

An Examination of Pre-Service Teachers' Goal Orientations, Self-Regulation and Active Procrastination

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Abstract: This study examined the relationships between intrinsic goal orientation, extrinsic goal orientation, self-regulation and active procrastination; and the mediating role of self-regulation in these relationships. A total of 426 pre-service teachers (223 males, 203 females) studying in colleges of education in Nigeria participated in the study. A set of self-report questionnaire was used to measure the participants' levels of procrastination, goal orientations, and self-regulation. Structural equation modelling (SEM) using AMOS software was employed as statistical technique for data analysis of the study. The findings, based on the hypothesized structural model, which overall goodness-of-fit indices indicate good model fit revealed that, while extrinsic goal orientation was found to be directly significant predictor of active procrastination, intrinsic goal orientation was not. However, mediation analysis, based on SEM or modern approach, indicated that there was an evidence of indirect effects of the predictor variables on active procrastination through self-regulation. Test of mediation by bootstrapping method established significant mediating role of self-regulation in the relationships between intrinsic goal orientation and extrinsic goal orientation and active procrastination. Conclusion and implications of the study have been highlighted.

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Introduction

Contemporary psychologists are increasingly interested in conducting research that explains procrastination, but in spite of growing research attention, much is yet to be known about the phenomenon. Steel (2007) observed that procrastination is extremely prevalent to the extent that almost all persons have at least "dallied with dallying," some have made it a way of life. This may be the reason why Kagan, Cakir, Ilhan, and Kandamir (2010) found it convenient to state that "every person procrastinates in carrying out some of the responsibilities and tasks in their life" (p. 2121). Some delay payments or appointments, while others delay housework, assignments, homework or preparation for exams. In essence, procrastination pervades all spheres of human life from socio-economic to political aspects of the general and specific population (Steel, 2007; Ghadimpoor & Ramazani, 2013). Procrastination becomes a prevalent practice among college and university undergraduate students. For instance, estimates show that 80% to 95% of college students engage in procrastination, with almost 50% are found to be consistently and problematically procrastinating (O'Brien, 2002; Onwuegbuzie, 2000; Steel, 2007). In addition, while examining the prevalence of procrastination in a student's population, Schouwenburg's (2004) research indicated that almost all students procrastinate to some degree and

that a moderate amount of procrastination is considered to be normal. Procrastination in the general population has also been examined, in which 15% to 20% of adults are found to be chronically affected (Harriot & Ferrari, 1996).

The term procrastination, which is the unnecessary delay in the conduct of things one intends to do, is used with different connotations of delay (Klingsieck, 2013). Whereas some researchers use the term procrastination in relation to dysfunctional forms of delay (e.g., Pychyl & Flett, 2012; Steel, 2007), others regarded the term as a positive forms of delay (e.g., Schraw, Wadkins, & Olafson, 2007; Chu & Choi, 2005). Consequently, "there is no agreement about what, exactly, is the phenomenon that we study, write, and speak about" (Klingsieck, 2013, p. 25); and this adds to the complexity towards understanding the exact nature of procrastination as a phenomenon. From dysfunctional point of view, procrastination has been considered and described in so many ways. For example, procrastination is seen as a troubling phenomenon, which has been considered a self-handicapping behaviour that leads to wasted time, poor performance, and increased stress (Ferrari, 2001; Steel, 2007). Justifying this stand, earlier research (e.g., Ferrari, 2001; Knaus, 2000) shows that procrastination is a dysfunctional and maladaptive behaviour that ultimately results in negative outcome. It is also regarded as a frequent failure at doing what

ought to be done to attain goals (Schouwenburg et al., 2004). Procrastination consists of the intentional delay of an intended course of action, in spite of an awareness of negative outcomes (Steel, 2007), and it often results in unsatisfactory performance (Ferrari, O'Callahan, & Newbegin, 2005). To Ellis and Knaus (2002), procrastination is conceived as the desire to avoid an activity, the promise to get it late, and the use of excuse making to justify the delay and avoid blame. Furthermore, procrastination is considered as a dispositional trait which has cognitive, behavioural and emotional components (Popoola, 2005, Steel, 2007). This definition implies that procrastination appears to be behaviour detrimental to the self that is aimed at avoiding or deterring achievement or success (Whatley, 2009). Furthermore, 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). Echoing this view, Steel (2007) considered procrastination to be 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 growing (Cao, 2012; Klassen et al., 2010). It is therefore clear that procrastination is not entirely understood and continued research into procrastination should not be delayed (Steel, 2007).

From early 1990s, some researchers considered alternative approach to procrastination research by examining the beneficial and adaptive values associated with procrastination (Ferrari, 1993). For instance, Schraw et al. (2007) reported that students believe that course materials become less boring, more interesting and more engaging when they procrastinate. Procrastination is also found to be associated with intrinsic motivation (Senecal, Koestner, & Vallerand, 1995). Other reported benefits of procrastination include freeing up time for planning and other activities, greater amount of flow-like experiences, more concentrated effort, and eliminated distractions (Lay, Edwards, Parker, & Endler, 1989; Schraw et al., 2007). In addition, procrastination does not necessarily affect the quality of performance (Tice & Baumeister, 1997). Procrastinators may also include those who choose to delay a task for the functional and adaptive values of procrastination. These findings suggest that not all procrastination behaviours are due to self-regulation failure.

In line with this alternative view, Chu and Choi (2005) demonstrated that not all procrastination behaviours are harmful or are precursors of negative consequences. Specifically, they proposed two

distinct types of procrastinators – passive and active procrastinators. Passive procrastinators are traditional procrastinators who postpone their tasks until the last minute because of an inability to make the decision to act in a timely manner. On the other hand, active procrastinators make intentional decision to procrastinate, using their strong motivation under time pressure, and they are able to complete tasks before deadlines and achieve satisfactory outcomes (Choi & Moran, 2009).

Furthermore, Chu and Choi (2005) suggested that even though 'active procrastinators procrastinate to the same degree as do passive procrastinators, their personal characteristics and outcomes are quite more similar to non-procrastinators' (p. 260). Active procrastinators significantly demonstrate time perceptions, attitudes, coping styles and academic performances that were nearly identical to, or even better, than those of non-procrastinators. Chu and Choi (2005) further posited that both groups of procrastinators tend to have higher levels of purposive use of time, time control and self-efficacy than passive procrastinators, and are more likely to achieve satisfactory results. In this regards, Chu and Choi (2005) suggested that for a more sophisticated understanding of procrastination, active procrastination should be studied.

However, while discussion functional or dysfunctional nature of procrastination Klingsieck (2013) asserted that there is no functional form of procrastination, but there is a functional form of delay. To Klingsieck there is difference between procrastination and strategic or active delay (Corkin et al., 2011). What distinguishes procrastination from active delay is the fact that the delay is unnecessary, irrational, or even harmful to oneself. In strategic or active delay, even though one might be aware of the potential negative consequences of the delay, but, in contrast to procrastination, one is confident that the negative consequences will be eventually outweighed by the positive consequences of the delay. For the fact that postponing a task can sometimes be an intentional and rational decision (Schouwenburg, 2004, Simson & Pychyl, 2009), active or strategic delay may not be procrastination. Procrastination is dysfunctional and harmful which implies an unnecessary and irrational delay in that the negative consequences of the delay outweigh the positive consequences. Hence, Klingsieck (2013) synthesizes and offered a more concise definition of procrastination as "the voluntary delay of an intended and necessary and/or [personally] important activity, despite expecting potential negative consequences that outweigh the positive consequences of the delay" (p. 26).

Nevertheless, Chu and Choi's (2005) concept of active procrastination offers a new idea in the area of procrastination research; although Cao (2012) observed that it seems problematic to promote the idea that delaying of task one intends to do can actually be helpful and related to positive characteristics. Thus, the purpose of this study was to investigate whether goal orientations and self-regulation can predict active procrastination which, according to Chu and Choi (2005), entails desirable motivational and behavioural characteristics. Current focus of procrastination research is viewing procrastination as a failure in self-regulation which involves cognitive, affective and behavioural components (Cao, 2012; Klingsieck, Fries, Horz, & Hofer, 2012; Pychyl & Flett, 2012; Steel, 2007). Based on motivational beliefs model and self-regulated learning (SRL) perspective (Pintrich, 1994, 2000), this study examines factors related to active procrastination, and the mediating role of self-regulation in these relationships.

Pintrich, Roser and De Groot (1994) have developed a model for motivational beliefs. According to this model, motivational beliefs consist of three general motivational components: expectancy, value, and affect. The second motivational component is the value component. It comprises of goal orientation and task value beliefs. The third component in the Pintrich et al. (1994) motivational beliefs model is affect. This component consists of test anxiety which refers to negative thought that interfere with effective performance, and experience of negative emotions and physiological arousal. In this regard, among the motivational beliefs variables that are found to be related to procrastination are goal orientations.

According to Pintrich et al. (1994), goal orientation refers to two general approaches to academic tasks whereby the different goal orientations can lead students in qualitatively different directions as they perform an academic task. In Pintrich et al.'s model, the two goal orientations are labelled intrinsic and extrinsic goal orientations. Student with intrinsic goal orientation focuses on mastery and learning, while those with extrinsic goal orientation approaches the task with a concern about grades, pleasing others, or besting others (Pintrich et al., 1994). Pintrich et al. (1994) described goal orientation as two general approaches to academic tasks, and are in line with a more qualitative view of motivation (Ames, 1992) whereby the two different goal orientations can lead students to qualitatively different directions as they perform an academic task. Two general goal orientations have been proposed for most models that concern the reasons or purposes individuals are pursuing when approaching and

engaging in a task (Pintrich, 2003). Studies (e.g., Brownlow & Reasinger, 2000; Senecal et al., 1995) indicate that motivation plays a significant role in academic procrastination. For instance, students with intrinsic reasons for pursuing their studies were less likely to procrastinate; in contrast, those with extrinsic reasons were more likely to procrastinate (Cao, 2012; Lee, 2005). Chu and Choi (2005) reported that non-procrastinators and active procrastinators among undergraduate students were found to display higher level of extrinsic motivation than passive procrastinators; however, no significant difference was found in intrinsic motivation. Howell and Watson (2007) examined the relationship between procrastination and achievement goal orientation (mastery and performance goals) among undergraduate students. The results of this study indicated significant negative relationship between procrastination and mastery goal orientation. However, correlation was not found between procrastination and performance goal orientation.

Again, from SRL perspective (Pintrich, 2000; Zimmerman, 2008) this study examines active procrastination in relation to motivational beliefs variables. Use of SRL was employed because it focuses on motivational, cognitive and behavioural dimensions of student learning. Zimmerman (2008) described SRL as the extent to which students are metacognitively, motivationally, and behaviourally active participants in their own learning process. Most of the models of SRL assumed that self-regulatory activities serve as mediators between personal and contextual characteristics and actual achievement or performance. Self-regulation is referred to as students' monitoring, controlling, and regulating their own cognitive activities and actual behaviour (Pintrich, 2000). Furthermore, Zimmerman (2008) sees self-regulation as self-generated thoughts, feelings, and behaviours that are oriented toward the attainment of personal objectives. Bandura (1997) posited that when sufficient levels of ability and motivation exist, students' self-efficacy beliefs have a significant influence on their task initiation, self-regulatory efforts and academic performance. Hiedari, Naderi, Jalilvand, Roodbari, Kazemi and Yazdani's (2012) study found significant relationships between motivational beliefs variables, self-regulation, and academic performance. In addition, Torenbeek, Jansen and Suhre (2013) asserted that students' motivation is a significant predictor of achievement in higher education; and that studies have reported indirect effects of motivation on achievement. For instance, time spent on studying and more regular study behaviour mediate the relationship between motivation and academic success (Suhre, Jansen, & Harskamp, 2007; Van Berkel & Schmidt, 2000).

Therefore, the purpose of the present study is to examine goal orientations and self-regulation in relation to active procrastination. Specifically, this study aims to explore whether there are significant relationships between intrinsic goal orientation, extrinsic goal orientation, self-regulation and active procrastination; and whether self-regulation is a mediator in these relationships.

Method

Sample

A multi-stage cluster sampling was used to select the sample for this study. A total of 426 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 ($M=22.12$, $SD=2.67$).

Measures

Motivated Strategies for Learning Questionnaire (MSLQ). The MSLQ (Pintrich, Smith, Garcia, & McKeachie, 1991) was used to measure the respondents' levels of intrinsic goal orientation, extrinsic goal orientation, and self-regulation. It is a self-report instrument designed to measure or to assess college students' motivational orientations and their use of different learning strategies for a college course (Pintrich et al., 1993). It is a widely used instrument in educational research (Rotgans & Schmidt, 2010) employed to measure a large number of motivational and self-regulated learning constructs. All items are scored on a 7-point Likert type scale, from 1 ("Not at all true of me") to 7 ("Very true of me"). The composite score of the 4-item MSLQ's intrinsic goal orientation scale was used to assess the respondents' levels of intrinsic goal orientation. Sample items include "In a course like this, I prefer course material that really challenges me so I can learn new things" and "In a course like this, I prefer course material that arouses my curiosity, even if it is difficult to learn." The reported coefficient alpha reliability of the scale is .74. The alpha reliability for the intrinsic goal orientation scale for this sample is .73. Likewise, extrinsic goal orientation subscale of the MSLQ consists of 4 items used to measure the respondents' levels of extrinsic goal orientation. Sample items for this scale include "Getting a good grade in this course is the most satisfying thing for me right now" and "I want to do well in this course because it is important to show my ability to my family, friends, employer, or others." The reported Cronbach's alpha reliability estimate was put at .62 (Pintrich et al., 1991); and in the present sample the reliability for MSLQ's extrinsic goal orientation was .71. Again, the self-regulation level of the respondents was assessed 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 reading for this course, I make up questions to help focus my reading" and "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" and "I make sure I keep up with the weekly readings and assignments for my 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 .72.

Active Procrastination Scale. Choi and Moran's (2009) Active Procrastination Scale was used to measure the respondents' level of active procrastination. The scale consists of 16 items designed to measure four defining characteristics of active procrastinators. These four dimensions are outcome satisfaction (e.g., "My performance tends to suffer when I have to race against deadlines" [Reversed]) preference for pressure (e.g., "I'm frustrated when I have to rush to meet 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 start things at the last minute and find it difficult to complete them on time"[Reversed]). All the items were scored on 7-point Likert type scale from 1 ("Not at all true") to 7 ("Very true"). 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 conducted to examine intrinsic goal orientation, extrinsic goal orientation and self-regulation as predictors of 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 employed. The use of inferential statistics requires that certain assumptions, such as assessment of normality, must be met. Structural equation modelling, as certain 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). Thus, Byrne (2010) observed that since SEM is based on the analysis of covariance

structures, evidence of kurtosis is always of concern. 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.

The means, standard deviations, and correlations of the variables involved in the study are shown in Table 1 below.

Table 1. Means, standard deviations, and correlations of the variables of the study (n = 426)

Variables	M	SD	1	2	3	4
1.Intrinsic Goal Orientation	13.29	2.41	1.00			
2.Extrinsic Goal Orientation	14.05	2.50	.43***	1.00		
3.Self-Regulation	73.33	11.18	.41***	.61***	1.00	
4.Active Procrastination	49.18	8.76	.19***	.25***	.37***	1.00

Note. *** $p < .001$.

Table 1 above shows zero-order correlations for scores on active procrastination, intrinsic goal orientation, extrinsic goal orientation, and self-regulation. Majority of the respondents for this study were at the moderate level of active procrastination (M = 49.18, SD = 8.76), and high levels of intrinsic goal orientation (M = 13.29, SD = 2.41), extrinsic goal orientation (M = 14.05, SD = 2.50), and self-regulation (M = 73.33, SD = 11.18). The correlation analysis shows that active procrastination scores were significantly related to intrinsic goal orientation ($r = .19$), extrinsic goal orientation ($r = .25$), and self-regulation ($r = .37$). Furthermore, self-regulation was found to be significantly and positively related to both intrinsic and extrinsic goal orientations ($r = .41$ and $.61$ respectively), and the two goal orientations correlation was significant and positive ($r = .43$).

To examine whether predictor variables (intrinsic goal orientation, extrinsic goal orientation, and self-regulation) predict active procrastination and whether self-regulation mediates the relationships between the predictor and the outcome variables, 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 (see Figure 1) provided a good model fit with fit indices in an acceptable range: $\chi^2 = 322.926$; $DF = 164$; $\chi^2/DF = 1.969$; $GFI = .93$; $CFI = .96$; $NFI = .93$; and $RMSEA = .05$.

Table 2 below shows the unstandardized and standardized regression weights for the hypothesized structural paths.

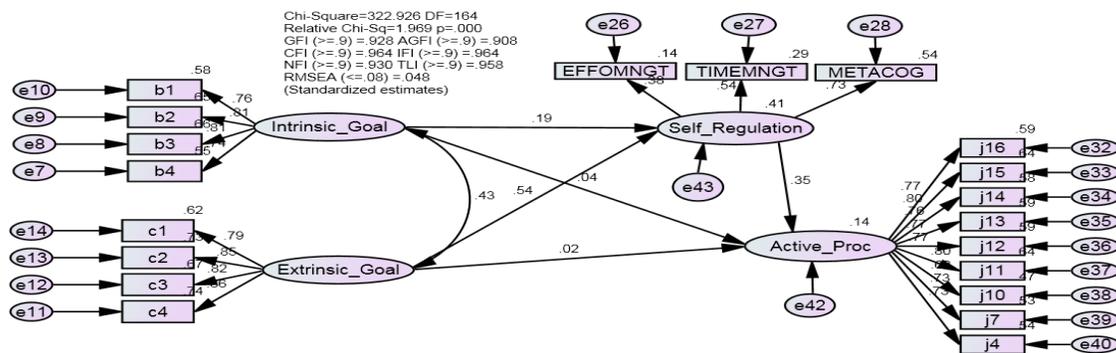


Figure 1. The overall structural model of the study

Table 2. Unstandardized and Standardized Regression Weights in the Hypothesized Paths Model Predicting Active procrastination

Causal Path	B	SE B	Beta	CR	P
Active Procrastination <---- Intrinsic Goal Orientation	.11	.06	.11	1.79	.074
Active Procrastination <---- Extrinsic Goal Orientation	.17	.05	.20	3.38	.000
Active Procrastination <---- Self-Regulation	.18	.06	.35	3.27	.001

Notes: B = Unstandardized Regression Weight Estimate; S.E = Standard Error; Beta = Standardized Regression Weight; C.R = Critical Ratio; P = Significant Alpha.

The results of the structural model, summarized in Table 2 above, indicated that out of the three hypothesized structural paths that linked predictor variables and the outcome variable two were found to be consistent with the stated hypotheses. The standardized coefficient indicated that extrinsic goal orientation is a good predictor of active procrastination ($\beta = .20$, $CR = 3.38$, $p < .05$). Moreover, in this hypothesized relationship, active procrastination, as the outcome or dependent variable of this study, has been regressed against self-regulation, the mediating variable. The association between the two variables has been supported by the hypothesized structural model. The results show that self-regulation was a good predictor of active procrastination ($\beta = .35$, $CR = 3.27$, $p < .05$). In addition, active procrastination, as the outcome or dependent variable of this study, has been regressed against self-regulation, the mediating variable. The association between the two variables has been supported by the hypothesized structural model, as indicated in Table 2 above. The results show that self-regulation was a good predictor of active procrastination ($\beta = .35$, $CR = 3.27$, $p = .004$). However, the hypothesized structural path between intrinsic goal orientation and active procrastination was found to be inconsistent with the stated hypothesis. That is, there was no significant relationship between the two variables ($\beta = .11$, $CR = 1.79$, $p > .05$), and this shows that intrinsic goal orientation is not a good predictor of active procrastination. Although the correlation analysis indicates significant correlation between the two variables, intrinsic goal orientation has no predictive power in its direct relationship with active procrastination.

Furthermore, one of the objectives of this study was to determine the mediation effect of self-regulation in the relationships between the two predictor variables and the dependent variable. 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; Steel, 2007; Wolters, 2003). Based on

this perspective, the present study sought to establish whether self-regulation mediates the relationships between intrinsic goal orientation, extrinsic goal orientation, and active procrastination. Thus, this study employed the use of modern or SEM approach (Preacher & Hayes, 2008) in the mediation analysis. This is against the commonly used causal steps approach as popularized by Baron and Kenny (1986). Baron and Kenny's method or causal step approach has been criticized over the last few years (Fritz & MacKinnon, 2007; Hayes, 2013; Hayes, 2009; Hayes & Preacher, 2010; Preacher & Hayes, 2008) on the ground that "mediation analysis as practiced in the 21st century no longer imposes evidence of simple association between X and Y as a precondition" (Hayes, 2013, p.88). Indeed, Bollen (1989), as cited by Hayes (2013), asserted that "lack of correlation does not disprove causation" and "correlation is neither a necessary nor a sufficient condition of causality" (p.52). In this regard, most scholars of mediation analysis have now adopted Bollen's (1989) perspective (e.g., Cheung & Lau, 2008; Fritz & MacKinnon, 2007; Hayes, 2013; Hayes & Preacher, 2010; Preacher & Hayes, 2004, 2008). The idea behind modern approach to mediation analysis is that "there need not be a significant zero-order effect of X on Y, r_{xy} , to establish mediation" (Zhao et al., 2010, p.199). Hence, the mediation analysis for this study is based on the modern approach, as popularized by Preacher and Hayes (2004, 2008) and Hayes (2013).

Hayes (2013) noted that when empirically testing causal process involving mediation components, of primary concern is the estimation and interpretation of the direct and indirect effects along with inferential tests thereof. 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 model fit indices of the hypothesized structural model in the relationships between the independent and the dependent variables through the mediator indicated that, overall, the model fits the data well. The standardized regression weights for the indirect effects are presented in Table 3 below.

Table 3. Standardized Regression Weights for the Indirect Effects

Structural Path	β a-path	β b-path
Self-Regulation <----- Intrinsic Goal	.194*	
Self-Regulation <----- Extrinsic Goal	.536*	
Active procrastination <----- Self-Regulation		.385*

Note: β = Standardized Regression Weight; * $p < .05$

Based on Table 3, there is an indirect effect in the relationship between intrinsic goal orientation and

active procrastination through self-regulation. The estimate, as indicated by the standardized regression

weight, shows that there is significant effect ($\beta = .194$, $p < .05$) of intrinsic goal orientation on self-regulation; and that self-regulation, in turn, significantly affects active procrastination ($\beta = .385$, $p < .05$). Also, extrinsic goal orientation is shown to be indirectly related to active procrastination through self-regulation. The standardized regression weight show that the causal paths between extrinsic goal orientation and self-regulation ($\beta = .536$, $p < .05$) and between self-regulation and active procrastination ($\beta = .385$, $p < .05$) are significant.

Therefore, based on the evidence of the presence of indirect relationships between the independent (intrinsic goal orientation and extrinsic goal orientation) and the dependent (active procrastination) variables through the mediator (self-regulation), as presented in Table 3 above, the significance of indirect effects of these relationships were to be tested. That is, to see whether “chance” factor can be discounted as a plausible explanation for the indirect effects obtained. Indirect effect of X on Y through M quantifies how much two cases that are different on a unit on X are estimated to be different on Y as a result of X’s influence on M,

which in turn, influences Y. Hayes (2013) stated that “the indirect effect is relevant as to whether X’s effect on Y can be transmitted through the mechanism represented by the $X \rightarrow M \rightarrow Y$ causal chain of events” (p.102). To establish mediation, observed Zhao et al. (2010), all that matters is that the indirect effect is significant. Of the many approaches to statistical inference of the indirect effect, this study employed the use of bootstrapping method for testing the mediation hypotheses for its apparent advantage (Hayes & Preacher, 2010) over other strategies. That is, to draw conclusion about the significance of the indirect effects for this study, bootstrapping method was employed based on the 95% bias-corrected confidence interval (CI). Bootstrapping is a resampling procedure used for estimation and hypothesis testing by which the original sample is considered to represent the population (Byrne, 2010). The decision criteria follows that when zero (0) is outside the CI indirect effect is significant, otherwise the effect is insignificant (Byrne, 2010; Hayes, 2013). Results of the indirect effects test of significance are presented in Table 4 below.

Table 4. Results of the standardized indirect effects test on active procrastination through self-regulation based on bootstrap bias-corrected 95% confidence intervals

CONSTRUCTS	SIE	SE	BOOTSTRAP BC 95% CI		
			LB	UB	P
Intrinsic Goal Orientation	.075	.029	.024	.138	.003
Extrinsic Goal Orientation	.207	.039	.136	.286	.000

Note: SIE = Standardized Indirect Effect Estimate; SE = Standard Errors; LB = Lower Bound; UB = Upper Bound; BC = Bias Corrected; CI = Confidence Interval.

In Table 4 above, the results of the standardized indirect effects test in the relationships between the independent variables (intrinsic goal orientation and extrinsic goal orientation) on the dependent variable (active procrastination) through the mediator (self-regulation) are presented. The bootstrap estimates presented are based on 5000 bootstrap samples. The interpretation of these results is that self-regulation did mediate the effects of intrinsic goal orientation and extrinsic goal orientation on active procrastination. Test of mediation based on bootstrap bias-corrected 95% confidence interval in the relationship between intrinsic goal orientation and active procrastination reveals that self-regulation was found to be a mediator between the two variables. That is to say that there is significant indirect relationship between intrinsic goal orientation and active procrastination through self-regulation. From the bootstrap analysis (see Table 4) the mean indirect effect was found to be .075, and the 95% confidence interval lies between .024 and .138. This means that since zero is outside the CI, the hypothesis is

therefore supported. Thus, when examining the indirect paths, as shown in Table 3, the results mean that a unit increase in intrinsic goal orientation increases self-regulation by .194; and a unit increase in self-regulation increases active procrastination by .385. Therefore, the findings of this study indicated that intrinsic goal orientation is indirectly related to active procrastination through self-regulation.

The indirect relationship between extrinsic goal orientation and active procrastination through self-regulation was also tested. The results, as indicated in Table 4, revealed that the indirect effect ($ab = .207$) between the two variables is significant based on the 95% bootstrap CI of .136 to .286. As the lower and upper limits of the CI does not include zero, there is 95% confidence that there is significant positive indirect effect of extrinsic goal orientation on active procrastination. Hence, self-regulation mediates the relationship between extrinsic goal orientation and active procrastination. Specifically, when examining the indirect paths, as shown in Table 3, the results

mean that a unit increase in extrinsic goal orientation increases self-regulation by .536; and a unit increase in self-regulation increases active procrastination by .385. Therefore, the findings of this study indicated that extrinsic goal orientation is indirectly related to active procrastination through self-regulation. Notably, however, the direct effect (see Table 3) between the two variables is also found to be significant ($\beta = .200, p = .001$). This means that holding self-regulation constant, a unit increase in extrinsic goal orientation increases active procrastination by .172.

Discussion

This study examines the predictive ability of intrinsic goal orientation, extrinsic goal orientation, and self-regulation on active procrastination among pre-service teachers in colleges of education in North-Western Nigeria. Furthermore, the study tried to look into the mediating role of self-regulation in the relationships between the independent and the dependent variables of the study. Based on the structural model, the analysis of the direct relationships between the predictor variables and the outcome variable, as presented in Table 2, shows that extrinsic goal orientation was found to be directly related to active procrastination. That is extrinsic goal orientation significantly predicted active procrastination. It explained 7% of the variance in the outcome variable. The model shows that extrinsic goal orientation was a good predictor of active procrastination. This result is consistent with the findings of Wolters (2003) and McGregor and Elliot (2002) where positive relationship between performance (or extrinsic) goal orientation and academic procrastination were reported. Brownlow and Reasinger's (2000) study, which examined the relative impact of intrinsic and extrinsic motivation toward academic work on procrastination in college students, found extrinsic motivation to be negatively and significantly related to academic procrastination. A closer examination of these findings shows that they did not contradict the results of this study which found that extrinsic goal orientation was positively related to active procrastination. This is for the fact that the focus of Brownlow and Reasinger's study was on traditional negative and passive procrastination, while the present study's focus was on active procrastination, which is viewed (Chu & Choi, 2005; Choi & Moran, 2009) as a positive form of procrastination. In contrast, the findings of Chu and Choi (2005) contradict the findings of this study. Chu and Choi found no significant relationship between extrinsic goal orientation and active procrastination.

It is however worthy of note that the hypothesized relationship was based on Chu and Choi's (2005) model of procrastination which speculated that active procrastinators have relatively high levels of extrinsic motivation; they eventually found that passive procrastinators exhibited a higher level of extrinsic motivation than did active procrastinators. However, active procrastinators' orientation toward work and life may be to achieve as much as possible in the shortest possible time, exhibiting a value that is more closely aligned with extrinsic motivation which occurs whenever action is taken to achieve certain objectives, such as high grades or public praise (Cao, 2012; Chu & Choi, 2005).

Furthermore, active procrastination, as the outcome or dependent variable of this study, has been regressed against self-regulation, the mediating variable. The association between the two variables has been supported by the hypothesized structural model, as indicated in Table 2. The results show that self-regulation was a good predictor of active procrastination. Self-regulation alone explained 15% of the variance in active procrastination. This is in line with the assertion of many studies that self-regulation is an important variable linked to academic procrastination (Klassen et al., 2008); and Steel (2007) further described procrastination as a "quintessential self-regulation failure" (p.65). Again, the findings were in line with the claim (Wolters, 2003) 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). However, Gendron's (2011) study did not find significant relationship between the global score of active procrastination and measures of self-regulated learning. The findings of Gendron (2011) contradict the findings of this study. The explanation may be as a result of the fact that self-regulation is used in this study as a mediating variable. The influence of the independent variables on the mediator may influence the relationship between the mediator and the dependent variable.

Also, the findings of this study revealed no significant direct relationship between intrinsic goal orientation and the outcome variable. The structural model reveals that intrinsic goal orientation was not a good predictor of active procrastination. The findings of Chu and Choi (2005) are consistent with the results of this study. That is, there was no significant relationship between intrinsic motivation and active procrastination. Furthermore, among three group of

procrastinators (active, passive, and non-procrastinators) studied, Cao (2012) found active procrastinators to have reported the lowest level of intrinsic motivation, “suggesting that they were the least motivated to study for the reasons such as challenge, curiosity and mastery in the class” (p. 537). These results, however, contradicted the findings of earlier investigations (e.g., Bernstein, 1998; Ferrari, 1993) where the adaptive values associated with procrastination had been examined. According to Schraw et al. (2007) students reported that course material become less boring, more interesting and more engaging when they procrastinate.

In addition, the mediating effect of self-regulation in the relationships between the independent and the dependent variables of the study has been examined. Accordingly, 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 hypothesized indirect paths were found to be significant based on the bootstrap 95% bias-corrected confidence interval (Hayes, 2013; Preacher & Hayes, 2004, 2008). This shows that self-regulation, as mediator, plays a significant role in the hypothesized indirect relationships between intrinsic goal orientation, extrinsic goal orientation and active procrastination. Furthermore, the indirect relationships found signify that self-regulation serves as the catalyst for the hypothesized indirect relationships. This also supported by the fact that the two predictor variables explained 41% of the variance in self-regulation, which in turn, explained 15% of the variance in active procrastination. These results cast some doubt as to the existence of a new type of procrastinators, such as active procrastinators (Chu & Choi, 2005; Choi & Moran, 2009; Schraw et al., 2007), and whether procrastination should be encouraged among students. Cao (2012) found significant correlation between active procrastination and academic procrastination, which indicates that active procrastination, is not conceptually independent to the traditional academic procrastination. Furthermore, the findings of this study lend some support to the claim (Steel, 2007) that procrastination is essentially a failure in self-regulation. Thus, self-regulated learning perspective can be used in the effort toward understanding and overcoming procrastination.

Conclusion and Implications

Thus, 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). This is attested by the significant mediating role self-regulation plays in the relationships between the independent and the dependent variables of this study. One significant theoretical implication 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. The findings of the present study that established the mediating effect of self-regulation in the relationship between the independent variables and active procrastination, underscore the importance of self-regulation in procrastination research. Self-regulation may be a key to understanding procrastination. In practice, the significant role played by self-regulation in relation to procrastination, as demonstrated by the findings of this study, could be of great help. Thus, ability to self-regulate plays an important role in the dynamics of procrastination. Therefore, this study will help students in stimulating their ability to implement self-regulation strategies, and understanding this mechanism on the part of teachers will involve teaching students strategies with a view to increase their ability to plan, monitor, and regulate their own behaviour.

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References

1. Ames, C. (1992). Classroom: Goals, structures, and student motivation. *Journal of Educational Psychology*, 84(3), 261-271.
2. Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman and Company.
3. Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
4. Bernstein, P. (1998). *Against the gods: The remarkable story of risk*. New York, NY: Wiley.

5. Bollen, K.A. (1989). *Structural equations with latent variables*. New York: Wiley.
6. Brownlow, S., & Reasinger, R. D. (2000). Putting off until tomorrow what is better done today: Academic procrastination as a function of motivation toward college work. *Journal of Social Behavior and Personality*, 15, 15-34.
7. Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd Ed). New York: Routledge.
8. Cao, L. (2012). Examining 'active' procrastination from a self-regulated learning perspective. *Educational Psychology*, 32 (4), 515-545.
9. Cheung, G. W., & Lau, R. S. (2008). Testing mediation and suppression effects of latent variables. *Organizational Research Methods*, 11(2), 296-235.
10. Choi, J. N., & Moran, S. V. (2009). Why not procrastinate? Development and validation of a new active procrastination scale. *Journal of Social Psychology*, 149, 195-211.
11. Chu, A. H. C., & Choi, J. N. (2005). Rethinking procrastination: Positive effects of "active" procrastination behavior on attitudes and performance. *The Journal of Social Psychology*, 145, 245-264.
12. Corkin, D. M., Yu, S. L., & Lindt, S. F. (2011). Comparing active delay and procrastination from a self-regulated learning perspective. *Learning and Individual Differences*, 21(5), 602-606.
13. Ellis, A., & Knaus, W.J. (2002). *Overcoming procrastination* (Rev. Ed.). New York: New American Library.
14. Ferrari, J. R. (2001). Procrastination as self-regulation failure of performance: Effects of cognitive load, self-awareness, and time limits on "working best under pressure." *European Journal of Personality*, 15, 391-406.
15. Ferrari, J. R. (1993). Christmas and procrastination: Explaining lack of diligence at a "real-world" task deadline. *Personality and Individual Differences*, 14, 25-33.
16. Ferrari, J. R., O'Callahan, J., & Newbegin, I. (2005). Prevalence of procrastination in the United States, United Kingdom, and Australia: Arousal and avoidance delays among adults. *North American Journal of Psychology*, 7, 1-6.
17. Field, A. (2009). *Discovering statistics using SPSS* (3rd Ed.). London: SAGE Publications.
18. Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science*, 18, 233-239.
19. Gendron, A. L. (2011). Active procrastination, self-regulated learning and academic achievement in university undergraduates. *Unpublished Master's Thesis*, University of Victoria.
20. Ghadimpoor, J., & Ramazani, M. (2013). Investigation of factors influencing procrastination of management accounting changes. *Life Science Journal*, 10(1), 32-37.
21. Harriott, J., & Ferrari, J. R. (1996). Prevalence of procrastination among samples of adults. *Psychological Reports*, 78, 611-616.
22. Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process: A regression based approach*. New York: The Guilford Press.
23. Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408-420.
24. Hayes, A. F., & Preacher, J. P. (2010). Quantifying and testing indirect effects in simple mediation models when the constituent paths are nonlinear. *Multivariate Behavioural Research*, 45, 627-660.
25. Heidari, M. S., Naderi, M., Jalilvand, M. R., Roodbari, O., Kazemi, F., & Yazdani, M. (2012). The relative effect of emotional intelligence (EI) and its components, motivational beliefs, and self-regulatory learning strategies on the academic performance of students. *Journal of American Science*, 8(8), 924-931.
26. Howell, A.J., & Watson, D.C. (2007). Procrastination: Associations with achievement goal orientation and learning strategies. *Personality and Individual Differences*, 43, 167-178
27. Kagan, M., Cakir, O., Ilhan, T., & Kandemir M. (2010). The explanation of the academic procrastination behaviour of university students with perfectionism, obsessive-compulsive and five factor personality traits. *Procedia Social and Behavioural Sciences*, 2, 2121-2125.
28. Klassen, R.M., Ang, R.P., Chong, W.H., Krawchuk, L.L., Huan, V.S., Wong, I.Y.F., & Yeo, L.S. (2010). Academic procrastination in two settings: Motivation correlates, behavioural patterns, and negative impact of procrastination in Canada and Singapore. *Applied Psychology: An International Review*, 59 (3), 361-679.
29. Klassen, R. M., Krawchuk, L. L., & Rajani, S. (2008). Academic procrastination of undergraduates: Low self-efficacy to self-regulate predicts higher levels of procrastination. *Contemporary Educational Psychology*, 33, 915-931.
30. Kline, R. B. (2005). Principles and practice of structural equation modeling Guilford. *New York*, 366.
31. Klingsieck, K. B. (2013). Procrastination: When good things don't come to those who wait. *European Psychologist*, 18(1), 24-34.
32. Klingsieck, K. B., Fries, S., Horz, C., & Hofer, M. (2012). Procrastination in a distance university setting. *Distance Education*, 33(3), 295-310.
33. Knaus, W. J. (2000). Procrastination, blame, and change. *Journal of Social Behavior & Personality*, 15, 153-166.
34. Lay, C.H., Edwards, J.M., Parker, J.D.A., & Endler, N.S. (1989). An assessment of appraisal anxiety coping and procrastination during an examination period. *European Journal of Personality*, 3, 195-208.
35. Lee, E. (2005). The relationship of motivation and flow experience to academic procrastination in university students. *The Journal of Genetic Psychology*, 166, 5-14.
36. McGregor, H. A., & Elliot, A. J. (2002). Achievement goals as predictors of achievement-relevant processes prior to task engagement. *Journal of Educational Psychology*, 94(2), 381.

37. O'Brien, W.K. (2002). *Applying the transtheoretical model to academic procrastination*. Unpublished doctoral dissertation, University of Houston.
38. Onwuegbuzie, A. J. (2000). Academic procrastinators and perfectionistic tendencies among graduate students. *Journal of Social Behavior and Personality*, 15, 103-109.
39. Pintrich, P.R. (2003). Motivation and classroom learning. In W.M. Reynolds, & G.E. Miller (Eds.), *Handbook of Psychology*, Vol. 7 (pp. 103-122). New Jersey: John Wiley.
40. Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. *Journal of Educational Psychology*, 92, 544-555.
41. Pintrich, P. R. (1994). Continuities and discontinuities: Future directions for research in educational psychology. *Educational Psychologist*, 29(3), 137-148.
42. Pintrich, P.R., Roeser, R.W., & De Groot, E.A.M. (1994). Classroom and individual differences in early adolescents' motivation and self-regulated learning. *The Journal of Early Adolescence*, 14 (2), 139-161.
43. Pintrich, P. R., Smith, D. A., F., Garcia, T., & McKeachie, W. J. (1993). Reliability and predictive validity of the motivated strategies for learning questionnaire (MSLQ). *Educational and Psychological Measurement*, 53, 801-813.
44. Pintrich, P.R., Smith, D.A.F., Garcia, T., & McKeachie, W.J. (1991). *A manual for the use of the motivated strategies for learning questionnaire (MSLQ)*. The Regents, University of Michigan.
45. Popoola, B. I. (2005). A study of procrastinatory behavior and academic performance of undergraduate students in South Western Nigeria. *Journal of Social Sciences*, 11(3), 215-218.
46. Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891.
47. Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments and Computers*, 36, 717-731.
48. Pychyl, T. A., & Flett, G. L. (2012). Procrastination and self-regulatory failure: An introduction to the special issue. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 30(4), 203-212.
49. Rotgans, J.I., & Schmidt, H.G. (2010). The motivated strategies for learning questionnaire: A measure for students' general motivational beliefs and learning strategies? *The Asia-Pacific Education Researcher*, 19(2), 357-369.
50. Schouwenburg, H.C. (2004). Academic procrastination: Theoretical notions, measurement, and research. In H.C. Schouwenburg, C.H. Lay, T.A. Pychyl, & J.R. Ferrari (Eds.), *Counseling the procrastinator in academic settings* (pp. 3-17). Washington, DC: American Psychological Association.
51. Schraw, G., Wadkins, T., & Olafson, L. (2007). Doing the things we do: A grounded theory of academic procrastination. *Journal of Educational Psychology*, 29, 12-25.
52. Sénécal, C., Koestner, R., & Vallerand, R. J. (1995). Self-regulation and academic procrastination. *The Journal of Social Psychology*, 135, 607-619.
53. Simpson, W. K., & Pychyl, T. A. (2009). In search of the arousal procrastinator: Investigating the relation between procrastination, arousal-based personality traits and beliefs about procrastination motivations. *Personality and Individual Differences*, 47(8), 906-911.
54. Suhre, C. J., Jansen, E. P., & Harskamp, E. G. (2007). Impact of degree program satisfaction on the persistence of college students. *Higher Education*, 54(2), 207-226.
55. Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, 133, 65-94.
56. Tice, D. M., & Baumeister, R. F. (1997). Longitudinal study of procrastination, performance, stress, and health. *Psychological Bulletin*, 8, 454-458.
57. Torenbeek, M., Jansen, E., & Suhre, C. (2012). Predicting undergraduates' academic achievement: the role of the curriculum, time investment and self-regulated learning. *Studies in Higher Education*, 38(9) 1393-1406.
58. Van Berkel, H. J., & Schmidt, H. G. (2000). Motivation to commit oneself as a determinant of achievement in problem-based learning. *Higher Education*, 40(2), 231-242.
59. Whatley, M. A. (2009). Never do today what you can do later: The effect of participant sex and gender classification. *Race, Gender & Class*, Vol.16 (1/2), 218-227.
60. Wolters, C. A. (2003). Understanding procrastination from a self-regulated learning perspective. *Journal of Educational Psychology*, 95, 179-187.
61. Zimmerman, B.J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal*, 45(1), 166-183.