
EFFECT OF KNOW-WANT-LEARN (KWL) DIFFERENTIATION AND JIGSAW COOPERATIVE LEARNING STRATEGIES ON STUDENTS' PERFORMANCE IN SOCIAL STUDIES

Soberekon, Woyengibrakemi Soinyo

Department of Social Science Education,
Faculty of Education, Niger-Delta University, Wilberforce Island, Bayelsa State.

Tamunosa Brown (Ph D.)

Department of Curriculum Studies and Educational Technology,
University of Port Harcourt, Rivers State

ABSTRACT: *The study investigated effects of Know-Want-Learn (KWL) differentiation and Jigsaw Cooperative Learning (JCL) strategies on the performance of Social Studies students at the Junior Secondary School (JSS) level in Port Harcourt Local Government Area of Rivers State. Two research questions and two corresponding hypotheses guided. The study adopted the quasi-experimental pre-test post-test control group design. The study involved three groups. Two experimental groups (Know-Want-Learn (KWL) differentiation learning strategy and Jigsaw Cooperative Learning (JCL) strategy) and a control group taught with traditional learning strategy. The sample consisted of 177 (90 male students and 87 female students) Junior Secondary School II (JSS II) students drawn from three Government Co-educational Secondary Schools. A 25 multiple choice test items, title "Social Studies Achievement Test (SOSAT)" developed by the researchers which covers two topics: Meaning and Consequences of Drug Abuse and Harmful Substances, and Dangers of Drug Trafficking in the Junior Secondary School II Social Studies Curriculum Scheme of Work was the research instrument. The instrument was validated and had reliability coefficient of 0.84 via Kuder Richardson (KR-21) for a measure of its internal consistency. The relevant data gathered were analyzed with mean, standard deviation, graphical plot associated with Analysis of Co-variance (ANCOVA). The findings of the study showed that Know-Want-Learn (KWL) differentiation and Jigsaw Cooperative Learning (JCL) strategies could improve the performance of junior secondary school students in Social Studies. However, the interaction effect of Know-Want-Learn (KWL) differentiation, Jigsaw Cooperative Learning (JCL) strategies and gender on students' performance in Social Studies was not significant. Hence, it was recommended among others that teacher training workshops should be organized and sustained for Social Studies teachers across the country, exposing them to innovative strategies that encourage active learning and teaching for the 21st century learner and teacher.*

KEY WORDS: Differentiation, Know-Want-Learn (KWL), Jigsaw Cooperative Learning (JCL) Social Studies, Port Harcourt LGA.

INTRODUCTION

The introduction of Social Studies into the Nigerian educational system is aimed at inculcating positive values, morals, character training, and good citizenship into the Nigerian child. It has

been observed that teaching this subject to achieve these content objectives has been a problem due to the use of conventional teaching methods by Social Studies teachers.

The objectives of Social Studies in Nigeria have not been achieved in our society due to the fact that the society is suffering from a moral deficit and lacks moral values. The Nigerian society is faced with massive corruption, kidnapping, political hostility, hostage taking, human trafficking, examination malpractice, cultism, dwindling economy, tribalism, unemployment, crime, prostitution, bad image abroad and more unspeakable violence that are still emerging. These issues are giving the leadership of this great country serious concern (Odogbor, 2011).

According to Obebe and Olatunde (2005) cited in Odogbor (2011), the scope and content of Social Studies is made up of all forms of knowledge which will help prepare students function as effective citizens who will help solve the problems of the society. It is seen as the binding force of all forms of knowledge aimed at resolving the problems of man in the society. Social studies teachers can achieve its objectives when they begin to use innovative methods of teaching which includes brainstorming, jigsaw, Know-want-learn, role play, concept formation, think-pair-share, teams-games-tournament, cognitive mapping, and project-based learning etc. in the classroom. This will allow students to become active learners who will put in use all of their abilities in learning as well as enable them to understand the subject better so as to achieve its goals. Consequently, it is against the importance of these innovative teaching-learning strategies that the researchers deem it fit to consider Know-Want-Learn and Jigsaw in relation to students' performance in Social Studies.

Know-Want-Learn (KWL) is a form of differentiation learning strategy wherein teachers accommodate the differences between learners so that every learner in a group has the best possible chance of learning (Training and Development Agency for Schools, 2010). It asks students to think of what they already know about the topic of a lesson, ask questions about it, and find answers to those questions. The Know-Want-Learn (KWL) learning strategy is a good example of a learning strategy that allows students to recall previous information regarding the upcoming topic. The purpose of Know-Want-Learn (KWL) strategy is for students to categorize information about the topic that is presented by the teacher. It is usually used at the beginning of an instruction to discover what students already know, and what they want to know about the subject. This allows the teacher to ensure students are learning what they want to learn. It makes learning more enjoyable for the learner, and will hopefully result in better academic performance.

On the other hand, Jigsaw a cooperative learning strategy is an effective way to increase students' engagement through group work that facilitates peer-to-peer learning (Shume, Stander, and Sutton-Grier 2017). It can be used when students are reading a text, listening to a presentation, or carrying out a group investigation. The Jigsaw helps students study all of the content material. They become "experts" as they teach each other parts of the material. Each student thus plays an active role in teaching and learning, and experiences deep understanding and higher order thinking. It gives room for interaction between the members of a group which is a good attribute in cooperating together (Shume et. al. 2017).

Studies have been conducted to determine the effectiveness of Know-Want-Learn (KWL) and Jigsaw Cooperative Learning (JCL) strategies in different subject areas and at different levels and they have all shown positive results. Of such studies include (Alsoudi, 2017; Taheri & Mohamadi,

2015; Aliakbari & Haghighi, 2014; Utami, Bindarti, & Suharjito, 2014; Gull & Shehzad, 2015; Brown, 2014; Mbacho & Changeiywo, 2013; and Kolawole, 2008).

However, it is an obvious fact that the society has changed from what it used to be and this has led to the change in teaching methodologies also in schools. The traditional teaching methodologies where the teacher is the center can no longer meet up with changes in the society. Modern teaching methodologies that focus on promoting critical thinking with the student in the center are being encouraged and implemented all over the world (Karanezi, Rapti & Halimi 2015). Sadly, Social studies at the secondary level is still taught with the traditional method of teaching where students tend to memorize content material rather than understanding and analyzing it critically, asking questions and finding solutions to problems. This has resulted to students not having proper understanding of concepts taught in Social Studies, thereby leading to poor performance in the subject. This study is aimed at investigating which of these two modern learning strategies will be better used to teach Social Studies concepts and also improve the performance of students. Thus the specific problem of this study was to investigate the effectiveness of Know-Want-Learn (KWL) differentiation and Jigsaw Cooperative Learning (JCL) strategies on the performance of Social Studies students at the Junior Secondary School (JSS) level in Port Harcourt Local Government Area of Rivers State.

To this end the following research questions guided this study:

Research Questions

1. What is the effect of Know-Want-Learn (KWL) and Jigsaw Cooperative Learning strategies on students' performance in Social Studies?
2. What is the interaction effect of the learning strategies (Know-Want-Learn and Jigsaw Cooperative Learning) and gender on students' performance in Social Studies?

Hypotheses

1. There is no significant difference in the performance of students taught with Know-Want-Learn (KWL) differentiation and those taught with Jigsaw Cooperative Learning strategies in Social Studies.
2. There is no significant interaction effect of the learning strategies (Know-Want-Learn differentiation and Jigsaw Cooperative Learning), male and female students' performance in Social Studies.

METHODOLOGY

The study adopted the quasi-experimental pre-test post-test control group design. It is a non-equivalent, control group design that requires non-random assignment of participants into groups. The population of the study comprised 5,241 JSSII Social Studies students in the 15 Junior Secondary Schools in Port Harcourt Local Government Area, Rivers State. The simple random sampling technique was adopted for the selection of schools and classes in this study. The sample consisted of 177 (90 male students and 87 female students) in Junior Secondary School II (JSS II), drawn from three Government Co-educational Secondary Schools in Port Harcourt Local

Government Area. The study involved three groups. Two experimental groups (Know-Want-Learn (KWL) differentiation learning strategy and Jigsaw Cooperative Learning (JCL) strategy) and a control group taught with traditional learning strategy. The experimental groups consisted of 64 students (31 males & 33 females) and 46 students (21 males & 25 females) respectively while the control group comprised 67 students (38 males & 29 females).

A 25 multiple choice test items, titled “Social Studies Achievement Test (SOSAT)” developed by the researchers was the research instrument. It covered two topics in the Junior Secondary School II Social Studies Curriculum Scheme of Work. The topics were the meaning and consequences of drug abuse and harmful substances, and the dangers of drug trafficking. The instrument was validated and had reliability coefficient of 0.84 via Kuder-Richardson (KR-21) for a measure of its internal consistency.

Experimental group 1 was taught using Know-Want-Learn differentiation learning strategy, experimental group 2 was taught using the Jigsaw Cooperative Learning strategy while the control group was taught using the traditional lecture strategy. However, before teaching and learning took place a pre-test was administered on the three groups, thereafter, the two topics were taught to the three groups for three weeks with two periods for each instructional strategy per week making a total of eighteen periods, after which the students received the post-test. The post-test instrument contained the same items as in the pre-test but in a re-arranged form. The researchers did the teaching and administered the pre-test and post-test with the assistance of the regular classroom teachers. The relevant data gathered were analyzed with mean, standard deviation and a graphical plot associated with Analysis of Co-variance (ANCOVA).

RESULTS

Research Question 1: What is the effect of Know-Want-Learn (KWL) and Jigsaw Cooperative Learning strategies on students’ performance in Social Studies?

Hypothesis 1: There is no significant difference in the performance of students taught with Know-Want-Learn (KWL) differentiation and those taught with Jigsaw Cooperative Learning strategies in Social Studies.

To answer the research question and test the corresponding hypothesis, the data gathered from the pre-test and post-test administered to the students were subjected to descriptive and inferential statistics and the result is as presented in Table 1.

Table1: Summary of ANCOVA Analysis on the Mean Performance of students' in Social Studies taught with Know-Want-Learn (KWL) and Jigsaw Cooperative Learning (JCL)

Group	n	Pre-Test		Post-Test		<i>DMSd</i>	
		\bar{x}	<i>Sd</i>	\bar{x}	<i>Sd</i>		
KWL	64	62.06	17.87	70.50	13.17	8.44	12.61
JCL	46	48.17	21.50	61.30	18.07	13.13	21.26

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Decision
Corrected Model	10252.648	2	5126.324	31.116	.000	
Intercept	20632.882	1	20632.882	125.238	.000	
PRETEST	7989.514	1	7989.514	48.495	.000	
GROUP	222.050	1	222.050	1.348	.248	Accept HO ₁
Error	17628.225	107	164.750			
Total	516592.000	110				
Corrected Total	27880.873	109				

Key: KWL= Know-Want-Learn; JCL= Jigsaw Cooperative learning

$F_{(1, 107)} = 1.348$; $p (.248) > 0.05$ level of Significance, i.e. Not Significant.

The result in Table 1 showed the mean, standard deviation and mean difference between the Social Studies learning performance of students taught using KWL learning strategy and those taught using JCL strategy. It shows that the mean difference of students taught using KWL strategy was 8.44, $Sd=12.61$ whereas that of those taught using JCL strategy was 13.13, $Sd = 21.26$.

The result also on Table 1 showed the summary of ANCOVA on the difference in the performance of students taught with Know-Want-Learn (KWL) differentiation learning strategy and those taught using Jigsaw Cooperative Learning (JCL) strategy in Social Studies. The result showed that there is no significant difference in the performance of students taught with Know-Want-Learn (KWL) differentiation learning strategy and those taught using Jigsaw Cooperative Learning (JCL) strategy in Social Studies ($F_{(1, 107)} = 1.348$; $p (.248) > 0.05$ level of Significance). The null hypothesis one was retained. The result was that there is no significant difference in the performance of students taught with Know-Want-Learn (KWL) differentiation and those taught with Jigsaw Cooperative Learning strategies in Social Studies.

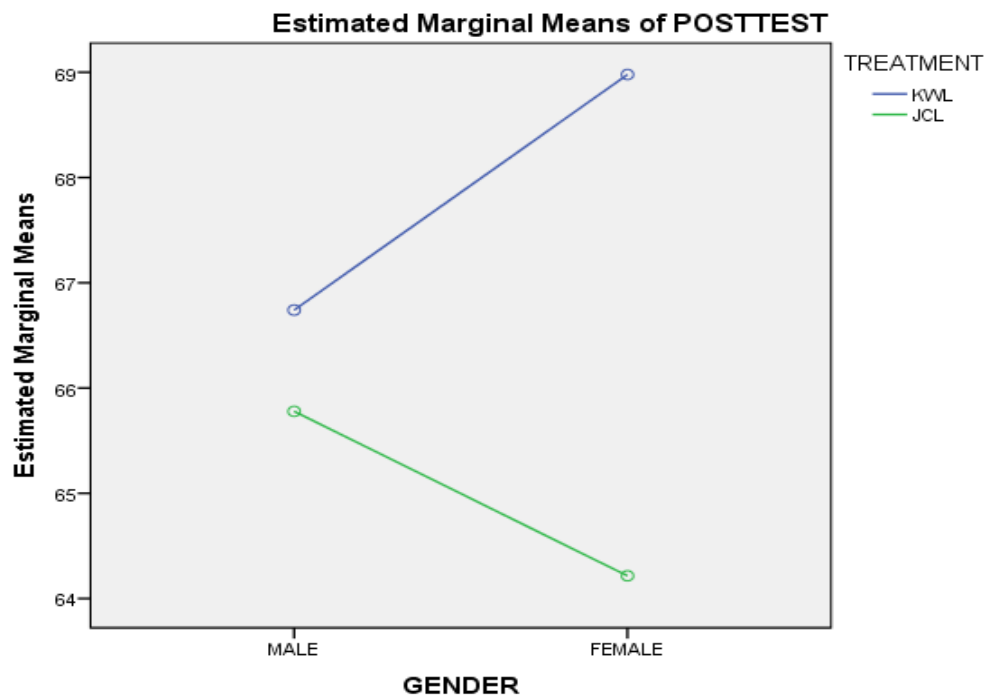
Research question 2: What is the interaction effect of the learning strategies (Know-Want-Learn and Jigsaw Cooperative Learning) and gender on students' performance in Social Studies?

Hypothesis 2: There is no significant interaction effect of the learning strategies (Know-Want-Learn differentiation and Jigsaw Cooperative Learning), male and female students' performance in Social Studies.

Table 2: Summary of Two-Way Post-Test Mean Scores Analysis of Treatment, Gender And Interaction

Gender	Treatment	\bar{x}	<i>Sd</i>	N
MALE	KWL	70.97	12.52	31
	JCL	61.90	18.14	21
	TOTAL	67.31	15.54	52
FEMALE	KWL	70.06	13.93	33
	JCL	60.80	18.37	25
	TOTAL	66.07	16.51	58
TOTAL	KWL	70.50	13.17	64
	JCL	61.30	18.06	46
	TOTAL	66.65	15.99	110

Table 2 showed that the mean of the post-test scores of the male students taught with KWL strategy was 70.97, $Sd=12.52$ whereas that of their female colleagues was 70.06, $Sd=13.93$. The mean of the post-test scores of the male students taught with JCL was 61.90, $Sd=18.14$ whereas that of their female counterparts was 60.80, $Sd=18.37$. The graphical representation is presented in Figure 1 below. This figure gives a clearer picture of the interaction effect. The graph showed that there is no interaction between gender and the teaching strategies. Since there was no meeting point between the two lines



Covariates appearing in the model are evaluated at the following values: PRETEST = 56.25

Figure 1: GRAPHICAL REPRESENTATION OF INTERACTION EFFECT OF TREATMENT AND GENDER

Hypothesis 2: There is no significant interaction effect of the learning strategies (Know-Want-Learn differentiation and Jigsaw Cooperative Learning) and gender on students' performance in Social Studies.

Table 3: Summary of two-way Analysis of Covariance (ANCOVA) of students' post-test mean scores on the interaction of treatment and gender

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Decision
Corrected Model	10358.795	4	2589.699	15.519	.000	
Intercept	19906.733	1	19906.733	119.290	.000	
PRETEST	8068.578	1	8068.578	48.350	.000	
GENDER	3.016	1	3.016	.018	.893	
GROUP	192.972	1	192.972	1.156	.285	
GENDER * GROUP	95.158	1	95.158	0.570	.452	Accept HO ₂
Error	17522.078	105	166.877			
Total	516592.000	110				
Corrected Total	27880.873	109				

$F_{(1, 105)} = 0.570$; $p (.452) > 0.05$ level of Significance, i.e. Not Significant.

The result in Table 3 gives the summary of the two-way Analysis of Covariance between treatment and gender on students' performance in Social Studies. It showed that there is no significant interaction effect of the Know-Want-Learn differentiation, Jigsaw Cooperative Learning strategies and gender on students' performance in Social Studies ($F_{(1, 105)} = 0.570$; $p (.452) > 0.05$ level of Significance). The null hypothesis two was retained. The result was that there is no significant interaction effect of the learning strategies (Know-Want-Learn differentiation and Jigsaw Cooperative Learning) and gender on students' performance in Social Studies.

DISCUSSION

One of the findings in this study was that students taught using Jigsaw Cooperative Learning (JCL) strategy scored higher than those taught using Know-Want-Learn (KWL) strategy in Social Studies. When put to statistical test, the result showed that there was no significant difference in the performance of students taught with Know-Want-Learn (KWL) differentiation learning strategy and those taught using Jigsaw Cooperative Learning strategy in Social Studies. The present finding is in tandem with an earlier finding by Tok (2013) who studied the effect of KWL strategy on Mathematics achievement, meta-cognition skills and Mathematics anxiety established that employing the "KWL strategy" in 6th-grade Mathematics was effective in increasing achievement and meta-cognition while it was not efficient than the traditional method regarding the reduction of anxiety. Other findings with similar result include those of Utami, Bindarti, and Suharjito (2014); Taheri and Mohamadi (2015); Alabekee, Amaele, and Osaat (2015); Yemi, Azid and Ali (2018); and Azmin (2016). The second issue in this study was on the interaction effect of treatment and gender on students' performance in Social Studies. It was found that there was no significant interaction effect of the Know-Want-Learn differentiation, Jigsaw Cooperative Learning strategies and gender on students' performance in Social Studies. The finding agrees with that of Mbacho and Changeiywo (2013) who studied the effects of the use of Jigsaw Cooperative learning Strategy on students' achievement in mathematics by gender difference. Other studies with similar result include those of Ajaja and Eravwoke (2010); and Alsoudi (2017).

CONCLUSION

Based on the findings of the study it could be concluded that, Know-Want-Learn (KWL) differentiation and Jigsaw Cooperative Learning (JCL) strategies could improve the performance of Junior Secondary School students in Social Studies. However, the interaction effect of Know-Want-Learn (KWL) differentiation, Jigsaw Cooperative Learning (JCL) strategies and gender on students' performance in Social Studies was not significant.

RECOMMENDATIONS

Hence, the following recommendations were made based on the findings of this study:

1. Jigsaw cooperative learning strategy should be adopted by Social Studies teachers in secondary schools as it encourages active learning in students which helps them work together in groups as teammates and enables them learn better and also interact positively with one another.
2. Know-Want-Learn (KWL) differentiation learning strategy allows students to be in charge of their own learning and at their own pace, therefore Social Studies teachers should apply this strategy as it enables them cover areas that are important but are not included in the curriculum and at the same time keeps the class active.
3. Teacher training workshops should be organized and sustained for Social Studies teachers across the country, exposing them to innovative strategies that encourage active learning and teaching for the 21st century learner and teacher.

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