SJIF Impact Factor 2021: 8.013| ISI I.F.Value:1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 6 | Issue: 8 | August 2021 - Peer Reviewed Journal

THE IMPACT OF CONCEPT MAPPING AS A TEACHING STRATEGY ON THE STUDENTS' ACHIEVEMENT AND INTEREST IN ENGLISH

Mr. Rommel P. Manzon
English Lecturer, International Maritime College of Oman (IMCO), Sohar, Oman

Article DOI: https://doi.org/10.36713/epra8348
DOI No: 10.36713/epra8348

ABSTRACT

The purpose of this study is to determine the impact of concept mapping as a teaching strategy on the students' achievement and interest in English. It is a quasi-experimental design of non- equivalent pre-test post-test control group is used. Stratified random sampling technique is adapted in selecting the 250 students from the different schools in the Philippines. Two research instruments is developed by the researchers and used for data collection are: Students' English Achievement Test (STAT) and Students' Interest Inventory (SII). Mean and Standard Deviation are used to answer the three research questions, while three hypotheses are tested at 0.05 error margins using the t-test analysis. The result of the findings showed that there is significant difference in the mean achievement scores and interest rating of students are exposed to concept mapping strategy in English. There is a significant impact on the gender of the respondents on achievement of students that are exposed to concept mapping strategy. The researchers recommended among other things: the integration of concept mapping strategy in the curriculum, adequate training of English teachers on the use of concept mapping strategy.

KEYWORDS: *concept mapping; achievement; interest; gender; teaching strategy; and interest in English*

INTRODUCTION

Today, English is the fundamental base in the task of nations' capacity building in science and technology. Therefore, any short coming in this subject constitute draw back to the achievement of our nations' science and technology objectives.

According to Adetola (2012) noted that science and technology have become dominant cultural factor, and anynation that is not alive to this fact is either dead or dying; hence, English is the cogwheel that moves these science and technology world over.

Tremendous efforts have been made by many English educators towards improving the teaching and learning of English. In spite of these efforts, Anyagh and Ok'wu (2010) revealed that English Education is still in a deplorable state at all levels of the educational system. This low achievement in English has been attributed to non-utilization of appropriate instructional strategies.

In trying to find a solution to this ugly situation of low achievements, some researchers have identified teaching techniques employed by the teachers as some of the contributory factors (Anyagh and Ok'wu, 2010in Yarima2014). This is because no matter how suitable the educational objectives and content seem to be, the curriculum process remained defective if viable instructional strategies are not employed in teaching and learning process.

English is an important aspect of education whose application cut across all branches of English Language. Unfortunately, most questions in English are poorly attempted by students especially in external examination (Nworgu, 2003).

In the words of Obodo (2004) defined interest as the state of curiosity and important factor in learning English. It is any activity that drives or motivates the individual for action. The researcher observed that interest is a very strong factor in the teaching and

SJIF Impact Factor 2021: 8.013| ISI I.F.Value:1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 6 | Issue: 8 | August 2021 - Peer Reviewed Journal

learning of English. He further noted that degree and direction of attitude towards English are largely determined bythe kind of interest developed by learners for English.

Furthermore, Novak (2008) defined concept mapping technique as a schematic device for representing a set of concept meanings embedded in a frame work of prepositions. Odili (2006) also defined concept mapping as an excellent device that visually represents the historical relationship among concepts within a subject. According to Imoko (2005), concept mapping could be perceived as a process that enables one or group layout ideas on a topic or discipline in picture or map-form. There is a parading shift from the conventional way of passive learning where the teacher dominates in the teaching and learning process to an approach that reduces the teacher to a mentor or guide.

Concept mapping strategy leverages on the abundant rich resources (objects and materials) found in our learning environment used as schematic device for representing a set of concept meanings (Butcher, 2011). The lesson could be planned into activity-based around the available learning resources which begins with a problem that engages learners into active thinking and discussion.

Effective teaching requires a thorough understanding of the learning process, characteristics of students at different stages of development, individual differences and factors that influence motivation, interest and retention which all translate to improved achievement.

It is in the light ofthe foregoing that the present study is set to explore the efficacy of concept mapping strategy in English in a typical students in a classroom setting.

STATEMENT OF THE PROBLEM

The present day teaching and learning of mathematics is far from being satisfactory. This is evident in the persistent poor achievement of the students' external and internal examinations.

It is in view of this that the problem of this study sought to determine the extent to which concept mapping influences achievement and interest of students in English, how does concept mapping solve the problem of gender differences in achievement in English?

PURPOSE OF THE STUDY

The purpose of this study is to investigate students taught English using concept mapping approach would achieve higher in what they learn. In specific terms, the study shall:

1. Examine the extent to which concept mapping approach will influence achievement of students in English.
2. Find out the effect of concept mapping strategy on students 'interest in English'
3. Determine the difference in mean achievement scores between male and female students that are taught in English using concept mapping strategy.

RESEARCH QUESTIONS

The following research questions have been raised to guide the study:

1. What are the mean achievement scores of students taught in English using concept mapping strategy and those taught using conventional method?
2. What is the mean interest rating of students taught in English using concept mapping strategy and those taught English using conventional method?
3. What are the mean achievement scores of male and female students taught in English using concept mapping strategy?

RESEARCH HYPOTHESES

Three hypotheses were formulated and tested at 5% level of significance.

1. There is no significant difference in the mean achievement scores of students taught in English using concept mapping strategy and those taught using conventional method.
2. There is no significant difference in the mean interest rating of students taught in English using concept mapping strategy and those taught using conventional method.
3. There is no significant difference in the mean achievement scores of male and female students taught in English using concept mapping strategy.

METHODOLOGY

DESIGN

The design of the study was the quasi experimental design of non- randomized control group pre-test and post-test. Non-randomized design is adopted since it is not possible for the researchers to randomly sample and assign subjects.

The intact classes in the chosen schools are randomly assigned to experimental and control groups. The gender of the respondents also computed in this study.

SJIF Impact Factor 2021: 8.013| ISI I.F.Value:1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 6 | Issue: 8 | August 2021 - Peer Reviewed Journal

POPULATION AND SAMPLE OF THE STUDY

The sample size of the study comprised of 250 randomly selected out of the population of 4,456 student in the study area. A stratified random sampling technique is adopted to draw the sample size from the population of the study.

In this technique, the researchers grouped all the schools into two strata (single sex and co-education schools) and selection is done at random until co-education schools are chosen. Simple random sampling technique is finally used to draw the sample size.

INSTRUMENT FOR DATA COLLECTION

The instruments used for data collection are students' English achievement test (STAT) and students' interest inventory (SII) constructed by the researchers. The STAT and SII are divided into two categories each, category one is the pre-STAT and pre-SII which consisted of 20 test items each, while category two is the post-STAT and post-SII which also consisted of 20 test items each.

The instruments are validated by two experts, one from measurement and evaluation and the other from English education, experts from state college of education in the Philippines. The instruments are also subjected to psychometric analysis using Richard Kuderson formula 21 and split half method. Reliability coefficients of 0.91 and 0.80 are obtained respectively. This indicated that the instruments are reliable and appropriate for the study.

Two teaching strategies are employed in line with the focus of the study. The subjects are exposed to concept mapping strategy and conventional method respectively. At the end of the four weeks of experiment, the students' English achievements test (STAT) and students' interest inventory (SII) were administered. Analysis of t-test inferential statistic is used.

RESULTS

Problem 1:

What are the mean achievement scores of students taught in English using concept mapping strategy and those taught using conventional method?

Table 1: Mean achievement scores of students taught in English using concept mapping strategy and conventional method.

Teaching Approach	No. of Students	Mean Scores Pre-Post	SD	Mean Gain
Concept Mapping	90	50.71 63.53	7.83	12.82
Conventional	90	46.16 57.49	10.85	11.33
Mean Difference		4.55	6.04	1.49
Total	180			

Results in Table 1 shows that both the experimental and control groups improved in their mean achievement scores after the treatment, however, students in the experimental group gained by mean achievement difference of 12.82,while those in control group gained by 11.33 which is lower compared to the experimental group. The difference in mean achievement of the two groups was 6.04 in favor of the experimental group.

Problem 2:

What is the difference in the mean interest rating of student taught in English using concept mapping strategy and those taught using conventional method?

SJIF Impact Factor 2021: 8.013| ISI I.F.Value:1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 6 | Issue: 8 | August 2021 - Peer Reviewed Journal

Table 2: Mean interest rating of students taught English using concept mapping strategy and those taught using conventional method.

Teaching Approach	No. of Students	Mean Scores Pre-Post	SD	Mean Gain
Concept Mapping	90	43.63 52.29	8.24	8.66
Conventional	90	43.49 50.04	9.36	6.55
Mean Difference		0.14	2.25	2.11
Total	180			

The results in table 2 showed that both the experimental and control groups improved in their mean interest rating after the treatment, however , students in the experimental group gained by mean difference of 8.66 while those in control group gained by 6.55 which is lower compared to the experimental group. The overall mean gain in the mean interest rating of the two groups was 2.11 in favor of those taught using concept mapping strategy.

Problem 3:
What is the influence of gender on the achievement scores of students taught in English using concept mapping strategy?

Table 3: Mean achievement scores of male and female students taught in English usingconcept mapping strategy.

Teaching Approach	No. of Students	Mean Scores Pre-Post	SD	Mean Gain
Concept Mapping	90	50.37 61.91	7.31	11.54
Conventional	90	51.07 65.23	7.81	14.16
Mean Difference		0.7	3.32	2.26
Total	180			

Table 3 shows that both male and female students improved in their achievement after the treatment, however, male students gained by mean achievement difference of 11.54 while that of female was 14.16 which are higher compared to the male group. The difference in mean achievement of the two groups was 3.32 in favour of the female group.

HYPOTHESES

The three hypotheses formulated for this study were tested using t-test inferential statistic at 0.05 error margin.

Hypothesis 1:

There is no significant difference in the mean achievement scores of students taught in English using concept mapping strategy and those taught using conventional method.

Table 4: T-test results of students' mean achievement scores taught in English using concept mapping strategy and conventional method.

Teaching Approach	N	X	S.D.	Significant	Df	t-cal	t-critical
CPMS	90	63.53	7.85				
CVM	90	57.49	10.85	0.05	178	4.32	1.645

SJIF Impact Factor 2021: 8.013| ISI I.F.Value:1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 6 | Issue: 8 | August 2021 - Peer Reviewed Journal

From table 4, the calculated t-value is 4.32 at 178 degree of freedom, while t-critical is 1.645. Since the calculated t-value of 4.32 exceeds the t-critical value of 1.645 at 5% level of significance, the hypothesis is rejected.

This means there is significant difference in the mean achievement scores of students taught in English using concept mapping strategy and those taught using conventional method.

Hypothesis 2:
There is no significant difference in the mean interest rating of students taught in English using concept mapping strategy and those taught using conventional method.

Table 5: t-test result of students'' mean interest rating of students taught trigonometry using concept mapping strategy and those taught using conventional method.

Teaching Approach	N	X	S.D.	Significant	Df	t-cal	t-critical
CPMS	90	52.29	8.24				
CVM	90	50.04	9.36	0.05	178	1.71	1.645

From table 5, the calculated t-value is 1.71 at 178 degree of freedom, while t-critical is 1.654.It is observed from the table that t-calculated is greater than the t-critical at 5% level of significance.

Therefore, the hypothesis is rejected. This implies that a significant difference exist in the mean interest rating of students taught in English using concept mapping and conventional method.

Hypothesis 3:
There is no significant difference in the mean achievement scores of male and female students taught in English using concept mapping strategy.

Table 6. T-test result of male and female students mean achievement scores taught in English using concept mapping strategy.

Teaching Approach	N	X	S.D.	Significant	Df	t-cal	t-critical
CPMS	90	61.91	7.31				
CVM	90	65.23	7.81	0.05	88	2.08	1.658

From table 6, the calculated t-value is 2.08 at 88 degree of freedom, while t-critical is 1.658 which is less than the t-calculated at 5% level of significance.

Therefore, the hypothesis is rejected. This means there is significant difference in the mean achievement scores of male and female students taught in English using concept mapping.

DISCUSSION OF FINDINGS

One of the major findings of this work is that students taught English using concept mapping strategy achieved higher than those who are taught using conventional method. These findings corroborate with that of Ezeudu (2005) who conducted a research to determine the use of concept mapping approach on students' achievement, interest and retention in organic chemistry found that the use of concept mapping approach helps increase students' achievement and developed high interest than the conventional method.

This finding also agrees with that of Esiobo and Soyibo (2005) who conducted a study to verify the efficiency of concept mapping in Ecology and genetics among eight grade students. The result showed that concept map used as advanced organizer resulted in a positive significant difference in achievement between the subjects taught using concept and Vee-mapping and those taught using the conventional approach in favour of those who used the concept and vee-mapping strategies. The similarity in this finding further strengthens the fact that the use of concept mapping strategy can enhance student's achievement in trigonometry.

The study also found that there was significant difference in the mean interest rating of students taught using concept mapping strategy than those taught using conventional method. This study agreed with that of Imoko (2005) who found that students who are exposed to concept mappingtechnique exhibited greater interest

SJIF Impact Factor 2021: 8.013| ISI I.F.Value:1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 6 | Issue: 8 | August 2021 - Peer Reviewed Journal

in English content than those who are not.

It is also found that there is significant difference in the mean achievement scores of male and female students taught using concept mapping strategy. This finding is slightly similar to that of Agwagah (2003) who conducted an experimental study to determine the effect of concept mapping strategy on male and female student's achievement in Algebra in Philippines. The result reveals that male students performed significantly better than their female counterparts in Algebra achievement test (AAT) using concept mapping method.

While this study indicates that male students performed better than their female counterparts, the current study shows that the female students performed better than their male counterparts. This indicates that the approach could be gender sensitive in enhancing female's achievement in mathematics which has always been the general outcry. However, this result is not in agreement with the findings of Imoko and Agwagah (2005) whose findings showed no sex difference among male and female students who are exposed to computer games learning approach. Also the study disagree with the findings of Achor, Imoko and Ajai (2010) who found that male and female learners taught using games and simulations did not differ significantly in their achievement.

CONCLUSION

Based on these findings, the result provided empirical evidence that concept mapping strategy enhances and promote students' achievement in English much better than the use of conventional method. The use of concept mapping strategy has shown that backwardness in English performance among the female folk could be reduced if appropriate method is used in mathematics class-room.

RECOMMENDATION

Based on the findings of the study, the following recommendations are proffered:

1. Concept mapping should be incorporated in the curriculum as a strategy used in teaching in English classroom.
2. Teacher training institutions should include the concept mapping strategy in English method course content. This will ensure that teachers are adequately trained on how to use the strategy.
3. Federal and state ministries of education, professional bodies, such as the English Teaching Association, should organized workshops/seminars on the use of concept mapping strategy so as to sensitize English teachers on the benefits derived from using concept mapping strategy.

REFERENCES

1. *Achor, E.E; Imoko, B I. & Ajai J. T. (2010).Sex differentials in students' achievement and interest in geometry using games and simulation techniques. Neealihey Faculty of education. Journal of science and mathematics, 4(1),1-10.*
2. *Adetula, L.O, (2002).A new teaching methodology by National Mathematical Centre, Abuja. Unpublished paper presented during an MIP workshop for mathematics teachers, Educational Research centre, Jos.*
3. *Agwagah, U.N.V. (2003).Instruction in mathematics reading as factor in students' achievement in algebra. Journal of Nigeria education Association,15(1),148-159.*
4. *Butcher, N. (2011). A basic to open Educational Resources (OER).*
5. *Esiobo, G.O. & Sayibo,K. (202) .Impact of concept mapping and vee-mapping on the modes of class room interaction on students' performance in genetics. Journal of educational research 33(2),113-120.*
6. *Ezeudu, F.O.(2005).The effect of concept mapping on students' achievement, interest and retention in organic chemistry. Unpublished PhD thesis, University of Nigeria, Nsukka.*
7. *Imoko, B.I.(2005).Effect of concept mapping on students' achievement in trigonometry: Implications for rural-urban Mathematics. Multidisciplinary Journal of research development, 3(1)47-55.*
8. *Novak,J.D.(2008).Meaningful learning:The essential factor for conceptual change in limited or appropriate propositional hierarchies (liphs) leading to empowerment of learners.Science education,86(4),548-571.*
9. *Nworgu,B.G.(2003).Educational measurement and evaluation:Theory and practice.Awka:Hallman publisher.*
10. *Obodo,G.C.(2004).Principle and practice 0f mathematics education in Nigeria.Enugu:Academicforum.*
11. *Odili,G.A.(2006) .Mathematics in Nigeria secondary schools:A teaching perspective.Port Harcourt and Lagos:Anachuna Educational Books.*
12. *Yarima,M.B.(2014).Effect of polya's problem solving strategy on secondary school student's achievement and interest in trigonometry in Kaduna state.Unpublished master's thesis,Benue state University,Makurdi.*