

TEACHERS RATING OF THE EFFECTIVENESS OF JIGSAW AND CONCEPT MAPPING COLLABORATIVE STRATEGY IN TEACHING BUSINESS SUBJECTS IN SENIOR SECONDARY SCHOOLS IN ANAMBRA STATE

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ABSTRACT

The main purpose of the study was to examine teachers rating of the effectiveness of jigsaw and concept mapping collaborative learning strategies in teaching business subjects in senior secondary schools in Anambra state. Two research questions guided the study and two hypotheses were tested. The descriptive survey research design was adopted for the study. The population of the study comprised all 296 business subject teachers in secondary schools in 21 local government areas of Anambra State. The instrument for data collection was a validated structured questionnaire developed by the researcher. The test of reliability of the instrument using Cronbach Alpha yielded coefficient values of 0.84 and 0.77 were attained for clusters 1 and 2 respectively with over all co-efficient value of 0.80. Data collected for the study were analyzed using mean, standard deviation and t-test. The mean value was used to answer the research questions while the standard deviation was used to ascertain the homogeneity or otherwise of the respondents' responses. t-test was used to test the null hypotheses at .05 level of significance. Findings of the study revealed that jigsaw and concept mapping are highly effective collaborative learning strategies for teaching business subjects in senior secondary schools in Anambra State. Findings also revealed that the gender and location did not influence business teachers' opinion on the effectiveness of that jigsaw and concept mapping collaborative learning strategies for teaching business subjects in senior secondary schools in Anambra State. The researcher concludes that that the adoption of jigsaw and concept mapping collaborative teaching strategies would improve the quality of teaching learning of business subjects in senior secondary schools in Anambra State. Based on these findings, the researcher recommends among others, that administrators of secondary schools in senior secondary schools should regularly organize training workshops that would educate teachers on the use of teaching strategies like jigsaw in teaching business concepts.

Keywords: Effectiveness, Jigsaw, Concept Mapping, Collaborative Strategy, Business Subjects

Introduction

Education is the engine of national development. It is the tool with which the human capital of every nation is developed. This is why the Federal Republic of Nigeria (FRN) (2013) in its National Policy on Education saw education as instrument per excellence. In Nigeria, education is conducted at the lower basic, higher basic, senior secondary and

tertiary level. The senior secondary level of education is the focus of this research. The senior secondary is the level of education that prepares students for useful living within the society and for higher education (FRN). Senior secondary education is to provide a higher level of education for all primary school leavers, offer diversified curricular to cater for all, provide sub-professional manpower in science, technology and commerce, provide technical knowledge and vocational skills, inspire desire for self-improvement and achievement and raise citizens who can analyse and respect the views of others accordingly. In order to achieve the objectives of senior secondary education, some subjects have been included in the curriculum to equip students with requisite knowledge and skills. Business subjects are examples of the subjects in senior secondary school which instill vocational and business skills in students. Business subject involves a lot of activities ranging from those requiring students to discuss issues, solve problems using application software, participate in business simulation, think critically, work cooperatively and make business decisions.

Business subjects are that aspect of education that concern itself with vocational and professional preparation for career in business. Business subjects is further seen as a comprehensive, practical and skill subject, on the other hand it is maintained that business education equips students with knowledge and skills that will help them to find a job after schooling or create their own employment. According to Okoro in Okeke and Chukwudolue (2018), business subject are subjects which promotes saleable skills acquisition and employment generation. Business subject is made up of five major components as reflected in the 2012 basic education curriculum thus: Office Practice, Commerce, Account and Computer. The main objectives of business subject and other related subjects, is to instil in the students a pattern of thinking, develop attitudes and values before such habits become unchangeable, since it has become a psychological fact that after few years of one's life, ways of reasoning, behaviours, analysis and economic decisions somehow follow a fixed pattern. Business subjects are one of the elective pre-vocational subjects. It is packed with all the relevant knowledge, skills, experiences and activities that will lead to the realization of the goals of junior secondary education. However, the realization of the goals of business subjects in secondary school appears not to have been achieved. This seems to have been caused by inability of teachers to utilize effective teaching strategy.

Effective teaching is the process whereby a teacher creates the conditions and experiences that will help learners acquire knowledge, apply it and retain it. The primary aim of teaching is to facilitate students' learning. In the view of Okolocha and Ifi (2018), effective teaching process therefore covers what happens from the planning of the instruction, the actual delivery of the planned instruction as well as assessing the students. Effective teaching requires an understanding of the subject or concept, the ability to differentiate learning opportunities, incorporate pedagogical practices and check for understanding. The Jigsaw and concept mapping strategies have been suggested as strategies that could help promote students understanding of business concepts and application of knowledge learnt to real life situation.

Jigsaw is a method intended to provide collaborative learning environments. It emphasizes interaction among workgroup members. Jigsaw is a class organization approach in which students are grouped into "jigsaw" groups. The students are then reassembled into "expert" groups, with one representative from each jigsaw group. Members of the expert groups collaborate to learn the subject or solve the problem, then return to their "jigsaw" groups to communicate what they've learned (Amedu, Otuka & Uzoechi, 2015). In this way, the work of the expert groups is quickly disseminated throughout the class, with each person taking responsibility for sharing a piece of the topics. Jigsaw is an effective approach for students to become interested in their learning, absorb a large amount of content rapidly, exchange information with other groups, reduce listening time, and hold themselves individually accountable for their learning. Le, Janssen and Wubbels (2018) opined that jigsaw enhances interaction and develops an attitude of collaboration and respect for other students since each group relies on its members to perform well in order for the entire group to do well. Similarly, concept mapping is seen as a strategy that could enhance learning of business concepts.

Concept mapping is a collaborative learning technique that allows students working in groups a way of illustrating the connections that exist between terms or concepts covered in course material. Concept mapping as a process or technique of representing concepts and their inter relationship in a two dimensional structure, showing the concept in a topic/units in their aches and interconnections (Ugwumba, 2018). It provides a technique for representing knowledge in graphical or diagrammatical form with lines and phrases. It is also based on the modern theory of learning that knowledge is not isolated, rather knowledge are linked in a web form through words and concepts. Okolocha and Ifi (2018) asserted that concepts map as a two or three dimensional spatial or graphic display that make use of labels to represent concept and lines or arcs to represent relationship between the pair of concept. Okeke and Chukwudolue (2018) asserted that this technique has been proven to be effective in teaching. The adoption of these strategies could be influenced by factors like gender of teachers and location of school. This assertion however has not been empirically proven in Anambra State. It is against this background that the researcher determined the effectiveness of jigsaw and concept mapping strategy in teaching business subjects in senior secondary schools in Anambra State.

Statement of the Problem

Secondary education is an important aspect of education in Nigeria. This is because of its place in the development of students for useful living and for higher education. However, teaching of business subjects in secondary schools in Anambra State in Particular and Nigeria in general seem to have failed in instill in students with requisite knowledge and skills. Field observation by the researcher reveal that students lack comprehensive understanding of concepts taught in business subjects as these students are unable to apply the knowledge and skills supposedly acquired from the subject to real life situations. This is manifested in the academic performance of students in business subjects like accounting and office practice. The researcher is worried that if this situation is allowed to continue, it will lead to increased dropout rate among business subjects resulting in high rate of

criminal activities in the state. It is therefore pertinent to identify effective strategies for teaching business subjects.

Research Questions

The following research questions guided the study:

1. How effective is jigsaw collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state?
2. How effective is concept mapping collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state?

Hypotheses

The following null hypotheses guided this study:

1. There is no significant difference in the mean rating of teachers in rural and urban areas on the effectiveness of jigsaw collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state.
2. There is no significant difference in the mean rating of male and female teachers on the effectiveness of concept mapping collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state.

Methodology

This study employed descriptive survey research design. It was carried out in Anambra State. The population of the study consisted of the 296 business subject teachers in secondary schools in six education zones of Anambra State. The instrument for data collection was questionnaire. The questionnaire was titled “Teachers Rating of the Effectiveness of Jigsaw and Concep Mapping Strategies Questionnaire (TREJCMSQ)”. The instrument is divided into two sections -A and B. Section A consists of the respondents’ demographic data (gender and location), while section B is further sub divided into two clusters, 1 and 2. Cluster 1 contains 10 items on the effectiveness of jigsaw learning strategy while Cluster 2 contains 10 on the effectiveness of concept mapping strategy in teaching business subjects in senior secondary schools in Anambra state. The questionnaire is structured on a 5-point rating scale of very high effectiveness, high effectiveness, moderate effectiveness, low effectiveness and very low effectiveness. The instrument was validated by three experts in the Faculty of Education, Chukwuemeka Odumegwu Ojukwu, Igbariam campus. The reliability of the instrument was tested using Cronbach alpha method. Cronbach alpha method was used so as to determine the internal consistency of the instrument. This was done first by administering the questionnaire to a similar group of 20 business subject teachers in Enugu State which is outside the study area. The internal consistencies of the items in the clusters were determined using Cronbach alpha statistics. The coefficient values of 0.84 and 0.77 were attained for clusters 1 and 2 respectively with over all co-efficient value of 0.80. The researcher administered the instrument with the help of four research assistants. The administration of the instrument was done through direct delivery approach. By this method, copies of the questionnaire were distributed personally to the respondents by the researcher with the help of three research assistants in the schools sampled for the study. The researcher briefed the research assistance in each school, during which the researcher educated the research

assistants for clarity and purpose of the research, the contents of the questionnaire, how to administer the instruments as well as how to ensure proper retrieval of responded copies of the questionnaire completed by the respondents. Out of the 296 copies of the questionnaire administered, 262 copies were returned in good condition. This accounted for 88.51% return rate of the questionnaire administered. The reason for this return rate was because some of the questionnaires administered was not returned by some teachers despite efforts by the researcher or research assistants.

Data relating to the research questions raised was analyzed using mean and standard deviation. Specifically, standard deviation was used to determine the homogeneity or heterogeneity of the respondent response. Items with mean response of 4.50 - 5.00 was regarded as very high effectiveness; items with mean scores between 3.50 - 4.49 was regarded as high effectiveness; mean scores that range between 2.50 - 3.49 was regarded as moderate effectiveness; mean scores that ranges between 1.50 - 2.49 was regarded as low effectiveness, while mean scores ranging between 1.00 – 1.49 are very low effectiveness. For the hypotheses, two tailed t-test was used to test the null hypotheses at .05 level of significance. The t-test is used in this study because it helps to determine the difference in the mean rating of respondents based on their gender and location. Where the calculated t value is less than the critical value of t, it means that there is no significant difference and the hypothesis was accepted. Conversely, where the calculated t value is equal to or greater than the critical t value, it means that there is significant difference and the hypothesis was rejected.

Results

Research Question 1

How effective is jigsaw collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state?

Table 1: Respondents Mean Ratings on the Effectiveness of Jigsaw Collaborative Learning Strategy in Teaching Business Subjects in Senior Secondary Schools (N=262)

S/N	Item Statements	Mean	SD	Remarks
1	Open discussions among peers during teaching of business subject contents	3.66	0.77	High Effectiveness
2	Learning process of business subject which relates to different concepts is made easy through this learning strategy	3.87	0.85	High Effectiveness
3	There is room for home groups organized and categorised by the teachers	3.65	0.72	High Effectiveness
4	In giving elaborate explanations on all business subject areas during the teaching process	3.77	0.75	High Effectiveness
5	During jigsaw learning, teachers and students' views are accepted and opposed where necessary concerning business subjects	3.53	0.70	High Effectiveness
6	Interaction among learners enhances their mastery of a given concept	3.59	0.76	High Effectiveness
7	In teaching business subject, jigsaw appoints students in the group as leaders hence there is coordination	3.80	0.89	High Effectiveness
8	The jigsaw process divides business subject concept into segments for easy comprehension	3.60	0.78	High Effectiveness
9	Through jigsaw students present their concepts in to the group while encouraging others to ask for clarification	3.71	0.76	High Effectiveness
10	From different groups assigned to students, presentation of learning materials is done to sub-groups	3.56	0.75	High Effectiveness
	Cluster Mean	3.67		High Effectiveness

Data in Table 1 revealed that the respondents rated items, 1 to 10 as having high effectiveness with mean ratings ranging between 3.53 to 3.87. The standard deviation scores ranging between 0.72 and 0.89 shows that the respondents' opinions were close. Furthermore, the cluster mean of 3.73 indicate that jigsaw is a highly effective collaborative learning strategy for teaching business subjects in senior secondary schools in Anambra state.

Research Question 2

How effective is concept mapping collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state?

Table 2: Respondents Mean Ratings on the Effectiveness of Concept Mapping Collaborative Learning Strategy in Teaching Business Subjects in Senior Secondary Schools (N=262)

S/N	Item Statements	Mean	SD	Remarks
11	Business subject concepts presented through this medium are more understandable to the learners	4.14	0.91	High Effectiveness
12	Views are accepted where necessary concerning business subjects	3.67	0.78	High Effectiveness
13	Discussion among peers during teaching of business subjects is highly promoted	3.55	0.72	High Effectiveness
14	Improves on students' prior knowledge about a particular concept before each lesson is introduced	3.88	0.87	High Effectiveness
15	In giving elaborate explanations on all business subject areas during classroom lessons	3.50	0.70	High Effectiveness
16	Many corrections in business subjects are pointed out	3.59	0.74	High Effectiveness
17	Understanding of the concepts of business subject topics are shown	3.68	0.78	High Effectiveness
18	Errors in terminologies in business subjects are pointed out once made	3.77	0.75	High Effectiveness
19	All concepts are placed in hierarchy according to business subject course content	3.65	0.89	High Effectiveness
20	The direction of a given subject area in business studies is highlighted through concept mapping	3.64	0.76	High Effectiveness
	Cluster Mean	3.70		High Effectiveness

Data in Table 2 revealed that the respondents rated items, 11 to 20 as having high effectiveness with mean ratings ranging between 3.50 to 3.88. The standard deviation scores ranging between 0.72 and 0.89 shows that the respondents' opinions were close. Furthermore, the cluster mean of 3.70 indicate that concept mapping is a highly effective collaborative learning strategy for teaching business subjects in senior secondary schools in Anambra state.

Hypothesis 1

There is no significant difference in the mean rating of teachers in rural and urban areas on the effectiveness of jigsaw collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state.

Table 3: Summary of t-test Analysis of Respondents Mean Ratings of Teachers in Rural and Urban Areas on the Effectiveness of Jigsaw Collaborative Learning Strategy in Teaching Business Subjects in Senior Secondary Schools

Variable	N	X	SD	df	α	t-cal.	t-crit.	Decision
Rural Teachers	88	3.59	0.74	260	0.05	0.58	1.960	Not Significant
Urban Teachers	174	3.65	0.79					

Data in Table 3 showed that the calculated t-value of 0.58 at 260 degree of freedom at 0.05 level of significance is less than the critical value of 1.960. This shows that there is no significant difference in the mean rating of teachers in rural and urban areas on the effectiveness of jigsaw collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state, therefore the hypothesis was accepted.

Hypothesis 2

There is no significant difference in the mean rating of male and female teachers on the effectiveness of concept mapping collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state.

Table 4: Summary of t-test Analysis of Respondents Mean Ratings of Male and Female Teachers on the Effectiveness of Concept Mapping Collaborative Learning Strategy in Teaching Business Subjects in Senior Secondary Schools

Variable	N	X	SD	df	α	t-cal.	t-crit.	Decision
Male Teachers	75	3.64	0.78	260	0.05	1.39	1.960	Not Significant
Female Teachers	187	3.80	0.86					

Data in Table 4 showed that the calculated t-value of 1.39 at 260 degree of freedom at 0.05 level of significance is less than the critical value of 1.960. This shows that there is no significant difference in the mean rating of male and female teachers on the effectiveness of concept mapping collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state, therefore the hypothesis was accepted.

Discussion

Findings revealed that jigsaw collaborative learning strategy is highly effective in teaching business subjects in senior secondary schools in Anambra State. Findings further revealed that the effectiveness of jigsaw collaborative learning strategy in teaching business education in Anambra State is because it allows for interaction among learners enhances their mastery of a given concept, allows for open discussions among peers during teaching of business subject contents and divides business subject concept into segments for easy comprehension. This finding is in agreement with Ojekwu and Ogunleye (2020) who reported that jigsaw collaborative learning strategy is effective for teaching because it improves students comprehension and information retention. Ojekwu and Ogunleye noted

that jigsaw as a teaching strategy offer teachers and students a tool that improves collaborative learning. Fakomogbon and Bolaji (2017) reported that jig saw as a collaborative learning styles is more effective for learning in a mobile learning environment compared to non-collaborative learning style.

Furthermore, findings of the study revealed that no significant difference in the mean rating of teachers in rural and urban areas on the effectiveness of jigsaw collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state. This implies that business subject teachers irrespective of their location opined that problem-centered collaborative learning strategy is highly effective in teaching business subjects in senior secondary schools in Anambra State.

Findings revealed that concept mapping collaborative learning strategy is highly effective in teaching business subjects in senior secondary schools in Anambra State. Findings further revealed that the effectiveness of concept mapping collaborative learning strategy in teaching business education in Anambra State is because it makes concepts more understandable to the learners, promotes discussion among peers and it improves students' prior knowledge about a particular concept among others. This finding is in disagreement with Ogunji, Igba and Ogunji (2017) who reported that concept mapping method had no effect in the mean achievement scores of students taught social studies. However, the findings of the study is in agreement with Ugwumba (2018) who revealed that there was a significant effect of concept mapping instructional strategy on students academic achievement. This means that concept mapping as a collaborative learning strategy is effective for teaching business subjects as indicated by the finding of the presents study.

Further, findings revealed no significant difference in the mean rating of male and female teachers on the effectiveness of concept mapping collaborative learning strategy in teaching business subjects in senior secondary schools in Anambra state. This finding showed that business studies teachers irrespective of their gender agreed that concept mapping is a highly effective collaborative learning strategy for teaching business subjects in senior secondary schools in Anambra State. This is in agreement with Ugwumba (2018) who discovered that gender was not found to have a significant effect on the respondents opinion on the effect of concept mapping on students academic achievement.

Conclusion

Based on the findings of the study the researchers concludes that the adoption of jigsaw and concept mapping collaborative teaching strategies would improve the quality of teaching learning of business subjects in senior secondary schools in Anambra State. It is imperative that business studies teacher irrespective of their gender and location see the application of these strategies as crucial to the realization of the specific goals of business subjects in senior secondary schools in Anambra State.

turn lead to higher academic achievement.

Recommendations

Based on the findings of this study, the study proffers the following recommendations:

1. Administrators of secondary schools in senior secondary schools should regularly organize training workshops that would educate teachers on the use of teaching strategies like Jigsaw in teaching business concepts. These training workshops can also educate teachers on the current trends in the use of jigsaw in teaching business topics.
2. Business studies teachers can improve their knowledge on the use of concept mapping for teaching business subjects by reading books, journal and periodicals that comprehensively explored the diverse use of concept mapping for different business topics.

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