

VIDEO INSTRUCTIONAL PACKAGES AND GENDER DIFFERENCE ON PUPILS' LEARNING OUTCOMES IN PRIMARY SCHOOLS' COMPUTER STUDIES IN ONDO STATE, NIGERIA

Yemisi Hannah, BALOGUN
Department of Science Education, Faculty of Education,
Adekunle Ajasin University, Akungba-Akoko.
solayemib2005@gmail.com

Abstract

The purpose of the study was to investigate the Video Instructional Package (VIP) and gender differences on pupils' academic achievement and attitude towards computer studies in public primary schools in Ondo State. The study explored gender differences in pupils' responses to a Video Instructional Package (VIP) used in the teaching of Computer Studies in selected primary schools in Ondo State, Nigeria. Using a quasi-experimental research design of the pretest-posttest control group type. The population of the study comprised all primary four pupils in Ondo State. The sample consisted of an intact class of 66 primary four pupils selected from schools using purposive sampling techniques based on the availability of a functional computer system for the treatment group, while another school was randomly selected for the control. Two research instruments were validated and employed for the study: the Pupils' Attitude Towards Computer Studies Questionnaire (PATCSQ) was validated using Cronbach's Alpha formula for the reliability, with $r = 0.78$. While the Computer Studies Achievement Test (CSAT) was validated using the test-retest method for reliability, with $r = 0.87$. These were judged to be reliable for the study. The experimental group received instruction using an adopted video instructional package, while the control group received instruction in a conventional method format. Two hypotheses were formulated, while inferential statistics such as ANOVA were used to test the hypotheses at the 0.05 level of significance. Findings showed that there was a significant difference in the academic achievement between male and female pupils exposed to the video instructional package and those exposed to the conventional method. The F -value is 10.77 for the instructional method, which is high, while the p -value (0.014) is a statistically significant p -value < 0.05 . ($F = 10.77$, $P < 0.05$). The findings also showed that there was a significant difference in attitude between male and female pupils who were exposed to a video instructional package and those in the conventional method. The F -value is 14.47 for the instructional method, which is high, while the p -value is 0.016 with a statistically significant p -value < 0.05 . ($F = 14.47$, $P < 0.05$).

The study concluded that pupils' academic achievement was greatly enhanced with the use of the video instructional package compared to the conventional method, which consequently made pupils develop a positive attitude towards computer studies. The study therefore recommended the integration of the Video Instructional Package into primary school education to improve learning outcomes and attitudes to computer studies.

Keywords: Video instructional package, academic achievement, attitude, gender, primary school pupils.

1. Introduction

Primary education is the foundation of formal learning. It comes after preschool and before secondary education. This stage equips learners with essential life skills. Suprpto et al., (2021) describe a child's mind as moldable. They emphasize the lasting impact of early education. A strong foundation is crucial. Poor early education can undermine future learning.

Computer studies is becoming increasingly important in Nigeria's primary schools. Campbell (2022) and Driessen et al. (2013) highlights its role in teaching pupils how to process and store information using computers. Although the subject is relatively new, its global relevance makes it essential in the curriculum (Godabe et al., 2022). Despite its importance, many schools still rely on chalkboards and traditional teaching methods. These methods are time-consuming and limit retention. They may also pose health risks. Teaching often involves passive learning with minimal interaction. Akingbemisilu and Babafemi (2018) argue that this approach reduces pupils' engagement and creativity.

2. Literature Review

Video Instructional Packages (VIPs) offer a promising solution. They support learning in cognitive, affective, and psychomotor domains. VIPs present complex ideas both visually and audibly. This makes content easier to understand. Nnoli and Onwudinjo (2023) highlight television's role in delivering rich content efficiently. Enachescu et al., 2016 and Kilag et al. (2023) stress that most learning occurs through sight and hearing. VIPs are effective for all pupils, regardless of gender. Gender, shaped by social norms, influences learning experiences. In Nigeria, boys and girls attend school together. However, stereotypes persist. Wallace et al., (2020) found that mixed-gender groups perform better than single-gender ones. Attitudes play a key role in learning outcomes. Positive attitudes boost achievement. Negative attitudes hinder progress. These attitudes stem from personality, experience, and environment (Costache et al., 2023; Al-Barakat et al., 2025)). Starck et al., (2024) emphasizes that academic achievement reflects the depth of learning. It is also a key measure for evaluation.

Gender issues have remained central in the discourse on education, especially regarding achievement and participation in science and technology subjects (Alam, 2022 and Miningou, 2022). Most of the past research has indicated that boys perform better than girls in technical and

computer-related subjects, and this disparity has been commonly linked to cultural stereotypes, gender socialization, and inequality in learning opportunities Lin, S. L., & Wong, G. K. W., (2024). In many African contexts, such as Nigeria, the socio-cultural expectations surrounding young males and females often influence the way boys and girls think about technology-based subjects. Boys are often predisposed to computers and problem-solving activities, while girls are at times encouraged toward less technical areas. This has raised growing concerns about fairness and equity in education (Costache, 2024; Bărbulescu et al., 2025).

Gender differences in attitudes toward computer studies are evident. Mathee (2023) & Tarchi et al., (2021) found that girls often show less interest and confidence in technology. Societal norms contribute to this gap. Snyder (2020) recommends role models and inclusive practices to address it.

Some studies suggest boys outperform girls. Others show minimal differences. Vijeh et al., (2025) and Wrigley-Asante et al., (2023) argue that teaching methods matter more than gender. Equal conditions can lead to similar outcomes for both sexes. VIPs can improve achievement and attitudes in computer studies. This study explores how VIPs and gender differences affect learning outcomes. The focus is on selected primary schools in Ondo State, Nigeria.

3. Methodology

Statement of the Problem

Gender differences in academic performance and attitude are common topics in educational research. Observations and records show that these differences are especially noticeable in science and technology subjects. In many cases, male pupils are believed to perform better and show more interest in technology-based learning than females. These beliefs often lead to stereotypes. Such stereotypes can reduce girls' confidence and participation in subjects like computer studies. With the introduction of Video Instructional Packages (VIPs), it is important to examine whether these gender gaps still exist. Do male and female pupils benefit equally from video instruction? Or do differences in achievement and attitude remain? Answering these questions is essential for promoting gender equity in education.

This study aims to investigate the impact of VIPs and gender differences on pupils' learning outcomes in computer studies. The focus is on selected primary schools in Ondo State, Nigeria.

Purpose of the Study

This study aims to examine how Video Instructional Packages (VIPs) and gender differences affect pupils' learning outcomes in computer studies. The focus is on primary schools in Ondo State, Nigeria.

Specific Objectives

1. To assess the impact of VIPs on the academic achievement of male and female pupils in computer studies.
2. To evaluate the effect of VIPs on the attitudes of male and female pupils toward computer studies.

Research Hypotheses

The following hypotheses were formulated to guide the study:

Ho1: There is no significant difference in the academic achievement of male and female pupils exposed to the video instructional package and those exposed to the conventional method.

Ho2: There is no significant difference in the attitude of male and female pupils exposed to the video instructional package and those exposed to the conventional method.

Research Method

Research Design

This study adopted a quasi-experimental design. It involved a pretest-posttest control group. After the treatment, a posttest was conducted to measure pupils' attitudes and academic achievement in computer studies. The design focused on gender differences in learning outcomes. This approach was chosen to explore cause-and-effect relationships between groups. Specifically, it examined how video instructional packages and gender differences influence pupils' performance and attitudes in computer studies.

Population of the Study

The population for this study comprised all Primary Four pupils in Ondo State. According to the State Universal Basic Education Board (SUBEB, 2024), the total number of pupils at this level was 73,217.

Sample and Sampling Techniques

The sample for this study consisted of 66 Primary Four pupils. This included 24 males and 42 females. A multistage sampling technique was used. It combined simple random and purposive sampling methods. One school was purposely selected from a local government area. This was based on the availability of a functional computer system and projector for the treatment group. Another school was randomly selected from a different local government area to serve as the control group. Primary Four pupils were chosen because the instructional content was relevant to their curriculum. An intact class was used for both the experimental and control groups.

Research Instruments

This study used both treatment and test instruments. The treatment instrument was the Video Instructional Package (VIP). Two test instruments were also used:

1. Computer Studies Achievement Test (CSAT) - to assess pupils' academic performance.
2. Pupils' Attitude Towards Computer Studies Questionnaire (PATCSQ), to measure their attitudes toward the subject.

Validity of the Instruments

The instruments were reviewed by two experts. One was from the field of Information Technology (IT), and the other specialized in Test and Measurement. After expert evaluation, the instruments were submitted to the researcher's supervisor for final scrutiny. They were then approved and used for data collection.

Reliability of the Instrument

The reliability of the Computer Studies Achievement Test (CSAT) was established using the Kuder-Richardson Formula 20 (KR-20). For the Pupils' Attitude Towards Computer Studies Questionnaire (PATCSQ), Cronbach's alpha was used. These analyses were based on data collected during pilot testing. The reliability coefficient for PATCSQ was 0.78. For CSAT, it was 0.87. These values indicate that both instruments were considered reliable for the study.

Administration of the Instrument

Pretest Stage

All pupils in both the control and experimental groups took a pretest. The pretest included the questionnaire and the Computer Studies Achievement Test (CSAT). It was used to collect baseline data on pupils' attitudes and academic performance. The test was conducted in a

controlled environment. Standard procedures were followed to ensure consistency. The pretest lasted for one week.

Treatment Stage

Experimental Group

The intact class was exposed to VIP using a laptop connected to an LCD projector. The school computer teacher introduced the lesson before the video presentation, and pupils were encouraged to listen and write down notes. After the video presentation, the pupils were evaluated according to the video, and conclusions were followed.

Control group

The school computer teacher used the conventional method to teach the subject in the control group, that is exposing the subjects to lesson content through verbal instruction alone. During the teaching process, important points which the study subject covers were expected to be written down in their exercise books while the teacher writes on the chalkboard for the pupils to copy.

Posttest Stage

At the end of the treatment stage, the questionnaire and CSAT were re-administered to the pupils to determine the effects of the treatment on them. The CSAT used during the pretest was rearranged, and it was administered to the experimental and control groups to measure changes in achievement and attitude.

Data Analysis

The data collected through the instruments were analyzed using inferential statistics. (ANOVA)

4. Results and Analysis

The result of the analysis of data of the pretest and posttest from the control and experimental groups is presented and discussed in this chapter. The presentation and discussion were based on the hypotheses formulated for the study.

Results

Hypothesis Testing

Hypothesis one

There is no significant difference in the academic achievement of male and female pupils exposed to the video instructional package and those exposed to the conventional method.

Analysis of Variance (ANOVA) was employed to test the hypothesis in order to determine if there is a significant difference in the pretest and posttest academic means scores of pupils exposed to video instructional package instruction

Table 1: ANOVA result of the academic achievement of male and female pupils exposed to video instructional package and those exposed to conventional method

Source of Variation	Sum of Square	Df	Mean Square	F	Sig. Value
Gender	0.3721	1	0.3721	0.026	0.898
Instructional Methods	25.4016	1	25.4016	10.77	0.014
Error	14.2884	63			
Total	40.0621	65			

Table 1 shows that the F-value for gender is 0.026. This indicates very little variation in academic achievement between male and female pupils. The p-value is 0.898, which is greater than the 0.05 significance level. Therefore, the difference in achievement based on gender is not statistically significant. In contrast, the F-value for instructional method is 10.77. The p-value is 0.014, which is less than 0.05. This means the difference in achievement between pupils taught with the video instructional package and those taught with the conventional method is statistically significant. As a result, the null hypothesis is rejected. The analysis confirms that instructional method significantly affects academic achievement, while gender does not.

Hypothesis two

There is no significant difference in the attitude of male and female pupils exposed to the video instructional package and those exposed to the conventional method.

Analysis of Variance (ANOVA) was employed to test the hypothesis to determine if there is a significant difference in the attitude of male and female pupils exposed to the video instructional package and those exposed to the conventional method.

Table 2: ANOVA result of the attitude of male and female pupils exposed to video instructional package and those exposed to conventional method

Source of Variation	Sum of Square	Df	Mean Square	F	Sig. Value
Gender	0.0841	1	0.0841	0.500	0.608
Groups	2.4336	1	2.4336	14.477	0.016
Error	0.1681	63	0.1681		
Total	40.0621	65			

Table 2 shows that the F-value for gender is 0.500. This indicates little variation in pupils' attitudes based on gender. The p-value is 0.608, which is greater than the 0.05 significance level. This means the difference in attitude between male and female pupils is not statistically significant.

However, the F-value for instructional method is 14.477. The p-value is 0.016, which is less than 0.05. This shows a statistically significant difference in attitude between pupils taught with the video instructional package and those taught with the conventional method.

Therefore, the null hypothesis is rejected. The result confirms that instructional methods significantly affect pupils' attitudes, while gender does not.

5. Discussion of Findings

Discussion of Findings

This study aimed to determine whether the use of Video Instructional Packages (VIPs) in teaching computer studies would have different effects on male and female pupils in primary schools.

Academic Achievement (Hypothesis 1)

Table 1 shows that the ANOVA result for the instructional method was significant. The F-value was 10.77, and the p-value was 0.014, which is less than 0.05. This indicates a statistically significant difference in academic achievement between pupils taught with VIP and those taught using conventional methods. Before the intervention, there was no significant difference in mean scores between male and female pupils. After the intervention, both groups showed improvement. However, the instructional method had a greater impact than gender. This suggests that VIPs were effective for both boys and girls in improving academic performance. These findings align with Kilag (2023), who reported that gender differences in academic performance are minimal when other factors are controlled. Similarly, the findings also support Noetel et al. (2021), who found that multimedia instruction improved understanding and retention for both male and female students in science subjects.

Attitude Towards Computer Studies (Hypothesis 2)

Table 2 shows that the ANOVA result for the instructional method was also significant. The F-value was 14.47, and the p-value was 0.016, which is below the 0.05 threshold. This confirms a significant difference in pupils' attitudes between the VIP and conventional method groups. Initially, male pupils had slightly higher attitude scores than females. After the intervention, both groups showed marked improvement. This highlights the positive impact of VIPs on pupils' attitudes, regardless of gender.

The initial difference in attitude reflects existing gender stereotypes. However, the use of VIPs helped bridge this gap. The results support the rejection of the null hypothesis, confirming that instructional method significantly influences pupils' attitudes.

VIPs enhance learning by making it more engaging and interactive. The findings is in agreement with Mayer (2021), who explained that multimedia learning through visual and auditory channels improves understanding and motivation. The finding also supports Moreno and Mayer (2007), who found that such environments increase student interest and foster positive attitudes.

6. Conclusions

The study concluded that Video Instructional Packages (VIPs) are gender-inclusive tools. They create equal learning opportunities for all pupils. Male and female learners showed similar outcomes when taught with VIPs. This suggests that multimedia instruction reduces the impact of stereotypes and teacher bias. These findings align with Kilag (2023), who found minimal

gender differences in achievement when other factors were controlled. They also support Mayer (2021), who explained that multimedia learning improves engagement and understanding.

VIPs not only enhance academic performance but also promote positive attitudes. These findings align with Moreno and Mayer (2007), who found that multimedia environments increase motivation and interest. In summary, VIPs are effective for improving learning outcomes and fostering equity. They are valuable tools for advancing digital literacy and inclusive education in Nigerian primary schools.

7. Recommendations

Based on the findings of the study, several recommendations are proposed to enhance equitable learning outcomes in computer studies. Firstly, it is recommended that teachers adopt Video Instructional Packages (VIPs) as a standard instructional tool. The use of VIPs has demonstrated potential in promoting inclusive learning experiences and encouraging active participation among both male and female pupils. To support this integration, continuous professional development should be provided to teachers. Such training programs should focus on building educators' competencies in designing, adapting, and effectively utilizing multimedia resources within the classroom setting.

Furthermore, policymakers should consider incorporating multimedia instruction into the National Policy on Education. This policy shift would help foster equitable learning environments, with particular attention given to the fair distribution of educational resources across schools, regardless of their gender composition. In addition, curriculum planners are encouraged to integrate multimedia resources, such as VIPs, into lesson plans, textbooks, and teaching guides. This integration will ensure that instructional content aligns with the principles of inclusive education and reflects contemporary pedagogical practices.

Government bodies and educational stakeholders should also leverage multimedia instruction as a strategic tool to increase female participation in computer studies and related STEM fields. This initiative is crucial for addressing persistent gender disparities in STEM education. Lastly, future research should investigate the long-term impacts of VIPs on gender inclusivity in education. Further studies could also extend to other subjects and regions and explore the role of

pupils' self-efficacy and digital confidence as mediating variables in gender-related learning outcomes.

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