



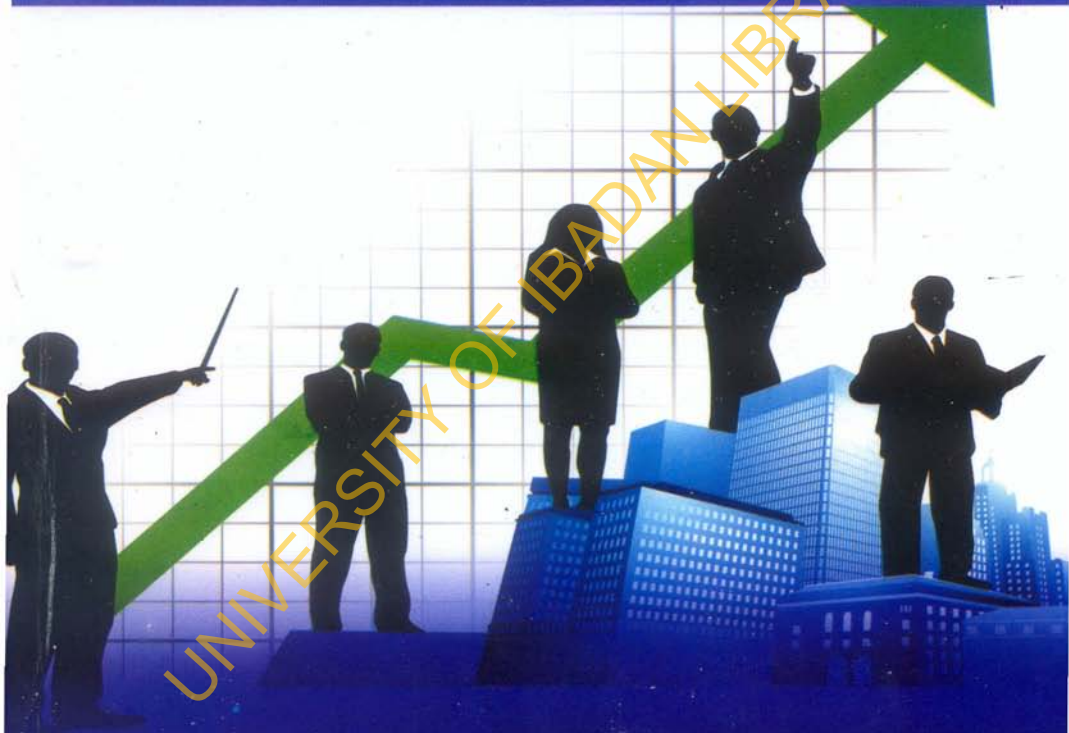
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IMPACT OF METACOGNITIVE AWARENESS, SELF-EFFICACY AND LOCUS OF CONTROL ON ACADEMIC PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN IBADAN

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Abstract

The study examined the impact of metacognitive awareness, self-efficacy and locus of control on academic performance of Senior Secondary School students in Ibadan. Descriptive survey research design was adopted for this study. A multi-stage random sampling technique was employed in selecting 420 participants from 12 secondary schools in Ibadan for the study. Their ages ranged between 12 years and 18 years with the mean age of 12.6 years and the standard deviation of 1.15. Three valid and reliable instruments were used to assess metacognitive awareness, academic self-efficacy and locus of control while achievement tests on English Language and Mathematics were used as a measure of academic performance of the participants. Multiple regression was used to analyse the data. The results revealed that metacognitive awareness, academic self-efficacy and locus of control were potent predictors mildly associated with academic performance. The study has implications for teachers, counsellors and educational psychologists to appropriate counselling intervention programmes and enabling environment. By so doing, the academic performance of the students could be improved barring all other teaching-learning obstacles.

Keywords: Academic performance, metacognitive awareness, Self-efficacy, Locus of control

Academic performance has become a subject matter of great concern for many educators, parents, psychologists, teachers, school administrators and policy makers. It is one of the most important goals

of the educational process, a major goal which every individual aspires to attain. Over the years, it has been observed that the standard of education in Nigeria is in a deplorable condition, and this has led to continuous abysmal performance of students in both the West African School Certificate Examination (WASCE) and National Examination Council (NECO) (Adebule, 2004). This is also evidenced in the yearly chief examiners' report and the mass failure of students especially in English and Mathematics (Adepoju, 2012). Several factors have been identified by researchers as causes of the failure of secondary school students in WASCE and NECO examinations. Some of the factors identified include poor location of school, frequent change of government policies, closure of schools owing to teachers' strike actions and lack of supervision (Saka, 2014; Olaniyi & Mageshni, 2014).

Academic performance is described by Gay (2002) as the actual performance of students in academic subjects. Edun and Akanji (2008) describe students' academic performance as the results obtained creditably by students in both internal and external examinations. Abdul and Lavanya (2002) define academic performance as the student's level of attainment in the grade point average of courses offered in his/her year on examination. Oyewole (2005) is of the view that the best determinant of the school manager or principal's administrative effectiveness is the students' academic achievement.

Students have varying levels of knowledge about how to learn. Some are active, self-directed learners who know how to learn and are able to apply what they know to various learning situations. Others may be average students who work hard and who have awareness of their learning strengths and weaknesses, but who may not adequately regulate their learning. Still others may be passive learners who have little awareness of how they learn and how to regulate their learning. In essence, teachers have students with various levels of metacognitive awareness skills.

Metacognition is generally defined as the activity of monitoring and controlling one's cognition. It can further be defined as what we know about our cognitive processes and how we use these processes in order to learn and remember (Ormrod, 2004). Metacognition refers to awareness and monitoring of one's thoughts and task performance, or more simply, thinking about one's thinking (Flavell, 1979). It refers to higher-order mental processes involved in learning such as making

plans for learning, using appropriate skills and strategies to solve a problem, making estimates of performance, and calibrating the extent of learning (Dunslosky & Thiede, 1998).

Metacognition comprises two major components: metacognitive knowledge and metacognitive regulation (Schraw & Moshman, 1995). Metacognitive knowledge can be described as what we know about our own cognitive processes or it can be referred to as knowledge of cognition that work best for the learner, how and when to use them. Declarative, procedural and conditional knowledge may all be considered sub-components of metacognitive knowledge (Schraw & Moshman, 1995).

Declarative knowledge involves what we know about how we learn and what influences how we learn. Procedural knowledge is our knowledge about different learning and memory strategies/procedures that work best for us. Conditional knowledge is the knowledge we have about the conditions under which we can implement various cognitive strategies. As a whole, our knowledge of cognition refers to what we know about how we learn; what we know about the procedures and strategies that are the most effective for us; and, what we know about the conditions under which various cognitive activities are most effective (Schraw & Moshman, 1995).

Metacognitive regulation refers to activities that control one's thinking and learning such as planning, monitoring and evaluation (Artzt & Armour-Thomas, 1992; Baker & Entwisle, 1987; Schraw & Dennison, 1994). Metacognitive regulation in contrast to metacognitive knowledge may be thought of as the actual activities in which we engage, in order to facilitate learning and memory (Schraw & Moshman, 1995). Metacognitive regulation can be broken down into three component activities. These include planning, monitoring and evaluating. Planning involves a cognitive task by selecting appropriate strategies and cognitive resources. Monitoring involves the awareness of our progress through a cognitive task and our ability to determine our performance. Finally, evaluating involves taking a look at the outcome and determining if the learning outcome matches our learning goals and if the regulation processes we used were effective (Schraw & Moshman, 1995).

Researchers have examined metacognition and how it relates to measures of academic achievement (Schraw & Dennison, 1994). Some use self-report inventories to assess metacognitive skills and relate them

to achievement measures (Sperling, Howard, Staley & DuBois, 2004). Other researchers examine metacognitive judgments in the form of monitoring accuracy as a measure of metacognitive regulation on various tests (Everson & Tobias, 1998; Nietfeld, Cao & Osborne, 2005; Schraw, 1994). Monitoring accuracy is measured in terms of what is considered calibration of performance. Calibration of performance judgments are made at the local and international levels. Local judgments are made after each item on a test. Local monitoring accuracy is determined to be the average difference between the actual answer of each test question and the students' judgment of how well they answered each question. Global judgments are made after the entire test is completed. Students are to judge how well they think they did on the test as a whole. Global monitoring accuracy is determined to be the difference between the overall test score and the students' judgment of how they did on the test. Local monitoring accuracy is thought to be a measure of ongoing metacognitive regulation during testing, and global monitoring accuracy is thought to be a measure of cumulative metacognitive regulation (Nietfeld et al, 2005).

The second variable in this study is academic self-efficacy. Self-efficacy is a construct defined by Bandura (1982) as self-judgment of one's ability to perform a task in a specific domain. Self-efficacy provides a great influence on human beings, since they act on their thoughts, feelings and behaviors (Bandura, 1995). Self-efficacy also refers to personal confidence in one's abilities for a successful accomplishment of a certain task (Bandura, 1986). Self-efficacy beliefs are significant influential factors of whether individuals will be able to expend effort on a task and continue to cope with a difficulty. Individuals with a high level of self-efficacy attempt tasks and keep up trying even though tasks might be difficult, while individuals with a low level of self-efficacy most of the time end up giving up easily.

According to Mbathia (2005), education supplies people with specific skills and therefore enables them to perform their tasks effectively. The better the performance of an individual, the more competitive and rewarded the individual will be. Bandura (1997) confirms that intellectual capability and motivation are significant factors on academic performance. An individual's beliefs about his abilities make up his sense of self-efficacy (Bandura, 1986). Bandura and Schunk (1981), Bandura (1986) and Hackett and Betz (1989) conclude that self-efficacy influences the choice and commitment in a

task, the energy spent in performing it, and the level of the performance. One important variable for the prediction of an individual's behaviour is self-efficacy.

A number of researches have been conducted to investigate and explore the way self-efficacy influences different spheres. These include psychosocial functioning in children (Holden, Moncher, Schinke & Barker, 1990), academic achievement and persistence (Multon, Brown & Lent, 1991), athletic performance (Moritz, Feltz, Fahrback & Mack, 2000) and performance at work (Sadri & Robertson, 1993). The findings of these studies have revealed a significant impact of self-efficacy beliefs on the performance and motivation of individuals. Individuals with high levels of self-efficacy are inclined to perform activities in a successful way. According to Bandura (1986), there is a major difference between the ways individuals with low self-efficacy and those with high self-efficacy feel and act. Individuals suspicious of their own abilities tend to avoid challenging and difficult tasks. As Bandura (1989) described, people who doubt their abilities tend not to get engaged in difficult tasks. Individuals with a high level of self-efficacy cope with challenging situations in a more mature way, while not considering these as a threat.

According to Mento, Locke and Klein (1992), internal rewards for goal attainment or satisfaction one receives due to performing a successful task, can have stronger influence on effort and achievement than external rewards, such as grades. As described by Bandura (1997), self-efficacy beliefs are different with different individuals; they vary under different circumstances, undergo transformations with time, and increase the academic achievements as determined by the following factors: mastery experience, vicarious experience, verbal persuasion, and physiological and emotional states. An individual's sense of self-efficacy is determined by a multitude of personal, social and environmental factors.

Another variable considered in this study is academic locus of control; locus of control is a generalized belief about the underlying causes of events in one's life. It refers to an individual's generalized expectations concerning where control over subsequent events resides. In other words, who or what is responsible for what happens. Locus of control is an individual's belief system regarding the causes of his or her experiences and the factors to which that person attributes success or failure. Locus of control can be divided into two separate sources of

control: internal and external. People with an internal locus of control believe that they control their own destiny. They also believe that their own experiences are controlled by their own skill or efforts. An example would be "The more I study, the better grades I get" (Gershaw, 1989).

On the other hand, people who tend to have an external locus of control tend to attribute their experiences to fate, chance, or luck. If students attribute their successes or failures to having a bad day, unfair grading procedures on their teacher's part, or even God's will, they can be said to have a more external locus of control. These students might say, "It doesn't matter how hard I study. The teacher just doesn't like me, so I know I won't get a good grade." These students generally don't learn from previous experience. Since they attribute both their successes and failures to luck or chance, they tend to lack persistence and not have very high levels of expectation (Rotter, 1954, cited in Kirchner, Sweller & Clark, 2006).

Locus of control is grounded in expectancy-value theory, which describes human behaviour as determined by the perceived likelihood of an event or outcome occurring contingent upon the behaviour in question, and the value placed on that event or outcome. More specifically, expectancy-value theory states that if (a) someone values a particular outcome and (b) that person believes that taking a particular action will produce that outcome, then (c) they are more likely to take that particular action.

Research has supported a positive relationship between internal locus of control and motivation and achievement in school (Phares, 1976). On the contrary, individuals with an external locus of control believe that their behaviours or the events they experience are more determined by external forces. They believe and behave as if forces beyond their control such as chance, luck, or others with greater power represent the important factors in determining the occurrence of reinforcing events (Rotter, 1966; 1990). Davies (1982) suggests that individuals having external locus of control tend to assert their abilities less frequently and experience feelings of despair more frequently and their level of self-esteem and expectation of success is lower. In an academic environment, locus of control refers to the way a student accounts for personal successes and personal failures in school. These attributions may or may not be accurate perceptions but are believed to influence future behaviors extremely (Tyler & Vasu, 1995). Therefore,

the present study sought to investigate the impact of metacognitive awareness, self-efficacy and locus of control on the academic performance of secondary school students.

Research questions

The study sought to answer the following questions:

1. What are the joint effects of the independent variables (metacognitive awareness, self-efficacy and locus of control) on the academic performance of senior secondary school students in Ibadan, Nigeria?
2. What is the relative effect of each of the independent variables on the academic performance of senior secondary school students?

Methodology

Research Design

A descriptive correlational survey design was adopted for the study.

Participants

The population for this study comprised all secondary school students in the Ibadan metropolis. A multi-stage random sampling technique was employed in selecting 4 local governments out of 11 local government areas in the Ibadan metropolis. Three public secondary schools were randomly selected from each of the local government areas. Twelve secondary schools were randomly selected from the list of 637 secondary schools in the Ibadan metropolis and 35 participants from Senior Secondary School (SSS) II students were randomly selected using simple balloting procedures from each school. This gave a total of 420 participants for the study. Their ages ranged between 12 and 18 years with a mean age of 12.6 years and standard deviation of 1.15. Of the 420 original copies of the questionnaire distributed, 20 copies were not properly filled and were discarded and were not used for the analysis; 400 were therefore used for the analysis.

Instruments

Demographic information of the students such as age, gender and religion were collected from the participants. The participants

completed the three questionnaires: Metacognitive Awareness Inventory (MAI) developed by Mokhtari and Reichard (2002); Academic Self-Efficacy Scale (ASES) developed by Jinks and Morgan (1999), Locus of Control Scale (ALCS) developed by Akyn (2007) with academic performance in: English Language Achievement Test (ELAT) and Mathematics Achievement Test (MAT).

Metacognitive Awareness Inventory: Metacognitive Awareness Inventory by Mokhtari and Reichard (2002) measures students' awareness and use of reading strategies while reading. The scale has 16 items structured on a 5- point Likert scale ranging from 'I never or almost never use this = 1' to 'I always or almost always do this = 5'. The reported reliability coefficient of the scale after three weeks was found to be .91. The test-retest reliability measure of the test with interval of three weeks was .90.

Academic Self-Efficacy Scale (ASES): Academic Self-Efficacy Scale by Jinks and Morgan (1999) was adapted. The original version is made up of 34 items out of which 20 items were adapted by the researchers to which the respondents indicated the extent of their agreement or otherwise to the scale. The items on the scale were structured on a five point Likert scale, ranging from Strongly Agree =5 to Strongly Disagree =1. The individual's rating for the 20 items formed a single self-efficacy score. The reported reliability and validity estimate found by the original author was .82. The test-retest reliability of the instrument established to determine the reliability of this instrument for this particular study was .89.

Academic Locus of Control Scale: Academic Locus of Control Scale (ALCS) developed by Akyn (2007) was used. Scale consists of 17 items, which included two factors (i.e. internal academic locus of control (9 items) and external academic locus of control with 8 items). The internal consistency reliability coefficients were .94 for internal academic locus of control and .95 for external academic locus of control. Test-retest reliability coefficients were .97 and .93 for two subscales, respectively.

English Language Achievement Test (ELAT) was a 25-item multiple choice English language achievement test with four options per item (A-D). Some of the test items were constructed by the researcher with the assistance of an expert in the field of English language while few items were selected from the past West African Examination Council (WAEC) questions based on the syllabus for Senior Secondary School

(SSS) II classes. All the test items were submitted to some other experts in the field of English for validation. After some revisions were made, the experts independently and unanimously recommended the use of the test. To establish the highest degree of reliability, the test was trial-tested with a minimum of 30 minutes on a small sample of ($n = 50$) randomly selected Senior Secondary School (SSS) II students. The internal consistency reliability coefficient (Cronbach's alpha) for the scale was reported .77. The test-retest reliability measure of the test with interval of three weeks was .75.

Mathematics Achievement Test (MAT) is a 25-item multiple choice Mathematics achievement test with four options per item (A-D). Some of the test items were constructed by the researcher with the assistance of an expert in the field of Mathematics while few items were selected from the past West African Examination Council (WAEC) questions based on the syllabus for Senior Secondary School (SSS) II students. All the test items were submitted to some other experts in the field of Mathematics for validation. After some revisions were made, the experts independently and unanimously recommended the use of the test. To establish the highest degree of reliability, the test was trial-tested within a minimum of 30 minutes on a small sample of 50 randomly selected Senior Secondary School (SSS) II students. The internal consistency reliability coefficient (Cronbach's alpha) for the scale was reported .73. The test-retest reliability measure of the test with interval of three weeks was .78.

Procedure

The researcher with the cooperation of the School Counsellor and teachers administered four instruments (Metacognitive Awareness Inventory, Academic Self-Efficacy Scale, Locus of Control Scale and English Language and Mathematics Achievement Test) to all the participants in their respective schools within a minimum of 1 hour 30 minutes.

Data Analysis

The data were analysed using multiple regression analysis in order to establish the relationship between the independent variables (Metacognitive Awareness, Academic Self-Efficacy and Locus of Control) and the dependent variable (Academic performance). The

students' scores in English Language and Mathematics were transformed to z-scores before they were used for computation.

Results

The results based on the research questions are presented below:

Table 1. Regression analysis result of the independent variables on academic performance of secondary school students

R	R Square	Adjusted R Square	Std. Error of the Estimate
.459	.211	.200	5.47359

A N O V A						
Model	Sum of Squares	DF	Mean Square	F	Sig.	Remark
Regression	2358.100	3	5981.525	26.347	.000	Sig.
Residual	8838.246	396	22.375			
Total	11196.347	399				

Table 1 shows that there was joint contribution of the independent variables (metacognitive awareness, self-efficacy and locus of control) to academic performance of Secondary School Students. These yielded a coefficient regression $R = .459$, Multiple R^2 of .211 accounting for about 21.1% of the variation in the independent variables. The table further shows that the linear combination of metacognitive awareness, self-efficacy and locus of control on the academic performance was significant ($F_{(3,399)} = 26.347, p < .05$). This indicates the causal relationship of the independent variables was significant and other variables not included in this model may have accounted for the remaining variance.

Table 2. Multiple regression showing relative contribution of the independent variables to the prediction of academic performance of senior secondary school students

Model	Unstandardized Coefficient		Standardized Coefficient	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.436	3.276		.439	.661
Metacognitive awareness	.056	.028	.121	2.011	.045
Academic self-efficacy	.092	.033	.192	2.738	.007
Academic locus of control	.170	.050	.231	3.422	.001

Table 2 shows the relative contribution of each of the independent variables to the academic performance of the students: Metacognitive awareness ($\beta = .121$, $t = 2.011$; $p < .05$), Academic self-efficacy ($\beta = .192$, $t = 2.738$; $p < .05$) and Academic locus of control ($\beta = .231$, $t = 3.422$; $p < .05$) respectively. Table 2 further shows that locus of control appeared to be the most potent contributor to academic performance of students. Hence, all the independent variables were significant.

Discussion

The result of the present study reveals that metacognitive awareness contributed positively to the academic performance of students. The finding is consistent with the earlier research findings of Rahman, Jumani, Chaudry, Hasan Chisti, and Abbasi, (2010); Zulkipli, Kabit and Ghani (2008) which established that there were positive relationships between metacognitive awareness and academic performance. This shows that metacognitive awareness is believed to be very important in the academic environment, as numerous studies have shown that metacognitive awareness is a strong predictor of academic performance in various subjects (Coutinho, 2007; Topcu & Yilmaz-Tuzun, 2009; Zulkipli et al., 2008). A possible reason for this is that students who have good metacognitive awareness receive better academic results than students with poor metacognitive awareness.

The findings of this study indicate that a significant correlation was found between self-efficacy and academic performance of students. This result is in consonance with prior studies (Zimmerman & Bandura, 1994; Chemers, Hu, & Garcia, 2001; Greene, Miller, Crowson, Duke

& Akey, 2004; Sharma & Silbereisen, 2007) who found a significant relationship between self-efficacy and academic performance. These findings are also in conformity with the self-efficacy theory, which states that an individual attempts tasks, in which he or she is good at, is very likely to become successful. As Pajares (2000) concluded, students who show higher self-efficacy are more successful with their academic performance than students who are unwilling and consider tasks as too difficult due to lack of belief and abilities for success.

The present study also reveal that locus of control had a significant relationship with the academic performance of students. This corroborates the study of Weiner (1979), Millar and Irving (1995), Valizadeh and Zamanzadeh (2007-2008) who observed a significant relationship between the locus of control and academic achievement. A possible reason for this is that, students who attribute success to internal factors are likely to expect future successes; students who attribute failure to external factors may expect future failure unless they consider themselves capable and actively address those factors. Conversely, attributing success to external factors would make future successes unpredictable and deem the student powerless to address what they perceive to be uncontrollable factors.

Implication of the findings

The findings of this study provide an empirical basis for behaviour therapists, educational psychologists and stakeholders to appropriate counselling intervention programmes and enabling environment that the academic performance of the students could be improved, barring all other teaching-learning obstacles. In conclusion, it was recommended that all educational stakeholders, teachers and parents should give more attention to students' metacognitive awareness, self-efficacy and locus of control.

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