**Journal of Research in Education and Society,**
**Volume 16, Number 2, August 2025**
**ISSN(p): 2141-6753 ISSN(e): 2795-3033**
***Published By***
***International Centre for Integrated Development Research, Nigeria***
***In collaboration with***
***Copperstone University, Luanshya, Zambia***

# Relative Effects of Computer Simulation with Narration and Text Strategies on Students' Interest in Environmental Education Content in Secondary School Geography

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## ABSTRACT

*This study investigated the relative effects of computer simulation with narration and text teaching strategies on students' interest in environmental education-related content of secondary school Geography. Null hypotheses were formulated to guide the study. A pre-test, post-test groups' non-equivalent group quasi-experimental design was adopted. The population was 20,966 Senior Secondary School Two students (SS2) in Uyo Education zone, with a sample size of 127 SS2 students from four intact classes. Four government-owned schools were purposively selected, and participants were assigned to experimental and control groups using simple random sampling. The Environmental Education Content Interest Scale (EECIS) measured student interest in Environmental Education-related Geography content before and after the intervention. Instruments were face validated by three experts and had a reliability coefficient of 0.75 using Cronbach Alpha. Data were analyzed using mean and standard deviation, with ANCOVA used to test hypotheses at a 0.05 significance level. The findings showed that students taught with computer simulation with text strategy (CSTS) had a higher post-test mean interest score compared to those taught with computer simulation with narration strategy (CSNS). Based on this, it is recommended that computer simulation strategies, including both narration (CSNS) and text (CSTS) methods, be incorporated into the Geography curriculum and other subjects to enhance student interest and engagement.*

***Keywords:*** *Computer Simulation, Narration and Text Strategies, Interest, Environmental Education, Geography*

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## INTRODUCTION

In recent decades, there has been a growing global concern over the declining interest in Geography as a subject among secondary students. Geography, conventionally regarded as a bridge between the social and natural sciences, plays a pivotal role in developing learners' understanding of cultural diversity, global interdependence, spatial patterns and environmental processes. However, despite its relevance in addressing 21st-century issues such as deforestation, climate change, population growth, urbanization, desertification, resource depletion, and geographical conflicts. Air and water pollution, its popularity in school curricula has been steadily weakening (Miller 2017). The decline is evident in enrolment statistics from various secondary schools in Nigeria. For example, Reports from the West Africa Examination Council (WAEC) and other Examination bodies show that fewer students registered for Geography at Senior Secondary Examinations (SSE) and advanced level examinations compared to previous decades. Similarly, students often perceive Geography as a masculine subject and less valuable for career advancement compared to science, technology, or commerce-oriented subjects (Babacan, 2018).

The factors that contribute to this trend include ineffective teaching methods/strategies, inadequate teacher preparation, outdated perceptions of Geography as a purely descriptive subject focused on the role memorization of facts competition from more modern technologically driven disciplines; teachers' centred pedagogical techniques and limited access to modern instructional tools such as Geographic information systems (GIS) and a lack of awareness about diverse career pathways in Geography-related fields (national research council, 2006). Consequently, the decline in interest poses significant implications for global environmental education as future generations may lack the critical spatial thinking skills needed to navigate complex global environmental challenges. Given these concerns, it becomes imperative to investigate the relative effect of computer simulation with narration and text teaching strategies on students' interest in Environmental Education content in Geography.

Environmental education is an approach to educating and raising awareness in society about environmental issues and their impact on our physical environment. It involves

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both natural and human-made elements, aiming to enhance environmental consciousness and promote a change in attitude toward our environment. Environmental education advocates and inculcates environmental conservation and management skills, such as, waste management, pollution, tree planting strategies, erosion, and flood control measures in individuals (Anijah, 2017). The Environmental education process involved the transmission of environmental awareness, values, and attitude change for the sustainable use of the immediate environment and proper management (United Nations Educational, Scientific and Cultural Organisation, UNESCO, and United Nations Environmental Protection, UNEP, 2012). Thus, environmental education is any form of teaching, formal or informal, aimed at gaining knowledge, skills, and the required attitude by an individual toward a better interaction with the physical world.

The ultimate goal of environmental education is to produce environmentally literate citizens who are willing and capable of taking positive environmental actions in their lives (United Nations Conference on Environment and Development (UNCED), 2014). According to Anijah (2017), environmental education provides knowledge and skills to halt the degradation of our environment and enhance the development of the earth for the good of all. Environmental education content was inculcated into the Geography curriculum. Environmental education within Geography plays a crucial role in equipping students with the knowledge, attitudes, and skills needed to address pressing environmental challenges such as deforestation, biodiversity loss, water and air pollution, climate change, waste management, and unsustainable resource exploitation. It integrates scientific understanding with human-environment relationships, enabling students to make informed decisions for sustainable living. Considering that environmental education expects students to develop an interest in understanding its concepts.

Interest is the emotional and mental state that attracts learners to a subject, activity, or task with eagerness, attention, and concentration. It is a feeling that motivates a person to act positively or negatively in the environment they find themselves (Ezeke, 2018). It entails the core motivation, curiosity, powerful psychological processes, and a positive emotional state that energize a person to explore, understand, persist, and learn new information, activities, and skills, heightened attention, profound comprehension, and enhanced accomplishment. Threw and Harret (2018) see interest as a subjective emotion

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of curiosity or intentness in something. Ezeke (2018) and Ihenko (2017) define interest as a powerful force that drives attention in a subject, making it easier to process, assimilate, and commit information to memory. Eseadi and Nzeadi (2021) stated that interest is an inner drive that fosters intellectual passion and eagerness to learn. Oluwasegun (2020) asserts that interest is the fuel that enhances engagement, stimulates lifelong learning, profound learning, understanding, and more meaningful learning outcomes.

Ezeke (2018) views students who are interested in a subject as feeling motivated to learn for personal satisfaction, not just internal rewards and grades. Students improve understanding and memory, focus better, process knowledge deeply and remember it for a longer periods. Other advantages of interest according to Ihenko (2017); Threw and Harret (2018), Eseadi and Nzeadi (2021) are interest encourages self-study, interested learners often go beyond classroom materials, exploring books, videos, utilizing electronic media and other resources ; interest boast creativity i.e. students who enjoy a subject are more likely to think critically ask questions and develop problems, sustains perseverance ; interest help students keep trying even when a subject seems difficult. Teachers can develop students' interest by relating lessons to real life. Thus, when knowledge is linked to students' daily experiences, it becomes meaningful and captivating. One way to captivate students' interest is by using modern and interactive teaching strategies. Teaching strategies are approaches employed by teachers in the teaching and learning process (Utibe and Olah, 2024). These include concept mapping, the lecture method, inquiry and play strategy, computer simulation strategy, etc. Among the several methods, the concern of this study was computer simulation strategies.

According to Mityussheu, Nawakinfec & Rylko (2018), computer simulation is a self-conceptualized strategy that uses models of behavior to replicate and explain the contents of instruction as they appear in real-world situations. They emphasized that computer simulation is a virtual strategy that demonstrates abstract concepts, allows interaction between users and a simulated world, and provides feedback that helps them improve their knowledge and skills. Through computer-based instructional simulations, a teacher can provide a wide variety of learning experiences to learners. Law (2022) noted that computer simulation is a model of behaviour that helps learners gain a better

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understanding of that behaviour. It has the task of simulating an abstract model of a particular scenario to gain a better insight into the model or system.

One of the primary exceptional roles of computer simulation instructional strategy is that it enables a teacher to explain a given scenario to learners as it appears in the learners' immediate environments. It allows learners to explore questions about a given scenario to find out the cause, effects, and solutions to the situation. It helps students identify the actual cause of a problem and its effects. In support of this view, Shiflet A. and Shiflet G. (2021) noted that computer-simulated practices are alternative teaching methods that can be used in place of hands-on laboratory practices while teaching and learning some concepts. Steinharanser (2016) supported that computer simulation enables learners to interact with the real world and carry out tasks that motivate brainstorming. Law (2022) noted further that teaching using computer simulation improves learners' understanding by providing a degree of reality that is unachievable when traditional teaching methods are used. Thus, when learners interact with computer simulations, they become highly motivated, understand different phenomena from diverse perspectives, and develop collaborative study habits. Learners are motivated to learn concepts through observation and discovery methods instead of memorization. This enables them to comprehend, distinguish, and recall the content learned more effectively. However, during the preparation process, it provides teachers with practical feedback when designing real-world scenarios. This helps the teacher improve the process during the planning stage, identify factors that may jeopardize the process, and discover hidden aspects of the given scenarios that the teacher did not initially consider. However, Jimonyanis (2018) confirmed that a specific simulation strategy cannot be used to teach all content of instruction, except in situations where the content of instruction is related. The simulation can be used to conceptualize other imminent simulations.

Thus, computer simulation or any other type of simulation is planned based on the content of instruction. No simulation teaching strategy can be used to teach all the content of instruction in a subject or different subjects. Simulated concepts are created based on the specific content of instruction (Costin, Brien & Slattery, 2019). Hanson (2021) stipulated characteristics of computer simulation to include the presence of a formalized manipulated model, the presence of learning goals (i.e., learning objectives), elicitation

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of specific learning processes (hypothesis generation and testing), debriefing, etc. Computer simulations are conceptualized based on the content of instruction, such as modeling, continuous modeling, and mixed modeling. Another type of computer simulation strategy is computer simulation with narration strategy (CSNS) and computer simulation with text strategy (CSTS).

Computer simulation with narration strategy (CSNS) is a self-conceptualized teaching strategy that involves the use of sight and speech (voice) to explain the content of instruction as it occurs in the learners' environment. During the lesson, a mouse or keyboard was used to control each step of the presentation. The recordings of the narration were made by the researcher using SMART phones and the lesson was based on a validated lesson plan.

Computer simulation with text strategy (CSTS) describes a self-conceptualized visual experience through the sense of sight. It involves the use of images and captions to explain the simulated contents of instruction. It is a non-speech approach where text is used to explain simulated video graphics in a voiceless presentation. Bostrom (2018), Bostrom and Kulcezki (2021) opined that a strategy with text and image is known as visual-text. Thus, this visual-text strategy illustrated environmental problem graphics on the computer using text captions rather than spoken words. The written text explains simulated environmental issues as they are displayed on the computer system through a projector. During the lesson, a mouse or keyboard is used to control each step of the presentation. According to Householder (2021), visual-text strategies convey meaning through images, graphics,and text to the audience.

The difference between the two computer simulation strategies is that in simulation with narration strategy (CSNS), there is a hearing narration audio that explains each step of the lesson, much like in a traditional classroom where a teacher teaches, and the students listen. In this case, the teaching was done, and it explained each step of the lesson while simulated graphics/models were displayed according to the narration. On the other hand, in computer simulation with text strategy, text (captions) was used to explain each step of the lesson, and the text was displayed based on the content of the instruction. The similarities between the two strategies were that both actualized the same computer-

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simulated graphics/models of environmental problems. The use of computer simulation strategies in teaching encourages collaboration between students and makes lessons interactive and interesting. Nevertheless, computer simulation has been assumed to be effective. Nevertheless, reports from previous studies have shown that there is no consistency in the results of studies carried out on this topic. Okolo and Oluwasegun (2020) revealed significant interest in both male and female students in the experimental group. Egara, Eseadi and Nzeadi (2021) showed that students taught algebra with computer simulations had interest compared to those taught with conventional methods. Odo C. and Odo A. (2016) showed that students taught using the simulation method had a significant interest difference in favour of the simulation method than those taught with the traditional method. Studies on simulations revealed that male students performed better than their female counterparts, while some studies contradict this. Thus, since there is a contradiction to gender in Gigography, the researcher studies gender interest.

Gender refers to the distinction in physical, biological, and behavioral characteristics describing the difference between the feminine and masculine populations (Duru, Uko & Utibe, 2023). It has been assumed to be a factor in students' learning and achievement. Lynch (2017) reported that male students have a higher interest in Geography and other science subjects than their female counterparts. Some of the factors identified to account for the observed differences in the interest of males and females in Geography include the masculine image of Geography, female socialization processes, sex-role stereotypes, and poor retention of Geography content. Nzezi (2015) reported that males had a higher interest than their female counterparts. Contrary to these findings, some researchers reported that gender influenced interest in favour of females. Nnonyeem (2016), Ugwudu and Nzeewi (2017) found no significant difference in the interest of students based on gender. Instead, the interests of both males and females could be attributed to teaching and learning styles. Apart from students' gender, the present study considered the possible influence of school location on students' interest, which has been reported to be a factor that contributes to a lack of interest in Geography.

According to Duru, Uko & Utibe (2023), School location refers to the particular place or area in the physical environment (rural or urban) where the school is established. School location can be urban or rural, depending on the areas or communities where the school

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is located. Urban schools are those found within municipalities or towns, while rural schools are those located in villages or semi-urban areas. School location has been reported to be a factor in students' interest. Chinanson (2014), Ella and Ita (2017), among others, reported that students in urban schools had a significant interest compared to rural schools. Ekpeyong (2017), Uboh, Utibe & Abasi (2024) reported that there was no significant relationship between school location and academic interest. Based on the inconsistency in the findings, the present study investigated the effect of school locations on students' interest.

Theoretically, this study is anchored on simulation learning theory propounded by Rene and Hans (2012). According to Rene and Hans Hans, the current existence that occurs in the physical and social environment can be made artificial for better understanding in education. Furthermore, the theory emphasized that the growth of learning is the result of apprehension made by the learners in understanding instruction, and this further enabled learners to apply knowledge gained in a specific instruction to solve real life problems when they occur and achieved higher scores in various tests. Thus, this study validates Rene and Hans' simulation theory.

## Purpose of the Study

The general purpose of this study was to determine the effects of two modes of simulation teaching strategies (Computer simulation with narration strategy and computer simulation with text strategy) on students' achievement and interest in environmental education-related content of secondary school II Geography. Specifically, the study sought to:

1. Find out the effect of computer simulation with narration and computer simulation with text on students' interest in the environmental education content of Geography.
2. Determine the influence of gender on students' interest in the environmental education content of Geography.
3. Determine the influence of location on students' interest in the environmental education content of Geography.

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## Research Questions

The following questions guided the study:

1. What are the Mean $(\bar{x})$ interest scores of students taught Environmental Education-related contents in Geography using computer simulation with narration strategy and those taught using computer simulation with text strategy?

2. What is the influence of gender on the Mean $(\bar{x})$ interest scores of students in Environmental Education contents of Geography?

3. What is the influence of location on the Mean $(\bar{x})$ interest scores of students in Environmental Education contents of Geography?

## Research Hypotheses

The following hypotheses were formulated and tested at a 0.05 level of significance:

**$H_0$1**: There is no significant difference in the Mean $(\bar{x})$ interest scores of students taught Environmental Education content of Geography using computer simulation with narration strategy compared to those taught using computer simulation with text strategy.

**$H_0$2**: There is no significant difference in the Mean $(\bar{x})$ interest scores of male and female students in Environmental Education content of Geography.

**$H_0$3**: There is no significant difference in the Mean $(\bar{x})$ interest scores of urban and rural students in Environmental Education content of Geography.

## METHOD

A pre-test post-test non-equivalent quasi-experimental design was adopted for the study. The study area was the Education Zone. The population consists of all Senior Secondary School Two students in the 77 secondary schools in the Uyo Education zone. The population is classified into 12,822 students in urban areas and 8144 students in rural areas. The researcher decided to use SSII because they were about to be enrolled in senior secondary examinations, and poor achievement was reported by the Chief Examiner of the West African Examinations Council (WAEC). The sample size of the study was 127 senior secondary two (SS II) Geography students of four (4) intact classes. The one hundred twenty-seven (127) students comprised 89 males and 38 females, while 66

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students are in the urban areas and 61 students are in the rural areas. The intact classes of SSII students of four government-owned secondary schools in Uyo Education Zone were used as the sample size. The purposive sampling technique was used to select four government-owned schools from four local governments in the zone.

The simple random sampling technique was used to assign the intact classes to the experimental groups, which was a computer simulation with narration and an experimental group, which was a computer simulation with text. Computer simulation with narration strategy comprised 68 participants, 45 males and 23 females and Computer simulation with text comprised 59 participants, 44 males and 15 females. The researcher used Environmental Education Content Interest Scale (EECIS) for data collection. The instrument was developed by the researcher using a scheme of work for the study. Data were analysed using Statistical Packages for Social Sciences (SPSS). The mean and standard deviation results were used to analyse data. Analysis of covariance (ANCOVA) was used to test the hypotheses. ANCOVA was used because the treatment groups were randomly assigned and the researcher equated groups on one or more variables that may differ across groups.

## RESULTS

**Table 1:** Mean $(\bar{x})$ analysis of the interest scores of students taught Environmental Education content in Geography using computer simulation with narration strategy (CSNS) and those taught using computer simulation with text strategy (CSTS)

| **Computer simulation strategy** | **n** | **Pre-test** | | **Post-test** | | |
|---|---|---|---|---|---|---|
| | | $(\bar{x})$ | **SD** | $(\bar{x})$ | **SD** | **Adjusted mean** |
| Computer simulation with narration (CSNS) | 67 | 52.22 | 8.06 | 68.69 | 10.73 | 67.23 |
| Computer simulation with text(CSTS) | 60 | 51.88 | 8.76 | 76.65 | 11.02 | 77.27 |

Table 1 shows that the students who were taught Environmental Education content in Geography using computer simulation with voice strategy had a pre-test mean interest score of ($(\bar{x})$ = 52.22, *SD* = 8.06) and a post-test mean interest score of $(\bar{x})$ = 68.69, *SD* = 10.73), while those taught Environmental Education content in Geography using computer simulation with text strategy (CSTS) had a pre-test mean interest score of $(\bar{x})$ = 51.88, *SD* = 8.76), and a post-test mean interest score of ($(\bar{x})$ = 76.65, *SD* =11.02). The

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adjusted mean interest scores of 67.23 and 77.27 for the students taught Environmental Education content in Geography using computer simulation with voice strategy and those taught using computer simulation with text strategy, respectively, indicate that the students taught using computer simulation with text strategy (CSTS) had a higher post-test mean interest score than those taught using computer simulation with narration strategy (CSNS). However, the post-test standard deviations of 10.73 and 11.02 for the students taught Environmental Education content in Geography using computer simulation with narration strategy (CSNS) and those taught using computer simulation with text strategy (CSTS) respectively, indicate that the individual interest scores of the students taught using computer simulation with text strategy (CSTS) differed more from their mean interest score than those of the students taught using computer simulation with narration (CSNS).

**Table 2:** Analysis of covariance of the effect of computer simulation strategy on students' achievement in Environmental Education content in Geography

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|
| Corrected Model | 2834.193[a] | 4 | 708.548 | 6.207 | .000 | .169 |
| Intercept | 15490.922 | 1 | 15490.922 | 135.698 | .000 | .527 |
| Pre-Interest | 14.500 | 1 | 14.500 | 127 | .722 | .001 |
| Treatment | 2619.956 | 1 | 2619.956 | 22.950 | .000 | .158 |
| Gender | 122.682 | 1 | 122.682 | 1.075 | .302 | .009 |
| Treatment * Gender | 649.113 | 1 | 649.113 | 5.686 | .019 | .045 |
| Error | 13927.224 | 122 | 114.158 | | | |
| Total | 683363.000 | 127 | | | | |
| Corrected Total | 16761.417 | 126 | | | | |

Table 2 reveals that there is a significant difference in the mean$(\bar{x})$ interest scores of students taught Environmental Education content in Geography using computer simulation with narration strategy (CSNS) and those taught computer simulation with text strategy (CSTS)in favour of the students taught using computer simulation with text strategy, $F$ (1, 122) = 22.950, $p$ = 0.000. Thus, the null hypothesis that there is no significant difference in the mean $(\bar{x})$ interest scores of students taught Environmental

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Education content in Geography using computer simulation with narration strategy (CSNS) and those taught using computer simulation with text strategy (CSTS) is rejected since the *p*-value of 0.000 is less than the 0.05 level of significance. Besides, the effect size of 0.158 implies that a 15.8% improvement in the interest of students in Environmental Education content in Geography is attributed to the effect of computer simulation with text strategy (CSTS).

**Table 3:** Mean $(\bar{x})$ analysis of the interest scores of male and female students in Environmental Education content in Geography

| **Gender** | **N** | **Pre-test** | | **Post-test** | | |
|---|---|---|---|---|---|---|
| | | $(\bar{x})$ | **SD** | $(\underline{x})$ | **SD** | **Adjusted mean** |
| Male | 90 | 52.47 | 8.28 | 73.24 | 11.22 | 73.34 |
| Female | 37 | 51.08 | 8.60 | 70.51 | 12.20 | 71.16 |

Table 3 shows that male students had a pre-test mean interest score of ($(\bar{x})$ = 52.47, *SD* = 8.28) in Environmental Education content in Geography and a post-test mean interest score of ($(\bar{x})$ = 73.24, *SD* = 11.22), while the female students had a pre-test mean interest score of $(\bar{x})$ = 51.08, *SD* = 8.60), and a post-test mean interest score of ($(\bar{x})$ = 70.51, *SD* = 12.20). The adjusted mean scores of 73.34 and 71.16 for the male and female students, respectively, indicate that the male students had a higher post-test mean interest score than the female students. Besides, the post-test standard deviations of 11.22 and 12.20 for the male and female students, respectively, indicate that the individual interest scores of the female students differed more from their mean interest score than those of the male students.

Table 3 reveals that there is no significant difference in the mean $(\bar{x})$ interest scores of male and female students in Environmental Education content in Geography, $F$ (1, 122) = 1.075, $p$ = 0.302. Thus, the null hypothesis is not rejected since the *p*-value of 0.302 is greater than the 0.05 level of significance. The inference drawn is that students' interest in Environmental Education content in Geography is not influenced by their gender.

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**Table 4:** Mean $(\bar{x})$ analysis of the interest scores of urban and rural students in Environmental Education content in Geography

| Location | N | Pre-test | | Post-test | | |
|---|---|---|---|---|---|---|
| | | $(\bar{x})$ | SD | $\underline{x}$ | SD | Adjusted mean |
| Urban | 65 | 51.94 | 8.49 | 72.77 | 11.65 | 73.05 |
| Rural | 62 | 52.19 | 8.29 | 72.11 | 11.49 | 72.23 |

Table 4 shows that students in urban schools had a pre-test mean interest score of $(\bar{x})$ = 51.94, *SD* = 8.49) in Environmental Education content in Geography and a post-test mean interest score of $(\bar{x})$ = 72.77, *SD* = 11.65, while the students in rural schools had a pre-test mean interest score of $(\bar{x})$ = 52.19, *SD* = 8.29), and a post-test mean interest score of $(\bar{x})$ = 72.11, *SD* = 11.49). The adjusted mean scores of 73.05 and 72.23 for the students in urban and rural schools, respectively, indicate that the students in urban schools had higher post-test mean interest scores than the students in rural schools. However, the post-test standard deviations of 11.65 and 11.49 for the students in urban and rural schools, respectively, indicate that the individual interest scores of the students in urban schools differed more from their mean$(\bar{x})$ interest score than those of the students in rural schools. Hence, the null hypothesis that there is no significant difference in the mean $(\bar{x})$ interest scores of male and female students in Environmental Education content in Geography is rejected.

**Table 5:** Analysis of covariance of the influence of location on students' interest in Environmental Education content in Geography

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|
| Corrected Model | 2533.643[a] | 4 | 633.411 | 5.431 | .000 | .151 |
| Intercept | 15830.898 | 1 | 15830.898 | 135.746 | .000 | .527 |
| Pre-Interest | 11.831 | 1 | 11.831 | 0.101 | .751 | .001 |
| Treatment | 1959.224 | 1 | 1959.224 | 16.800 | .000 | .121 |
| Location | 21.028 | 1 | 21.028 | 0.180 | .672 | .001 |
| Treatment * Location | 508.634 | 1 | 508.634 | 4.361 | .039 | .035 |
| Error | 14227.774 | 122 | 116.621 | | | |
| Total | 683363.000 | 127 | | | | |
| Corrected Total | 16761.417 | 126 | | | | |

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Table 5 reveals that there is no significant difference in the mean $(\bar{x})$ achievement scores of urban and rural school students in Environmental Education content in Geography, $F$ (1, 122) = 0.180, $p$ = 0.672. Thus, the null hypothesis that there is no significant difference in the mean$(\bar{x})$ interest scores of urban and rural students in Environmental Education content in Geography is not rejected since the *p*-value of 0.672 is greater than the 0.05 level of significance. The inference drawn is that the location of schools does not influence students' achievement in Environmental Education content in Geography.

## Summary of the Major Findings

The results of the findings revealed that Students exposed to computer simulation with narration (CSNS) and computer simulation with text (CSTS) had higher interest than those exposed to computer simulation with text (CSTS). There was a significant difference in the mean interest scores of students taught environmental education content in Geography using computer simulation with text (CSTS) than those taught computer simulation with narration (CSNS). There was no difference in the mean interest scores of gender in environmental education content in Geography. The inference drawn is that students' interest in environmental education content is not influenced by gender. There is no significant difference in the mean interest scores of urban and rural students. The inference drawn is that the location of schools does not influence students' interest in environmental education content in Geography. Urban and rural students had equal interest scores in environmental education content in Geography. School location has no significant effect on the mean interest scores of students taught environmental education content in Geography using computer simulation with narration and computer simulation with text.

## CONCLUSION

Based on the major findings of the study, it was concluded that Computer simulation with narration strategy (CSNS) and computer simulation with text teaching strategy (CSTS) are flexible tools that enhance academic interest in Geography. However, computer simulation with text strategy (CSTS) is significantly beneficial to students taught environmental education content in Geography than those taught using simulation with narration (CSNS). Moreover, gender and school location are not determinants of students' interest in the environmental education content of Geography. Therefore, students' interest in the environmental education content of Geography is not influenced by gender and school location.

**Journal of Research in Education and Society,**
**Volume 16, Number 2, August 2025**
**ISSN(p): 2141-6753 ISSN(e): 2795-3033**
***Published By***
***International Centre for Integrated Development Research, Nigeria***
***In collaboration with***
***Copperstone University, Luanshya, Zambia***

## RECOMMENDATIONS

Based on the findings and implications of the study, the following recommendations were made:

i. The use of computer simulation strategies such as computer simulation with narration (CSNS) and computer simulation with text strategy (CSTS) should be included among the innovative strategies in the curriculum by curriculum planners and instructional designers for teaching Geography and other subjects.

ii. Computers should be made available in schools that do not have computers by the Government and stakeholders and projectors also should be made available by the Government and stakeholders in those schools where the study was carried out, as well as other schools, to enable teachers to carry out simulation strategies at will and to avoid renting by the teachers and future researchers when the need arises.

iii. State ministries of education should motivate teachers to conceptualise strategies for effective learning through workshop, training, re-training, and motivation that would encourage competition. Teachers really need innovative instructional strategies. They still use the traditional method of teaching, which may contribute to the current decline in students' enrollment in Geography.

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