Zamfara International Journal of Sci. Tech. Educ. & Mathematics
The Official Journal of the Department of Science Education
Federal University Gusau, Zamfara State, Nigeria
Volume 3, Number 3, September, 2026
ISSN: 2251 – 0974

www.foefugusau.com.ng
des@fugusau.edu.ng
DOI: https://doi.org/10.64348/zije.2026595

Effect of Revit Software on Students' Interest in Building Drawing among Colleges of Education in North-West, Nigeria

SAMA'ILA, Hamza[1]
+234803 858 1030

AHMAD, Suleman Mamman Dee[2]
smdeeahmad@gmail.com.
+234803 288 1681

HARUNA, Angulu[1]
+234706 699 6272

GARBA, Dahiru Jikamshi[3]
+234806 082 3826

[1]Department of Construction Technology Education, Faculty of Technology Education
Abubakar Tafawa Balewa University Bauchi
[2]Department of Technical Education, School of Secondary Education Vocational and Technical
Isa Kaita College of Education Dutsin – Ma Katsina State
[3]Department of Library and Information Technology, Faculty of Technology Education
Abubakar Tafawa Balewa University Bauchi

Abstract

This study investigated the effect of Revit software on students' interest in Building Drawing in Colleges of Education in North-West Nigeria. The study was guided by two specific objective, two research questions and two null hypotheses. A quasi-experimental non-equivalent pretest-posttest design was adopted. The study was conducted in Colleges of Education in North – West Nigeria. The population comprised all 187 NCE III students offering Building Drawing in Colleges of Education in North-West Nigeria, The instruments used for data collection was Building Drawing interest questionnaire (BLDDRWIQ), The instruments were tested using test – retest methods and yielded correlation coefficient of 0.876. Data were collected through pretest and posttest, procedures. Mean and standard deviation were used to answer the research questions, while the independent samples t-test was employed to test the null hypotheses at the 0.05 level of significance. The findings revealed that students in both groups possessed comparable levels of interest in building drawing prior to the experiment Based on this finding the study concluded that Revit software is an effective instructional tool for enhancing students' interest in Building Drawing.

Keywords: Revit software, Building Drawing, student's, Interest, Building information modelling

Introduction

AutoCAD is a software application developed by Autodesk that enables Computer Aided Design and Drafting (CADD). The Software is used to produce 2D and 3D drawings. AutoCAD software allows users to conceptualize ideas, produce designs and drawings to the required levels of technical accuracy and even perform rapid design calculations and simulations across a wide range of industries. Computer aided design (CAD) involves the use of computers for creating designs and documents related to construction projects. It really comes into its own for large projects, where it allows for the bringing together of several models into one larger unit. CAD software was initially concerned with 2D CAD drawings of things such as floor plans, but in recent years software has evolved to keep up with the changes in the construction industry as a whole, and so it is more often used for 3D modelling these days – which allows for more accurate representations of buildings and

Zamfara International Journal of Sci. Tech. Educ. & Mathematics
The Official Journal of the Department of Science Education
Federal University Gusau, Zamfara State, Nigeria
Volume 3, Number 3, September, 2026
ISSN: 2251 – 0974

www.foefugusau.com.ng
des@fugusau.edu.ng
DOI: https://doi.org/10.64348/zije.2026595

facilities. The advantages of CAD include ease of use, helping you to spot errors and for automatic creation of documentation. However, the ease of use can mean that users get complacent and designs start to look similar, and it also means that users can forget about real-world issues. Building on the above, with the advancement of technology, digital tools such as Revit software have transformed the way building drawing is taught and learned. Revit is a Building Information Modelling (BIM) software that allows users to design, visualize, and simulate building structures in a three-dimensional environment. This interactive capability enhances students' understanding by providing realistic representations of building components. It is clear that researcher can truly predict the future of changing technologies, but researcher can speculate based on history. Computer aided drawing has come so far so quickly that nothing seems impossible, People are using computer to generates 4D models to represent plans and ideas. The power of personalized computers has created opportunities for growth in all industries and bridge the gap between resources Elom, (2021). Drawing will remain an in-demand services in many industries regardless of the advances in technology. The principles and techniques of drawing remain the same both manual and computer skills are necessary for any drafter that wants to be successful. Interest is one of the critical factor in learning. Students who are interested in a subject are more likely to participate actively, pay attention, and achieve better learning outcomes. However, the lack of engaging instructional tools can reduce students' interest in building drawing.

Statement of the Problem

Students' interest in Building Drawing is a problematic. Sustained interest drives attention, participation, motivation, and engagement; yet manual, non-interactive instruction provides limited exposure to contemporary digital design tools. The absence of technology-supported, interactive learning experiences can reduce students' enthusiasm and active participation in Building Drawing classes.

Objective of the Study

The Objective of this study was to determine the Effect of Revit software on Students' Interest in Building Drawing in Colleges of Education in North -West, Nigeria.

1. Find out the difference between pre-interest mean rating of Building drawing students in Experimental group and those in conventional group prior to the treatment.
2. Find out the difference between post interest mean rating of students taught Building drawing using Revit software and those taught using conventional teaching method in Colleges of Education in North - West, Nigeria.

Research Questions

The following research questions were formulated to guide the study

1. What is the difference between the pre interest mean rating of Building drawing students in Experimental group and those in conventional group prior to the treatment
2. What is the difference between the post interest mean rating of students taught Building drawing using Revit software and those taught using conventional teaching method in Colleges of Education in North - West Nigeria.

Null Hypotheses

The following null hypotheses were formulated for the study and tested at 0.05 level of significance.

H_{01}: There is no significant difference between the pre interest mean ratings of Building drawing students in Experimental group and those in conventional group prior to the treatment?

Zamfara International Journal of Sci. Tech. Educ. & Mathematics
The Official Journal of the Department of Science Education
Federal University Gusau, Zamfara State, Nigeria
Volume 3, Number 3, September, 2026
ISSN: 2251 – 0974

www.foefugusau.com.ng
des@fugusau.edu.ng
DOI: https://doi.org/10.64348/zije.2026595

H_{02}: There is no significant difference between post interest mean ratings of students taught Building drawing using Revit software and those taught using conventional teaching method in Colleges of Education in North – West Nigeria.

Scope of the Study

This study focused on the effect of Revit software on students' interest in Building drawing in public Colleges of Education in North West Nigeria.

Literature Review

Revit software has emerged as one of the most widely utilized BIM applications in architecture, engineering, and construction education. Recent BIM education studies emphasized that Revit technology enables students to visualize building components in three-dimensional formats, detect design inconsistencies, simulate construction activities, and interact collaboratively within virtual modelling environments (Bui et al 2023, Oyesode et al 2023, Agirbas 2020, Turk et al 2022). Consequently, Revit-supported Building drawing instruction is increasingly regarded as a more effective and learner-centered instructional approach compared to conventional drafting methods.

Building on the above, Building drawing education is particularly important in Colleges of Education because it equips students with foundational technical competencies required for teaching and professional practice within Building Technology disciplines. According to the National Commission for Colleges of Education, (2023) Building Drawing constitutes a core aspect of Building Technology Education aimed at developing practical construction skills, technical communication abilities, and professional drafting competence among students. Recent educational technology research revealed that integrating digital modelling technologies into Building drawing instruction significantly improves students': academic achievement, spatial visualization abilities, practical understanding, psychomotor skills, creativity, and long-term retention (Petko 2025, ElSayary 2026, Oyesode et al., 2023, Bui et al 2023).Similarly, studies conducted within technical and vocational education environments established that students exposed to simulation-based and technology-supported instructional systems demonstrate stronger engagement, higher learning motivation, and better conceptual understanding than students taught using traditional lecture-based instructional methods (Gupta et al 2026, Turk et al 2022, Dwivedi et al 2023, Nikolopoulou et al 2021).

Research Methodology

Research Design

This study adopted a quasi-experimental research design, specifically the pretest-posttest non-equivalent control group design. The design was considered appropriate because the study involved intact classes where random assignment of participants into experimental and control groups was not practically feasible within the sampled Colleges of Education.

Area of the Study

The study was conducted in Colleges of Education offering Building Drawing in North-West Nigeria. The choice of the area is based on the availability of students offering Building Drawing.

Population of the Study

The population of the study comprised all NCE III Building Technology students offering Building Drawing in Colleges of Education in North-West Nigeria. These students are considered suitable because they have basic knowledge of Building Drawing and are directly involved in practical and theoretical learning subject.

Sample and Sampling Techniques

The sample for the study consisted of selected NCE III Building Technology students from sampled Colleges of Education in North-West Nigeria. Purposive selection of Colleges of Education offering

Zamfara International Journal of Sci. Tech. Educ. & Mathematics
The Official Journal of the Department of Science Education
Federal University Gusau, Zamfara State, Nigeria
Volume 3, Number 3, September, 2026
ISSN: 2251 – 0974

www.foefugusau.com.ng
des@fugusau.edu.ng
DOI: https://doi.org/10.64348/zije.2026595

Building Technology programmes was made. Intact class was used. Isa Kaita College of Education Dutsin Ma served as Experimental group and Federal College of Education Gidan Madi Sokoto served as Control group.

Instrument for Data Collection

The Building Drawing Interest Questionnaire was adapted by the researcher that developed by Amos et al, to determine students 'level of interest in Building Drawing.

Validation of the Instrument

The instruments used for this study was subjected to face and content validation to ensure its suitability and effectiveness in measuring what it was intended to measure.

Reliability of the Instrument

The interest questionnaire was tested using Cronbach Alpha reliability method.

Method of Data Collection

The data for the study was collected by the researchers with the help of research assistants that were selected and trained for the purpose of the study form the sampled Colleges of Education.

Method of Data Analysis

The data was coded and analyzed using Statistical Package for the Social Sciences (SPSS) version 27. Descriptive and inferential statistic were employed in the analyzing the data in line with the research questions and hypotheses of the study.

Presentation of Results

Research question One

What is the difference between the pre-interest mean rating of Building drawing students in Experimental group and those in Conventional group prior to the treatment?

A descriptive statistic was used to determine the difference in the pre-interest mean rating of Building drawing students in Experimental group and those in conventional group prior to treatment. The results in Table 1, revealed that there was a difference in mean rating of Experimental group (M = 2. 30, SD = 0.476) and conventional group (M = 2.23, SD = 0.316) at the pre-interest mean rating stage. This indicated that Experimental group and Conventional group possesses similar level of interest in Building drawing prior to the treatment.

Table 1: Descriptive statistics of pre-interest mean rating of students in Building drawing in Experimental group and those in Conventional group prior to the treatment?

Variable	Group	N	Mean	Std. Dev	MD
Pre-Test Interest Scores	Experimental	25	2.30	.476	
	Conventional	21	2.23	.316	
	Total	**46**			0.07

Note: N=Number of students, Std. Dev= Standard deviation. MD= Mean difference

Research Question two

What is the difference between the post interest mean rating of students taught Building drawing using Revit software and those taught using conventional teaching method in Colleges of Education in North-West Nigeria.

A descriptive statistics was performed to find out the difference between post interests mean rating of students taught Building drawing using Revit software and those taught using conventional teaching method in colleges of education in North-West Nigeria. The results in Table 2, revealed that there was a difference in the post interest mean rating of students taught Building drawing using Revit software (M = 3.32, SD, 0.478) and those taught using conventional teaching method (M = 2.25, SD = 0.323). This indicated that Experimental group have better post interest mean rating than

Zamfara International Journal of Sci. Tech. Educ. & Mathematics
The Official Journal of the Department of Science Education
Federal University Gusau, Zamfara State, Nigeria
Volume 3, Number 3, September, 2026
ISSN: 2251 – 0974

www.foefugusau.com.ng
des@fugusau.edu.ng
DOI: https://doi.org/10.64348/zije.2026595

their counterpart in conventional group.

Table 2: Descriptive statistics of post interest mean rating of students taught Building drawing using Revit software and those taught using conventional teaching method in Colleges of Education in North-West Nigeria

Variable	Group	N	Mean	Std. Dev	MD
Post-test Interest Scores	Experimental	25	3.32	.478	
	Conventional	21	2.25	.323	
	Total	46			1.07

Note: N=Number of students, Std. Dev= Standard deviation, MD=Mean difference

Hypotheses Testing

An independent samples t-test was used to test the null hypotheses

Test of Null Hypothesis 1

H_{01}: There is no significant difference between the pre-interest mean rating of Building drawing students in Experimental group and those in Conventional group prior to the treatment?

The statistical evidence of Independent samples t-test presented in Table 3. Indicated that there was no statistically significant different between the pre interest mean rating of Building drawing students in Experimental group (M = 2.30, SD = 0.476) and those in the conventional group (M = 2. 23, SD 0.316) t (44) = 0.603, P = 550. Null Hypothesis two was therefore accepted. This findings indicated that Experimental group and conventional group exhibited statistically equivalent levels of interest prior the treatment.

Table 3: Independent samples t-test of pre-interest mean rating of Building drawing students in Experimental group and those in Conventional group prior to the treatment?

Variable	Groups	N	Levene's Test for Equality of Variances F	Sig.	t-value	Mean	Std. Dev	p-value	Decision
Pre-test	Experimental	25	2.255	.140	.603	2.30	.47	.550	Accepted
	Conventional	21				2.23	.316		

Test of null hypothesis two

H_{02}: There is no significant difference between post interest mean rating of students taught Building drawing using Revit software and those taught using conventional teaching method in Colleges of Education in North-West Nigeria.

The statistical evidence of Independent samples t – test in Table 4, Indicated that there was a statistically significant difference between the post interest mean rating of Experimental group (M = 3.32, SD = 0.478) and those in the conventional group (M = 2.25, SD = 0.323) t (44) = 8673, P = .004. Null Hypothesis Four was rejected. This finding indicated that students taught Building drawing with Revit software developed significantly higher levels of interest than those taught using conventional teaching method

Table 4: Independent samples t-test of posttest interest mean rating of students taught Building drawing using Revit software and those taught using conventional teaching method in Colleges of Education in North-West Nigeria.

Variable	Groups	N	Levene's Test for Equality of Variances F	Sig.	t-value	Mean	Std. Dev	p-value	Decision

Zamfara International Journal of Sci. Tech. Educ. & Mathematics
The Official Journal of the Department of Science Education
Federal University Gusau, Zamfara State, Nigeria
Volume 3, Number 3, September, 2026
ISSN: 2251 – 0974

www.foefugusau.com.ng
des@fugusau.edu.ng
DOI: https://doi.org/10.64348/zije.2026595

Post-test Interest	Experimental	25	2.164	.148	2.573	3.32	.478	.004	Rejected
	Conventional	21				2.25	.323		

Finding of the Study.

1. The was no statistically significant difference between the pre interest mean ratings of students in the experimental and control groups prior the treatment. This indicates that the two groups had similar initial levels of interest in Building Drawing.
2. Students taught Building Drawing using Revit software recorded significantly higher post interest mean ratings than students taught using conventional teaching method

Discussion of the Findings

Pre Interest

The finding revealed that there was no statically significant difference between pre interest mean ratings of students in the two groups. The experimental group recorded a marginally higher mean interest mean ratings than the conventional group but the difference was not statistically significant. This suggests that the students began the study with comparable levels of interest in Building Drawing. The similarity in the students' initial interest level provides a fair basis for evaluating the effect of Revit-based instruction. Therefore the higher level of interest recorded by the by the experimental group after the treatment may reasonably be associated with the differences in their initial dispositions toward the subject.

Post interest mean rating

The fourth finding revealed a statistically significant difference between the post interest mean ratings of students in the experimental and conventional groups. Students exposed to Revit software obtained a higher mean interest mean rating than those taught using conventional teaching method. This indicates that Revit-based instruction enhanced students' motivation, engagement and enthusiasm for learning Building Drawing. The increased interest may be explained by the interactive nature of Revit software. Unlike instruction based mainly on manual demonstrations and static drawings, Revit allows students to participate actively in the design process. Students can explore virtual building models, modify components, observe the effects of their decisions, and repeat activities until they under standard the procedures. Such opportunities may make Building Drawing more engaging and meaningful.

Conclusion

The study concluded that Revit-based instruction significantly increased student's interest in Building Drawing. The interactive, visual and practical features of the software appear to create a more engaging learning environment and encourage students to participate actively in classroom active.

Recommendation

Based on the findings of this study, the following recommendations are proposed for consideration:

1. The Federal and State Governments should provide adequate Information and Communication Technology (ICT) facilities, including computer laboratories, multimedia projectors, stable electricity, and licensed Revit software to support effective instructional delivery.
2. The National Commission for Colleges of Education (NCCE) should review the Building Technology curriculum to incorporate Building Information Modelling (BIM) tools, particularly Revit software, as an essential component of Building Drawing instruction

Zamfara International Journal of Sci. Tech. Educ. & Mathematics
The Official Journal of the Department of Science Education
Federal University Gusau, Zamfara State, Nigeria
Volume 3, Number 3, September, 2026
ISSN: 2251 – 0974

www.foefugusau.com.ng
des@fugusau.edu.ng
DOI: https://doi.org/10.64348/zije.2026595

References

Agirbas, A. (2020). The use of Building Information Modelling (BIM) in construction education. *International Journal of Construction Education and Research*, 16(3), 215–230.

Ayu, G & Adwkunle W. (2022). Technology-Rich Innovation Learning Environment. Regional guidelines on teacher development for pedagogy-technology integration. Retrieved on 05/01/2025 from http://www.ltscotland.org.uk/ictineducation/gamesbasedlearning.

Bui, N., Merschbrock, C., & Munkvold, B. (2023). BIM-supported learning environments and students' academic achievement in engineering education. *Journal of Civil Engineering Education*, 149(2), 04023001.

Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., & Al-Debei, M. M. (2023). Emerging technologies and digital transformation in education. *International Journal of Information Management*, 68, 102642.

Elom, E. N (2021). Effective teaching and learning in technical colleges: challenges of technical drawing. *Journal of Educational Policy and Entrepreneurial Research, 1(1),* 76-86. *www.iiste.org*

ElSayary, A. (2026). Technology-enhanced learning and cognitive engagement in technical education. *Educational Technology Research and Development*, 74(2), 455–478.

Eze, J. I,. Nwafor, G. C., & Okeke R. A. (2022). Effectiveness of Constructivism Method on Students' Achievement and Retetion in Mechnical Engineering Craft Practice in Technical Colleges. Advances in Social Sciences Research Journal, 7(12) 135 – 148

Gupta, S., Sharma, R., & Singh, P. (2026). Collaborative digital learning environments and students' retention in higher education. *Journal of Educational Computing Research*, 64(1), 77–101.

Kensek. P. (2015) From CAD to BIM: Educational Strategies for the coming Paradigm Shift. AEI 2017

Nikolopoulou, K., Gialamas, V., & Lavidas, K. (2021). Acceptance of digital educational technologies among university students. *Education and Information Technologies*, 26(2), 2275–2295.

Olaleye, J.A. & Yusuf, M. (2023) Understanding and facilitating Revit adoption in the AEC industry. Automation in construction, 19,988- 999

Oyesode, O., Ibrahim, A., & Musa, M. (2023). Building Information Modelling (BIM) adoption and Revit integration in Nigerian construction education. *Journal of Construction in Developing Countries*, 28(2), 87–105.

Petko, D. (2025). Technology integration and instructional competence in digital education. *Computers & Education*, 205, 104843.

Turk, Z., Klinc, R., & Kuhta, M. (2022). Digital transformation and BIM integration in construction education. *Automation in Construction*, 138, 104261.

National Commission for Colleges of Education (2023) Dual Mandate act

Yakubu, M. F, Bello Y. J (2021). Impact of Teacher's Training on Interest and Academic Achievements of Students by Multiple Teaching Methods. Pedagogical Research, 8(4), https:// doi.org/10.29333/pr/11088