

Differential Effects of Instruction Technique and Gender on Secondary School Students' Achievement in Civic Education in Anambra State, Nigeria

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Received 14 July 2020; accepted 28 August 2020

Published online 26 September 2020

Abstract

The essence of civic education is to train a child on how to adapt his or her life to the provisions of the social system to engender equality, social justice and inalienable rights of life, liberty and pursuit of happiness. The current dismal performance of students on civic education has sadly threatened the actualization of lofty ideals of civic education in Nigeria. In search of answers to this growing problem, this study explored the differential effects of group instruction technique (GIT) and gender on secondary school students' achievement in Civic education in Anambra State, Nigeria. The design of this study was non-randomized control group, pre-test, post-test quasi experimental design while multi-stage sampling procedure was used to sample six coeducation schools from each of the six education zones that make up 258 public secondary schools in Anambra State. The sample was 193 Senior Secondary 2 students drawn from six intact classes. The instrument Civic Achievement Test (CAT) was used for data collection. Data from the study was analyzed using Analysis of Covariance (ANCOVA). The result revealed significant differences in Civic achievement test between groups. The experimental group taught Civic education with the use of GIT recorded higher mean scores than their counterparts in the control group taught with LM. Also, gender was a covariant factor on the differential effect of GIT and gender on students' achievement in Civic education. Given this empirical evidence; GIT stands as an effective alternative to improve on students' academic achievement in Civic education. Thus, recommendation was made for its adoption by the

stakeholders in education especially the Anambra State Ministry of Education to improve on the status-quo.

Key words: Academic achievement; Civic education; Gender; Group instruction technique; Intact class

Ikwuka, O. I., Etodike, C. E., & Okoli, O. K. (2020). Differential Effects of Instruction Technique and Gender on Secondary School Students' Achievement in Civic Education in Anambra State, Nigeria. *Higher Education of Social Science*, 19(1), 63-69. Available from: URL: <http://www.cscanada.net/index.php/hess/article/view/11848> DOI: <http://dx.doi.org/10.3968/11848>

1. INTRODUCTION

In the midst of ethnic and religious divide fueling greater percentage of conflicts in Nigeria; value reorientation, civic and political participation, promotion of good citizenship traits such as sense of social justice, equality, equity, fairness, honesty, hard-work, tolerance, accountability were some of the expected gains trailing the inclusion of Civic education in secondary school education curriculum in Nigeria. The aim was to utilize the knowledge of Civic education as bedrock for building a generation of citizenry who could rise above the current satiric and theatric conundrum of ethnic conflicts occasioned by competition and rivalry in the Nigerian pluralist State (Olayinka & Elijah, 2019). Good as the prospect is and given the students' dwindling performance in Civic education in secondary schools in Nigeria (AbdulRaheem, Bello & Odutayo, 2018), it is worrisome that the lofty ideals for which Civic education was included in the curriculum is being threatened. Because of this, stakeholders in Civic education in Nigeria are concerned with factors which affect learning outcomes as it is expected that some of them may be directly the cause of the dwindling achievement in the subject.

Factors such as: parental and family background (Okafor, Owede, Uyanne & Chibundum, 2018), lack of

interest (Glory & Ihenko, 2017), method of instruction (Jack, 2017), technology (Dunn & Kennedy, 2019), institutional corruption (Ezh & Etodike, 2017), school environmental factors (Pan, Zhong, Zhang, & Chang, 2020), teacher's variables and students' variables (Gess-Newsome, Taylor, Carlson, Gardner, Wilson & Stuhlsatz, 2019) have been identified to affect learning outcomes among students. It is also considered that nowadays, students' practical exposure (e.g. educationally motivated excursions and outdoor learning) to civic places is greatly limited due to poor funding of education sector in Nigeria; learning of this type of subject may be impaired. Given this background, we felt that there may be lapses in the instruction technique used in the delivery of Civic education and thus investigated the differential effects of group instruction technique and gender on civic education achievement among selected secondary 2 students in Anambra State, Nigeria using the following research questions as guidelines in the study:

1.1 Research Questions

- What are the mean achievement scores of students taught civic education with Group Instruction Technique (GIT) and those taught with Lecture Method LM?
- What are the post-test mean achievement scores of male and female students taught civic education with GIT?
- What is the interaction of instruction techniques and gender on civic education achievement?

1.2 Review

Group instruction technique (GIT), is a purposeful teacher directed teaching strategy (Noreen & Rana, 2019) focused on students' learning competence (Filgona, Sababa & Iyasco, 2016) aimed at actively involving students both individually and in groups and guiding them gradually in knowledge construction by providing clear relationship between constructs and using the students' peer interaction to motivate interest and retention of topics taught. Group instruction technique can take several forms for instance, Filgona, Sababa and Iyasco (2016) contended that group instruction technique of teaching may be brainstorming, co-operative, interactive, experimental and independent study. Others may include: decision making, discovery and problem based learning. In group instruction technique, the activity-centered approach to learning is believed to excite adolescents and as they intellect they unconsciously wear off their individual bias and inhibition to learning (Noreen & Rana, 2019) and also free express themselves as regards their learning limitations (Chen & Yang, 2019). Thus, group instruction technique may be said to increase learners' expression in the learning process and further reduces inhibitions, biases and limitations. Remarkably, these positive characteristics of group instruction technique strongly influence learning outcomes.

Furthermore, group instruction technique boosts a more group work and interactive class activities than other forms of teaching; and it help to stimulate and to share ideas among learners; for instance, Goble and Pianta (2017) found that teacher-child interaction and peer-peer interaction is more in a teacher-directed class than the formal teaching class. In such classes, the teacher's role in is that of a facilitator, coach, mentor, motivator, rather than dispenser of all the right knowledge like in the conventional teaching environment. This most likely will boost learning and achievement among students taught with group instruction technique as they enjoy these prevalence socialization in a group interactive class. One of ascertaining this is through academic evaluation using assessment criteria.

Measurement of learning outcomes and knowledge may be problematic, however in the education sector, students' achievement in subjects may be assessed in form of quizzes, tests, assignments and examinations have become the truest acceptable standards (Sotiriadou, Logan, Daly & Guest, 2019; Lancaster & Clarke, 2017). Therefore, the only of ascertaining students' achievement is through their performance in examinations at the end of each teaching period. Both teaching and learning synchronized in such a way as to maximize students' achievement. According to Belsito (2016) without effective teaching mechanism and quality, the learning objectives of the teacher may not be actualized. The lapses in this regard are many as teachers are not longer being properly trained in Nigeria without regular retraining (Okolie, Igwe & Elom, 2019). This challenge is more devastating than students' poor performance in subjects which may be as a result of poor delivery technique. In this regard, group instruction technique stands a chance as it boosts peer-to-peer assisted learning with integrated social learning that comes with such interaction (Williams & Reddy, 2016).

Although all techniques of teaching have their shortcomings, researchers into the growth and development of teaching techniques and methods contend that teaching methods should evolve from either expository instructional techniques or narratives to participatory methods where learners are actively involved in learning. For instance, Poirier (2017) revealed that there had been a shift of emphasis from teacher centered to learner centered teaching. This shift which helps learners to discover principles, ideas and knowledge by themselves through the use of inquiry and guided by the facilitator is perhaps, the advantage of the Group Instruction Technique (GIT) using brainstorming and co-operation approaches over other conventional methods.

If group instruction technique is good, to what extent was their effect in the different sub groups in the class predominantly males and females? On this, Marcenaro-Gutierrez, Lopez-Agudo and Roperro-García (2018) emphasized that characteristically difference is noticed

between males and females in certain learning outcomes. For instance, girls outperform boys in measures of reading achievement while generally underperform in Science and Mathematics (Rodríguez, Regueiro, Piñeiro, Estévez & Valle, 2020) and that one major class of explanations for these gaps involves gender-based on teaching methods. For instance, Amedu, (2015) examined the effect of gender on the achievement of students in biology using the jigsaw method and found that the males gained more from the jigsaw method compared with the females. The current study is connected to this study since gender differences may affect the impacts of using group instructional technique.

Although, Owoso (2013) contended that it is better to look beyond gender characteristics into the interaction between individual learner's specific characteristics and particular features of instructional treatment in order to determine the reasons for discrepancies in academic performance. The controversy as to which of the sexes would have better academic performance therefore, continues. Thus, the trait-treatment interaction theory suggests that there is a connection between personality traits of the learner and variables of the instructional situation and that the effect of learning must be interpreted as the result of that interaction (Owoso, 2013). These differences may present an understanding into the reasons why the result of the current study may be affected by gender of the learning students on civic education.

In this perspective, it is a promise that using group instruction technique may uplift students' dwindling achievement in Civic education in Nigeria if such teaching technique is adopted. For instance; Jack (2017) studied the effect of learning cycle constructivist-based approach (a form of group instructional learning technique) on students' academic achievement and attitude towards chemistry in secondary schools in north-eastern part of Nigeria and found that learning cycle had a significant effect on students' achievement in chemistry, students taught with learning cycle significantly achieved better in chemistry. The importance of Jack's study in this current study is embedded in their similarity although they have used different type of group instruction technique to achieve improvement in different subjects areas. The findings of Parveen, Yousuf and Mustafa (2017) further supported the efficacy of group instruction technique. Parveen et al., found that when cooperative learning on students' academic achievement and students' perceptions towards cooperative learning was utilized, remarkable improvements were recorded. Filgona, Sababa and Iyasco (2016) using quasi-experimental study equally confirmed brainstorming learning strategy (a form of group instructional learning technique) had a positive impact on junior secondary school students' academic achievement in social studies in Yola Educational Zone, Adamawa State, Nigeria.

The empirical evidence above may not have been enough to support positive effects of group instruction technique on students' academic achievement in Civic education; there are theoretical foundations which have lent their support to this type of teaching and its learning outcomes. For instance, it was considered that the foundations of Vygotsky's Socio-cultural theory of learning which assumes that learning is socially mediated and meaning is constructed as it is gained through the interactions with tools, symbols, words, and people in a culture aligns with this technique of teaching; and hence, group instruction technique could be said to fulfill Vygotsky's theoretical assumption, and thus, most likely to impact learning positively. In support of group instruction technique, Vygotsky (1978) emphasized the nature of learning concepts, their insights are made meaningful when the teacher provides the context for the knowledge gained and this is achieved in the many forms of group instruction technique.

In consideration of gaps in literature regarding dwindling fortune here was need also to ascertain if the expected effects are consistency across gender.

The investigation into the afore-stated questions was thus guided by the following hypotheses:

- There is significant difference between the mean achievement scores of students taught civic education with Group Instruction Technique (GIT) and those taught with Lecture method (LM).
- There is significant difference between mean achievement scores of male and female students taught civic education with GIT.
- There is interaction effect of instruction techniques and gender on students' academic achievement in Civic education.

2. METHOD

In the method section, non-randomized control group, pre test, post-test quasi experimental design was adopted leading to the use of intact classroom setting. Intact classes for the study were randomly assigned to experimental and control groups. The intact classes further featured: pre-test (first observation/measurement), treatment (GIT), post-test (second observation/measurement) and no experimental treatment (conventional lecture method). Pretest was administered to both groups (control and experimental); thereafter, experimental was taught civic education using group instructional learning technique while the control group was taught using conventional lecture method. By the end of the teachings, posttest was then administered on both control and experimental groups, after reshuffling of the items in the test to ascertain the achievement of students in civic education. The population of the study consists of 8,656 senior secondary two (SS 2) students in the 258 co-educational secondary schools from six

education zones in Anambra State. The choice of co-educational secondary schools is informed by the desire to study the population in a near natural learning habitat without the influence or bias which may be associated by typical Boys or Girls school setting. The population was made up of 4,362 male students and 4,294 female students from 258 secondary schools.

Multi stage sampling (purposive, cluster and random sampling) technique was applied in sampling the six schools from where the 193 secondary school 2 students with experimental group comprising 92 (48 males, 44 females) and the control group 101 (54 males, 47 females) were drawn from six intact classes. Instrument for data collection was Civic Achievement Test (CAT) was developed by the researchers and three experts. The researchers also prepared both the lesson plan and marking scheme for CAT. The preliminary part of the instrument contains provisions for obtaining the bio-data information on school code, class, age and gender for the students. It also contains instructions as regards to the test. Codes 01, 03, 05 are used by the researchers to identify the experimental group, while codes 02, 04, 06 are used for the control group. CAT was constructed by the researchers after extensive review of the literature and West Africa Senior Certificate Examination (WASCE) syllable and past questions and was assessed on a 40 multi choice objective test based on the topics in SS 2 civic education

curriculum and scheme of work for the teaching. Each correct answer for CAT was given an assigned value ($2\frac{1}{2}$ points) with the total mark being 100%.

For the validation of instrument for data collection, the CAT blue print together with its marking scheme were validated by three experts, one from measurement and evaluation, curriculum studies from Nnamdi Azikiwe University Awka, and an expert in civic education from Nwafor Orizu College of Education, Nsugbe who is a team leader in WASSCE Civic education marking exercise. Reliability of the CAT was ascertained using Kuder Richardson reliability measure. Although, the reliability coefficient can be manually computed using Kuder-Richardson formulae $KR-21 = [n/n-1]*[1-(\Sigma p*q)/Var]$ for reliability, however, electronic computation using Statistical Package for Scientific Studies (SPSS) version 20.00 was employed to reduce the error percentage to the barest level; this analysis yielded KR-21 coefficients for CAT at $r = .76$. Certain variables which were controlled which enabled the researchers investigate the differential effects of group instruction technique were: effect of pretest-post test, initial group difference, class interaction, hawthorn effect, experimental treatment diffusion, experimental bias and instrumentation. For data analysis, mean, standard deviation and Analysis of Covariance (ANCOVA) were used to test the significance of the differences among groups at 0.05 alpha levels.

3. RESULT

Table 1
Mean achievement scores of students taught civic education with group instruction technique (GIT) and those taught with lecture method (LM)

Source of variance	N	Pre-test mean	SD	Post-test Mean	SD	Mean difference	Remark
Experimental Group	92	48.76	9.44	60.43	9.69	11.67	Effective
Control Group	101	48.49	9.13	48.68	7.55	0.19	Not Effective

Data in Table 1 reveal that the pre-test mean achievement scores of students taught civic education with Group Instruction Technique (experimental group) was 48.76 while pre-test mean achievement scores of those taught with Lecture Method (control group) was 48.49. At the end of the experiment, the post-test mean achievement scores of students taught civic education with Group Instruction Technique (experimental group) increased to 60.43 whereas that of those taught with Lecture Method

(LM) was 48.68. This indicates that the experimental group gained 11.67 post-test mean on achievement of civic education whereas the control group gained only 0.19 post-test mean on achievement of civic education. This shows that Group Instruction Technique (GIT) which was used for the experimental group accounted for better achievement than the Lecture Method (LM) which was used in the control group.

Table 2
Mean achievement scores of male and female students taught civic education with GIT

Source of variance	N	Pre-test mean LM GIT	SD	N	Post-test mean LM GIT	SD	Mean difference	Remark
Male	54	42.7 44.5	6.50	48	45.5 57.2	9.07	11.7	Effective
Female	47	55.0 53.3	7.33	44	53.2 63.8	9.25	10.6	Effective
Mean difference		12.3 8.8			7.79 6.61			Effective

Data in Table 2 reveal that the post-test mean achievement scores of male and female students taught civic education with GIT were 57.2 for males and 63.8 for females. The data is indicative that in the post-

test GIT, females performed better than males with a mean difference of 6.6. The result shows that the post mean achievement scores of females taught with GIT is higher than males taught with GIT with observed mean

difference. This finding implies that using GIT, there is observed gender difference in the civic education test

achievement of the participants with females performing better than males.

Table 3
ANCOVA mean achievement scores of students taught civic education with Group Instruction Technique (GIT) and those taught with Lecture method (LM).

Source	Type I sum of squares	Df	Mean square	F	Sig.
Corrected Model	6154.251a	1	6154.251	79.434	.000
Intercept	573639.813	1	573639.813	7404.087	.000
Instruction Technique	6154.251	1	6154.251	79.434	.012
Error	14797.935	191	77.476		
Total	594592.000	193			
Corrected total	20952.187	192			

R Squared = .494 (Adjusted R Squared = .490)

The ANCOVA analysis in Table 3 reveal that the mean achievement scores of students taught civic education with Group Instruction Technique (GIT) and those taught with Lecture Method (LM) were ascertained at $F(1, 193) = 79.4, p < .05$. The p-value ($p \leq .012$) is less than 0.05 and adjusted R^2 indicated that the observed difference contributed .490 (49%) understanding of the effects of instruction technique on civic achievement. Thus, hypothesis I which stated that there is significant

difference between the mean achievement scores of students taught civic education with Group Instruction Technique (GIT) and those taught with Lecture Method (LM) was confirmed. This implies that instruction technique affected students' achievement in Civic education since there is a significant difference between the mean achievement scores of students taught civic education with Group Instruction Technique (GIT) and those taught with Lecture Method (LM).

Table 4
ANCOVA on mean achievement scores of male and female students taught civic education with GIT.

Source	Type III Sum of squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected model	8670.175a	2	4335.088	67.063	.000	.414
Intercept	38771.405	1	38771.405	599.785	.000	.759
Gender	2515.924	1	2515.924	38.921	.001	.170
Instruction technique	6051.964	1	6051.964	93.623	.001	.330
Error	12282.011	190	64.642			
Total	594592.000	193				
Corrected total	20952.187	192				

R Squared = .414 (Adjusted R Squared = .408)

Data analysis in Table 4 reveal that the mean achievement scores of male and female students taught civic education with Group Instruction Technique (GIT) were ascertained at $F(1, 193) = 38.9, p < .05$. The p-value ($p \leq .001$) is less than 0.05 and adjusted R^2 indicated that the observed difference contributed .408 (40.8%) understanding of the differential effects of instruction technique and technique on civic education achievement

Hypothesis II which stated that there is significant difference between mean achievement scores of male and female students taught civic education with GIT was confirmed. This implies that instruction technique affected male and female's civic achievement since there is a significant difference between the mean achievement scores of male and female students taught civic education with Group Instruction Technique (GIT).

Table 5
Interaction effect of instruction techniques and gender on students' achievement scores in civic education

Source	Type III sum of squares	Df	Mean square	F	Sig.	Partial eta squared
Corrected model	8686.946a	3	2895.649	44.620	.000	.415
Intercept	580406.867	1	580406.867	8943.722	.000	.979
Instruct tech	5997.662	1	5997.662	92.420	.000	.328
Gender	2492.285	1	2492.285	38.405	.000	.169
InsTechnique * gender	1316.771	1	1316.771	16.258	.012	.121
Error	12265.241	189	64.895			
Total	594592.000	193				
Corrected total	20952.187	192				

R Squared = .415 (Adjusted R Squared = .405)

Data analysis in Table 5 reveal that there is interaction effect of instruction technique and gender on students' achievement scores in civic education at $F(1, 193) =$

$16.3, p < .05$. The p-value ($p < .012$) is less than 0.05 and adjusted R^2 indicated that the observed interaction contributed .405 (40.5%) understanding of the combined

effects of instruction technique and gender on students' academic achievement in civic education. Thus, hypothesis III was confirmed. This implies that instruction technique and gender significantly affected civic education achievement since there were significant differences in the civic achievement among students taught with different techniques across gender.

4. DISCUSSION

From the result, there are statistical mean differences in Civic achievement scores of those taught civic education with group instruction technique and those taught with lecture method. This means that teaching civic education with Group Instruction Technique was better than teaching it with conventional method as supported by Jack (2017) which revealed that group instruction learning technique (using learning cycle constructivist-based approach) improved students' academic achievement and attitude towards chemistry subject. Also, this finding is supported by the findings of Filgona, Sababa and Iyasco (2016) which revealed that brainstorming learning strategy which is a form of group instructional learning technique equally used by the current study improved secondary school students' academic achievement in social studies. The similarity of these findings is rooted in Vygotsky's (1978) Socio-cultural theory of learning which underpins the potency of promoting students' learning in the group through collaborative participation facilitated by the teacher. Parveen, Yousuf and Mustafa (2017) and Al-Shammari's (2015) findings also confirmed the effectiveness of cooperative and brainstorming techniques in academic achievement respectively.

Group Instruction Technique (GIT) as a better technique of teaching was also established across gender with females slightly performing better than males in the experimental group. This was also established by Amedu (2015) using group jigsaw method (a form of group instruction technique). Given the differential effect of instruction technique and gender on students' Civic achievement, interaction effect was confirmed and findings revealed that Civic education achievement scores of SS 2 students differed both across instruction technique and gender. Hence, the interaction effect was equally confirmed and this is in line with similar findings from Jack's (2017) and Amedu's (2015) study on students' academic achievement regarding the use of similar instruction technique.

4.1 Implications of the Study

Certain subjects require different teaching approach for effective transfer of knowledge and learning. Most students may learn better given social interaction and outdoor exposures which may help them unwind their fears and express their limitations. The finding also implies that a good delivery technique could be able to

improve students' achievement with challenging subjects and across gender. The importance of establishing gender dimension of the effects of any instruction technique is because most public secondary schools in Nigeria are co-educational or mixed.

4.2 Limitations of the Study

Given that the scope was limited to a State, it may be difficult to use the findings to establish a behavioural pattern among secondary school students in Nigeria; however, the researchers made effort to ensure that the schools used had a considerable mixture of students of different origin and from different parts of the country. There may be other peculiarities which may individually and collectively affect their performance in Civic education other than instruction technique but during the experiment, the researchers had a considerable control over extraneous variables.

4.3 Recommendations

Based on the findings of this study, it was recommended that group instruction technique should be adopted in problematic subjects in secondary schools in Anambra State in order to improve academic achievement in the subject across gender. Also, there is need for the Ministry of Education to carry out research on aspects of group instruction technique which will best benefit students. Future studies should extend this search to; academic ability, students' interest, school management factors, teacher and other student factors. This will expand the understanding of the problem and measures to manage it more effectively.

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