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(2) A concise abstract of not more than 150 words should be included.

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(4) Each article submitted for consideration must be accompanied with non-refundable reviewer's fee of ₦5, 000 in cash or bank draft.

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From the Editor

The Nigerian Journal of Clinical and Counselling Psychology (NJCCP) in this 18th edition as usual and in keeping with the tradition, received scholarly articles from far and near. The articles assembled in this edition reflects profound research interests of scholars from various fields. These authours explored diverse research areas which included but not limited to learning disabilities, inclusive education, job satisfaction, work place politics and open and distance learning.

NJCCP will continue to welcome scholarly manuscripts from researchers. It should be stressed that more than ever before, and to build on the existing standard of NJCCP, the Editorial Board has been strengthened with a view to addressing some recent challenges. For emphasis, NJCCP is peer-reviewed and encourages current and innovative researches from behavioural sciences. Attention of the Editorial Board will also be focused on some specific innovations as reflected in the current edition. The deviation from the past in the current issue is the idea of having separate issues. This re-engineering is part of the process-change motivated by the need to ensure best practice in scholarship. Further strides in terms of Guest Editors would also be encouraged in future editions.

On behalf of the Editorial Board, I would like to assure all that we are in touch with realities and best tradition that govern reputable journals. Scholars are further encouraged to submit cutting-edge articles for consideration in NJCCP. Anything short of this is not welcomed.

On a good note, I welcome Professors Adenike Emeke, Bayode Popoola, S.K. Balogun and Jonathan Osiki to the Editorial Board of NJCCP. Prof. Bayode Popoola is of the Department of Educational Foundations & Counselling, Obafemi Awolowo, University, Ile-Ife, while Profs. Adenike Emeke, S.K. Balogun and Jonathan Osiki are of the University of Ibadan. I do hope that these scholars would bring to bear their erudition and experiences to the tradition of excellence NJCCP is known for. I wish them all fruitful editorial deliberations and pray they enjoy every bit of it while it lasts.

Oyesoji Aremu, cf., jp

Contents

The Effect of Computer-Assisted Instruction, Interest and Gender on Pupils' Achievement in Basic Science in Primary Schools in Ibadan Oyo State, Nigeria

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Abstract

The use of instructional materials may not be limited to a particular field of study. Effective teaching and learning of basic science at primary school level could depend to a large extent on adequate use of instructional materials. This is because children at this age level tend to learn better when taught with real objects that they can see and touch. However, available evidence indicates that, despite previous efforts and methods used in teaching, performance in basic science is still very low. This study investigated the effect of computer assisted instruction (CAI), gender and aiding pupils develop positive interest as they predict primary five pupil's achievement in basic science. Pretest-posttest, control group quasi-experimental design involving a 2 x 2 x 2 factorial matrix was adopted. Purposive sampling technique was used to select 40 primary five (5) pupils' in two private schools in Ibadan, Oyo state. Two Valid and reliable instruments basic science test (p= 0.83) and interest in basic science (P=0 .724) were used for data collection. Data were analysed using analysis for covariance (ANCOVA) at 0.05 level of significance. While Sidak post hoc test was used to explain the direction of significance between the groups. Pupils who were exposed to treatment performed significantly better in basic science test ($F_{(1,39)}$ =11.015; p< 0.5) as well as exhibited positive interest ($F_{(1,39)}$ = 15.898; p < 0.5) than those who were not. There is a significant interaction effect of treatment, interest and gender on pupils performance in basic science ($F_{(1, 39)}$ = 11.899; p< 0.5). Further, majority of the boys who participated exhibited positive interest ($\bar{x}$= 22.726) towards basic science when computer was used as instructional material than the girls ($\bar{x}$= 18.820). The implications of the findings were discussed with a view to

improving teaching-learning activities and improving dispositions of learners at school.

Key words: Computer Assisted Instruction (CAI), Gender, Interest, Achievement in Basic Science

Introduction

Instructional materials are learning materials through which the objectives of exposing learners to the content areas could be achieved. They include visual aids, audio-visual aids, and real objects; among others. The importance of instructional materials in teaching and learning process cannot be over emphasized. This may be revealed in one of the Chinese adage which runs thus: "what I hear, I forget, what I see, I remember, what I do, I understand". Therefore, the above expression shows that an effective teaching requires good and relevant use of instructional materials, where the pupils can make use of their various sense organs to understand the lesson better. This was buttressed by the findings of Mayer (2001), Ughamadu (2003), Ezeuwa and Orogwu (2005). To them, instructions are effective when verbal information are presented visually (with pictures and real objects) of the real thing rather than aurally (use of words only). As a result, educational technologies, especially computers can play an important role (Akpinar, 2005).

Computers as one of the instructional material could play powerful roles in the child's learning in school (Altun 2002). That is because it helps to develop learner's potentials in different areas of learning, and may also constitute powerful delivery system that may bring about great changes in learners behaviors that are desirable to the society at large. Experience has shown that, most learning occurs 'by doing' (experimental learning) - including getting things wrong as well as getting them right which could be determined by immediate feedback. In other words, computers appear to be capable of giving almost instant feedback, tirelessly no matter how often learners 'get it wrong' during the process. Recently, computer education was introduced into Nigerian primary school curriculum. Thus, many schools if not all in Nigeria are trying to integrate the use of computer in their teaching and learning processes.

Therefore, to achieve this, activities should include intellectual challenging tasks that should motivate pupils to explore solution(s) to a problem, and give them an opportunity to gain a sense of individual control and mastery over an environment (Becker, 2000). Adegbile (1999) opine that teaching becomes more effective and meaningful if the teaching method is complimented with good and relevant instructional materials. Moallem (2007) emphasized that learners' individual differences are very important in learning and instruction. Therefore, it would be very important to consider learners' needs when organizing instructional delivery activities such that a reasonable number of learners would attain the envisaged mastery of the objectives (Zheng & Smaldino 2003) Instructional objectives are those skills, behaviors' and knowledge that the learners are expected to develop, upon completion of the instructional unit.

In recent times, visual aids appear to be used in every subject area and children tend to like using technological tools like computer and television. Also, it appears that supporting instructional materials with different sounds, images and simulations, tend to encourage more lasting, pleasurable and effective learning. Thus, introducing Computer Assisted Instruction (CAI) which involves the use of computers to perform different tasks, such as calculations, electronic communication, under the control of a set of instructions called a program could improve children's learning. These programme results are stored or routed to output devices, like video display monitors, printers etc. It also performs a wide variety of functions that are reliable, accurate, and fast. Other functions include hands-on activities, discovering of new ideas through the use of computer assisted instructions and sometimes the display of animation packages.

The use of computers in schools could help pupils to be creative in problem-solving, thereby developing positive interest in their studies. In this respect, the whole purpose of education in a country like ours is to develop and enhance the potentials of human resources and progressively transform them, into a knowledge society. Jones (2002) emphasised that professional development in the effective use of computers, as in most fields of study, assumes that pupils will be able to

return to a classroom and use the skills, training, and knowledge acquired to earn a living and contribute meaningfully to the advancement of society.

The views of social psychologists, proposed that behaviours, personal factors and envioronmental factors all operates as interlocking determinants of each other, therefore human beings can learn by observing the envioronment, which enable them to form ideas that can be retrieved for later purpose. Bandura (1977) seemed to argue against the behaviourist stand on the issue of learning. That a theory that denies that thought can create actions attacks does not lend itself readily to the explanation of complex humamn behaviour. Pupil's interest is one of such attributes the theory seems to address, therefore in contex of pupils interest to computer and basic science, there are several models in basic science the child can observe and learn from when they are confronted with problems of understanding a concept. Such models include the use of video, films, animations, multimidea player etc. In this regard, their behaviour and perception is shaped through reinforcement which does not deny the role of skinner's reinforcement.

Interest is a motivational variable that is linked with academic achievement. Thus, pupils are more likely to engage in an academic activity, pay more attention, and generate higher performances if they are interested in the topic or subject (Schunk, Pintrich & Meece, 2008). Odinko and Adeyemo's (1999) study revealed that student's interest is a factor associated with academic success. Further, Adeyemo and Kuye (2006) reiterated that there is a strong connection between interest and effort, i.e., the more a person becomes interested in a subject the more effort he will put in it. To them, interest could serve as a tool through which the distance between the person and the materials is bridged. Snow (2011) added that emerging individual interest is supported through the means of an educator who can provide the person interested with information as a way of persistent support when confronted with difficulties. According to Snow, well-developed individual interest is usually characterized by those that seek out information by their own means by using personal skills to acquire the knowledge, and can endure on their own when difficulty arises. Further to Ames (1992)

tasks that involve variety and diversity are more likely to facilitate interest in learning. Palmer (2004) opined that interesting and enjoyable science activities in an elementary science methods class changed pre-service elementary teachers' attitudes positively. Therefore, there is the contension that, lack of interest and knowlegde of basic science in school could be traced to lack of adequate teaching materials in school.

Basic science is one of the most important subjects learners are expected to do at the primary level of education in Nigeria. This subject forms the bedrock of other science subjects that pupils may encounter in their future learning. It exposes learners to issues concerning the environment they live in, and provides pupils with interpretation and understanding of environment in which they live. However, the expectation of our educational system as regard to producing good scientist to compete with the modern society is yet to be attained. Bandura believes in this theory that, individual behaviours is caused by an interaction between inner processes and envioronmental infuence. He added that the internal processes that influence behaviour are based on previous experience of the individual and can be manipulated and measured as covert event,he places a central emphasis on the role of the cognitive determinants of behaviour .

Available evidence indicates that despite previous efforts and methods used in teaching, performance in basic science is still very poor among primary school pupils. Teachers still need best strategies to promote basic science concepts formation and problem solving skills. The use of ICT in teaching-learning activities is yet to be sufficiently explored in our educational setting. Incorporating this instructional strategy could bring about a positive turnaround in the disposition of learners which can enhance their ability to master the subject areas thus enhancing their achievement. The present study therefore sought to conduct a quasi experimental study which aims at finding out if any improvement could be recorded in primary five pupils' achievement as well as disposition to basic science if they are taught with computer.

More specifically, the study sets test the following hypothesis:

H_{o1}. There is no significant main effect of:
a. treatment,
b. interest, and
c. gender on primary school pupils' achievement in basic science.

H_{o2}. There is no significant interaction effect of:
a. treatment and interest
b. treatment and gender
c. interest and gender on primary school pupils' achievement in basic science.

H_{o3}. There is no significant interaction effect of treatment, interest and gender on primary school pupils' achievement in basic science.

Methodology

Design

The study adopted a pre-test post-test control group non-randomized quasi-experimental design in which the treatment operating at two levels (Computer Assisted Instruction, CAI and Conventional method) was crossed with interest and gender of the pupils.

Sampling

Purposive sampling technique was used to select primary five pupils from two private schools in Ibadan North Local Government Area of Oyo State that have computers. This was based on the facts that, research on computer Assisted Instruction (CAI) should be conducted in schools were computers are available. Thus, two schools that have computer laboratories (one which does not use the computers for teaching-learning activities and therefore does not allow the pupils to use them and another which uses it during classroom activities and also allows pupils access to them) were selected. In each schools selected, an intact primary 5 class of 20 pupils was used. In all, 40 primary 5 pupils' (19 males and 21 females) participated. Their ages ranged from10 to 12 years (mean 10.9).

Instrumentation

The two instruments used for the study were developed and validated by the researchers. They are the Basic Science Interest Scale (BSIS) with Cronbach's Alpha .83 and Basic Science Achievement Test (BSAT) with the reliability coefficient of .72.

Data Collection Procedures

After the initial random selection of the classes to be used in each school, pre-test in basic science was administered to test pupil's level of masterly on the selected topics. A questionnaaire on interest in basic science and computer assisted instruction was also administered. The scores generated from the pupils were used in assigning participants to groups. Those who scored highly were assigned to control group whereas those who performed poorly were assigned to treatment group.

Experimental Group: Prior to administering the treatment package, basic science animation package was installed in all the 25 computers in the laboratory for those in the experimental group. Since it involves animation effect, the pupils participated individually with the guide of the researcher. These pupils were thought using discovery method supplemented with the aid of computer instruction. Also, a motivational talk on the importance of science was given to the experimental group by the researchers to aid build up the interest of the learners

Control Group: The control group were thought using lecture method and thus restricted from using the computer in their school laboratory. During this period, both groups (Experimental and Control group) were exposed to the same content materials. The treatment lasted for six weeks of two periods of thirty-five minutes per period per week. The investigators personally handled the treatment conditions in all the classes. At the end of the treatment, the Basic Science Achievement Test and interest in basic science questionnaire were administered again as post treatment test to the pupils.

Analysis of Data.

The pre-test and post- test performance scores were subjected to analysis of covariates (ANCOVA). The Sidak test and graphical illustrations were used as post –hoc measures.

Results

To test the hypothesis, analysis of covariance (ANCOVA) was employed to analyze the posttest scores of participants on treatment, using the pretest scores as covariates to find out if significant difference(s) exists occurred in the mean scores of the pupils used for the study. .

H_{O1a}. There is no significant main effect of Treatment on primary school pupils' achievement in basic science.

Table 1: Descriptive Statistics of Treatments Scores for Treatment Group and Control

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Computer Assisted Instruction	19.143	.464	18.197	20.088
Conventional Method	16.708	.487	15.715	17.701

Covariates appearing in the model are evaluated at the following values: PRETEST = 15.00

Table 1 shows the descriptive statistics on treatment from analysis of covariance. The result shows that the participants exposed to treatment had the highest post achievement mean score (X=19.143) in basic science, while pupils in the conventional group hard the least performance with the achievement mean score (X =16.708).

Table 2: Summary of Analysis of Covariance (ANCOVA) Showing the effect of treatment on experimental and control groups.

Dependent Variable : ACHIEVEMENT

Source of variables	Sums of Squares	df	Mean Square	F	Sig.	Eta Squared
Corrected Model	408.830	8	51.104	14.796	.000	.792
Intercept	70.343	1	70.343	20.366	.000	.396
PRETEST	109.711	109.711	31.765	.	000	.506
TREATMENT	38.046	1	38.046	11.015	.002	.262
INTEREST	54.908	1	54.908	15.898	.000	.339
GENDER	4.258	1	4.258	.233	.27	.038
TREATMENT*INTEREST	6.167	1	6.167	1.785	.191	.054
TREATMENT*GENDER	1.595	1	1.5	.462	.502	.015
INTEREST*GENDER	4.063	1	4.063	1.176	.286	.037
TREATMENT* INTEREST* GENDER	41.099	1	41.099	11.899	.002	.277
Error	107.070	31	3.454			
Total	3548.000	40				
Corrected Total	515.900	39				

a. R Squared = .792 (Adjusted R Squared = .739)

Table 2 shows that there is a statistical significant main effect of treatment (Computer Assisted Instruction and Conventional method) on pupils achievement in Basic Science post test scores of participants in the experimental and control groups ($F_{(1,39)}$ - 11.015; P<0.5), partial eta squared (η^2= .262). The effect size of 26.2% of treatment was fair and accounted for the variance in pupil's achievement in basic science. The null hypothesis was rejected, meaning there is a statistical main difference in basic science achievement test scores of experimental and control group. This implies that the treatment intervention seems to be significantly effective. Therefore, to ascertain the variation in post test mean score of participants in treatment and control group, the pair-wise comparison was computed using post-hoc test (Sidak) as is presented as follows:

Table 3: Summary of pair-wise comparison analysis showing the effect of treatment on basic science achievement test scores of experimental and control group

(I) TREATMENT (J) TREATMENT	Mean Difference (I-J)	SD	Sig.	95% Confidence interval for Difference	
				Lower Bound	Upper Bound
COMPUTER CONVENTIONAL ASSISTED METHOD INSTRUCTION	2.435*	.734	.002	.938	3.931
CONVENTIONAL COMPUTER METHOD ASSISTED INSTRUCTION	-2.435*	.734	.002	-3.931	-.938

***p =0.05 level**

Table 3 shows the pair-wise comparison post-hoc test (Sidak) of pupils in treatment and control group. The values obtained indicate that, treatment had significant effect on participant's achievement in basic science as seen in Table 3.

H_{O1b}. There is no significant main effect of Interest on primary school pupils' achievement in basic science.

To test the hypothesis, analysis of covariance (ANCOVA) was used to analyze the posttest scores of participants on interest, using the pretest scores as covariates to find out if posttest difference was significant and they are as presented in Table 4.

Table 4: Descriptive Statistics of Interest on Pupils Achievement in Basic Science

Interest	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Lowest Interest	16.717	.440	15.819	17.615
Highest Interest	19.134	.416	18.286	19.982

a. Covariates appearing in the model are evaluated at the following values: PRETEST = 15.00

Table 4, also shows the descriptive statistics on interest. The result shows that highest interest group mean score (π =19.134) in basic science, while in the low interest group had the least mean score (π=16.717). The mean difference between the high and low, interest group is 2.417. However, the differences is statistically significant ($F_{(1,39)} = 15.898$; $P<0.5$), partial eta squared, $\eta^2 = .339$ (Table 2). The effect size of 24.2% of interest on pupil's achievement in basic science was fair, this accounted for the variation in pupil's achievement in basic science. The null hypothesis was rejected, meaning there is a statistical significant main effect of interest on pupil's achievement in basic science.

H_{01c}. There is no significant main effect of gender on primary school pupils' achievement in basic science.

To test the hypothesis, descriptive statistics, analysis of covariance (ANCOVA) is used to find out if test difference was significant between gender and pupil's achievement and they are presented in the Table 5.

Table 5. Descriptive Statistics of Gender on Pupils Achievement in Basic Science

GENDER	Mean	Std. Error	95% Confidence Interval Lower Bound	Upper Bound
MALE	18.270	.422	17.410	19.130
FEMALE	17.581	.445	16.673	18.488

a. Covariates appearing in the model are evaluated at the following values: PRETEST = 15.00.

Table 5. shows the descriptive statistics on gender. The result of the analysis shows that the males had higher mean score (π =18.270) than the females (π =17.581). However, as Table 2 shows, the mean difference of .689 is not statistically significant ($F_{(1, 39)}$ =1.233; $p< 0.5$), partial eta squared η^2=.038 (Table 2). Therefore the effect size of 3.8% of gender on pupil's achievement in basic science was moderate, only 4% accounted for variation of gender on pupil's achievement. The null hypothesis was not rejected, meaning there is no significant main effect of gender on pupil's achievement in basic science.

H_{o2a}. There is no significant interaction effect of treatment (Computer Assisted Instruction) and interest on primary school pupils' achievement in basic science.

Table 6: Descriptive Statistics of Treatment on Pupils Interest in Basic Science

TREATMENT	INTEREST	Mean	SD	95% Confidence Interval Lower Bound	Upper Bound
Computer Assisted Instruction	LOW INTEREST	17.512	.655	16.176	18.849
	HIGH INTEREST	20.773	.602	19.546	22.000
Conventional Method	LOW INTEREST	15.921	.722	14.448	17.394
	HIGH INTEREST	17.495	.579	16.277	18.713

a. Covariates appearing in the model are evaluated at the following values: PRETEST = 15.00.

H_{O2b}. There is no significant interaction effect of treatment (Computer Assisted Instruction) and gender on primary school pupils' achievement in basic science.

Table 7: Descriptive Statistics of Treatment and Gender on Basic Science

TREATMENT	GENDER	Mean	SD	95% Confidence Interval Lower Bound	Upper Bound
COMPUTER ASSISTED INSTRUCTION	MALE	19.702	.624	18.428	20.975
	FEMALE	18.583	.667	17.223	19.943
CONVENTIONAL METHOD	MALE	16.838	.579	15.656	18.020
	FEMALE	16.578	.719	15.111	18.045

a. Covariates appearing in the model are evaluated at the following values: PRETEST = 15.00.

The result presented in Table 7 above revealed that, there is no significant interaction effect of treatment and gender on pupil's achievement in Basic Science test scores ($F_{(1, 39)}$ = .462; $p < 0.5$), partial eta squared, η^2 =.015. As a result of this

finding, hypothesis 2 (b) is not rejected. This implies that, the effect of treatment on achievement of participant in basic sciences is not sensitive to gender. Meaning the teaching strategies used during the whole of this study could be used to improve participant performance in basic science whether they are male or females.

H_{O2c}. There is no significant interaction effect of interest and gender on primary school pupils' achievement in basic science.

Table 8: Descriptive Statistics of Interest and Gender on Basic Science

INTEREST	GENDER	Mean	SD	95% Confidence Interval	
				Lower Bound	Upper Bound
LOW INTEREST		16.714	.582	15.526	17.902
	MALE	16.719	.661	15.372	18.066
	FEMALE	19.826	.610	18.581	21.070
HIGH INTEREST					
	MALE	18.442	.617	17.184	19.700
	FEMALE				

a. Covariates appearing in the model are evaluated at the following values: PRETEST = 15.00.

Also, Table 8, presents the summary of mean score and standard deviation of participants achievement in basic science using the interaction if interest and gender. The result in Table 8, result shows that there is no significant interaction effect of interest and gender on pupils achievement in basic science ($F_{(1,39)} = 1.176$; $P<0.5$), partial eta squared, $\eta^2 = .037$ (Table 4). As a result of this finding the null hypothesis is not rejected. This implies that, interest of participants in basic science is not sensitive to gender. Meaning that participants

performance is basic science is not determined by whether the pupil is a boy or a girl.

H_{O3}. There is no significant interaction effect of treatment, interest and gender on primary school pupils' achievement in basic science

Table 9: Descriptive Statistics of Treatment, Interest and Gender on primary school pupils' achievement in basic science

TREATMENT	INTREST GENDER	Mean	SD	95% Confidence Level	
				Lower Bound	Upper Bound
COMPUTER ASSISSTED INSTRUCTION	LOW MALE	16.678	.985	14.723	18.632
	FEMALE	18.347	.813	16.688	20.006
	HIGH MALE	22.726	.847	20.998	24.454
	FEMALE	18.820	.932	16.918	20.721
CONVENTIONAL METHOD	LOW MALE	16.751	.741	15.241	18.261
	FEMALE	15.091	1.156	12.733	17.449
	HIGH MALE	16.926	.847	15.198	18.654
	FEMALE	18.064	.832	16.367	19.762

a. Covariates appearing in the model are evaluated at the following values: PRETEST = 15.00.

Table 9 presents the descriptive statistics on treatment, interest and gender. The results show that male participants who were taught by using CAI approach had the highest mean score (x= 22.726). While female taught with conventional approach hard the mean score (x= 18.064). The mean differences between the highest and low interest group is 4.66. However, the difference of 4.66 is statistically

significant ($F_{(1,39)} = 11.899$; $p < 0.5$), partial eta squared = 2.77 (Table 2). Therefore, the effect size of (46.6%) of treatment and interest on pupil's achievement in basic science was good; the hypothesis is therefore rejected, meaning there is a statistical interaction effect of treatment, interest and gender on pupil's achievement in basic science.

The significant interaction effects of treatment and interest, treatment and gender, gender and interest and treatment, interest and gender were disentangled. These are illustrated in Figures 1, 2, 3 and 4 for treatment and interest, treatment and gender, gender and interest and treatment, interest and gender respectively. The figures show ordinal interactions and are such that children were taught using computer assisted instruction method, irrespective of their gender performed significantly better in basic science as well as exhibited positive interest towards the subject than their counterparts without such exposure.

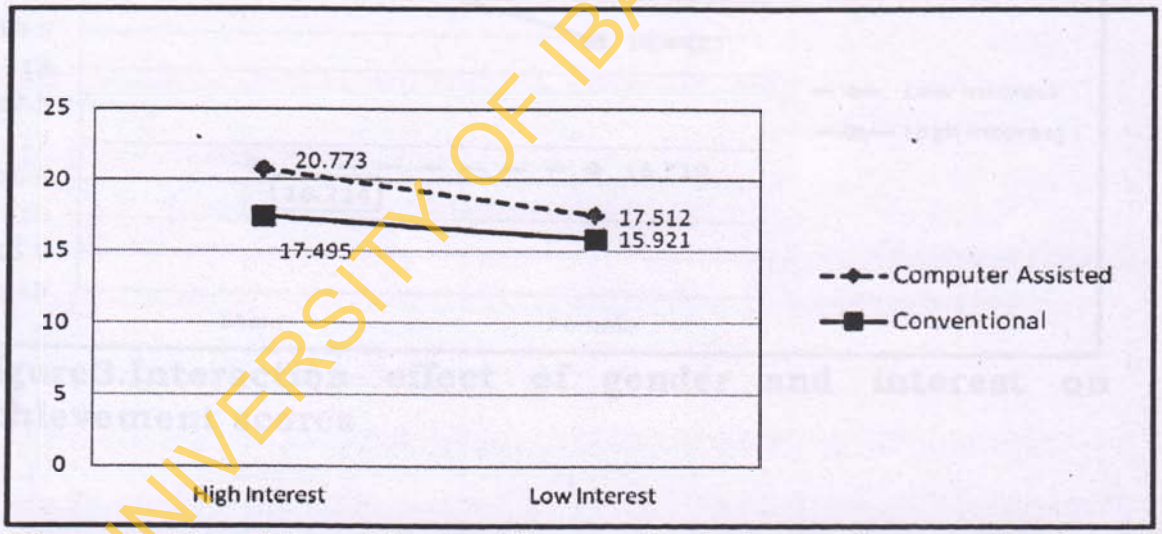

Figure1.Graghic illustration of interaction effect of treatment and interest on achievement

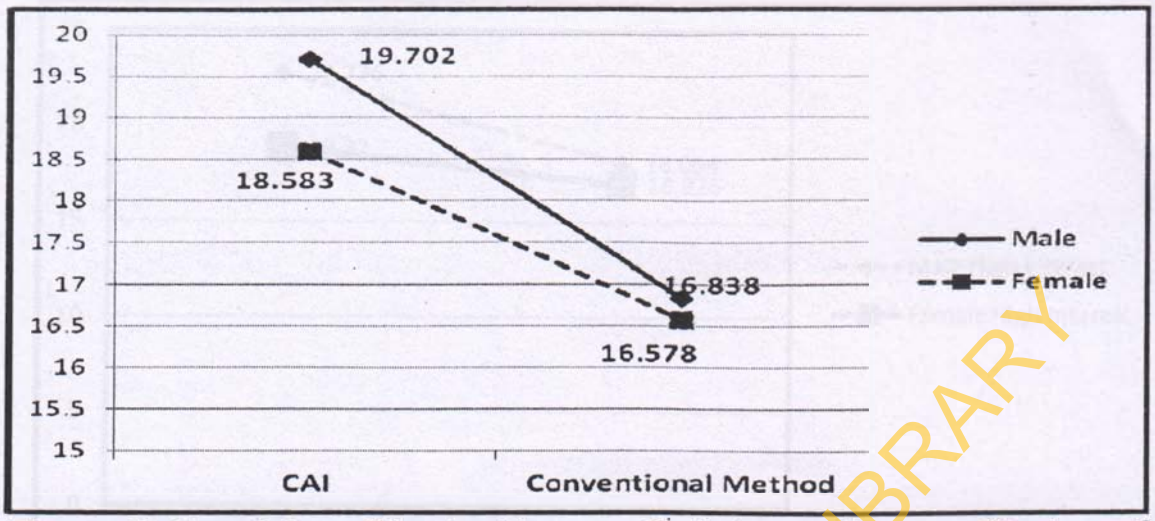

Figure2.Graghic illustration of interaction effect of treatment and gender on achievement

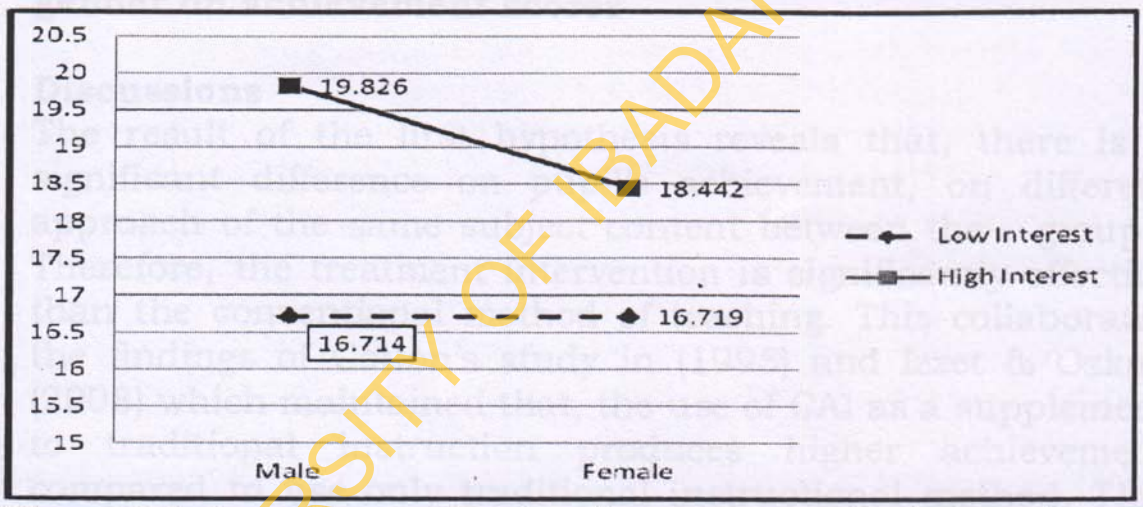

Figure3.Interaction effect of gender and interest on achievement scores

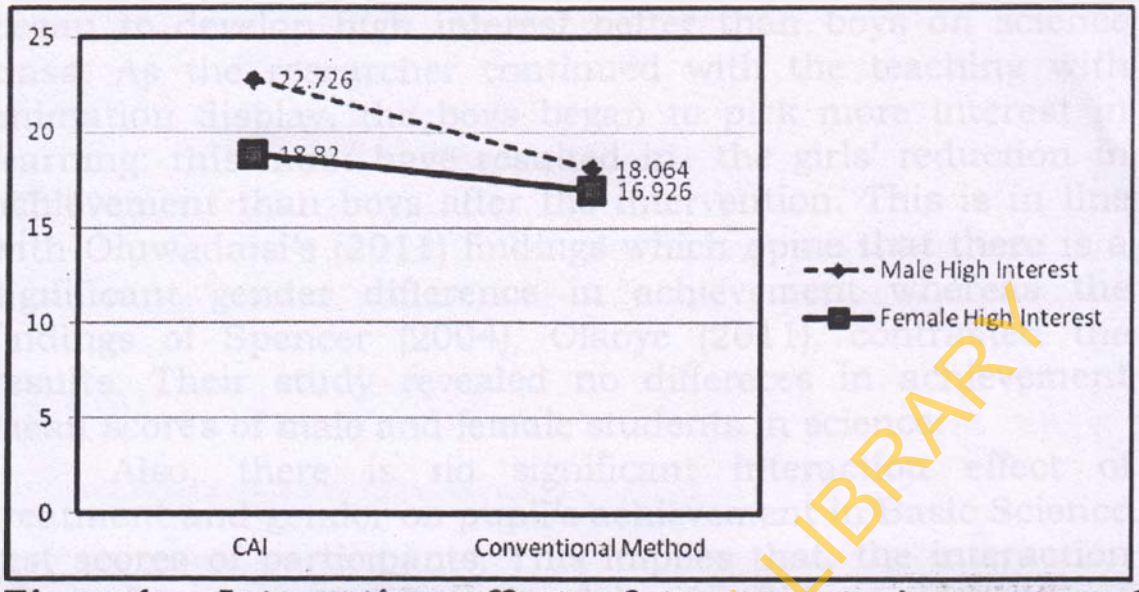

Figure4. Interaction effect of treatment, interest and gender on achievement scores

Discussions

The result of the first hypothesis reveals that, there is a significant difference on pupil's achievement, on different approach of the same subject content between the groups. Therefore, the treatment intervention is significantly effective than the conventional method of teaching. This collaborates the findings of Cotton's study in (1995) and Izzet & Ozkan (2008) which maintained that, the use of CAI as a supplement to traditional instruction produces higher achievement compared to use only traditional instructional method. This was also supported by Burns and Bozama (1981) quoted in Olga. pilli 2008, Kirk (2000), who produced the results of meta-analysis of 40 students that compared the effectiveness of traditional instruction outcome with a combination of traditional instruction and CAI on students in mathematics achievement.

The result of the second Ho revealed that, there is no significant main effect of gender on pupil's achievement in Basic Science. Meaning that, the group differences was not sensitive to gender. Therefore, the teaching strategy used during the study could be used to improve participant performance in basic science whether they are males or females. For instance, during the pre-testing period, of the participants, it showed that, there were no differences between boys and girls in grade on basic science, but girls

began to develop high interest better than boys on science class. As the researcher continued with the teaching with animation display, the boys began to pick more interest in learning; this must have resulted in the girls' reduction in achievement than boys after the intervention. This is in line with Oluwadaisi's (2011) findings which opine that there is a significant gender difference in achievement whereas the findings of Spencer (2004), Olaoye (2011), contrasted the results. Their study revealed no differeces in achievement mean scores of male and female students in science.

Also, there is no significant interaction effect of treatment and gender on pupil's achievement in Basic Science test scores of participants. This implies that, the interaction effect of treatment and gender did not influence achievement of participant in basic sciences. Therefore, it is not sensitive to gender. Meaning that, the teaching strategy used in this study is not sensitive to gender. The finding collaborates that of Keziah (2011) which revealed that there is no significant difference in the performance of the boys and girls in the use of computer in the learning of science in school. However, an empirical study from Greece (Barkatsas, Kasimatis, & Gialamas, 2009) supported that, boys were found to possess significantly higher levels of confidence and liking for computer-assisted instruction than girls. Thus, the girls do not see the possibility which computers offers in the learning process

Based on the findings as revealed in Table 2, the use of CAI strategy seems to be a very important approach that determines not only the pupil's achievement but their interest. Therefore, the treatment intervention is significantly more effective than the conventional method of teaching. The effect size of 26.3% of treatment and 23.4% on interest was fair and is accounted for the variance in pupil's achievement and interest in basic science. This implies that, the treatment intervention seems to be very effective. This finding is consistent with that of Izzet and Ozkan (2008) whose result revealed that the use of CAI as a supplement to traditional instruction produces higher achievement compared to use only traditional instruction. This also is in collaboration with Olga (2008), whose study on the effectiveness of traditional instruction outcome with a combination of traditional

instruction and CAI on students in mathematics achievement found that mathematics instruction with CAI was significantly more effective in improving pupils' achievement; as well as Kirk's (2000), who found that students who use computers in the classroom show at least a modest level of achievement gain over students who do not use computers.

As regards the interest level of pupils in both groups, the result revealed that pupils exposed to basic science lesson through CAI exhibited higher interest (20.903) than those who were not (17.952). The hypothesis was therefore rejected, since there is a main effect of interest on pupil's achievement in basic science. Thus, the positive interest exhibited by the pupils instructed with Computer must have aided in their ability to perform highly. This shows that if educators want to improve pupils' performance and interest in basic science, materials that they can feel and touch should be used. Further, motivational talks on the objectives of exposing learners to any subject area should be communicated to them to aid raise awareness and thus arouse the interest of the learners. This is in line with the findings of krapp, (2004) which showed that interest influences academic achievement and learning in schools.

The result reiterates the importance associated with adequate material provision at this level of education to arouse and sustain learners interest (Varol & Farran, 2006; Bennett, Elliot, & Peters, 2005). Educators and researchers believe that quality primary classroom-learning environment and provision of adequate teaching aids are associated with encouraging teacher-pupil interaction and creating better atmospheres for effective learning (Bruce, 1997; Varol & Farran, 2006). For instance, Katz (1989) is of the view that the central aim of schooling at this level should be to give children direct experiences, to allow their initiatives and extend them, to support intrinsic motivation broadly and in depth, and to facilitate the development of dispositions and attitudes which are helpful to learning. Further, educators also believe that certain subjects e.g. science and mathematics should be introduced to young children through materials they can see and feel (Wolfe, 2002; Bruce, 1997). They are of the opinion that its use makes learning an engaging and fun activity.

Thus, it stands to reason that, replacing speech with pictures in the class may improve pupil's performance. Ughamadu (2003), Ezeuwa and Orogwu (2005) see instructional materials as the variety of materials like textbooks, chalkboards, charts, TV, computers and others including projected and non projected devices which aid teaching and learning processes and invariably enhance the achievement of instructional objectives. Further, research results suggest that pupils remember 20% of what they hear, 40% of what they see and hear and 75% of what they see, hear and do (Kucukahmet, 2001).

Other researchers are of the view that the use of good and appropriate materials in Science application makes the lessons more interesting and encouraging and makes the difficult Science concepts to be learnt easily in a more effective way (Halis, 2002; Demirel, 2004; Izzet & Ozkan, 2008). It appears that teachers should use visual aids during teaching activities for pupils to understand the lesson better thus aiding in inculcating positive interest towards the lesson. Also, if we take into account that learners especially at the primary school level have difficulty in learning abstract concepts, it is important to make these concepts less abstract but physical presented to encourage better understanding by learners.

Recommendations

In view of the findings, practicing primary school teachers can arouse and sustain pupils'interest by designing lessons which appeal to them through the use of computers. Government should endeavour to supply enough computers to schools to enable teachers perform their classroom activities effectively. When such materials are supplied, teachers as well as school administrators should allow learners access to them instead of locking them up in laboratories. The government should incorporate in-service professional support in the educational policy to equip practicing teachers at the primary level to meet up with the demands of their work. Similarly, parents should be encouraged to buy computers in their homes to enable their children extend the practice even when the teachers are not there. This could promote independence and encourage good study habits.

Conclusion

It is believed that the implementation of these recommendations would lead to the improvement of basic science achievement as well as inculcate positive interest in the learners towards the subject.

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