



Instructional Technology and Students' Performance in Art and Design in Selected Secondary Schools in Kyamuhunga Sub County, Bushenyi District

Kakembo Aisha Annet

Faculty of Educational Management, Kampala International University, Uganda

ABSTRACT

Instructional technology plays a crucial role in enhancing educational outcomes, as its effective implementation significantly impacts teaching methods and student performance. Ensuring its integration in classrooms involves addressing challenges ranging from resource availability to teacher competence, each influencing its success in promoting learning outcomes. This study investigates the relationship between instructional technology and students' academic performance in art and design within Kyamuhunga Sub- County, Bushenyi District. Using a descriptive research design, data were collected from teachers, students, and school administrators to identify critical challenges and opportunities. Key factors influencing the use of instructional technology included limited access to digital tools, such as projectors and computers, insufficient teacher training, and inadequate infrastructure in rural schools. These gaps contribute to a reliance on traditional teaching methods, hindering innovation and creativity in art and design education. The study findings underscore that limited integration of instructional technology negatively affects students' ability to develop practical and creative skills, crucial for both academic success and future career opportunities. To address these challenges, it is recommended that schools receive increased government support to equip classrooms with essential technology and alternative power sources like solar energy. Additionally, teacher training programs should be enhanced to build capacity in utilizing instructional tools effectively. Public and private partnerships can also play a role in fostering innovative learning environments. By addressing these factors, the integration of instructional technology can be optimized, improving educational outcomes and fostering a more skilled and innovative student population in the community.

Keywords: Instructional Technology, Art and Design, Academic Performance, Teaching Resources, Digital Tools

INTRODUCTION

Instructional technology is an essential component of modern education, transforming teaching methodologies and enhancing student engagement [1]. It integrates tools like digital media, e-learning platforms, and software to create interactive and engaging learning environments [2]. In the context of art and design education, instructional technology enables students to explore creative and practical applications such as digital design, animation, and 3D modeling [3]. However, in rural settings like Kyamuhunga Sub-County, Bushenyi District, the adoption of instructional technology is limited by infrastructural challenges, resource constraints,

and inadequate teacher training [4]. Despite these barriers, integrating instructional technology offers significant opportunities to foster creativity, improve learning outcomes, and prepare students for the demands of a digital world.

Art and design education is vital for developing skills such as critical thinking, innovation, and problem-solving [5]. Globally, art and design drive cultural expression and economic development through industries like architecture, advertising, and digital media [6]. In Uganda, these disciplines have potential to contribute significantly to the creative economy. However, in rural schools, inadequate access to instructional

resources, lack of digital tools, and unreliable infrastructure limit the effectiveness of teaching and learning in art and design [7]. Addressing these challenges requires targeted interventions, including teacher training, resource provision, and infrastructural improvements. Kyamuhunga Sub-County presents a unique case study for examining the barriers to instructional technology adoption and its impact on student performance [4]. This study investigates the use of instructional technology and its influence on students' academic performance in art and design within secondary

schools in Kyamuhunga Sub- County. Objectives include assessing current use, identifying challenges, and proposing solutions to enhance technology integration. Using a descriptive research design, data were collected from teachers, students, and school administrators to provide a comprehensive understanding of the issue. The findings aim to inform policies and educational practices, emphasizing the importance of collaborative efforts among stakeholders to bridge the digital divide and improve educational outcomes in rural Uganda.

METHODOLOGY

Research Design

The study employed a cross-sectional research design, collecting data from multiple cases at a single point in time to capture a snapshot of the population. This design was chosen to compare students who enjoy art as a subject with those who do not. A mixed-methods approach, combining both qualitative and quantitative techniques, was

used to analyze students' performance in art and design. The research was conducted in Kyamuhunga Sub- County, Bushenyi District, specifically at Kyamuhunga Secondary School, St. Mary's Vocational School, and St. Paul's Secondary School, with a total sample size of 103 participants.

Target population, Sample size and sampling techniques

The study was conducted in Kyamuhunga Sub County in Bushenyi district. The study included 10 Fine art teachers, 3 head teachers and 90 students.

Table 1: Showing Target population, Sample size and sampling techniques

Category of respondents	Target population	Sample size	Sampling techniques
Fine art Teachers	10	10	Purposive Sampling
Head teachers	3	3	Purposive Sampling
Students	90	60	Simple random Sampling
TOTAL	103	73	

Data collection method

Face-to-face interviews were conducted using structured interview guides to explore complex and sensitive issues. The researcher sought clarifications to ensure respondents could express their perspectives accurately, providing valuable first-hand information.

Data Collection Tools

A structured questionnaire was designed to measure respondents' agreement or disagreement on factors influencing performance in art and design. This tool was chosen for its efficiency in gathering data from a large number of participants within a set timeframe. The respondents included subject teachers and other knowledgeable individuals in the field, ensuring a diverse range of insights.

Sources of Data

- Primary Sources

Primary data was obtained through direct interaction with students, who provided firsthand insights into the teaching and learning of art and design. As key stakeholders, their experiences and

perspectives were instrumental in understanding the subject's impact on academic performance.

- Secondary Sources

Secondary data was collected from libraries, including those in schools and the Kampala International University Western Campus. This included both published and unpublished literature on student performance in art and design, providing a broader context for the research.

Reliability of Instruments

To ensure the reliability of the research instruments, questionnaires and interview guides were reviewed and improved by the university-assigned supervisor. Pilot testing was conducted with a sample population from Kyamuhunga Town Council, whose teaching conditions were similar to the target schools. The test-retest method was applied to assess instrument stability over time.

Validity of Instruments

The validity of the instruments was confirmed through expert judgment by the supervisor. Consistency was tested by administering the instruments to the same group at two different

intervals, ensuring their ability to gather accurate and relevant data.

Data Collection

An introductory letter from the Faculty of Education was presented to respondents and institutions to formalize the research process. With assistance from research aides, questionnaires were administered promptly, ensuring timely data collection.

Data Analysis

Data from questionnaires was reviewed for completeness, uniformity, and accuracy. Information was coded and analyzed descriptively

using frequencies and percentages to derive meaningful insights.

Ethical Considerations

Professionalism was upheld throughout the research process, ensuring unbiased data collection, analysis, and presentation. Respondents' rights were safeguarded by maintaining confidentiality, respecting human dignity, and treating all participants equally regardless of gender, age, or status. Time was allocated for respondents to seek clarifications before data collection commenced, promoting transparency and trust.

RESULTS

Social demographic characteristics of the respondents

Table 2: Sex composition of the respondents

GENDER	Frequency	Percentage
MALES	44	60
FEMALES	33	40
TOTAL	73	100%

The figure above revealed that 40% of the respondents were males while 60% were females.

This implied that the response was gender-biased in selecting the respondents.

Table 3: Age bracket of the respondents

Age Bracket	Frequency	Percentage
10-20	7	9
20-30	24	33
30-40	42	58
TOTAL	73	100%

From the table above it was found that 9% of the respondents were aged between 31 and 40 years, 58% were between 10 and 20 years, and 33% were between 20 and 30 years. The study highlighted

that student constituted the largest proportion of respondents, contributing to the highest percentage.

Table 4: Marital status of the respondents

Marital Status	Frequency	Percentage
Marriage	68	93
Single	5	7
TOTAL	73	100%

Field data, 2023

The results from the table above revealed that the highest percentage of respondents were single (93%) while minority were married (7%).

Table 5: Religious affiliation of respondents

Religion	FREQUENCY	PERCENTAGE
Protestants	61	78
Catholics	5	10
Seventh Day	5	10
Islam	2	2
TOTAL	73	100%

From the table above it was found that 78% of the respondents were Protestants, representing the largest religious group with 61 individuals.

Catholics and Seventh Day adherents each accounted for 10% of respondents with 5 individuals each, while Muslims made up the

smallest group at 2% with 2 individuals, bringing the total number of respondents to 73 and

representing 100% of the religious distribution in the study.

Table 6: Showing the relevancy of Instructional technology in learning art and design.

The relevancy of Instructional technology in learning art and design.	A	%	SA	%	D	%	SD	%	NS	%	TT
Supports exhibition process	73	100	0		0	0	0	0	0	0	73
Supports innovations	42	54	31	43	0	0	0	0	0	0	73
Supports inventions	23	33	50	77	0	0	0	0			73
Adds creativity	10	14	31	40	0	0	0	0	33	48	73
Aids Digital records keeping	24	33	49	77	0	0	0	0	0	0	73

Keys: A=Agree, SA=Strongly Agree, D=Disagree, SD= Strongly Disagree, NS= Not Sure

From the table above, it was revealed that all respondents (100%) agreed that instructional technology in learning art and design is so important in supporting exhibition process, 54% agreed and 43% strongly agreed that it supports

innovations, 33% agreed and 77% strongly agreed that it supports inventions, 14% agreed 40 strongly agreed and 48% were un decided on parents creativity,33% agreed and 77% strongly agreed with Aids Digital records keeping.

Table 7: Showing the challenges in using Instructional Technology in Art and Design

Showing the challenges in using Instructional Technology in Art and Design	A	%	SA	%	D	%	SD	%	NS	%	TT
Power shortage,			54	74	19	26	0	0	0	0	73
Teachers lack sufficient instructional skills	24	33	49	77	0	0	0	0	0	0	73
Some Schools are poor without advanced gadgets	19	26	84	74	0	0	0	0	0	0	73
Some gadgets use High Internet Costs	62	86	11	14	0	0	0	0	0	0	73
Student-Teacher ratio is often high where some students have no access	38	51	33	49	0	0	0	0	0	0	73

Key: A=Agree, SA=Strongly Agree, D=Disagree, SD= Strongly Disagree, NS= Not Sure

From the table above, it was revealed that 74% agreed and 26% strongly disagreed regarding power shortages. 33% agreed and 77% strongly agreed that teachers lack sufficient instructional skills. 26% agreed and 74% strongly agreed that

some schools lack advanced gadgets. 86% agreed while 14% strongly agreed that gadgets require high internet costs. Finally, 51% agreed and 49% strongly agreed that the student-teacher ratio is often high, limiting student access to resources.

Table 8: The measures to the challenges in using Instructional technology in learning art and design.

The measures to the challenges in using Instructional technology in learning art and design	A	%	SA	%	D	%	SD	%	UD	%	TT
Government support in terms of teaching aids	38	54	30	46	0	0	0	0	0	0	73
Train teachers in use of such gadgets	73	100			0	0	0	0	0	0	73
Streaming classes to enable each student access	23	33	47	77	0	0	0	0	0	0	73
Provide power alternatives like solar energy	36	51	34	49	0	0	0	0	0	0	73

Keys: A=Agree, SA=Strongly Agree, D=Disagree, SD= Strongly Disagree, NS= Not Sure

From the table above, respondents suggested several alternative measures: government support for teaching aids, training teachers in the use of

educational gadgets, implementing class streaming to improve student access, and providing alternative power sources such as solar energy.

DISCUSSION

The Relevancy of Instructional Technology in Learning Art and Design

The findings of the study on the relevancy of instructional technology in learning art and design revealed its significance to both teachers and learners, as shown in the result. This observation aligns with Sultana's [8] study on digital technology in teachers' classroom delivery, which asserts that the world has gone digital, necessitating a shift from traditional teaching to modern instructional methods. E-learning technologies enable teachers to enhance their teaching skills. The findings demonstrate that with technology, teachers can provide effective instruction through video lessons, microlearning, and attractive infographics. Additionally, teachers can engage students through online tests and diverse courses.

The study further revealed that digitalized teaching, such as computer-aided designs, is crucial in teaching and learning fine art and design. It provides room for creative subjects, and learners' attitudes can be enhanced through technology use. This observation echoes Sally and Samaka's [9] findings that teachers can access more resources, including computerized designs and decorations, ancient works like Greek wall paintings, calligraphic designs, fashion designs, ancient writing, and pottery through computers.

The Challenges in Using Instructional Technology in Art and Design

The study findings on schools' capabilities to transition from traditional methods to digitalized teaching revealed that teachers' lack of sufficient instructional skills poses a significant challenge.

CONCLUSION

The study concluded that fine art and design instruction in rural schools like Kyamuhunga still lacks substantial support in the form of art materials, and there exists a significant gap between the use of instructional technology and learners' performance in the subject, highlighting the need for comprehensive intervention to bridge this digital divide and enhance educational outcomes in rural educational settings.

Recommendation

The study recommends developing self-esteem among fine art students to improve their performance, encouraging teachers to pursue

This view aligns with Pape and Prosser [10], who found that instructional technology implementation has faced resistance from educators who view it as inconvenient and misaligned with their core teaching goals. This situation is evident in schools like Kyamuhunga Secondary School, which has limited digital facilities and relies on manual instruction.

The Measures to Address Challenges in Using Instructional Technology in Learning Art and Design

The findings on measures to address instructional technology challenges revealed that these issues are school, student, and teacher-based. The study suggested that government should provide comprehensive support to rural schools, particularly with expensive equipment such as computers, software, clipboards, and digitalized designs. These observations align with Derder et al. [11] and Madronio [12], who reported inadequate technical support for digital equipment maintenance as a chronic problem deterring educators from technology-based teaching. Similarly, Sahito [13] and Ohanu & Chukwuone [14] noted that educators are reluctant to use technologies when facing potentially prolonged technical issues. Derder et al. [11] further emphasized that technological support and maintenance contracts in schools help teachers utilize digital technologies without time loss due to software and hardware problems. The study concludes that technical support is paramount in digital education.

training and advancement in their skills, urging schools to make concerted efforts to install necessary instructional gadgets to equip learners with essential skills, and seeking government support in the form of equipping schools with instructional infrastructure to enhance the teaching and learning experience.

Areas for Further Research

Further studies in related field can be conducted on instructional technology and teachers' teaching capabilities.

REFERENCES

1. Goggin N, Finkenber M, Morrow J. Instructional technology in higher education teaching. *Quest*. 2012; 49:280-90.
2. Pandita A, Kiran R. The technology interface and student engagement are significant stimuli in sustainable student satisfaction. *Sustainability*. 2023 ;15(10):7923.

3. Rosales B. Virtual instruction: a new approach to educating the 3D artist. *Int J Innov Res Comput Commun Eng.* 2020;5. doi: 10.4172/2324-9307.c1.002.
4. Ashabaheebwa G. Instructional technology and students' performance in art and design in selected secondary schools in Kyamuhunga Sub- County, Bushenyi District [research report]. Kampala: Kampala International University; 2024.
5. Taşpinar Ş. Design thinking and art education. *Anadolu Univ Sanat Tasarım Derg.* 2022. doi: 10.20488/sanattasarim.1221700.
6. Dai Y. Digital art into the design of cultural and creative products. *J Phys Conf Ser.* 2021; 1852:032042. doi: 10.1088/1742-6596/1852/3/032042.
7. Salemink K, Strijker D, Bosworth G. Rural development in the digital age: a systematic literature review on unequal ICT availability, adoption, and use in rural areas. *J Rural Stud.* 2017; 54:360-71.
8. Sultana P. Shifting of language teaching methodology from traditional classroom to virtual classroom. *The Creative Launcher.* 2021. doi: 10.53032/tcl.2021.6.4.14.
9. Sally M, Samaka M. Open education resources and mobile technology to narrow the learning divide. *Int Rev Res Open Distrib Learn.* 2013;14:14-27. doi: 10.19173/IRRODL.V14I2.1530.
10. Pape S, Prosser S. Barriers to technology implementation in community college mathematics classrooms. *J Comput High Educ.* 2018;30:620-36. doi: 10.1007/s12528-018-9195-z.
11. Derder A, Sudaria R, Paglinawan J. Digital infrastructure on teaching effectiveness of public-school teachers. *Am J Educ Pract.* 2023. doi: 10.47672/ajep.1719.
12. Madronio J. Maintenance and support system for information and communication technology (ICT) resources. *Am J Educ Technol.* 2023. doi: 10.54536/ajet.v2i2.1619.
13. Sahito Z. Teachers' perception about learning with information and communication technologies: usage & challenges. *Sukkur IBA J Educ Sci Technol.* 2021;1(2). doi: 10.30537/sjest.v1i2.650.
14. Ohanu I, Chukwuone C. Constraints to the use of online platform for teaching and learning technical education in developing countries. *Educ Inf Technol.* 2018;23:3029-45. doi: 10.1007/s10639-018-9757-8.

CITE AS: Kakembo Aisha Annet. (2025). Instructional Technology and Students' Performance in Art and Design in Selected Secondary Schools in Kyamuhunga Sub County, Bushenyi District. Research Output Journal of Education, 5(1):36-41. <https://doi.org/10.59298/ROJE/2025/513641>.