Full Length Research Paper

Relationship between self-efficacy, task value, self-regulation strategies and active procrastination among pre-service teachers in colleges of education

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This study examined the relationship between self-efficacy, task value, self-regulation and active procrastination of pre-service teachers enrolled in the colleges of education in Northern-western Nigeria. Samples of the study consist of 426 (223 males, 203 females) pre-service teachers with a mean age of 22.12 years. A descriptive correlation research design was employed to address the research objectives. Two research instruments were utilized to obtain the research data. Active Procrastination Scale (APS) was used to assess respondents' level of procrastination, while the Motivated Strategies for Learning Questionnaire (MSLQ) was used to measure the level of their self-efficacy, task value beliefs, and self-regulation strategies. Pearson correlation and structural equation modelling (SEM) were performed to determine the relationship between the research variables. Findings indicated that all the variables of the study were significantly correlated. Furthermore, mediation analysis using SEM showed that there were indirect effects of self-efficacy and task value beliefs on active procrastination through self-regulation strategies as mediator. Recommendations in addition to the theoretical and practical implications of the study have been offered.

Key words: Procrastination, active procrastination, self-regulated learning, pre-service teachers.

INTRODUCTION

Procrastination, a behaviour that involves postponing or delaying decisions or tasks that ought to be done to a later time, has attracted researchers' attention in the past few decades. It is characterized by voluntary delay in beginning or completing an intended course of action despite expecting to be worse off for the delay (Steel, 2007). Procrastination is a common practice among college and university students. Estimates show that 80 to 95% of college students are found to be procrastinating, with about 50%of them procrastinate consistently

and problematically (O'Brien, 2002; Onwuegbuzie, 2000; Steel, 2007). Research indicates that procrastination negatively affects progress as it limits the quality and quantity of students' work (Rakes and Dunn, 2010). It results in a number of negative consequences on students' academic performance and subjective wellbeing (Cao, 2012; Klingsieck et al., 2012).

As a result of its undesirable effect on students' academic achievement, procrastination has been extensively studied in academic realm. Research demonstrates that procrastination is associated with low levels of academic self-efficacy and self-esteem (Hannok, 2011; Wolters, 2003), lower task value beliefs (Gropel and Steel, 2008), fear of failure and perfectionism (Brownlow and Reasinger, 2000), and lower life satisfaction (Klingsieck et al., 2012). From self-regulated learning perspective (Pintrich, 2000; Zimmerman, 2008), procrastination is now viewed as the lack of self-regulated performance which involves cognitive, affective and behavioural components (Cao, 2012; Wolters, 2003). In this regard, Steel (2007) viewed procrastination as an embodiment of self-regulation failure. In spite of considerable efforts in describing its negative and harmful consequences, and curtailing this problem, the prevalence of procrastination appears to be increasing (Cao, 2012; Klassen et al., 2010).

From 1990s, some researchers considered alternative approach to procrastination research by investigating its beneficial and adaptive values (Ferrari, 1993). In line with this alternative perspective, Chu and Choi (2005) believed that not all procrastination behaviours are harmful or are precursors of negative consequences. In this regard, they identified 'positive' form of procrastination – active procrastination – which is characteristically different from traditional negative and passive procrastination. The purpose of the present study, therefore, was to examine self-regulation and motivational beliefs variables of self-efficacy and task value as predictors of active procrastination; and whether self-regulation plays mediating role in these relationships.

Self-efficacy

Bandura (1986) defined self-efficacy as "people's judgements of their capability to organize and execute courses of action required in attaining designated types of performances" (p.391). Self-efficacy theory (Bandura, 1997) assumes that what one believe about their ability to learn and achieve success strongly influences one's task choice, level of effort, persistence, resilience, and subsequent performance. Research has shown that self-efficacy is a strong and consistent predictor of procrastination (Hen and Goroshit, 2014; Steel, 2007; Van Eerde, 2003). Hannok's (2011) study found significant inverse relationship between self-efficacy beliefs and procrastination. From positive or active procrastination perspective,

Chu and Choi's (2005) study established that active procrastinators, who see procrastination as a positive learning strategy, have higher levels of self-efficacy in comparison to passive procrastinators who view procrastination in a traditional negative way.

Task value

Eccles and Wigfield (2002) considered task value as an incentive for engaging in different task. That is, individuals' beliefs about the value and importance of the task determine why they engage in such task. Pintrich et al. (1991) defined task value as the student's evaluation of how interesting, how important, and how useful the task is. It relates to asking oneself "*What do I think of this task*?" In academic realm, for instance, task interest connotes students' personal interest or liking of the course material. Task utility refers to students' perception of how useful the course material is to them. Task importance involves students' beliefs about how significant the course content is for them and their future goals. For some students, according to Sokolowska (2009), procrastination may reflect lower task value – decreased interest and limited priority placed on a particular task and its final outcome.Specifically, "procrastination is particularly susceptible to how aversive, especially boring, we find tasks" (Gropel and Steel, 2008, p.407). That is to say, the more unpleasant is a task, the more likely one will put it off. The findings of Sokolowska (2009) study revealed that task-value affects motivational outcomes such as choice and/or level of intensity of a particular task.

Self-regulation

Zimmerman (2008) regarded self-regulation as self-generated thoughts, feelings, and behaviours that are oriented toward the attainment of personal objectives. From academic realm, self-regulation involves the degree to which students are metacognitively, motivationally, and behaviourally active participants in their own learning process (Zimmerman, 2008). This is further enunciated by Pintrich (2004) in which self-regulation is referred to students' monitoring, controlling, and regulating their own cognitive activities and actual behaviour. From self-regulated learning perspective (Pintrich, 2000), self-regulatory activities serve as mediators between personal and contextual characteristics and actual achievement or performance. Wolters (2003) opined that deficits in self-regulatory behaviours, such as cognitive strategy use and monitoring important aspects of learning, result in an avoidance of tasks. Thus, students' motivation and the extent to which they engage in procrastination behaviour were also significantly related with their learning strategies (Pintrich, 2000; Zimmerman, 2008). Research

indicates that students who tend to procrastinate were found to be not able to effectively manage their learning (Ferrari, 2001) by being unable to select and use effective strategies that required effort and time to develop (Howell and Watson, 2007; Steel, 2007; Wolters, 2003). Hence, they experience low academic achievement (Onwuegbuzie, 2000).

Active procrastination

Introducing a new idea into the area of procrastination research, Chu and Choi (2005) address the possibility that not all procrastination behaviours have negative consequences.They conceptualized and distinguished two different types of procrastination: active and passive procrastination. Active procrastinators are type of procrastinators who use their strong motivation under time pressure to make intentional decision to procrastinate, to be able to complete tasks before deadlines, and achieve satisfactory results (Chu and Moran, 2009). In contrast, passive procrastinators are procrastinators in traditional way, who postpone tasks that ought to be done until the last minute because of the inability to act in a timely manner.Chu and Choi (2005) assumed that active procrastinators differ from passive procrastinators in cognitive, affective, and behavioural dimensions. In essence, active procrastination is a positive kind of procrastination that results in satisfactory or desirable outcomes, as against passive procrastination described in the traditional sense. Choi and Moran (2009) asserted that active procrastination is characterized by individual's affective preference for time pressure, cognitive decision to procrastinate, behavioural capacity to meet deadlines, and ability to achieve satisfactory results. Chu and Choi (2005) suggested that active procrastinators actually possess behaviours that correlate positively with self-efficacy and personal outcomes such as life satisfaction and higher grade point average (GPA). Research shows that passive and active procrastinators differ from each other in their degree of purposive use of time and perceived time control, self-efficacy, task value, test anxiety, GPA, and in level of self-regulation skills such as, elaboration, organization, time management, and effort regulation (Chu and Choi, 2005; Corkin et al., 2011; Shin and Goh, 2011). For instance, Seo's (2013) study shows that external regulation, on the one hand, was found to be a significant positive predictor of passive procrastination; on the other hand, it was significantly and negatively predicts active procrastination.

The present study

The present study examines self-regulation, self-efficacy, and task value in relation to active procrastination from self-regulated learning perspective. Based on the previous research findings, this study hypothesized that self-efficacy, task value, and self-regulation would be positively related to active procrastination. Again, since most of the models of self-regulated learning assumed that self-regulatory activities are mediators in the relationships between personal and contextual characteristics and actual achievement or performance (Pintrich, 2000), this study hypothesized that self-regulation would mediate the relationships between self-efficacy, task value and active procrastination. Therefore, the study aimed to attain three objectives. First, is to determine the level of all the variables involved among pre-service teachers in colleges of education in North-Western Nigeria; second, to establish the relationship between self-efficacy, task value, self-regulation strategies and active procrastination; and third, to determine the mediating effect of self-regulation strategies on the relationship between self-efficacy, task value and active procrastination.

METHOD

Participants

Four hundred and twenty-six pre-service teachers from three colleges of education in North-western Nigeria participated in the study. The respondents included 223 males (52.3%) and 203 females (47.7%). Their ages ranged from 19 to 33 (*M*=22.12, SD=2.67).

Sampling procedure

A multi-stage cluster sampling was used to select the sample for this study. In the first stage, from the existing twelve colleges of education in the North-west zone of Nigeria, three colleges were randomly selected from which the sample was drawn. Thus, the three colleges were randomly selected by the use of drawing number from a hat. The second stage involved proportionate random sampling from which participants for the study were also randomly selected with the help of table of random numbers.

Measures

Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich et al., 1991) was used to measure the participants' levels of self-efficacy, task value and self-regulation. It is a self-report instrument designed to assess college students' motivational orientations and their use of different learning strategies for a college course (Pintrich et al., 1993). All items are scored on a 4-point Likert type scale, from 1 ("Strongly Disagree") to 4 ("Strongly Agree"), which was a slight modification of the original scale.

The 8-item self-efficacy scale, a component of the MSLQ, was used to assess participants' levels of self-efficacy. Example of the items includes "I am confident I can understand the most complex material presented in this course". The reported coefficient alpha reliability of the scale is .93. The alpha reliability for the self-efficacy scale for this sample is .81.

Likewise, the 6-item task value scale of the MSLQ was employed to measure the respondents' level of task value. Sample items for this scale include "I think I will be able to use what I learn in this

course in other courses". The coefficient alpha reliability of the scale is reported at .90, while the alpha reliability of the task value scale for this sample is .80.

Furthermore, the self-regulation level of the participants for this study was measured by the use of the items from metacognitive, time management and effort regulation subscales of the MSLQ. Thus, the self-regulation scale used for this study consists of 22 items some of which include "When I study for course, I set goals for myself in order to direct my activities in each study period" (Metacognitive); "I make good use of my study time for courses" (Time Management); and "Even when course materials are dull and uninteresting, I manage to keep working until I finish" (Effort Regulation). For this sample, the Cronbach's alpha reliability estimate for self-regulation scale is .83.

Choi and Moran's (2009) Active Procrastination Scale was used to assess the participants' level of active procrastination. It is a 16-item scale designed to measure four defining characteristics of active procrastinators. These four dimensions are outcome satisfaction (e.g., "I don't do well if I have to rush through a task" [Reversed]), preference for pressure (e.g., "It's really a pain for me to work under upcoming deadlines" [Reversed]), intentional decision to procrastinate (e.g., "I intentionally put off work to maximize my motivation"), ability to meet deadlines (e.g., "I often fail to accomplish goals that I set for myself"[Reversed]). All the items were scored on 4-point Likert type scale, from 1 ("Strongly Disagree") to 4 ("Strongly Agree"). Composite measure of these four subscales was used to assess the overall level of the tendency of individuals towards active procrastination. The reported reliability coefficient of the scale is .80; and in this study the reliability was .77.

RESULTS

This study was carried out to examine relationships between self-efficacy, task value, self-regulation and active procrastination; and looked into the mediating role of self-regulation in the relationship between the predictors and the outcome variables. In doing this, structural equation modelling (SEM) using Analysis of Moment Structure (AMOS) software was used. The use of inferential statistics requires that certain assumptions, such as assessment of normality, must be met. Structural equation modelling, as other statistical procedures, assumes multivariate normality (Byrne, 2010). The assumption of normality was assessed by examining the values of skewness and kurtosis in the distribution of scores of the major variables (Field, 2009). Byrne (2010) observed that since SEM is based on the analysis of covariance structures, evidence of kurtosis is always of interest. Byrne further suggests that values equal to or greater than 7 to be indicative of early departure from normality; and Kline (2005) offered that skewness value of less than 3 is acceptable. Therefore, the values of skewness and kurtosis for the variables of this study were checked and they are found to be within the acceptable range.

To address the first objective, the mean scores of the respondents' levels on the variable involved in the study have been analyzed and presented. According to Table 1, frequency distribution of the respondents' levels on

active procrastination shows that 1.2 or 5% of the respondents were at the low level, 264 or 62.0% were in the moderate level, and 157 (36.9%) respondents were found to be at the high level. This, therefore, shows that majority of the respondents for this study were at the moderate level of active procrastination (M = 49.18, SD = 8.76). Likewise the respondents' levels on self-efficacy indicate that 28 or 6.6% of the respondents were at low level, 182 (42.7%) were in moderate category, and 216 (50.7%), in high level. This indicates that majority of the respondents were at the high level of self-efficacy (M = 26.09, SD = 3.85). For task value, the distribution shows that 9 (2.1%) of the respondents were at the low level, 150 (35.2%), at moderate level, and 267 (62.7%), at high level. Thus, it indicates that majority of the respondents were at high level of task value (M = 21.00, SD = 3.22). Lastly, distribution of the respondents' levels on self-regulation strategies revealed that 44 (10.3%) were at low category, 165 (38.7%) were at moderate level, while, 217 (51.0%) respondents were in the high level. The analysis further shows that majority of the respondents were in the high level of self-regulation strategies (M = 73.33, SD = 11.18).

To attain the second objective, that is to establish the relationship between self-efficacy, task value, self-regulation strategies and active procrastination, correlation analysis was conducted. Based on the analysis, as Table 2 indicates, active procrastination scores were significantly associated with self-efficacy (r = .17), task value (r = .16), and self-regulation (r = .38). Furthermore, self-regulation was found to be significantly and positively related to both self-efficacy and task value (r = .59 and .55 respectively), and the correlation between task value and self-efficacy was significant and positive (r = .48).

To examine whether self-regulation mediates the relationships between the predictor and the outcome variables, as the third objective of the study, SEM using AMOS programme was employed. SEM was selected for its ability to simultaneously estimate multiple dependence relationships (Hair et al., 2010). The overall structural model provided a good model fit with fit indices in an acceptable range: χ^2= 322.926; DF= 164; χ^2/DF= 1.969; GFI = .93; CFI = .96; NFI = .93; and RMSEA = .05.Thus, the mediation analysis focused on the estimation and interpretation of the indirect effects as well as the inferential tests to determine the significance of the effect.

The standardized regression weights for the indirect effects are presented in Table 3. The estimate, as indicated by the standardized regression weight, shows that there is significant effect of self-efficacy on self-regulation (β = .252, p < .05); and that self-regulation, in turn, significantly affects active procrastination (β = .370, p< .05). Also, task value is shown to be indirectly related to active procrastination through self-regulation. The standardized regression weight shows that the causal paths between task value and self-regulation (β = .180,

Table 1. Distribution of the respondents' levels and mean score for the variable of the study.

	Frequency	Percentage (%)	Mean Score	Std. Deviation
Active Procrastination			49.18	8.76
Low (20.00-34.66)	5	1.20		
Moderate (34.67-49.32)	264	62.00		
High (49.33-64.00)	157	36.80		
Self-Efficacy			26.09	3.85
Low (14.00-20.00)	28	6.60		
Moderate (20.01-26.00)	182	42.70		
High (26.01-32.00)	216	50.70		
Task Value			21.00	3.22
Low (10.00-14.66)	9	2.10		
Moderate (14.67-19.32)	150	35.20		
High (19.33-24.00)	267	62.70		
Self-Regulation Strategies			73.33	11.18
Low (41.00-56.66)	44	10.30		
Moderate (56.67-72.33)	165	38.70		
High (72.33-88.00)	217	51.00		

Table 2. Correlations among the variables of the study.

Variables	1	2	3	4
1. Self-efficacy	1			
2. Task value	.48***	1		
3.Self-regulation	.59***	.55***	1	
4.Active procrastination	.17**	.16**	.38***	1

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

Table 3. Standardized regression weights for the indirect effects.

Structural path	β *a*-path	β *b*-path
Self-Regulation <---- Self-Efficacy	.252*	
Self-Regulation <---- Task Value	.180*	
Active Procrastination <---- Self-Regulation		.370*

Note: *$p<$ .05.

$p<$ .05) and between self-regulation and active procrastination (β = .370, $p <$ .05) are significant.

DISCUSSION

This study investigated the relationships between self-efficacy, task value, and self-regulation on active procrastination among pre-service teachers in colleges of education, and tried to look into the mediating role of self-regulation in these relationships. Based on the findings, the correlation analysis of the predictor variables and the outcome variable, as presented in Table 1, shows that self-efficacy and active procrastination were significantly correlated. These findings were in line with Chu and Choi's (2005) study which found significant positive relationship between self-efficacy and active procras-tination. In addition, Cao (2012) found that active procrastination positively predicts educational psychology self-efficacy. However, Gendron's (2011) study found no significant relationship between self-efficacy for learning and performance and active procrastination. Furthermore, the results of this study indicate that the correlation between task value and active procrastination was found to be significant. This result contradicts the findings of Cao (2012) study that task value was not found to be related to active procrastination. While making compari-son, active procrastinators reported a significantly lower level of task value than non-procrastinators; furthermore, Cao (2012) found no significant difference in task value between active and passive procrastinators. In contrast, the results of this study were in harmony with the findings of Anderson (2001), Sokolowska (2009), and Steel (2007) that task value is significantly related to academic procrastination; however, active procrastination was not found to be related to task value.

Moreover, self-regulation was found to be significantly correlated with active procrastination. This is in line with the observation of many studies that self-regulation is an important variable associated with academic procrastina-

tion (Klassen et al., 2008). Steel (2007) further described procrastination as a "quintessential self-regulation failure" (p.65). Again, the findings were in line with the claim that deficits in self-regulatory behaviours, such as cognitive strategy use and monitoring important aspects of learning, result in an avoidance of tasks (Wolters, 2003). Thus, students' motivation and the extent to which they engage in procrastination behaviour were also significantly related with their learning strategies (Pintrich, 2000; Zimmerman, 2008). However, Gendron's (2011) study did not find significant relationship between the global score of active procrastination and measures of self-regulated learning.

In addition, based on the self-regulated learning (SRL) perspective (Pintrich, 2000; Zimmerman, 2008), the hypothesized indirect relationships of the independent and dependent variables through self-regulation have been tested.The result revealed that self-regulation, as mediator, plays a significant role in the hypothesized indirect relationships between self-efficacy, task value and active procrastination. This also supported by the fact that the two predictor variables explained 42% of the variance in self-regulation, which in turn, explained 15% of the variance in active procrastination.Thus, the findings of this study lend some support to the Steel's (2007) assertion that procrastination is essentially a failure in self-regulation.

CONCLUSION AND IMPLICATIONS

Based on the findings of the present study, the conclusion is that procrastination is essentially a failure in self-regulation (Steel, 2007); and that the results lend a strong support to the theory of self-regulated learning which assumed that "self-regulatory activities are mediators between personal and contextual characteristics and actual achievement or performance" (Pintrich, 2000, p. 453). As the findings established the mediating effect of self-regulation in the relationship between the independent variables and active procrastination, this underscores the importance of self-regulation in procrastination research. One significant theoretical implications of this study is the shift in the procrastination research focus by viewing procrastination as a failure in self-regulation which involves cognitive, affective and behavioural components. From practical point of view, if any intervention is to be conducted in order to improve students' active procrastination for better performance and achievement, self-regulation strategies should be given prior attention or to be included in the intervention. This is especially important for School Counsellors and Lecturers to pay more attention to students' effective use of self-regulation strategies in their academic engagements. In addition, as procrastination may continue to be prevalent among students, at least for now (Cao, 2012), any intervention should be geared towards making

students to be 'positive' procrastinators rather than just being procrastinators. Finally, to fully explore procrastination and its underpinnings future research that will include other aspects of it is needed.

Conflict of Interests

The author has not declared any conflict of interest.

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