



EFFECT OF CONCEPT MAPPING ON HIGHER NATIONAL DIPLOMA STUDENTS' ACHIEVEMENT AND RETENTION IN ADVERTISING IN POLYTECHNICS IN BENUE AND KOGI STATES OF NIGERIA

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Abstract

This study determined effects of concept mapping on Higher National Diploma (HND) students' achievement and retention in advertising in polytechnics in Benue and Kogi States of Nigeria. The study adopted a quasi-experimental research design and was carried out in Benue and Kogi States, Nigeria. The population for the study comprised 228 HND II students offering marketing in the four polytechnics in Benue and Kogi States of Nigeria. Two research questions and two hypotheses were used for the study. Purposive sampling technique was used to select two polytechnics, which were Benue State Polytechnic Ugbokolo, with 35 HND II marketing students, and Federal Polytechnic Idah, with 30 HND II marketing students, making the total sample frame to be 65 HND II marketing students. The instrument for data collection was a 20-item multiple choice Advertising Achievement Test (AAT). The instrument was subjected to face and content validation by five experts. The reliability of the instrument was determined using Kuder Richardson 21 (K-R 21) formula which yielded a reliability coefficient of 0.78. The data collected were analyzed using mean and standard deviation to answer the research questions, while Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. Based on the data collected and analyzed, and results interpreted, the study found that the Concept Mapping (CM) technique significantly increased students' academic achievement and retention of learning in advertising. There was significant difference ($p < 0.05$) in the mean achievement scores of students taught with concept mapping technique and those taught with Conventional Teaching Method Only (CTMO). Based on these findings, the study recommended among others that: since the use of concept mapping technique significantly enhanced academic achievement and retention of students, lecturers should be encouraged to adopt the use of this technique for instructional delivery.

Key Words: *Concept Mapping, Achievement, Retention, Advertising*

Introduction

The business world depends largely on advertising for promoting its ideas, products and services. In the modern society, advertising is prevalent in our daily lives as seen in both the print and broadcast or electronic media. It is the branch of marketing that informs customers about products, brands, services and their companies. It influences the choice we make.

By definition, advertising is any paid form of non-personal presentation and promotion of ideas goods or services by an identified sponsor (Kotter & Armstrong, 2010). Similarly, Grewal and



Levy (2010) defined advertising as a paid form of communication, delivered through media, from an identified source, about an organization, product, service or idea, designed to persuade the receiver to take some action now or in the future. Advertising performs some roles such as to:

Inform-People want information on product usage, product contents, and innovations among others.

Persuade buyers need to be convinced to conclude a purchase.

Remind buyers advertising keeps the company's or product's message alive in the minds of the target audience.

Generate employment and revenue for the people and government of a nation. Employees of media houses and advertising agencies pay taxes to the government through revenue they have generated (Kotler & Armstrong, 2010; Anyanwu, 2000).

Advertising like sales promotion, personal selling and public relations/ publicity is one of the components of marketing communication taught in polytechnics. Most polytechnic lecturers in marketing department are not exposed to the methodology and pedagogy of instruction in education. Ogwo and Oranu (2006) and Jimoh-Kadiri in Onyesom (2017) affirmed that most lecturers in polytechnics have no training in pedagogy. Thus, they teach through the conventional lecture method. This is largely responsible for the high level of anxiety and failure expressed by their students. The current teaching method could be improved through the integration of concept mapping in order to produce competent graduates.

Concept Mapping (CM) is a graphical arrangement of key concepts to show meaningful relationship among selected concepts or ideas being studied. Canas, Coffey, Carnot, Feltoovich, Hoffman, Feltoovich and Novak (2003) defined CM as a graphical representation of knowledge that comprises concepts and the relationships between them. Similarly, Olaitan, Igbo, Ekong, Nwachukwu and Onyemachi (1999) explained CM as an approach to represent sets or words graphically in order to systematically understand all aspects of the characteristics of those sets or words. It follows a hierarchical order in which the major concepts called primary concepts, are placed on top of a map, with the less inclusive ones (that is, secondary and tertiary concepts) placed below.

Concept mapping is used, among others for:

Organising information for easy understanding;

Simplifying complex ideas;

Representing information visually; (Ogwo & Oranu, 2006)

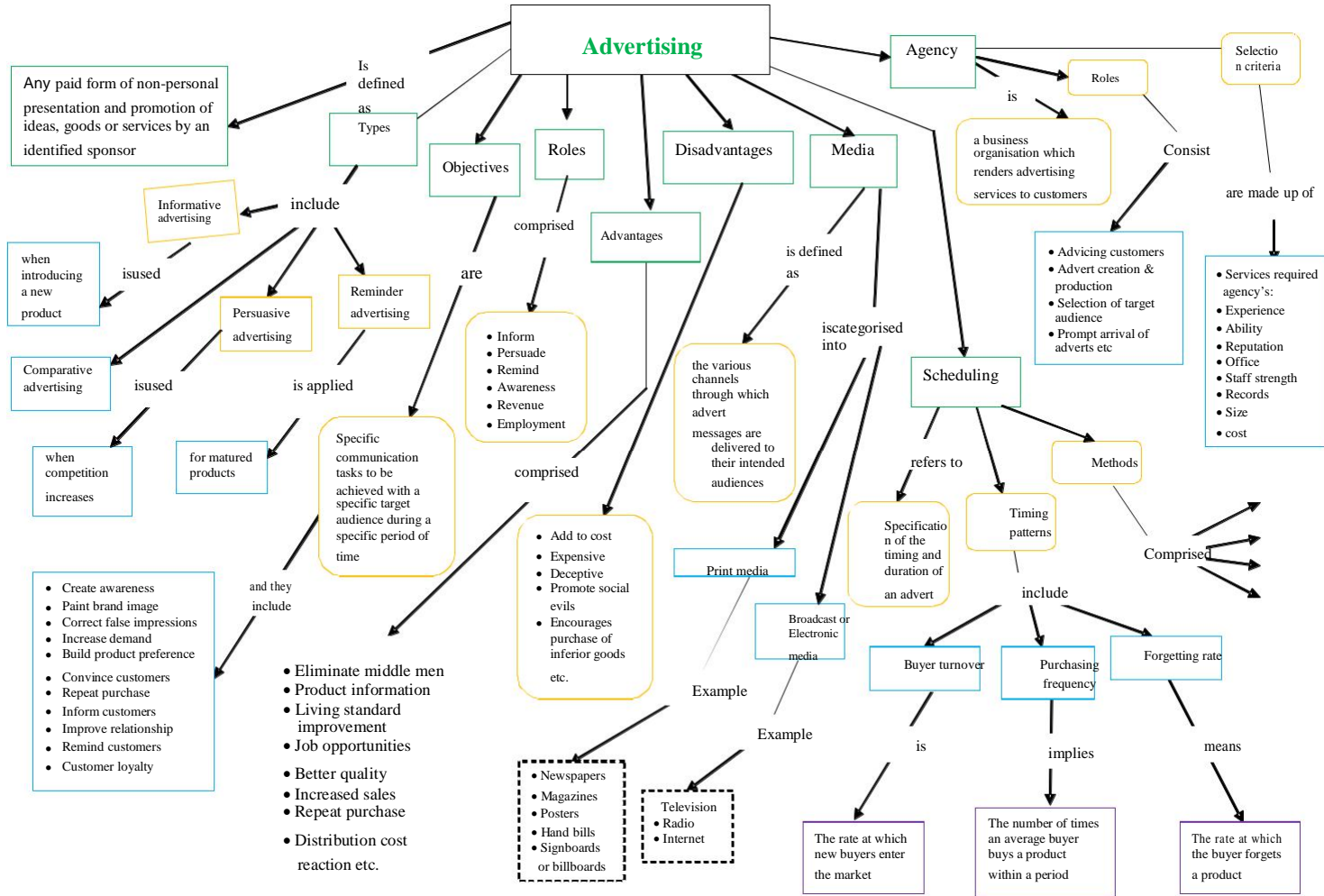
Highlighting key concepts in any topic and linking them sequentially. (Nworgu, 2009)

Delivering instruction in any subject or discipline and

Determining student's achievement (Ajoma, 2017)

Achievement refers to what an individual has succeeded in doing usually by effort and skill. Manjula (2010) defined achievement as the level of success attained in some general or specific area. It is quantified by a measure of the student's academic standing in relation to those of other students who were exposed to the same material (Anene, 2005). Retention is ability to recall or recognize what has been learnt or experienced. Agomuoh (2010) defined retention as ability to store facts and remember things easily. Achievement and retention could be determined through test. A test is a set of questions, exercises, or practical activities to measure someone's skill, ability, or knowledge.

FIGURE 1: CONCEPT MAPPING ON ADVERTISING





In this study, Advertising Achievement Test (AAT) was administered on the HND marketing students. The scores obtained in this test helped to justify the superiority or otherwise of CM over Conventional Teaching Method Only (CTMO) in their effectiveness. Therefore, this study determined the effects of CM on HND students' achievement and retention in advertising in polytechnics in Benue and Kogi States of Nigeria.

Statement of the Problem

Lecturers of marketing in Nigerian polytechnics have a goal to impart knowledge, skills and attitudes to students in their subject areas. They are to teach the content of their subject areas to students towards the achievement of the objectives of HND marketing as contained in NBTE curriculum. Therefore, the system accords the teachers the sole responsibility of teaching the contents of advertising to students for the achievement of its objectives after graduation.

The greatest challenge of studying marketing is the teaching technique for inculcating the expected skills to its recipients. According to Ajoma (2017), students dread the advertising aspect of marketing as they find it the most difficult to learn and pass examination among all the courses in the marketing programme due to the "talk and note taking" teaching approach. The teaching technique applied to any course has a direct and consequential effect on the student's achievement and retention in that course. This study therefore determined the effects of CM on HND students' achievement and retention in advertising in polytechnics in Benue and Kogi States of Nigeria.

Purpose of the Study

The major purpose of this study was to determine the effects of CM on HND students' achievement and retention in advertising in polytechnics in Benue and Kogi states of Nigeria. Specifically, the study determined:

The mean scores of HND students taught advertising using CM technique and those taught with CTMO.

The mean difference in retention scores of HND students taught advertising using CM technique and those taught with CTMO.

Research Questions (Rqs)

The following research questions guided the study.

What are the mean achievement scores of HND students taught advertising using CM technique and those taught with CTMO?

What is the mean difference in HND students' retention scores when taught advertising using CM technique and those taught with CTMO?

Null Hypotheses

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

Ho₁: There is no significant difference in the mean achievement scores of students taught advertising using CM technique and those taught with CTMO.

Ho₂: There is no significant difference in the mean retention scores of students taught advertising using CM technique and those taught with CTMO.

Method

This study adopted a quasi-experimental design on a population of 228 HND II marketing students drawn from the four polytechnics in Benue and Kogi States of Nigeria. The sample consisted of 65 (HND II) marketing students from Benue State Polytechnic Ugbokolo (35 students) and Federal Polytechnic Idah (30 students). A twenty item multiple choice objective Advertising Achievement Test (AAT) instrument, lesson plans and advertising concept map were subjected to face and content validation by five experts.

The AAT was administered on a trial group of intact class of 20 HND II Marketing students at Federal Polytechnic Nasarawa to determine its reliability using the Kuder Richardson 21 (K-R-21) formula which obtained internal consistency index value of 0.78. The Test-retest procedure applied confirmed the stability of the AAT at a 0.76 index. A correlation of the two indices using Pearson Product Moment Correlation Coefficient confirmed the instrument to be both reliable and stable.

The data collected for this study were analyzed using mean and standard deviation to answer the research questions, and Analysis of Covariance (ANCOVA) statistics for testing the hypotheses at 0.05 level of significance.

Results

Table 1: Pre-test and Post-test Mean Scores of HND Students taught with CM Technique and those taught with CTMO in Advertising Achievement Test.

Variable	N	Pre-test		Post-test		Mean Gain
		\bar{x}	SD	\bar{x}	SD	
CM Technique.	35	7.54	1.34	13.37	2.16	5.83
CTMO	30	5.27	1.89	9.33	2.04	4.06

Data in Table 1 show that the experimental group taught advertising using CM Technique has a pre-test achievement mean scores of 7.54, a standard deviation of 1.34 and a post-test achievement mean scores of 13.37, a standard deviation of 2.16. The difference between the pre-test and post-test achievement mean scores for the experimental group is 5.83. The control group taught advertising using CTMO had a pre-test achievement mean scores of 5.27, a standard deviation of 1.89 and a post-test achievement mean scores of 9.33, a standard deviation of 2.04. The difference between the pre-test and post-test achievement mean scores for control group was 4.06. However, for each of the groups, the post-test achievement means are greater than the pre-test achievement means, with the experimental group having the higher mean gain ($5.83 > 4.06$). This is an indication that instructional modes (CM Technique or CTMO) have some effects on students' achievement in Advertising.

Table 2: Pre-test and Retention Mean Scores of HND Students taught CM Technique and those taught with CTMO in Advertising Achievement Test.

Variable	N	Pre-test		Retention		Mean Gain
		\bar{x}	SD	\bar{x}	SD	
CM Technique	35	7.54	1.34	12.57	1.88	5.03
CTMO	30	5.27	1.89	8.97	1.77	3.70

Table 2 shows that the experimental group taught advertising using CM Technique has a pre-test achievement mean scores of 7.54, a standard deviation of 1.34 and retention mean scores of 12.57, a standard deviation of 1.88. The difference between the pre-test and retention mean scores for the experimental group is 5.03. The control group taught advertising using CTMO has pre-test achievement mean scores of 5.27, a standard deviation of 1.89 and retention mean scores of 8.97, a standard deviation of 1.77. The difference between the pre-test and retention mean scores for control group is 3.70. However, for each of the groups, the retention means are greater than the pre-test achievement means, with the experimental group having higher mean gain (5.03 > 3.70). This is an indication that both CM Technique and CTMO have some effects on students' retention in Advertising.

Table 3: ANCOVA of the Mean Achievement Scores of HND Students taught Advertising using CM Technique and those taught with CTMO.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	270.137 ^a	2	135.069	30.775	.000
Intercept	382.027	1	382.027	87.045	.000
Advert. Pretest	6.729	1	6.729	1.533	.220
Method	137.066	1	137.066	31.230	.000
Error	272.109	62	4.389		
Total	9150.000	65			
Corrected Total	542.246	64			

Level of Significance = 0.05

Table 3 shows an F-ratio of 31.23 obtained with associated exact probability value of 0.00 which is less than the 0.05 level of significance set for testing the hypothesis. This implies that the null hypothesis (H_0) is rejected and there is a significant difference in the mean achievement scores of HND students taught advertising using CM technique and those taught with CTMO. Although both instructional modes resulted in an improvement of the students' achievement scores, CM technique has a higher mean gain.

Table 4: ANCOVA of the Mean Retention Scores of HND Students taught Advertising using CM Technique and those taught with CTMO.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	210.724 ^a	2	105.362	31.000	.000
Intercept	475.488	1	475.488	139.901	.000
Advert. Pretest	.816	1	.816	.240	.626
Method	151.792	1	151.792	44.661	.000
Error	210.722	62	3.399		
Total	8155.000	65			
Corrected Total	421.446	64			

Level of Significance = 0.05



Table 4 shows an F-ratio of 44.66 obtained with associated exact probability value of 0.00 which is less than the 0.05 level of significance used for testing the hypothesis. This means that the null hypothesis (H_0) is rejected and it can be inferred that there is a significant difference in the mean retention scores of HND students taught advertising using CM technique and those taught with CTMO. It shows that CM technique resulted in an improvement of students' retention in advertising. Although both instructional modes resulted in an improvement of the students' retention scores, CM has a higher mean gain.

Discussion of Findings

Effects of Teaching Technique on Students' Achievement in Advertising

The results showed that the use of CM technique for teaching advertising significantly improved HND students' achievement in the AAT than those taught using CTMO. Further investigation on ANCOVA revealed that there was a significant difference between the mean achievement scores of HND students taught advertising using CM technique and those taught with CTMO. This implies that students taught with CM technique achieved more than those taught with CTMO.

This finding is in consonance with those of Eneasato (2014) and Ezeudu (1995, 2013) who found that the use of CM technique in teaching improved students achievement in their courses (geography and organic chemistry) respectively. This means that the experimental group taught with concept maps achieved better than the control group taught with CTMO. This also agrees with the result of research conducted by Imoko (2005), Asan (2007) and Manjula (2010) who found in their separate studies that CM technique were more effective than the CTMO, in fostering students' achievement.

Effects of Teaching Technique on Students' Retention in Advertising

The results ascertained the mean difference in HND students' retention scores when taught advertising using CM technique and those taught with CTMO. This revealed that HND students taught with CM technique had higher mean retention scores than those taught with CTMO which implies that students taught advertising using CM technique retained significantly better than those taught with CTMO. Further investigation on the ANCOVA revealed that there was a significant difference in the mean retention scores of experimental group and control group due to treatment. This result showed that students in the experimental group retained more than those in control group that were taught with CTMO.

The finding supports a similar work on innovative methods that aid retention by Nebo (2009). This is in line with Eneasato (2014) who found that the mean retention scores of experimental groups taught with CM was significantly higher than that of the control group. This corroborates with the result of Abdulhamid (2013) who found that CM technique helps learners for high retention of learning than CTMO.

Conclusion

This study examined the effects of CM on HND students' achievement and retention in advertising in polytechnics in Benue and Kogi States of Nigeria, using the AAT. Findings of the study revealed that the use of CM technique significantly improved the HND students' achievement and



retention in advertising. The study also revealed significant difference ($P < 0.05$) in the mean achievement and retention scores of HND students taught advertising using CM technique and those taught with CTMO.

Recommendations

Based on the findings of this study, the following recommendations are made:

Lecturers should adopt the CM technique for instructional delivery for enhanced academic achievement and retention by students.

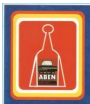
Government and educational administrators should priorities training on the use and application of CM technique for polytechnic lecturers through organizing seminars, workshops and conferences.

Polytechnic lecturers in the country should be provided with the required in-service training for skill update in the use of modern and student-centred teaching technique such as concept mapping.

Concept mapping should be integrated into the HND marketing curriculum as a teaching technique for preparing lecturers and teachers for better performance.

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