Proceedings of the International Conference on Global Politics and Socio-Humanities
DOI: 10.54254/2753-7048/24/20230795

A Review on the Relationship Between Academic Procrastination, Self-regulation, and Appropriate Remedial Strategies

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Abstract: Drawing much attention in recent years, academic procrastination and self-regulation are well-known concepts across the field of psychology. Researchers have spent decades on related topics, unravelling their nature and their interaction with each other. Nonetheless, the relationship between self-regulation and academic procrastination specifically was somewhat lacking. In this study, conclusions of various previous papers were collected, from both theoretical and experimental investigations. In hopes of finding a more up-to-date inference, this study contributed on two aspects. First, it landed the following conclusions: students who are better at self-regulating experience less serious academic procrastination; and that academic procrastination could be eased by developing self-regulation abilities. Second, multiple moderating methods for academic procrastination were suggested, including learning strategies, different perspectives of self-regulation, and the mechanism of active procrastination. The paper also suggested gaps in current field, as well as their respective advice for future research. The implication of the study was emphasised by the potential that self-regulation has on relieving academic procrastination effects. With further exploration, findings in the field will no doubt benefit students across the globe.

Keywords: self-regulation, academic procrastination, self-handicapping

1. Introduction

It is fair to say that, despite different ages, genders and areas of study and, almost everyone has procrastinated before. This is a type of behaviour where people constantly stall their prevalent work, and instead choose another irrelevant, yet more enjoyable thing to do. A certain type of procrastination related to academia has been a topic of interest to psychologists for decades. As the name suggests, academic procrastinators stall their work on studying. For example, they would normally postpone their preparation for coursework to near the deadline, cram the work, rush the process, and often end up handing in work with low quality, or even missing the deadline. A highly relevant concept that academic procrastination is associated with is self-regulation, which refers to the ability that one can be in control of themselves, in aspects of emotion, behaviour, cognition and

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DOI: 10.54254/2753-7048/24/20230795

such more. An individual with a well-developed self-regulation skill could be expected to be more efficient when processing information and finishing a task.

This study seeks to find the relationship between academic procrastination and self-regulation. First, the concepts are briefly introduced. Following this, the effects that self-regulation has on academic procrastination are confirmed and explained, and various forms of moderators for academic procrastination are also discussed. Lastly, future areas of investigation and current flaws in the field are suggested. By gathering conclusions and results from various studies, this paper reaches a wide-applicable conclusion, that provides not only a more overall view of the interaction between the two concepts, but also potential routes for future research to develop on.

2. Introduction to the Concepts

2.1. Understanding Self-regulation

Self-regulation refers to the control of an individual's own behaviour, while also being self-conscious. It is concerned with how people integrate internal and external information about themselves and how people respond to different stimuli [1]. Tice and Bratslavsky suggested that there are three components to self-regulation: the standard, which is what the majority of society would do, or how one should behave; the monitoring, which is being aware of the present, observing one's condition while being in the moment; and the strength, which is the courage and power to take control of impulsivity [2].

The term of 'self-regulation' often appears in literature reviews, and past conclusions indeed suggests that the ability to self-regulate can be learned and developed. Hence viewing self-regulation as a skill, it is vital to identify its nature, to better understand how it could be learned. Even though there are numerous methods and models in this field of study, there are four universal assumptions regarding to self-regulated learning [3]. First, students are seen as active and constructive. To elaborate, it is assumed that students take the initiative in building their own understanding of the information. Secondly, learners are assumed to have the potential to control themselves. This means that all learners are able to develop a better ability to observe and balance themselves, including control of motivation, emotions, behaviours, and so on. Thirdly, they are believed to be able to make use of 'standards'. For example, if a student finds the optimal strategy for learning vocabulary, this strategy would be considered as a 'standard'. They would be able to compare their current method with the standard, and make appropriate adjustments to behave as the standard. Finally, self-regulation is considered to be the mediator between internal conditions and external performances. It does not directly affect the outcome in any way, but rather improves the self and therefore allows it to produce a better outcome.

2.2. Understanding Academic Procrastination

Procrastination is often defined as a form of self-regulation failure, where individuals irrationally delay pertinent and intended actions [4]. Having almost no limit on types of events, subjects or environments, procrastination could potentially occur across a broad range of scenarios, affecting anyone, at anyplace and anytime. Students, in particular, are highly prone to procrastination, to the extent that a type of phenomenon is specifically related to them: academic procrastination. This refers to a wide range of behaviours, from delaying preparation, revisions, assessments, to missing deadlines, and even instances of academic misconduct [5].

It was suggested that procrastination occurrence is related to the following aspects: expected likelihood of success, anticipated rewards, sensitivity to delays, and the time lag between thoughts to transfer to action [4]. Park and Sperling mentioned slightly different yet still relevant aspects. They have identified specific aspects of which regulation are deficient in that could lead to

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academic procrastination [6]. Cognition regulation is one example, and academic procrastination could be seen with having difficulties in processing of knowledge, reasoning and memorising during learning. Behaviour regulation failure, as another example, is about having weak time and material organisation abilities. Regulation on motivation is all about finding reasons and willingness to pursue a goal. Lastly, if a student has poor emotional regulation ability, they cannot initiatively promote positive feelings, nor can they properly deal with negative feelings.

3. Impact of Self-regulation on Academic Procrastination

3.1. Evidence of Relationship

Self-regulation has long been the topic of interest in the field of psychology. Numerous empirical and review papers have focused on exploring the relationship and link between self-regulation and academic procrastination, with the aim of determining the mechanisms behind this global and pertinent phenomenon, as well as finding potential tactics to moderate it. The following section addresses the first part of the question, by integrating findings from various sources, and viewing the topic on multiple levels.

Park and Sperling confirmed the relation between the two concepts by attributing three aspects of self-regulation deficiency that induced procrastination among students [6]. The study included 41 undergraduate students, on whom quantitative data were collected, through various versions of surveys and even a semi-structed interview. Instruments used were carefully selected after much consideration, covering areas from learning strategies, procrastination triggers, psychological factors and such. Researchers analysed the data using descriptive statistical methods, calculating means, standard deviations, reliability coefficients. Additionally, inferential statistics such as independent t-test and Pearson correlation were also used. By doing so, no overweighing in any aspect was induced, rather the more general and bigger-picture of the abilities of students was presented. Conclusions drawn from analysed results suggested that it is likely that procrastination could occur, when self-regulation is insufficient across the following areas: cognition, motivation and behaviour. To begin with, when procrastinating, cognitive tactics that might facilitate learning are absent. For example, a non-procrastinator might pre-plan before taking action, monitor during the process, and finally evaluate after finishing, while these strategies are less likely to be carried out by a procrastinator. Secondly, motivational malfunction is present through variables such as intrinsic value, effort, time and study environment management. With that said, it is reasonable to infer that if an individual finds it hard to recognition the positive impacts that academic achievements can bring, they are less interested in putting in the efforts, and thus procrastinates. Lastly, if one has weaker ability to manage their energy, sensitivity, and most importantly, one's own action, they would have a higher probability of being a procrastinator. It is a fairly understandable conclusion, for almost all students would have experienced similar situations at least for a few times. Notably, one intriguing finding is that the majority of procrastinators are aware of their actions, meaning that although students already recognise the severity, they would still choose to keep stalling, even with pain. This is referred to as the 'intention-action gap', in this study however, little was explained on that subject. If reasons behind such behaviour could be further explored, the study could benefit from a more insightful conclusion.

Based on the premiss that self-regulation is a direct predictor of academic procrastination, another study shifted their attention to the more detailed aspect: the factors that influences procrastination length [7]. Various theories were gathered, spreading across subjects of economics, industrial-organisational psychology and individual psychology. By integrating numerous theories, including expectancy theory and need theory, they proposed the prominent Temporal Motivational

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Theory (TMT), in which many forms of the formulation about utility were included. Later in the study related to procrastination, the formulation included in TMT was modified and simplified [4]:

$$Utility = \frac{E \times V}{\Gamma D} \tag{1}$$

To give an overall description, Utility represents the desire. In other words, to what extent does someone long for doing a certain task. The symbols E and V stand for, respectively, the Expectancy of a particular action's success and the Value this result bears. The denominator for the equation consists of Γ and D, the latter stands for the Delay, which is the length of time an individual waits before any feedback is recognised. Last but not least, the former, gamma (Γ), is the sensitivity. To sum up, the equation indicated that the desire to carry out a task can be predicted through four fundamental elements, with higher and stronger hope of successfully achieving a great outcome, and smaller notice to the delay of receiving feedback, the better chance of performing an action, and less likely to procrastinate. This equation could be applied to more specific scenarios. To give an example in academic situations, say if a student is preparing for an exam, academic procrastination could be expected, when the student: 1. Believes more in failing instead of passing, 2. Thinks less about the importance of having a good grade and an academic degree, 3. When the results would be released long after the exam and 4. Being highly anxious about the waiting for results. The validity of the theory has been directly reflected through its wide range of use. However, the equation is not specific to procrastination in academic fields, and due to the property that this equation derived from various sources, it is possible that the equation could be further modified to suit more detailed situations more specifically, for a higher accuracy and validity.

3.2. Emotional Self-regulation Failure: Self-handicapping

The relationship between self-regulation and emotions have been explored in extensive studies. Senecal et al pointed out that academic procrastination is directly related to negative feelings, lack of persistence, and the differences between attitudes and actions of a student, as well as emotional components such as anxiety, depression, and lack of self-esteem [1]. This conclusion is also supported by Beck et al, with an additional mentioning to a behaviour named 'self-handicapping' [8]. This is also a form of self-regulation dysfunction, where an individual distinctively identifies an obstacle, for which they cannot bypass, and ultimately results in procrastination. In other words, procrastinators would find an excuse, whether intentionally or unintentionally, in order to ignore the responsibility of stalling, and defend their self-esteem. It also helps students to redirect their focus to the external environment, instead of fixating on the internal problems [9]. In doing so, the excuse of self-handicapping relieves the procrastinators of pressure and establishes their confidence. The topic of handicapping has been gaining attention in recent years, for the society is rapidly and constantly changing, procrastinators can easily find excuse regarding to the environment. Despite the temporal easement self-handicapping can bring, evidence does suggest that the impact it exerts on motivation may be unfavourable [9].

4. Moderators of Academic Procrastination

4.1. Cognitive, Learning and Emotion Strategies

While the effect of self-regulation has been identified, in what ways they could be used requires elaboration with more depth. The effectiveness of regulating cognition through the use of cognitive strategies has been established through many studies. Cognitive functions cover any abilities that are involved with learning, memorising, reasoning and attention. Under the context of academia, skills such as problem solving, logical thinking have also been taken into consideration. The impact

that different learning methods could have on academic performance is even more direct, for it facilitates the process of learning straightaway. In the following section, mediating methods of academic procrastination will be collectively discussed on different levels.

Wolters suggested in the work that if adequate cognitive strategies have been adapted, the severity of academic procrastination will indeed be eased [9]. In another study led by the same researcher, the impact of academic self-regulated learning has been assessed, and the core to such strategies was listed [3]. There are methods that are suitable for any age range. For younger students, for example, methods of aiding memories could be applied, as it has a low demand to cognitive development, and can be quickly absorbed and used for younger learners. For students who have a robust cognitive development, regulation could be carried out on higher levels. Literacy skills such as reading and writing, logical and deductive skills such as mathematical ability, problem solving and reasoning were all nominated. Self-consequating could be helpful in situations of academic procrastinations. As the name suggests, this term describes the action of concisely identifying or establishing certain consequences. For example, a student may use reward or punishment to promote learning or inhibit postponing [10].

Of course, developing learning skills would also improve procrastination. Rehearsing, explaining, visualising, note-taking, summarising, organising and arranging have all been proven as effective towards constant postponing. In a different study, the author applied approaches to educational scenarios [9]. The importance of having appropriate recognition about the effort required for a given task is emphasised. Furthermore, students should focus more on self-efficacy, that is, to have confidence that one is capable of completing the task.

The importance of regulation on motivational factors has also been looked at by the same author [10]. The regulation on emotions was elaborated. This includes being capable of examining, assessing, and even controlling the appearance, intensiveness and length of a certain emotional experience. The study also provided implications to academic situations, which is that when a student can regulate their emotion well enough, they would also be able to find motivation and power to put in effort and complete tasks. Additionally, another aspect of emotion regulation was to actively generate positive emotions. For instance, students could promote themselves to be excited about staring a coursework, or to be curious to new knowledge before literature reading. Either way, self-regulation on emotions is as beneficial as any other tactics when used appropriately.

4.2. Active Procrastination

An intriguing perspective called ‘active procrastination’ was explained by Chu and Choi [11]. First, individuals must reevaluate procrastination, take a step back and understand that not all procrastinations are negative. The common understanding of procrastinators is that they keep postponing, finding excuses, being irresponsible and does not finish or even start their work. However, despite the stalling, some procrastinators do finish their job, even to the extent that the value of resulting work is no less than a non-procrastinator. The first type is dubbed ‘passive procrastination’, which involves the unwillingness of action, and thus unconstructive impacts. The second type, ‘active procrastination’, is more about intentional postponing, where individuals would are aware of their performance pattern, and builds the pressure by deliberately but consciously stalling, in order to trigger better performance.

The empirical study conducted by Chu and Choi evaluated the effectiveness of active procrastination on several factors related to academic performance [11]. The experiment conducted involved 230 undergraduate students, the majority of which being female. Instruments of various Likert scales and questionnaires were used to collect quantitative data. After running a descriptive statistical analysis to obtain standard deviations and correlation coefficients, and inferential analysis for probability value, conclusions were drawn from the results. Firstly, active procrastination not

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only excludes all negative impacts of 'common' procrastination, but rather has beneficial effects to behaviours. To be more concise, active procrastinators would perform better with this type of procrastination than without. The study proposed several cognitive characteristics of active procrastinators, such as being aware of the usage and perception of time, having self-efficacy, oriented to motivations, able to deal with stress.

Nevertheless, the topic of active procrastination has its debates. Some suggest that though it may be positive for performances, the semantic meaning and even the fundamental nature of considering it as 'procrastination' is flawed [12]. They argued that this so called 'active procrastination' should be considered as a 'purposeful and arousal delay', and for the very fact that this action is intentionally being positive, it should not be recognised as part of procrastination. This opinion has its own merit, for the study conducted was valid and compelling. However, the result does not undermine the underlying value that 'active procrastination' withholds. Semantic disagreements aside, this technique is still proven to be genuinely positive. To avoid any ambiguity, the term 'active procrastination' will be used to refer to the intentional delaying yet constructive behaviour.

Little was discussed about becoming an active procrastinator from a passive one. However, it is reasonable to deduce that, if passive procrastinators could adapt to or develop the traits of an active procrastinator, their performance would be improved. To put under academic settings, students who are passive procrastinators could intentionally recognise and evaluate their performance regarding to time spent, stress relieving techniques, attention to motivation and such, in order to make use of the 'bad habit'.

5. Discussion and Suggestion

5.1. Brief Conclusion

In summary, academic procrastination is a widespread phenomenon among students. This typically occurs in a form that individuals keep delaying the preparation, progression or finishing of their relevant work. Self-regulation is a technique where one regulates themselves, so that a more sensible method or behaviour is conducted.

In the aim of finding the relation between these two factors, this paper has integrated information from various studies, and reached the following conclusion. Self-regulation is directly related to academic procrastination. This link can be illustrated in two ways: First, as a factor, a poor development of self-regulation could lead to academic procrastination; Second, the severity of academic procrastination can be relieved by proper regulation of oneself.

5.2. Flaws of Current Field and Suggestions for Future Research

There are certain drawbacks to the studies in this current field that following research needs to make up for. One of the most crucial problems lies within the concept of active procrastination. As previously mentioned, there has been a debate around its semantic representation [12]. Research would need to clarify the use of the term, in order to avoid ambiguity in future investigation and interpretation. Additionally, the validity of the method should be examined. In other words, whether being actively procrastinating holds more benefits than its harm. If evidence indeed confirms it of being a form of procrastination, does this tactic carry the same negative impact to the procrastinators? If so, should students still try to learn from this method? If not, what do passive procrastinators have to learn to become an active one? These concerns bring us to the next viewpoint. The current understanding of the formation and mechanism of procrastination in an active form is still unclear. Due to the very fact, it is irresponsible to make any suggestions to promote it. It is at utmost importance that the establishment, transformation and mechanisms of active procrastination to be investigated. The present situation is, there are far fewer active

procrastinations than passive ones, this unpropitiated figure indicates the urgency of carrying out explorations in these mentioned fields.

Another aspect of suggestions could be from the view of self-regulation. Building on previous proposals from past studies, the present study could conclude the development of self-regulation abilities helps academic procrastination. However, the ways for students to self-diagnose and match to the optimum strategy was not specified. It is difficult to be self-aware while being in the experiencer, let alone sorting out a way to self-improve. It is necessary for research to target to the many fields of self-regulation, specifically regulation towards emotions, motivation, behaviour and cognition, to construct a systematic learning method to develop self-regulation. Furthermore, this method could be modified by age, subject of studying, learning environment or even personality, to help students resolve the problem of academic procrastination better.

6. Conclusion

To summarise, there has been plenteous research done regarding both academic procrastination, self-regulation, and their interactions with each other. It could be conclusively said that with a better ability to regulate oneself, less severe levels of academic procrastination could be anticipated. Consequently, if an academic procrastinator were to develop their regulation skills, their severity of such behaviour could be lessened. Meanwhile, there are also numerous meditators for academic procrastination, derived from psychological research of different aspects.

However, considering the complexity and prevalence of academic procrastination, topics such as active procrastination and self-regulation application requires future research to clarify and investigate. Through a systematic exploration, studies could reach a more solid understanding of both topics and draft a better-suited method of treatment for academic procrastination.

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