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## Effectiveness of Metacognitive Strategy and Achievement Motivation Training on Dissertation Anxiety of Doctoral Students

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### **Abstract:**

*Completing a dissertation is an engaging and tough experience that requires academic skill, stamina, perseverance, and focus to defeat debilitating anxiety. The present study investigates the effect of metacognitive strategy and achievement motivation training on dissertation anxiety among doctoral students in three Nigerian universities. For this purpose, a pretest-posttest and control group experimental design was adopted. 84 male and female doctoral students were randomly selected from three government owned universities. Results show significant main effect of treatments on dissertation anxiety of participants while Metacognitive strategy proved more effective compared to Achievement Motivation training and the control group on measure of dissertation anxiety. However, the results show that there was no significant main effect of emotional intelligence and gender. Furthermore, interaction effects of treatments and emotional intelligence on dissertation anxiety was not significant. Likewise, there was an insignificant effect of three-way interaction effects of treatments, emotional intelligence and gender. Study recommends that doctoral students be exposed to cognitive based training as part of the orientation programme to enable doctoral students develop cognitive, affective and psycho-motive skills to handle their likely anxiety while writing the dissertation.*

### **1. Introduction**

Completing a dissertation is an engaging and tough experience that requires academic skill, stamina, perseverance, and focus. Besides, there are many pressures inherent in the research process for the dissertation which makes it inevitable that a certain number of students will not complete it (Grosjean, 1995). Studies by Lovitts and Nelson (2002); Adeyemo and Onongha (2010) have indicated that many registered postgraduate students are either stuck at the dissertation process or withdrawn officially (though unofficially in most cases). Most times, they complete the course works but are unable to finish the dissertation. While some complete the dissertation process before due date, others do not and consequently, give up. At this point, the only thing standing between the students and the degree they applied for is the dissertation.

Although emotionality has traditionally not been viewed as central to performance, studies have demonstrated that emotionality may be the triggering mechanism for self-regulation strategies that facilitate performance (Schutz & Davis, 2000; Fiore, 2003). Several researchers have noted that individuals maintained a level of emotionality (cognitive anxiety) in academics (Deffenbacher, 1980; Hodapp, Glanzmann, & Laux, 1995). In the past, there has been evidence that high level of anxiety is associated with low grades and high dropout rates among university students (Gaudry & Speilberger, 1971). In addition, Lindsay (2002) reports that individuals with high levels of academic anxiety displayed slower times on attention measuring tasks than low-anxious individuals, and also are more apt to incorrectly remember memories related to anxiety. However, high-anxious individuals showed equivalent performance to low-anxious individuals on other attention-measuring tasks, recall of neutral false memories and correct hits (Lindsay, 2002). Academic-anxious individuals typically perform more poorly under evaluative and stressful situations than low-academic anxious persons. Nevertheless, highly-academic anxious individuals usually perform at least as well as those low in test anxiety, if the situation is not evaluative or stressful (Wine, 1971; Sarason, 1980).

Research have shown that when faced with fearful, threatening or stressful situations, individuals often react by expecting failure, which by definition means lowered self-efficacy in the threatened domain results. Bandura (1997) and McGrath (2002) submit that a high level of feeling of tension and foreboding can obstruct clear thinking and also prevent students from putting up their best performance and abandon the academic process. Anxiety arousal is affected by perceived coping and perceived belief to control disturbing thoughts. Students, who experience anxiety in all academic activities, are likely to find the activities unpleasant (Crowl, Kaminsky & Podell, 1997).

Dissertation anxiety is hypothesized as an inner conflict that involves one part of the student straining to concentrate on the task of researching and the other interrupting concentration while writing the dissertation. Students go through the experience of straining to write phrases and sentences which are sometimes and immediately crossed out. There is a perceived "inner drafter" which is interrupted by an "inner editor." The regressive and progressive struggles between drafter and editor are the experience of anxiety, a

process of inner conflict. Conspicuously, students are often unaware of the indecision between the concentrating and interrupting selves. Since the on-going anxiety is a discomfort, most students do not dwell long at either pole of the conflict but shuttle back and forth, and in the process, lose awareness of the polar nature of the conflict (Garcia, 2007). Students with high level of anxiety show significantly less motivation in academic activity perceived as highly evaluative compared to students with low level of anxiety. Literatures on academic anxiety have indicated that fear and anxiety are often the causes of students' failure to complete their dissertations (Hembree, 1988; Shelton & Mallinckrodt, 1991; Schwarzer, Babler, Kwiatek, Schroder, & Zhang, 1997; McGrath, 2002).

Anxiety is an emotion conceived of as a hypothetical construct mediating certain situational stimuli and various specifiable responses. The stimulus situation that evokes the anxiety reaction is assumed to be such that the individual anticipates a strong threat to his/her coping resources and self-esteem (Gaudry&Spielberger, 1971). Biologically, anxiety is the body's way of communicating that there is something in the environment in need of your attention. It is basically a series of biochemical changes in one's brain and body, such as an increase in adrenaline (causing the heart to beat faster) and a decrease in dopamine (a brain chemical that helps to block pain). These changes result in a state of heightened attention to the source of the anxiety. High levels of anxiety cause the body to prepare to fight or run away from the perceived threat – usually referred to as the “fight-or-flight response.” According to Verma and Gupta (1990), dissertation anxiety could be caused due to assessment system, burden of research and attitudes of significant others and lecturers or advisors. Moreover, this is a generation where everybody lives, breathes and eats competition. The all-pervasive competitive atmosphere, be it social or academic, encourages students to constantly compare themselves with their peers. Consequently, their self-image is in a continual state of redefinition.

Spielberger's theory of anxiety described anxiety as an emotional state consisting of feeling, tension, apprehension, nervousness, and worry with activation or arousal of the autonomic nervous system, these are differentiated as state and trait anxiety (Spielberger, 1966). Many students experience some level of stress while writing and preparing for dissertation presentation. Appropriate levels of stress can enhance students' memory, attention, motivation, and can lead to improved dissertation performance (Salend, 2011& Rosado, 2013). However, when anxiety levels exceed appropriate levels, it can be debilitating.

Sustained stress and negative emotions can inhibit the brain's ability to function properly. Such feelings can impair higher cognitive processes such as attention, memory recall, reasoning, problem solving, and creativity, thus resulting in less than optimal academic performance (McCraty, 2005).

Research has documented that dissertation anxiety can have either facilitating or debilitating effect on a student. Individuals with low levels of anxiety maintain their focus throughout information processing and retrieval. Because they do not experience cognitive breakdowns, these individuals stay on the dissertation process, complete it and present it to the faculty (Wigfield& Eccles, 1989). Low-anxious individuals are confident and are less likely to have disruptive thoughts while completing the dissertation process. The debilitating effect of anxiety is an obstruction to learners' performance (Trent & Maxwell, 1980) and a potential cause of “invisible disability” (Hill &Wigfield, 1984; Cheek, Bradley, Reynolds & Coy, 2002). Debilitating anxiety manifests itself in students' inability to think clearly, fear of failure, negative self-evaluation and self-blame. This implies that the higher the academic anxiety the lower the motivation for achievement. Dissertation anxiety can manifest itself in different ways and in varying degrees among dissertation candidates, with effects including intense feelings of worry about the dissertation process, fear or doubt about meeting a set target or deadline and apprehension concerning dissertation presentation (Supon, 2004). It can lead to withdrawal, overactive behaviour, attrition, procrastination and other depressive symptoms (Cheek et al, 2002).

Efforts by some researchers to unravel the root causes of dissertation anxiety have revealed two major categories. The first category of anxious students' experiences dissertation anxiety as a result of lack of competence. They lack proper researchskills and are simply unable to grasp the technicalities involved in writing and presenting a dissertation. Also, they possessed little skill in knowing how to build on prior knowledge and consequently confounded into anxious feelings toward dissertation process (Ainley& Pratt, 2001; Rysz, 2004). The second category experiences dissertation anxiety from fear of failure. Often, they possess strong research skills and are well prepared for dissertation, yet they are nagged by the fear of failure. 95% of university students were reported to have been engaged in procrastination provoked by evaluation anxiety (Ellis &Knaus, 1977; Carbonell, 2000; Onwuegbuzie, 2004). There is evidence that procrastination results in detrimental academic performance, including poor grades and course withdrawal (Semb, Glick & Spencer, 1979), and that the tendency for students to procrastinate increases as the period they engage in academic activities lengthens. Such students are characterised by lack of assertion, fear of the consequences of success, perceived aversiveness of the task, and overly perfectionistic standards about competency.

Anxieties that have hampered the completion of the dissertation process include writing blocks, statistics anxiety, computer anxiety, defense anxiety, stage fright, and technophobia with peers, faculty and families. Statistics anxiety is the apprehension which occurs when individuals encounter statistics in any form and at any level. As many as 80% of graduate students experience uncomfortable levels of statistics anxiety when confronted with statistical ideas, problems, or issues, instructional situations, or evaluative situations (Onwuegbuzie& Wilson, 2003). According to Onwuegbuzie, DaRos, and Ryan (1997), identified six components of statistics anxiety, namely: worth of statistics which refers to a student's perception of the relevance of statistics; interpretation anxiety, is concerned with the anxiety experienced when a student is faced with making a decision from or interpreting statistical data; test and class anxiety- the anxiety involved when taking a statistics class or test; computational self-concept, the anxiety experienced when attempting to solve mathematical problems, as well as the student's perception of her/his ability to do mathematics; fear of asking for help, and fear of statistics teachers, is concerned with the student's perception of the statistics instructor.

According to Flavell (1987), metacognition is a regulatory system that includes knowledge, experiences or regulation, goals, and strategies. Metacognitive knowledge refers to acquired knowledge about cognitive processes, knowledge that can be used to control

cognitive processes in a strategic manner to meet a goal. It is figuring out how to do a particular task or set of tasks and then making sure that the task or set of tasks are done correctly (Sternberg, 1986). Metacognitive regulation/experiences are conscious cognitive or affective experiences that concern any aspect of an intellectual undertaking (Dawson, 2008). Metacognitive regulation (self-regulation) is the regulation of cognition and learning experiences through a set of activities that help people control their learning.

Metacognists assert that it also needs to be stressed that it is learning (not instruction) that is important, and that learners must be responsible for seeing to it that they actually go through all the phases of learning. It is important that learners feel being in control of learning and understand the value of intrinsic over extrinsic motivation. It is crucial to transfer as much responsibility for learning to the students themselves. Zimmerman (1994) therefore opined that teachers and instructors normally can't accomplish this transfer of power simply by telling their students to "go out and learn." A more structured and supportive approach is desirable if learners will be so empowered to take charge of their own learning by coordinating the thinking skills. Self-regulation enables the use of cognitive processes that activate and sustain thoughts, behaviours, and affects in order to attain goals (Schunk & Zimmerman, 1997). Self-regulated learners are flexible. They don't perform tasks just once. Rather, they go through the process recursively, looping back to make adjustments as necessary (Zimmerman, 1989; Carver & Scheier, 1990; Butler & Winne, 1995). Self-regulation skills involve valuing learning and its anticipated outcomes, setting performance goals, planning and managing time, holding positive beliefs about one's abilities, attending to and concentrating on instruction, effectively organizing, rehearsing, and encoding information, setting up a productive work environment, using social resources effectively, focusing on positive effects, and making useful attributions for success and failure. Zimmerman (1990) maintained that self-regulated learners approach educational tasks with confidence, diligence, and resourcefulness; are aware when they know a fact or possess a skill and when they do not; proactively seek out information when needed and take the necessary steps to master it; find a way to succeed even when they encounter obstructions; view learning as a systematic and controllable process; accept responsibility for their achievement outcomes; and monitor the effectiveness of their learning methods or strategies. Self-regulated learning strategies include self-evaluation, organization and transformation, goal setting and planning, information seeking, record keeping, self-monitoring, environmental structuring, giving self-consequences, rehearsing and memorizing, seeking social assistance, and reviewing. In addition to metacognition, motivation and behaviour are considered to be components of self-regulated learning.

In order to be self-regulated, individuals need to use three important processes: self-observation, self-judgment, and self-reaction (Bandura, 1986). Self-observation refers to the deliberate attention to observe one's own behaviour. Self-judgment refers to the comparison between one's own performances with that of a standard or goal. Self-reaction is the evaluative response to self-judgment. Thus, following personal observations, individuals make a judgment of their progress toward their self-set goals. Based on these judgments, they alter their behaviours accordingly so as to attain these goals. However, Zimmerman (2000) suggested three cyclical phases for the processes of self-regulation: forethought, performance or volitional control, and self-reflection. The forethought phase refers to processes and beliefs that precede efforts to learn. Examples of these processes include students' motivation, self-efficacy, goal-setting, and planning. The performance or volitional control phase refers to processes that students focus on the task to optimize their performance. The processes include controlling attention, keeping records, and monitoring. The self-reflection phase refers to processes associated with self-observation-processes that include self-evaluation. During this phase, students compare information about their performance with a standard or goal and ascribe causal meaning to the results. They make a judgment about whether an unsatisfactory result is due to their limited capability or to insufficient effort.

Kim (1999) suggests that superior learners already have higher order executive skills which enable them to approach learning in a systematic, efficient and effective way by using the elements of planning, monitoring and evaluating. Learners with metacognitive approaches possess ability to monitor their progress, accomplishments, future learning directions and have developed their metacognitive awareness are likely to become more autonomous learners (Hauck, 2005). Characteristics of metacognitive strategies include goal-directed, intentionally invoked, effortful but not situation specific, since they involve more universal application through focus upon planning for implementation, monitoring and evaluation (Schraw 1998). That is to say, metacognitive strategies are not so situation specific but involve truly generic skills essential for adult, more sophisticated forms of thinking and problem solving. Students who are proficient in applying metacognitive strategies outperform their peers with poor metacognitive skills (Kuhn & Dean, 2004).

Metacognitive skills of planning, monitoring and evaluating require greater ability in abstract reasoning which is essential to dissertation process (Schraw, 1998). According to Anderson (2002), the use of metacognitive strategies activates one's thinking and leads to improved performance in learning in general. Metacognitive learners are more strategic; possess faster rate of progress in quality and speed when engaged in cognitive tasks; confident in their abilities to learn; they do not hesitate to obtain help from peers, teachers, or family when needed; provide accurate assessments of why they are successful learners; think clearly about inaccuracies when failure occurs; their tactics match the learning task and adjustments are made to reflect changing circumstances; and they perceive themselves as continual learners and can successfully cope with new situations (Wenden, 1998).

Teaching metacognitive skills is aimed at making learners expert students (Sternberg, 1998) and there is good reason to believe that possession of a sophisticated set of metacognitive skills eventually will place control of learning with the learner. However, in all of this, the essential elements in learning metacognitive skills involve skill, will and self-regulation (Weinstein & Meyer, 1994). Where skill learning is involved there is relatively complex learning which is developed over long periods of time (Cornford, 2002).

According to a model of metacognitive strategy presented by Vandergrift (1997), four strategy categories were listed to include planning, monitoring, evaluation and problem identification. For planning, he draws attention to an appropriate action plan to deal with difficulties that may hinder the student from completing a task successfully. This stage underscores the importance of pre-action activities that help students make predictions about what the dissertation process should involve and, subsequently, to focus attention

on mastery while working on dissertation. In his monitoring category, students check consistency with their predictions. While evaluating, students consider the results of decisions made during the academic task by getting involved for example with the dissertation supervisor or peer dissertation presentations (seminars). Lastly, within the problem identification category, he underlines the importance of explicitly identifying the aspect of the task that hinders completion of the dissertation successfully. Vandergrift (1997) further suggests using a self-evaluation checklist including two parts as “pre-activities” and “post-activities” which will help students to appraise their performance systematically, especially if they had difficulty completing the academic task. This self-evaluation will help students to adjust their strategies for the next tasks.

Achievement motivation which is another independent variable in this study has been defined in literature as the need for success or the attainment of excellence. It is perceived as the need to perform well or the striving for success, and evidenced by persistence and effort in the face of difficulties; achievement motivation is regarded as a central human motivation. Individuals will satisfy their needs through different means, and are driven to success for varying reasons both internal and external. Achievement motivation is based on reaching success and achieving all of our aspirations (goals) in life. Achievement goals can affect the way a person performs a task and represent a desire to show competence (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997). Achievement motivation as viewed by the cognitive model is the capacity or the ability to think and to construe the causes of success or failure in achievement related tasks. In an achievement related context, the causes perceived as most responsible for success and failure are ability, effort, luck and task difficulty (Weiner, 1979).

In a study, Covington and Omelich (1979) found that individuals with a strong motive to achieve generally see themselves as highly capable individuals. Therefore, feel more optimistic with respect to their chances of academic success than individuals low in achievement motivation. Students' expectation of their overall achievement is the best predictors for overall academic success (Pintrich, & Schunk, 1996; Onwuegbuzie, et al. 2001). De Charms (1971), Biaggio (1978), Hosek and Man (1981) suggest that human motives can be learned or changed through a structured form of training. Considerable evaluation research has been conducted on achievement motivation training, and the results generally are positive. Achievement motivation training input laid special emphasis on achievement thinking, competition, excellence, challenges, self-study, planning and decision making. Aronoff (1971) and Ryals (1975) found achievement motivation training programme evidenced a significantly higher rate of advancement with adults learning certain skills which help them to achieve their personal goals and high students' achievement in certain school subjects.

The present study assumed that individual's emotional experience and reaction is an important moderator in his or her feeling toward academic activity of dissertation. Salovey and Mayer (1990) defined emotional intelligence (EI) as a set of skills and abilities contributing to the appraisal of emotions, the regulation of emotions, and the use of emotions in reasoning. From the trait perspective, emotional intelligence is defined as a constellation of emotional self-perceptions located at the lower levels of personality hierarchies. The domain of trait emotional intelligence indicates that people with high levels of EI are likely to be habitually assertive, confident, controlled, disciplined, driven to achieve, emphatic, energetic, organized, optimistic and sociable

Though the trait EI remains the only operational definition in the field that recognizes the inherent subjectivity of emotional experience, its facets are personality traits, as opposed to competencies or mental abilities or facilitators. This has been corroborated by Vernon, Villani, Schermer and Petrides's (2008) studies revealing that the same genes that are implicated in the development of individual differences in the Big Five personality traits are also implicated in the development of individual differences in trait EI. Meanwhile, all models of EI agree that there are certain key components to EI, and there is even some consensus on what those components are. For example, all three models of EI implicate the awareness (or perception) of emotions and the management of emotions as being key elements in being an emotionally intelligent individual. The elements involved in the recognition and regulations of one's own emotions and the emotions of others (Goleman, 2001). By developing our EI in these areas and the five EQ domains we can become more productive and successful at what we do, and help others to be more productive and successful too. The process and outcomes of EI development also contain many elements known to reduce anxiety for individuals and organizations, by decreasing conflict, improving relationships and understanding, and increasing stability, continuity and harmony.

Reports from many students claim that when they are suffering from stress, their experience of excitement, frustration and prevalence of anxiety is different in the two sexes (Shahri, Vaziri & Kashani, 2015). Gender differences have been observed amongst categories of students as far as academic anxiety is concerned. Males are said to have more academic anxiety as compared to females. Traditionally, male students are supported to be pacesetters and to be more concerned about doing well in academics to ensure better jobs (Bhansali & Trivedi, 2008). Doctoral students, who are trying to establish their academic identity, have reasons to be worried about dissertation which is almost a ticket to their job aspirations. Also, masculine self-esteem is dependent on their ability to earn and provide for others. Pramod (1996) concluded that males manifest more future orientations than females thereby necessitating that the males have more facilitating academic anxiety. In a study conducted by Ojha (2005), 25% of the males were reported to have extremely high anxiety while only 6.7% of the females have high academic anxiety.

The expected success of females in a given scientific task is generally lower than that of their male counterparts, even if they are equally competent. This societal belief has led to the theory that females are more highly academically anxious than male has brought some research to support the assertion that females are more test-anxious with regard to mathematical studies. The findings further postulate that females have lower levels of anxiety with regard to verbal assessment than their male counterparts (Richardson & Suinn, 1972; Meece, Eccles, & Wigfield, 1990; Wolters, Yu, & Pintrich, 1996; Rouxel, 2000). However, in other research, these differences have been non-significant and slight (Hyde, Fennema, & Lamon, 1990; Fan, Chen, & Matsumoto, 1997; Pajares & Graham, 1999).

The following null hypotheses were tested.

1. There was a significant main effect of treatments on the dissertation anxiety of the participants.
2. There was no significant main effect of gender on the dissertation anxiety of the participants.

3. There was no significant main effect of EI on dissertation anxiety of the participants.
4. There was no significant interaction effect of treatment, gender and EI on the dissertation anxiety of the participants.

## 2. Methodology

This study adopted the pre-test post-test control group design. It adopted 2x2x1 factorial design. Population for the study comprised of doctoral students from three universities purposively selected from the western part of Nigeria. The selected institutions were assigned as experimental groups one, two and control group respectively. Study sample involves doctoral candidates who have completed at least a session of academic work and those that were working on their dissertation proposals. A total of 84 students comprising of 45 males and 39 females were selected from each faculties of education, sciences, social sciences, management sciences, arts. The study had metacognitive strategy and achievement motivation as its independent variables.

The dependent variable was dissertation anxiety while the moderator variables were gender and emotional intelligence. Two instruments were used for the study.

- i. **Dissertation Anxiety Scale (DAS):** DAS was designed to measure students' anxiety in the dissertation process depending on six dissertation anxiety variables: topic selection, computer, library, presentation and defense, writing block and statistics. There were 37 items in all and students were expected to respond to each item on a 5-point Likert scale. DAS demonstrated high internal consistency with Cronbach's  $\alpha$  of 0.93. The scores range between 37 and 185. A score below 90 indicates low dissertation anxiety while a score between 90 and 185 indicates high dissertation anxiety.
- ii. **Emotional Intelligence Scale (EIS)** was developed by Schutte, Maluff, Haggerty, Cooper, Golden and Dornheim (1998) to assess EI based on self-report on four sub-scales: emotion perception, utilizing emotions, managing self-relevant emotions, managing others' emotions. Respondents were required to respond to each of the 33 statements using a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The scores range between 33 and 165. A score below 77 is low while a score from 78 to 121 is moderate and 122 and above is high. EIS had an alpha test-retest reliability coefficient of 0.78

### 2.1. Procedure

The researcher first conducted the pre-test on the study samples and through the administration of DAS and EIS on the first day of trainings immediately after the participants was received by the researcher. Participants were properly guided on the procedures for responding to the instruments. Pre-Training discussion was focused on the explanation on the training objectives and expected conducts. Researcher thereafter went on to apply the Metacognitive strategy and achievement motivation training on the experimental groups 1 and 2 while the control group was not counselled. Participants were again given the DAS and EI scale to fill. The pre-treatment and post-treatment scripts were scored. Data generated from the study were classified as pre-test and post-test scores for experimental and control groups. ANCOVA was used to analyze the post-test scores using pre-test scores as covariates.

## 3. Results and Discussion

Source	Sum of Squares	DF	Mean Squares	F	Sig	Remark
Covariates	14927.48	1	14927.48	41.43	.000	
Main Effects	2977.81	5	595.56	1.65	.159	
Treatment groups	2745.39	2	1372.70	3.81	.027	Sig
EI Levels	160.67	2	80.34	.22	.801	NS
Gender	71.75	1	71.75	.20	.657	NS
2-way interactions	4183.31	8	522.91	1.45	.193	
Treatment x EI	1732.46	4	433.16	1.20	.318	NS
Treatment x Gender	2024.90	2	1012.45	2.81	.068	NS
EI x Gender	219.05	2	109.52	.30	.739	NS
3-Way Interactions	1432.75	4	358.19	.99	.417	NS
Explained	23521.35	18	1306.74	3.63	.000	
Residual	23421.32	65	360.33			
Total	46942.68	83	565.57			

*Table 1: Summary of Analysis of Covariance (ANCOVA) of pre-posttest interactive effects on dissertation anxiety of doctoral students in the groups*

Grand Mean = 86.33					
Variable + Category	N	Unadjusted Deviation	Eta	Adjusted for independents +Covariate Deviation	Beta
<b>Treatment</b>					
Metacognitive Strategy	27	15.00		-7.42	
Achievement Motivation	30	-5.17		-.74	
Control	27	-9.26		6.59	
			0.44		0.24
<b>EI Levels</b>					
Low	25	.79		-1.99	
Medium	26	.82		1.75	
High	33	-1.24		.13	
			0.04		0.06
<b>Gender</b>					
Male	45	3.91		.89	
Female	39	-4.51		-1.02	
			0.18		0.04
Multiple R Squared					0.381
Multiple					0.618

Table 2: Multiple Classification Analysis (MCA) of Participants by Treatment, Emotional Intelligence and Gender

Table 2 shows Treatment group I (Metacognitive Strategy) obtained the minimum adjusted post-test mean score in dissertation anxiety (x=78.91, i.e. 86.33-7.42). This is followed by AMT group (x=86.33-.74=85.59) while highest mean score was obtained by the control group (x=86.33+6.59=92.92). To this end, treatment I (Metacognitive Strategy) was more effective in reducing the dissertation anxiety than treatment II (AMT) and the control group.

Treatment Group	N	Mean Scores	Treatment Group		
			Control	Achievement Motivation Training	Metacognitive Strategy
Control	27	92.92		*	
Achievement Motivation Training (AMT)	30	85.59	*		*
Metacognitive Strategy	27	78.91	*	*	*

Table 3: Duncan Post-hoc Multiple Range Comparison of Group Mean Scores in Dissertation Anxiety

\*Pairs of groups with means that differ significantly at p< .05

- Hypothesis 1: There was a significant effect of treatment on participants' dissertation anxiety.

Table 1 above presents a summary of ANCOVA results for test of between subjects' effect with post-test dissertation anxiety as independent variable. After significant adjustment by the covariates post-test, dissertation anxiety varied significantly with treatment [ $F_{(2,65)} = 3.81, p < 0.05, \text{partial eta squared} = 0.44$ . This implies that treatment accounted for 44% of the observed variance in the post-test dissertation anxiety. Duncan Post-Hoc Multiple Range Comparison of adjusted group means in Table 3 shows there is a significant difference in the dissertation anxiety means scores of participants in treatment I (metacognitive strategy), treatment II (AMT) and the control group. From the above presentation, it is obvious that there was a statistically significant difference due to treatment in dissertation anxiety of the participants. Hence, hypothesis 1 was rejected implying that the use of Metacognitive strategy and AMT training enhanced the reduction of dissertation anxiety.

This finding confirms the findings of Gourgey (1998) and Wells (1995) that metacognitive strategy is effective in the reduction of worry, anxiety and depression. It was observed that doctoral students exposed to Metacognitive strategy are able to manifest stronger self-regulation will and skills to plan, monitor, and evaluate their performance than others who were not counselled. The researchers noticed the enthusiasm with which doctoral students were willing to gain ownership over their learning and improve their achievement, self-efficacy, and motivation for deeper learning. According to Schraw and Moshman's (1995), Metacognitive strategy empowers students with skills for checking own behaviours and effective deployment of strategies at appropriate times per the conditional awareness sub-domain. Likewise, Muis, Franco, Ranellucci and Crippen (2010) reported that achievement motivation intervention enhanced low levels of anxiety through proper definition both mastery goal and performance goal by participants. Expectedly, the participants were able employ metacognitive strategies to focus their attention on learning tasks and self-motivated to make adjustments when something goes wrong.

- Hypothesis 2: There was no significant main effect of gender on the dissertation anxiety.

Table 1 reveals that after significant adjustment by the covariate of the pre-test dissertation index, post-test dissertation anxiety score did not vary significantly with gender [ $F_{(1,65)} = 0.20, p < 0.05, \text{partial eta squared} = .18$ ]. This implies that gender had no contribution to the observed variance in the post-test dissertation anxiety. The mean score for male (86.33+.9=87.23) is higher than that of their

female counterparts ( $86.33-1.02=85.31$ ). Hypothesis 2 was therefore accepted meaning that students' gender did not significantly affect their anxiety toward the dissertation process. Though anxiety level changes due to treatment, gender has no statistically significant impact in the difference.

This finding is quite understandable considering the age and maturity of the category of students who registered for doctoral programmes. They are already advance in age, experience and academic achievement. While some of them regardless of their gender have been involved in dissertation writing at lower levels of learning and some cases, supervising dissertation processes in other tertiary institutions (such as polytechnic, colleges of education etc.), others are focused and motivated towards attaining higher degree of PhD. There have been a good number of female holders of doctorate degree as well as their male counterparts. Since the female students passed through the same stages of academic accomplishments as male, they have jettisoned the gender stereotypic conception. Summing up the finding, the non-significant differences in the effects of gender on the dissertation anxiety is that the treatments have taken care of the emotional superiority of either gender identified and that gender is not a factor that accounts for differences in dissertation anxiety of doctoral students.

- Hypothesis 3: There was no significant main effect of emotional intelligence (EI) on dissertation anxiety of the participants.

Table 1 shows that after significant adjustment by the covariate of pre-test dissertation anxiety index, post-test dissertation anxiety score did not vary significantly with emotional intelligence [ $F_{(1,65)} = .223$ ,  $p < 0.05$ , eta squared .04]. This implies that EI contributed 4% of the variance observed in the post-test dissertation anxiety index. This means dissertation anxiety of low, medium and high EI of participants does not differ significantly; hence, this hypothesis is accepted. That is to say that any student, irrespective of his emotional intelligence level, can be taken through metacognitive strategy and AMT without posing any academic problem. Also, if taken through cognitive trainings and proper orientation programmes, a student, irrespective of his/her emotional intelligence can do well and complete the dissertation process within an expected time.

The implication of this is that the ability of doctoral students to control their emotions and that of others depends to a large extent on the support and skills provided for the students toward a timely completion of the dissertation process. Pre-dissertation orientation, planning and preparation for the dissertation process are capable of helping the students to handle the stress and worry which may cause anxiety in the dissertation process. These pre-planning programmes would also help students to deal with thoughts of past poor performances and concern over consequences for failing (Spielberger&Vagg, 1995).

- Hypothesis 4: There was no significant interaction effect of treatment, gender and EI on the dissertation anxiety of the participants.

Result from Table 1 reveals there is no significant interaction effect of treatment, gender and EI on DAS [ $F_{(18,73)} = .994$ ,  $p < 0.05$ ]. This implies that the 3-way interaction of treatment, gender and EI did not produce any effect on the dissertation anxiety of the participants. Hypothesis 4 was therefore accepted meaning that the contribution of treatment to student's anxiety towards dissertation completion was not to a significant extent facilitated by student's gender and EI put together. There were contributing factors to the significant effect of treatment, but this study is saying that gender and EI did not occupy the front burner. The significance must be traced to some other factors which may still be located in the students' personalities.

Bastian, Burns and Nettelbeck (2005) and Aghasafari's (2006) have reported that within the context of education, the use of metacognitive strategies and beliefs of one's emotional self-efficacy are likely to influence what self-regulative standards people adopt during academic activities. These are the areas that should attract the attention of dissertation advisors/supervisors in their efforts to equip their supervisee with self-regulating skills and to improve self-efficacy toward the dissertation process. This study has facilitated a positive change in reducing the students' anxiety because they were exposed to lots of thinking skills and practical emotional monitoring of self and others, thus promoting in them emotional management skills.

#### 4. Conclusion and Recommendation

The study has basically focused on helping doctoral candidates overcome perennial but subtle challenges of anxiety which has impair the dissertation process. The study is also challenging doctoral students to adopt positive thinking skills; not to allow their gender and emotional characteristics to obstruct their positive dispositions and strive toward timely dissertation completion. Dissertation completion is not exclusively dependent on cognitive ability but also affected by the individual's ability to self-regulate and set goals that are achievable in within a stipulated period. They should learn to manage their cognitive, motivational, emotional and volitional processes. The secret of dissertation completion lies in students' determination and ability to varied cognitive processes involved in reading, writing, problem solving, and learning (e.g., critical thinking, perception, memory, language, strategy use, and attention) through the dissertation process. The benefit of this is that the credit or reward goes to the student who is eventually awarded a doctorate degree and subsequently recognised and appointed as an academic. Students need to understand that the probable experience of anxiety from any quarters should not be an excuse to procrastinate or abandon the dissertation process, rather it should be seen as a wakeup call to acquire cognate skills relating to library use, computation and statistics, writing, presentation etc. the importance of self-motivation, self-regulation, achievement thinking, developing personal action plan and managing personal and interpersonal emotion is enunciated in this study. At this point, it is recommended that doctoral students should be exposed to cognitive based training as part of the orientation programme. This move will enable doctoral students develop cognitive, affective and psycho-motive skills to handle their likely anxiety while writing the dissertation.

This study reveals that the use of Metacognitive strategy and achievement motivation training significantly reduced the level of anxiety among the doctoral students. It is worth recommended that these trainings be given to doctoral students as part of the orientation programmes that universities do organise to sustain doctoral students' candidacy and successful completion of the dissertation process. The use of these strategies is also a challenge to academics who serve as dissertation advisors/supervisors. It is

expedient for the advisors/supervisors not just to verify what the students are doing but also to painstakingly take them through personal counselling to teach them how to manage self and also to motivate them through the period of writing and defending the dissertation.

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