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EFFECT OF CONCEPT MAPPING STRATEGY ON STUDENTS' BUSINESS STUDIES ACHIEVEMENT IN A PERIOD OF SOCIO-POLITICAL AND ECONOMIC UNCERTAINTY

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Abstract
This study investigated the effect of concept mapping on academic achievement of secondary school students in business studies in Anambra State, Nigeria. The study was two research questions and two hypotheses. This study adopted a non-equivalence pre-test, post-test, quasi-experimental design. The population for the study was 21, 109 JSII students (9, 988 males and 11, 121 females) in the 164 coeducational public secondary schools across the six education zones in Anambra State. Two intact classes of 100 students selected from two different schools participated in the study. BUSAT was The instrument used for data collection was 50-objective item Business Studies Achievement Test (BUSAT) constructed from the business studies scheme of work for first term junior secondary school three (JSSIII). validated by experts. The reliability of the study was tested using split-half method on Pearson Product Moment Correlation Coefficient which yielded a coefficient index of 0.96. The mean and standard deviation were used to answer the research questions while the hypotheses were tested with t-test statistic using the SPSS version 25. The study found among others, students taught business studies using concept mapping strategy had better mean achievement than students taught business studies using the conventional method. The mean achievement score of the female students taught business studies using concept mapping strategy was higher than that of the male students (42.88>37.64); The study found significant difference between the mean achievement scores of secondary school students taught business studies using conventional and concept mapping strategies; but no significant difference in the mean achievement scores of male and female students taught business studies using concept mapping strategy. The study recommended among others, that business studies teachers should adopt the concept mapping strategy in the teaching of business studies in junior secondary schools in order to improve students' learning outcome.

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Introduction

Secondary education in Nigeria is designed to cater for the diverse interests of students aged 12 to 18 years (Federal Republic of Nigeria, 2013). This level of education which lasts six years, is divided into two- the junior and the senior secondary education. More specifically, the junior secondary curriculum provides for both the academic and pre-vocational subjects, the aim of which is to: "offer diversified curriculum to cater for the differences in talents, opportunities and future roles; to provide trained manpower in the applied sciences, technology and commerce at sub-professional grades, and to provide technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development" (Federal Republic of Nigeria-FRN, 2013). These goal statements have guided efforts toward the development of new curriculum for junior secondary education in the pre-vocational electives which include, "Agriculture, Business Studies, Home Economics, Computer Education, Fine Arts and Music" (FRN, 2013).

Business studies is taught as one of the subjects that will enable students acquire further skills which are common and fundamental to all personal and occupational activities (Inyang, 2018). Business studies is that part of the curriculum which enables student to make informed decisions in the everyday business of living; contributes to the students' understanding of the world of business; encourages a positive attitude to enterprise and develops appropriate skills in that field.

It is unfortunate however, that secondary school students have been found wanting in the learning of business studies. Reports of the Basic Education Certificate Examination (BECE) in business studies in Anambra State over the years have shown that most students who have been taking the business studies examinations failed the subject (Imeokparia, 2018). According to the Anambra State Basic Education Board-ASUBEB, 2021), in the last few years, namely 2020, 2021 and 2022, the percentage of students who passed the subject at credit level were 21.33, 20.88 and 18.55 respectively.

The inability of students to record acceptable achievement level in business studies could be as a result of inappropriate teaching strategy employed by teachers who handle the subject. Imeokparia (2018) and Emeasoba (2018) contended that the teaching strategy employed by teachers play significant role in students' achievement in a subject. Teaching strategy refers to a tactic or unique way around a particular problem so as to achieve a goal or success (Moemeka, 2016). It is a plan and action taken by teachers to enable learners' access knowledge, information and skills being taught. Teachers' choice of strategy can make or mar the intended learning outcome (Onyeme, 2019).

Conventional teaching strategies have been seen to be the cause of massive failure of students in public examinations as these strategies merely make the students passive learners instead of active learners. As a result, students fail to make the desirable achievement expected from them. This strategy is mainly concerned with verbally transmitting as much information as possible to students. Again, this strategy may not indicate the underlying thought processes needed for knowledge retention. Such a strategy can be ineffective. Naturally, when this strategy is used to instruct, learners are unresponsive, unstirred and passive to learning (Okoli, 2018).

It is believed however, that a teaching strategy that involves learners could be more retentive of learning and improve achievement. Nwanekesi and Emereonye (2016) averred that learner-centred teaching strategies are more effective than teacher-centred teaching strategies in

achieving learning objectives. One of such teaching strategies that could improve the teaching and learning of business studies is concept mapping. Concept maps are graphical tools for organizing and representing knowledge. They include concepts, usually enclosed in circles or boxes of some type, and relationships between concepts indicated by a connecting line linking two concepts (Novak and Canas, 2008). Words on the line, referred to as linking words or linking phrases, specify the relationship between the two concepts. Novak and Canas (2008) conceived concept as "a perceived regularity in events or objects, or records of events or objects, designated by a label". Concept maps are represented in a hierarchical fashion with the most inclusive, most general concepts at the top of the map and the more specific, less general concepts arranged hierarchically below. The hierarchical structure for a particular domain of knowledge also depends on the context in which that knowledge is being applied or considered. Singh and Moono (2015) stated that concept mapping is a teaching and learning strategy that has been developed by Novak (1977) and which helps students to organize concepts into hierarchies. It is a pedagogical/meta cognitive tool designed to help students learn how to learn.

In recent times, the efficacy of concept mapping has been evaluated in various contexts using different subjects taught in secondary schools. These include the teaching of Mathematics (Awofala, 2011; Singh and Moona, 2015); comprehension and self-efficacy belief (Khajavi and Ketabi, 2012); vocabulary improvement (Tarkashvand, 2015); English language register (Sultan, 2014); and reading (Okoli, 2019). In all these studies, the efficacy of concept mapping was encouraging. The use of concept mapping in addressing the challenges of poor achievement of students in business studies in secondary schools therefore could prove worthwhile having been tested in other fields with records of success. The attraction of concept mapping, among others, is that it is considered an efficient thinking tool for storing, processing, organizing and presenting information graphically that may help learners to facilitate the process of meaningful learning (Khajavi and Ketabi, 2012).

The assumption, therefore, is that the use of concept mapping in the teaching of business studies in secondary schools will improve students' achievement in the subject. Considering however, the socio-political and economic uncertainty prevailing in Nigeria at the moment, it is doubtful whether this would not impact negatively on learning outcomes. Uncertainty in the socio-political and economic terrain may have adverse impact on learning as well as teachers' input that could induce effective learning outcome. Secondary school teachers do not live in a socio-political and economic vacuum; the adverse effect of this unpalatable conditions therefore could moderate the effect of concept mapping on achievement in Business studies.

In addition, there is a need to establish whether the concept mapping strategy has equal significance for both male and female students. Abduraheem (2012) stated that one of the most topical issues in the current debate all over the world has been that of gender differences and academic achievement among students in schools. Gender is the social and constructed differences in women's and men's roles and responsibilities, which are learned, vary from culture to culture and change over time (United Nations Girl Education Initiative (UNGEI), 2012). While sex is biological, gender is a product of human construction that is said to affect all spheres of male and female interactions.

Earlier studies have indicated that concept mapping is a better strategy than convetional strategy (Awofala, 2011; Khajavi and Ketabi (2012; Kalhor, Mehranb and Shakibaei (2012; Sultan (2014; Singh and Moono (2015). These studies however focused on subjects like Mathematics and English Language rather than business studies. Moreover, they were carried out in a period of

relative socio-political and economic certainty. Other studies that sought to determine gender differences in students' achievement such as Shakoori, Kadivar and Sarami (2017), and Woldeamanuel, Abate and Berhane (2020) produced discrepant results. Whether this socially constructed difference will affect the use of concept mapping in teaching Business Studies among secondary school students holds equal attraction to this study. The study therefore seeks to determine the effect of concept mapping on students' achievement and retention in Business Studies in secondary schools in Anambra State, Nigeria.

Statement of the Problem

Teaching and learning of business studies in secondary schools have evolved over the years. There is an increased expectation placed on the role business studies can play in preparing students for the world of business. As the new 9-3-4 system of education provides students option to leave school at the end of the junior secondary education, these category of students need to be well prepared to understand the intricacies of the business world. It is envisaged that business studies can serve as means to this end.

It has been observed however, that students have continued to record underachievement in this important subject at the Basic School Examinations. This underachievement is an indication that the students have not been adequately prepared to meet the objectives for which the subject was created. It is also an indication that the students are not able to retain what have been taught them. Thus, teaching strategies employed by teachers in teaching business studies could be a major cause for poor achievement and retention among students.

Considering the need to improve students' achievement in business studies, it becomes necessary to explore alternative strategy for teaching the subject. It is assumed that if a more effective strategy is employed, students' achievement capacity could improve. In recent times, no attempt has been made to establish the effect, if any, of concept mapping on students' achievement in business studies especially in the prevailing socio-political and economic uncertainty. At the moment, it would remain a costly assumption to conclude that concept mapping can improve students' achievement in business studies in junior secondary schools in Anambra State, Nigeria. As such, the problem of this study posed as a question is, what would be the effect of concept mapping on students' achievement in business studies in secondary schools?

Purpose of the Study

The main purpose of the study was to investigate the effect of concept mapping on students' academic achievement in business studies in secondary schools in Anambra State, Nigeria. The specific objectives of the study were to determine:

1. Mean difference in post-test mean achievement scores of secondary school students taught business studies using concept mapping strategy.
2. Mean difference in post-test mean achievement scores of male and female students taught business studies using concept mapping strategy.

Research Questions

The following research questions were answered in the study:

1. What are the differences in the post-test mean achievement scores of secondary school students taught business studies with concept mapping strategies?
2. What are the differences in the post-test mean achievement scores of male and female students taught business studies using concept mapping strategy?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant difference between the posttest mean achievement scores of students taught business studies using conventional and concept mapping strategies.
2. There is no significant difference between the posttest mean achievement scores of male and female students taught business studies using concept mapping strategy.

Method

This study adopted a non-equivalence pre-test, post-test, quasi-experimental design. The area for the study was Anambra State, Nigeria. The target population of the study is 21, 109 JSII students (9, 988 males and 11, 121 females) in the 164 coeducational public secondary schools across the six education zones in Anambra State. Two intact classes selected from two different schools participated in the study. The classes were selected using simple systematic sampling technique. Classes were assigned to control and experimental classes by tossing of coin. The sample of the study was 100 students from two intact classes. Control group class has 51 students comprising 28 female and 23 male; while the experimental class has 49 students comprising 21 male and 28 female. The instrument used for the study was Business Studies Achievement Test (BUSAT) constructed from the business studies scheme of work for first term junior secondary school three (JSSIII). An initial draft of BUSAT was sent to three validators for face and content validation. Among the validators, two were from the Department of Technology and Vocational Education and one from Measurement and Evaluation Unit of Educational Foundations Department, Nnamdi Azikiwe University, Awka. The reliability of the instrument was determined by administering 30 copies of BUSAT on a trial group of an intact class of junior secondary school two (JSS II) students in Enugu State who are not part of the study. A follow-up test was re-administered after rearrangement of serial numbers of questions on the same group after an interval of one week. The scores obtained after the two tests were subjected to analysis using Pearson Product Moment Correlation Coefficient (r). The BUSAT yielded a coefficient index of 0.96, which according to Creswell, indicates a strong correlation. The BUSAT therefore, was considered reliable.

The experiment were carried out in two phases. Phase I consisted of training of the participating teachers. Phase II involved the teaching of students (treatment) using the conventional teaching method and concept mapping. The training programme for teachers lasted one week and involved two teachers for both the experimental and control groups. The researcher met twice a week with the trainee-teachers in their schools and training lasted at least two hours per contact. Treatments for students-participants lasted four weeks. Mean and standard deviation were used to analyse data related to the research questions, while t-test was used to test the hypotheses at 0.05 level of significance. The t-test was considered appropriate because it is used to determine the difference between two independent means. The decision on hypotheses was that where the p-value was less than the level of significance (.05), the null hypothesis was rejected and where the p-value was greater than the level of significance, the null hypothesis was accepted. The analysis was carried out using SPSS version 25.

Results

The findings of the study are presented here.

Research Questions

Research Question One: What are the differences in the post-test mean achievement scores of secondary school students taught business studies using conventional and concept mapping strategies?

Table 1: Mean achievement scores of students in conventional and concept mapping groups in business studies

Descriptive Statistics

	N	Mean		Std. Deviation	
	Statistic	Statistic	Std. Error	Statistic	Mean Diff.
Scores of Students in Control Group	51	16.0196	.53687	3.83401	
Scores of Students in Experimental Group	49	49.4490	.62750	4.39252	
	100				33.43

Table 1 shows the mean difference in the achievement scores of secondary school students taught business studies using the conventional and concept mapping strategies. Students taught with conventional teaching method recorded a mean achievement score of 16.02 while students taught business studies using the concept mapping strategy recorded a mean achievement score of 49.45. In other words, students in the concept mapping group has better mean achievement score than students in the conventional group with a mean difference of 33.43.

Research Question Two: What are the differences in the post-test mean achievement scores of male and female students taught business studies using concept mapping strategy?

Table 2: Mean achievement scores of male and female students in business studies

Descriptive Statistics

	N	Mean		Std. Deviation	
	Statistic	Statistic	Std. Error	Statistic	Mean Diff.
Scores of Male Students	21	37.6364	2.36520	15.68897	
Scores of Female Students	28	42.8750	1.54606	11.56965	
Valid N (listwise)	49				5.24

Table 2 shows the mean difference in the achievement scores of male and female secondary school students taught business studies using the concept mapping strategy. Male students recorded a mean achievement score of 37.64 while female students taught business studies using the concept mapping strategy recorded a mean achievement score of 42.88. In other words, female students has better mean achievement score than male students in business studies with a mean difference of 5.24.

Hypotheses

1. There is no significant difference between the posttest mean achievement scores of students taught business studies using conventional and concept mapping strategies.

Table 3: t-test of difference between mean achievement scores of students taught business studies using conventional and those taught using concept mapping strategies

Independent Samples Test

		t-test for Equality of Means								
		F							95% Confidence Interval of the Difference	
			Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Scores of students	Equal variances assumed	16.124	.000	-1.922	98	.058	-5.23864	2.72618	-10.64865	.17137
	Equal variances not assumed			-1.854	76.655	.068	-5.23864	2.82568	-10.86569	.38842

Table 3 shows the t-test of significant difference between the mean achievement scores of male and female junior secondary school students taught business studies using the concept mapping strategy. The p-value of 0.00 is less than the alpha value of 0.05. Since the p-value is less than the alpha value, the null hypothesis is therefore rejected. This indicates that there is significant difference between the mean achievement scores of students taught business studies using conventional and concept mapping strategies.

2: There is no significant difference between the posttest mean achievement scores of male and female students taught business studies using concept mapping strategy.

Table 4: t-test of difference between mean achievement scores of male and female students taught business studies using concept mapping strategy

Independent Samples Test

			t-test for Equality of Means							
									95% Confidence Interval of the Difference	
			F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Scores of Students in Concept Mapping Group		Equal variances assumed	.311	.578	-40.591	98	.000	-33.42937	.82357	-35.06373	-31.79502
		Equal variances not assumed			-40.480	95.082	.000	-33.42937	.82583	-35.06882	-31.78992

Table 4 shows the t-test of significant difference between the mean achievement scores of male and female junior secondary school students taught business studies using the concept mapping strategy. The p-value of 0.58 is greater than the alpha value of 0.05. Since the p-value is greater than the alpha value, the null hypothesis is therefore accepted. This indicates that there is no significant difference between the mean achievement scores of male and female students taught business studies using concept mapping strategies.

Discussion

The study found that students taught business studies with concept mapping had better mean achievement score than those taught with conventional strategy. The corresponding hypothesis indicates that there is significant difference between the mean achievement scores of students taught business studies with concept mapping and conventional strategies. The observed difference in the mean achievement scores of students in both groups is in line with the findings of earlier studies on the efficacy of concept mapping in students' achievement. For instance, Sultan (2014; and Singh and Moono (2015) found that concept mapping is an effective teaching strategy in English, Mathematics and Sciences. The present finding indicates that concept mapping can provide a better alternative to the conventional strategies in teaching business studies.

The study however found a slight difference in the achievement scores of male and female students taught business studies using concept mapping. Female students were found to have recorded better achievement. The corresponding hypothesis however, has shown that the observed difference is not statistically difference. In other words, there is no significant difference in the mean scores of the two groups. The observed difference was a matter of chance. The finding is consistent with Shakoori, Kadivar and Sarami (2017) who found that gender was not a mediatory variable in students' achievement when exposed to concept mapping strategy. It however disagreed with Woldeamanuel, Abate and Berhane (2020) who found that gender

constituted an important factor in students' achievement after exposure to concept mapping strategy.

Conclusion

The study investigated the effect of concept mapping on academic achievement of secondary schools students in business studies in Anambra State, Nigeria. The findings of the study have shown that the concept mapping strategy could be a better alternative in teaching business studies in secondary schools. The efficacy of the concept mapping strategy in improving achievement in business studies as well as being a better alternative to the conventional methods are indicated. It may be concluded that the use of concept mapping strategy could be extended to the teaching of business studies in secondary schools for better students' academic achievement.

Recommendations

1. Business studies teachers should adopt the concept mapping strategy in the teaching business studies in secondary schools in order to improve students' learning outcome.
2. Government should provide adequate fund and opportunity for the training of business studies teachers in the art and principle of concept mapping so that they can employ the strategy effectively in the schools.
3. Government and school leadership should provide necessary facilities for the use of concept mapping strategy in the teaching of business studies in secondary schools.

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