interpreted as medium effect size.

This result indicates that male and female university students do significantly differ in their active procrastination scores. Specifically, males (mean=66.64) have significantly higher mean scores compared to their female (mean=61.52) counterparts. The effect size shows that gender has a medium effect on the active procrastination score.

3.4. Gender differences in active procrastination among working young adults

Kolmogorov-Smirnov test on active procrastination based on the gender of working young adults indicates that the normality assumption is not violated for males (p>.05) and females (p>.05). Thus, independent *t*-test is used for analysis. Prior to conducting an independent *t*-test analysis, Levene's Test for Equality of Variances indicates that the variances are equal, *F*=1.20, p>.05. Independent *t*-test analysis reveals that there is no significant gender difference among working young adult's active procrastination, *t*(94)=.98, p>.05. This result indicates that male and female working young adults do not significantly differ in their active procrastination scores.

3.5. Discussion

The results stated that self-regulation is a significant predictor for active procrastination among young adults. This goes in line with the study of Hensley [9], saying that active procrastinators have high self-regulation. Another study that supports this finding is by Chu and Choi [1], stating that self-regulation is positively correlated with active procrastination because active procrastinators tend to have their preference for work pressure and achieve satisfactory performance even when they complete their tasks right before the

dateline. Furthermore, active procrastinators with high self-regulation have high self-confidence in procrastination because they can finish their tasks in a timely manner [26].

In addition, there are many reasons why self-regulation is a significant predictor of active procrastination among young adults. First, this could be because of young adults tend to plan consciously even during the COVID-19 pandemic. Most university students and working young adults resulted in studying online and working from home. Although this could sound stressful for young adults, most of them managed to have high self-regulation in active procrastination even during this period. Based on a past research, young adults who were resulted in online mode knew how to concentrate on impending responsibilities [42]. Thus, displaying better self-control. Some young adults studying or working at home were motivated by their families and friends as they had better life balance. For instance, a study conducted by Bao *et al.* [43] showed that young adults who were studying and working from home had a better work-life balance, flexible studying and working time. Furthermore, there could be an underlying reason why young adults have high self-regulation in active procrastination due to environmental factors. Therefore, they could still have satisfactory performance while actively procrastinating even though they were at home. Hence, self-regulation is a significant predictor of active procrastination among young adults.

As for resilience, the results indicated that resilience is not a significant predictor of active procrastination. Previous studies showed that resilience is a positive reinforcement that helps individuals bounce back from stress and complete their tasks right before the deadline. However, in this study conducted, resilience is not a significant predictor. Saman and Wirawan [44] stated that resilience is not a significant predictor of active procrastination. This could indicate that there might be other underlying factors that help young adults to procrastinate actively. Resilience has a conditional effect on active procrastination, suggesting that it is more effective for young adults who are less attentive. There might be an underlying personality known as conscientiousness which may aide young adults in active procrastination, and resilience has a negative effect on active procrastination is larger among those with low intelligence [44]. The possible explanation for resilience not being a significant predictor is that even when young adults were affected by the pandemic, they could still bounce back and finish their tasks within the given dateline. It could be because of peer assistance helped young adults to achieve satisfactory results. Peer assistance has been demonstrated to help with self-esteem, anxiety, depression, stress, burnout, loneliness, and general mental health [45]. Even though resilience is not a significant predictor of active procrastination among young adults, they could still perform well as their peers always check on them and motivate them. Through social media platforms, they could help each other to complete a task even at the last moment. Hence, this could justify why resilience is not a significant predictor of active procrastination among young adults.

Results showed that there is no significant difference in active procrastination among university students and working young adults. The results do not align with past research stating that students may be active procrastinators as they are more likely to receive more tasks [20]. There could be some reasons why there is no significant difference in active procrastination among university students and working young adults. Firstly, it is most probably because when lockdown is implemented during the pandemic of COVID-19 in Malaysia, university students and working young adults were learning online and working from home. In this case, more tasks are given to them regardless whether they were studying or working. For students, satisfaction declined dramatically after their classes were conducted online due to the pandemic which is due to having large number of tasks [46], [47]. Moreover, for working young adults, because schools and childcare facilities are closed amid lockdowns, working parents who worked from home must also care for their children during business hours [48]. According to Manroop and Petrovski [49], surveys stated that distractions (e.g., loud television, children, pets) occurred on a few occasions, including during Zoom meetings, making it impossible to concentrate. However, even with those environmental factors at home affecting their working lifestyle, they managed to complete their work within the dateline with creative methods. Therefore, regardless of the amount of workload or distractions they had during the pandemic it could be that the situation cultivated active procrastination in students and working young adults correspondingly. Hence, results stated that there is no significant difference in active procrastination among university students and working young adults.

In regards to gender differences in active procrastination among university students, results indicated that there are significant differences with males showing higher active procrastination scores compared to females. Generally, this result is inconsistent with past studies indicating that males show significantly higher academic procrastination scores compared to females [4], [29]. The results are considered inconsistent because individuals with higher active procrastination tend to have higher academic performance compared to individuals with higher academic procrastination [1], [38]. Past studies identified that male students tend to have deficiency in time management [50], [51], poor study habits [52], and engaging in self-handicapping [53], [54] which may lead to increase in academic procrastination. However, this study presents the notion that male students have significantly higher active procrastination, which then should lead to higher academic performance. Hence, this finding will require further investigation on the possible explanation for contrasting results with past studies.

As for gender differences in active procrastination among working young adults, results indicated that there are no significant gender differences in active procrastination scores. Generally, this result is consistent with past studies indicating that male and female have no significant difference in their procrastination score among young adults [30], [31]. At the same time, there are past studies which concluded with significant gender differences in procrastination scores (e.g., [4], [29]). There is still no consensus on the role of gender in regards to procrastination as different studies in different contexts conclude with different findings [33]. This may be due to gender roles considered as a social construct which is highly dependent on the culture and environment [55], [56]. In this case, there are past studies which attributed their findings to be influenced by the gender role and culture of the community (e.g., [30], [32], [57]). As a result, any attempts to explain the possible reason on different findings for gender differences in procrastination is purely speculative. Hence, this finding will require future research on the possible explanation for contrasting results with past studies.

As for recommendation, since this study only focused in Kuala Lumpur, future researchers can collect data in all states in Malaysia. They could imply this in their research study by comparing the active procrastination among young adults in all states in Malaysia. Hence, future research could bring more conclusive findings towards Malaysian active procrastinators. Secondly, the results showed that resilience is not a significant predictor of active procrastination among young adults in Kuala Lumpur. This could indicate other underlying variables or moderators that are helping young adults to be active procrastinators. In this case, future researchers could add more variables such as cognitive flexibility, consciousness, and intrinsic motivation. Finally, future studies can also provide possible explanation for the contrasting results with past studies. Despite the literature consistently pointing at females being better at active procrastination, this study found that males are better at active procrastination. Hence, future studies could weigh in on culture and gender roles as part of the study variables.

Many implications can be emphasised from this research. Firstly, it can help practitioners, researchers, counsellors, and employers promote the benefits of active procrastination to help young adults perform better in their daily lives. Lecturers and employers will understand the differences between passive and active procrastination from the findings of this study because procrastination is always known as a deficit behaviour. Hence, lecturers and employers will understand that even though students or workers seem to progress or complete their assigned tasks slowly, it may not necessarily lead to negative consequences as they are gaining ideas and thinking creatively despite putting up their energy at the very last moment. Secondly, this could also help practitioners and counsellors to conduct workshops in universities and organisations to transform passive procrastinators into active procrastinators. Counselling sessions, psychotherapy and seminars can be conducted to enforce techniques and tips on managing tasks to meet deadlines.

4. CONCLUSION

In conclusion, this study demonstrates that self-regulation is a significant predictor of active procrastination while resilience is not. Furthermore, results determine no significant difference in active procrastination among university students and working young adults. Moreover, there are significant gender differences among university students but not among working young adults. This research provides a novel insight into active procrastination despite the negative connotations of passive procrastination. We recommend cross-cultural study to be carried out on active procrastination.

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