Relationship between Influence of Cognitive Styles and Study Strategies on Academic Performance of Business Education Students in Financial Accounting in Federal Universities in Nigeria

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Abstract---The research was carried out on the relationship between Influence of Cognitive Styles and Study Strategies on Performance of Business Education Students in Financial Accounting in Federal Universities in Nigeria. The objectives were to identify the differences in performance of Field Dependent and Field Independent business education students who adopted deep and surface strategy in learning Financial Accounting. The population of the study was two hundred and eighty-one Financial Accounting students of the ten Federal Universities in Nigeria offering Business Education. Eighty students from three first generation universities namely were used as sample for the study. The study adopted repeated measure experimental designs. Descriptive statistic was used in answering the research questions, while the t-test and Pearson Product Moment Correlation was employed in testing all the null hypotheses at 0.05 level of significance. The results revealed that both variables have independent influence on the performance of business education students in Financial Accounting. It was concluded that neglect of any of the variable will hinder the teaching and learning of Financial Accounting which can affect performance of students in Financial Accounting. Among recommendations stated that lecturers should assist students to perform well in Financial Accounting by discouraging them from adopting surface strategy to learning. They should encourage students to adopt a deep approach, and inculcate analytical and critical thinking skills in the students in order to make them acquire the problem solving skills.

Keywords--- Business Education Students, Financial Accounting, Cognitive Styles, Study Strategy

I. BACKGROUND

THE individual differences in styles of remembering, thinking and judging are brought together to suggest that individuals have different cognitive styles and are different in intelligence, ability, personality and achievement. Pitcher (2002) supported by reporting cognitive styles as the relatively stable strategies, preferences and attitudes that determines an individual's typical modes of perceiving, remembering and problem solving. Cognitive style describes how the individual acquires knowledge (cognition) and processes information (conceptualization).

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Cognitive styles are related to mental behaviours apply habitually when they are solving problems. Researchers have found that cognitive style differences influences learning, problem solving, decision making and performance or academic achievement (Hayes and Allinson, 1994; Sadler-Smith, 1998; Kirton 2003.)

Witkin, Oltman, Raskin and Karp (1971) argue that cognitive styles and its functioning was first picked up in perception and manifest itself well in intellectual activity. The Group Embedded Figure Test (GEFT) has since become the most commonly used test of Field Dependence and Independence (Witkin et al 1971). The dimension of cognitive styles (Field Dependent/Field Independent) facilitate a qualitative approach to intellectual differences, revealing forms of functioning that are consistently manifested in the cognitive sphere (Guisande, Paramo, Tinajero and Almeida, 2007). Ruttun (2009) summarized the characteristic of field independent learners as: analytical, individualistic, competitive, internally directed, intrinsically motivated, generates structures, insensitive to some cues, less affected by structures and format individualistic, visually perceptive and ignores stress while Field Dependent learner may be describes by the following attributes: global, accepts structures, influenced by salient features, influenced by structured format, externally directed, sensitive to social internally referential, passing not visually perceptive and affected by stress.

Learner cognitive style (FD/FI) is one factor that needs to be taken into consideration, because it can interfere with the desirable effects expected from problem solving, thus investigations regarding the role of cognitive style on learners' performance during problem solving in Financial Accounting become important, because they can inform the design of effective instruction and can provide valuable guidance about how to integrate instructional tools in teaching and learning in advantageous way for the benefit of all learners.

Financial Accounting is a course that is offered by business education students because of its importance to the business education programme. Basic knowledge of Financial Accounting equips students with the knowledge of keeping adequate records of financial transaction and a good analysis of a business liquidity and profitability (Azih, 2010). Students

are required to possess and develop problem-solving skills for lifelong learning in Financial Accounting. A considerable body of literature exists that indicates that cognitive style is relevant in identifying the process of learning among individual students.

Another influential variable that affects students' learning is study strategy adopted during learning. Every student uses different strategy in his/her studying. It is the most widely used frame work for understanding how students go about learning in higher education (Tight, 2003; Ramburuth and Mladenovic, 2004). It is specifically concerned with discovering why some students learn better than others (Mcranni, Barbara, and Willis, 2009).

According to Dujkora (2002), study strategies are specific actions taken by learners to make learning easier, faster, and more transferable to new situations. It is also perceived as a particular form of observable behaviour employed by the learner (Dujkova, 2002).

Beatie, Collins and Mclnnes (1997) reported that it is possible for students to develop study strategies to enable them make the most efficient use of all strengths and limitations of their particular cognitive styles. The two common approaches to learning are surface and deep strategy. There are several techniques that are used in classifying students into surface or deep study strategy adopted in learning. One of the most notable techniques is Revised Study Process Questionnaire (R-SPQ-2F) (Tight, 2003).

According to Entwistle and MaCune (2004), a student that adopts a deep approach to learning is identified with intention to understand, intrinsic motivation, use of evidence, critical thinking and relating ideas to already known concepts and principles. This leads to understanding and long term retention of concepts so that they can be used for problem solving in unfamiliar contexts. On the other hand, a student who adopts surface study strategies is identified with intention to reproduce, take a narrow view and concentrate on detail, stick closely to the course requirement, extrinsic motivation and literal memorization. Surface strategy leads to superficial retention of material for examinations, does not promote understanding or long term retention of knowledge and information. Any of these strategies can influence students learning of Financial Accounting which also affect their performance.

Learning styles are internal traits of learners while strategies are external skills consciously or subconsciously used by learners. Some researchers have investigated the relationship between learning cognitive styles and strategies and they also claimed that learner's styles had significantly influenced the choices of Financial Accounting learning strategies which eventually affect the learning outcome. Financial Accounting is one of the courses that are considered difficult for business education student to pass (Nonye and Nwosu, 2011). Cronbach (2003) expressed that though Accounting is not a cheap subject, it is certainly not a mystery and is easy to learn. However, pre-conceived perception by students that Accounting is difficult, unpalatable or unrealizable, has created a great challenge for students which lead to their poor performance. Identifying factors that explain which students perform better and are attracted to the discipline of accounting is of world-wide interest. It is against this background that the study investigated the relationship between influence of cognitive styles and study strategies on performance of business education students in Financial Accounting in Nigerian Federal Universities.

II. STATEMENT OF THE PROBLEM

Financial Accounting as an aspect of Accounting that deals with the provision of information to users, demands that the providers of such information possess all the necessary skills and talents that could make the information relevant. Financial Accounting requires that students possess and develop problem solving skills. Albrecht and Sack (2000); Azih and Nwosu, (2011) observed that there is decline in students' performance in Accounting. The performances of Business Education students in Financial Accounting in Ahmadu Bello University, Zaria for the period 2008 – 2011 affirm this observation. For instance, in 2008/2009 session, 40% constituted students that passed within the range of credit and above. The 2009/2010 session result showed that only 30% of the students were within the credit range. There was further decline in the 2010/2011 session. The result showed that only 25% of Financial Accounting students passed within the credit level and above. Same situation has been observed generally as reported also by Drennan and Rhode (2010) that performance of students in Accounting has not been impressive in higher institution.

Out of the many possible factors that could be involved in a student choosing to major in Financial Accounting and also perform at expected level are cognitive style and study strategy. Teachers are expected to identify learning abilities of their students and then adopt appropriate teaching styles. However, it seems that majority of the teachers disregard these important factors and consider their students equal at the level of apprehension. While cognitive styles has to do with how individuals process information and make choices in learning, study strategy refers to a habitual pattern or preferred way in which students engage in learning with the hope of yielding good understanding of the subject matter. In line with this, Jones and Wright (2011) reported that given the fact that both cognitive style and study strategy have been used for more than 25 years by researchers, conflicting arguments existed in the literature on the roles that each one plays individually and collectively on the performance of students. On this basis there is the need to study the influence of these factors on the performance of students in a given setting.

Danili and Reid (2006) asserted that the performance of students is a function of being either Field Dependent or Field Independent irrespective of the study strategy. On the other hand, Spencer (2003) was of the view that study strategies are the determinants of performance, irrespective of the category of cognitive style that one falls into. It is because of these identified problems that this study examined relationship between influence of cognitive styles and study strategies on

academic performance of business education students in Financial Accounting in Nigerian Federal Universities.

Purpose of study: The general objective of the study was to examine relationship between the influence of cognitive styles and study strategies of Business Education students on their academic performance in Financial Accounting in Nigerian Federal University. The specific objectives were to:

1) establish the difference between the academic performance of Business Education Field Dependent students that adopted surface strategy and those that adopted deep strategy in learning Financial Accounting in Federal Universities in Nigeria;

2) establish the difference between the academic performance of Business Education Field Independent students that adopted surface strategy and those that adopted deep strategy in learning Financial Accounting in Federal Universities in Nigeria; and

3) determine the relationship between influence of cognitive styles and study strategies on academic performance of Business Education students in Financial Accounting in Federal Universities in Nigeria

Research Questions

1) What is the difference between the academic performance of Business Education Field Dependent students that adopted surface strategy and those that adopted deep strategy in learning Financial Accounting in Federal Universities in Nigeria?

2) What is the difference between the academic performance of Business Education Field Independent students that adopted surface strategy and those that adopted deep strategy in learning Financial Accounting in Federal Universities in Nigeria?

3) What is the relationship between the influence of Cognitive styles and Study Strategies on academic performance of business education students in Financial Accounting in Federal Universities in Nigeria?

Research Hypotheses

HO3.There is no significant difference between the academic performance of Business Education Field Dependent students that adopt surface study strategy and those that adopt deep study strategy in learning Financial Accounting.

HO4There is no significant difference between the academic performance of Business Education Field Independent students that adopt surface study strategy and those that adopt deep study strategy in learning Financial Accounting.

HO5There is no significant relationship between the influence of cognitive styles and study strategies on academic performance of Business Education students in Financial Accounting.

III. METHODOLOGY

The study utilised primary data and the instruments used for the data collection are Group Embedded Figures Test (GEFT), Revised Study Process Questionnaire (R-SPQ-2F) and Financial Accounting Evaluation Test (FAET). The Group Embedded Figures Test (GEFT) was developed by Witkin, Oltman, Raskin and Karp (1971) and it was adopted to determine the students' cognitive styles. The cognitive test contains three sections with 25 complex figures from which participants were asked to identify and trace specified simple forms embedded within the complex figures. The first section consists of seven (7) problems. This section was primarily for practice with the format of the test. The items in the first section are not included in the total score of the test. The second and third sections consist of nine (9) problems each. The total time allowed for completing the test was 30 minutes. The original Study Process Questionnaire (SPQ) was developed by Biggs in 1987. The possible score that an individual can make ranged from 0 to 18 classified learners into two categories: Witkin *et al.* (1971) Field Dependent and Field Independent. Using the developed GEFT by Witkin, *et al.* in (1971), any student who scores 0-11 was classified as Field Dependent, while any student who scores 12-18 was classified as Field Independent. The Revised Study Process Questionnaire (R-SPQ-2F) was modified in 2001 by Biggs, Kember, and Leung. It consists of twenty (20) items to determine the attitudes of students towards their studies and way of studying which eventually categorizes students into two study strategy used by them. Respondents decides the degree to which each item is true of him/her using a four-point categorization rating scale ranging from 'Always true of me' (4), 'Sometimes true of me' (3), 'Rarely true of me' (2) and 'Never true of me' (1). The respondents were asked to tick the appropriate point relevant to the subject. There are 10 items each for deep and surface strategy. The scores of the 10 items were added together for each strategy, and whichever is greater indicates the strategy the student uses. And FAET was to test students' knowledge in Financial Accounting. FAET consists of two tests: post-test 1 and post-test 2.

The study adopted the repeated measure experimental designs often referred to as within-subjects design. The population for this study was made up of all the Financial Accounting students in Business Education programs with Accounting option in the ten (10) Federal universities in Nigeria where the programmes were offered. The total population of the study was two hundred and eighty one (281) Business Education students. The sample comprised of eighty (80) Financial Accounting students in Business Education with Accounting option from Ahmadu Bello University, Zaria, University of Benin, Benin City and University of Nigeria, Nsukka. These institutions were chosen as samples because of their peculiar characteristics in term of long years of establishment and teaching experience. These universities have been running Business Education for over 30 years. Over these years, they have improved or modified the programme such that all other universities that subsequently started their own Business Education emulated them.

Twelve (12) weeks were used to collect data in the three selected Federal universities. The first phase of the experiment was the administration of original Study Process Questionnaire (SPQ). The second phase of the experiment was

the teaching of Financial Accounting. There was total five hours contact period for the teaching before the first post-test. The second and third contact hours of the first week were used to introduce the students to Partnership Account, while the second week contact hours were used to continue teaching students Partnership Final Account and some adjustments. At this stage post-test I of the Financial Accounting Evaluation Test was administered. The third week first contact hour period was used to teach the students how to prepare Profit and Loss Appropriation Account. The last two contact hours in the third week were used for introduction of Goodwill Account on admission of new partner and some practical questions were worked in the class. The whole fourth week was used to teach revaluation account. Each lesson was built on the last one. Thereafter, the researcher administered the second post-test of Financial Accounting Evaluation Test (FAET). Both the two post-tests were marked using their prepared marking schemes. In order to test the null hypothesis, t-test statistics and Pearson Product Moment Correlation was used at 0.05 level of significance. Mean and standard deviation were used to answer the research questions.

IV. DATA PRESENTATION AND ANALYSIS

Collected data were analyzed and findings were discussed based on the three research questions stated in the introduction.

Research Question One: What is the difference between the academic performances of Business education Field Dependent students that adopted surface strategy and those that adopted deep strategy in learning Financial Accounting?

TABLE I
FIELD DEPENDENT STUDENTS THAT ADOPTED SURFACE AND THOSE THAT ADOPTED DEEP STUDY STRATEGY PERFORMANCE IN FINANCIAL ACCOUNTING

Variable	N	Mean	Std. Deviation
FDSS	37	45.46	7.77
FDDS	09	53.67	6.44

Source: Data Output, 2013

Table I shows the mean achievement of Field Dependent students based on study strategy adopted. The mean achievement of Field Dependent Surface Strategy students was 45.46 less than that of Field Dependent Deep Strategy students of 53.67. This indicated that FDDS performance was better than FDSS. Their standard deviations were 7.77 and 6.44 respectively, indicating disparity in their individual achievements around their respective mean achievement.

Research Question Two: What is the difference between the academic performance of business education Field Independent students that adopted surface strategy and those that adopted deep strategy in learning Financial Accounting in Federal Universities in Nigeria?

TABLE II
FIELD INDEPENDENT STUDENTS THAT ADOPTED SURFACE STUDY AND DEEP STUDY STRATEGY PERFORMANCE IN FINANCIAL ACCOUNTING

Variable	N	Mean	Std. Deviation
FIDSS	27	54.19	8.27
FIDDS	07	64.43	8.42

Source: Data Output, 2013

The data in Table II shows that the mean achievement of Field Independent students that adopted surface and those that adopted deep study strategy in Financial Accounting. From the table, the mean achievement of FIDDS of 64.43 was higher than that of the FIDSS (54.19), while their standard deviations were 8.42 and 8.27 respectively. There is thus a clear difference between the performances of the two groups of students.

Research Question Three: What is the relationship between the influence of Cognitive Styles and Study Strategies on academic performance of business education students in Financial Accounting in Federal Universities in Nigeria?

TABLE III
RELATIONSHIP BETWEEN INFLUENCE OF COGNITIVE STYLES AND STUDY STRATEGIES ON PERFORMANCE OF BUSINESS EDUCATION STUDENTS IN FINANCIAL ACCOUNTING.

Variable	N	Mean	Std. Deviation
Cognitive Styles	80	51.11	9.69
Study Strategies	80	51.46	9.75

Source: Data Output, 2013

The data in Table III shows the mean achievement of cognitive styles and study strategies students in Financial Accounting. It can be seen that the mean deviation of cognitive styles was 51.11 and that of study strategies adopted was 51.46, the standard deviations were 9.69 and 9.75 respectively. These indicate mild disparity in the students' achievements. Meaning there was little relationship in the influence of the two variables on performance of the students.

Null Hypothesis One: There is no significant difference between the academic performance of business education Field Dependent students that adopt surface study strategy and those that adopt deep study strategy in learning Financial Accounting in Federal Universities in Nigeria.

TABLE IV
TEST OF DIFFERENCE IN PERFORMANCE BETWEEN FIELD DEPENDENT STUDENTS THAT ADOPTED SURFACE AND THOSE THAT ADOPTED DEEP STUDY STRATEGY

Variable	N	Mean	SD	Df	t-test	P	Decision
FDSS	37	45.46	7.77				
				44	-2.928	.005	Reject H_{o3}
FDDS	9	53.67	6.44				

Source: Data Output, 2013

Based on the analysis in Table IV, the P value obtained was 0.005. The value of t-calculated was -2.928. Since P value 0.005 was less than alpha value 0.05, the null hypothesis was rejected. The result further agreed with analysis on table I. This means that there was a significant difference in the

performance of Field Dependent students who adopted surface study strategy and those who adopted deep study strategy.

Null Hypothesis Two: There is no significant difference between the academic performance of business education Field Independent students that adopt surface study strategy and those that adopt deep study strategy in learning Financial Accounting in Federal Universities in Nigeria.

TABLE V
TEST OF DIFFERENCE IN PERFORMANCE BETWEEN FIELD INDEPENDENT
STUDENTS THAT ADOPTED SURFACE OR DEEP STUDY STRATEGY

Variable	N	Mean	SD	Df	t-cal	P	Decision
FIDSS	27	54.19	8.27				
				32	-2.912	.007	Reject H_{o4}
FIDDS	7	64.43	8.42				

Source: Data Output, 2013

The analysis in Table V revealed that P value obtained was 0.007 at 0.05 level of significant. The value of t-calculated was -2.912. Since P value 0.007 is less than alpha value 0.05, the null hypothesis was rejected. This means that there was a significant difference in the performance of Field Independent students who adopted surface strategy and those who adopted deep study strategy. This result further authenticates the analysis on Table II.

Null Hypothesis Three: There is no significant relationship between the influence of cognitive styles and study strategies on academic performance of business education students in Financial Accounting in Federal Universities in Nigeria.

TABLE VI
CORRELATION COEFFICIENT BETWEEN COGNITIVE STYLES AND STUDY
STRATEGIES OF ALL THE PARTICIPANTS

Variable		Cognitive Styles`	Study Strategies
Cognitive Styles	Pearson Correlation	1	.198
	Sig. (2-tailed)		.078
	N	80	80
Study Strategies	Pearson Correlation	.198	1
	Sig. (2-tailed)	.078	
	N	80	80

Source: Data Output, 2013

The analysis in Table VI revealed that there was low positive correlation coefficient of 0.198 between cognitive styles and study strategies. In comparing correlation coefficient of the two variables, it implies that the two variables do not have strong relationship in the influence of determining students' performance. Taking into consideration that probability value of 0.078 was greater than alpha value 0.05, the null hypothesis was therefore retained. The analysis further agreed with result on Table III. This means that each of the variables influenced the performance of the students independently.

V. DISCUSSION OF THE STUDY

The result of the study showed that there was a significant difference between the performance of Field Dependent students who adopted surface study strategy and those who adopted deep Study strategy. This is not surprising as both cognitive style and study strategy had a significant influence on the performance of the students. This finding is in line with results from previous studies such as those of Kali and Orion (1996); Mancy and Ried (2004); Danili and Reid (2005) and Ismail and Kasim (2011) who reported significant positive influence of both cognitive style and study strategy adopted in Accounting. The style of cognitive and study strategy influence positively academic performance in Financial Accounting.

The result revealed a significant difference between the performance of Field Independent students who adopted deep study strategy and those who adopted surface study strategy. This finding is in conformity with those of Provost and Bond (1997), Zeegers (2001), Marshall and Case (2005) who reported that deep learning is the most productive and most suitable study learning approach in academic performance. The superiority of deep study strategy for Field Independent students over surface study strategy was also reported by Byrne, Flood and Willis (2001) who compared the effectiveness of deep approaches or strategy that is associated with high academic performance over surface approach. The result showed that cognitive style and study strategy were not significantly related regarding performance of students in Financial Accounting. The findings of this study indicated that to some extent, cognitive style of students and the study strategy adopted were capable of influencing their performance in Financial Accounting independently. This is in agreement with Hackler (1990), Davis (1991) and Moore and Dywer (2001) who found no relationship between influence of cognitive style and study strategy on performance of the students. On the contrary, Mancy and Reid (2004) reported a positive relationship between the influence of cognitive style and study strategy on how students accessed information stored in working memory which eventually affected their problem-solving ability and how they went about their studying which eventually affected their performance.

VI. CONCLUSION

The findings of the study clearly established that both Field Dependent and Field Independent students who adopted deep study strategy performed better in Financial Accounting. This means that students who do not adopt a deep approach to learning whatever may be their cognitive style can be affected in the process of learning which may also affect their performance in Financial Accounting.

It can also be concluded from the findings there is no significant relationship between cognitive style and study strategy on the influence of students' performance in Financial Accounting. This means that each of these variables influences performance independently. Neglect of any of the variable will hinder the teaching and learning of Financial Accounting which can affect performance of students.

VI. RECOMMENDATION

The result of the study has indicated that Field Independent and deep study strategy students performed significantly better

in Financial Accounting. These findings have revealed that the cognitive style and study strategy deserve a lot of consideration in teaching and learning of Financial Accounting. Therefore based on the findings of the study, it is recommended that:

1) Lecturers should assist students to perform well in Financial Accounting by discouraging them from adopting surface strategy to learning. They should encourage students to adopt a deep approach, and inculcate analytical and critical thinking skills in the students in order to make them acquire the problem solving skills.

2) Students should be shaped by teacher into better learners by making them to utilise their strengths and improving on their weaknesses to achieve optimal academic success in Financial Accounting through modifying the learning environment to meet the stylist characteristics of each learner.

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