AFRICAN SOCIAL AND EDUCATIONAL JOURNAL
IMO STATE UNIVERSITY
OWERRI, IMO STATE
NIGERIA
VOL. 15 NO. 1 JANUARY 2026

DIGITAL LEARNING AND CREATIVITY AMONG SECONDARY SCHOOL STUDENTS IN RIVERS STATE

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Abstract

This study examined digital learning and creativity among secondary school students in Rivers State. It adopted a correlational research design. Three research questions and three hypotheses guided the study. The population of the study comprised the entire 36,837 public senior secondary (S.S.) 1 students in the 261 public senior secondary schools in Rivers State. A sample of 396 students was drawn from the population using the stratified random sampling technique. The instrument for data collection was one researcher developed instrument titled: "Digital Learning and Creativity Scale" (DLCS). The instrument (DLCS) was checked for face and content validity by an expert in Measurement and Evaluation and another expert in Educational Technology in Rivers State University. The reliability coefficient of the entire instrument was determined to be .76 through the test re-test method. The research questions and hypotheses were answered and tested using Pearson's product moment correlation statistic. The result of the study revealed that: virtual classroom learning had a significant high positive relationship with creativity among the students while gamification learning and use of electronic books had significant moderate positive relationship with creativity among the students. The researcher made some recommendations among which was that; parents, teachers and significant others should foster secondary school students' use of virtual classroom learning in Rivers State as it contributes immensely to creativity among them.

Keywords: Digital Technology, Learning, Creativity, Students, School.

Introduction

Creativity is a worthwhile intellectual activity. It involves the creation, formulation or invention of something nouveau. It is a phenomenon in which something new and is formed. The created item can be intangible (which includes a concept, a systematic idea, a musical composition, or a joke) or a material object (together with an invention, a printed literary painting or a portrait). Andayani (2019) disclosed that scholarly interest in creativity has risen of late. It has become of bourgeoning interest in Psychology, Education, the Humanities (Philosophy, the Arts) and Theology, Social Sciences (Sociology, Linguistics, Economics), Engineering, History and Arithmetic. Creativity as a phenomenon of interest was supposedly

derived from the Latin term creare meaning, "to create", "make" or "invent. However, its modern-day meaning as an act of human creation did not emerge until after the enlightenment (Anderson, Chung & Macleroy, 2018).

Anderson et al. (2018) posited that humanity seem to have reached a fashionable agreement that creativity involves the manufacturing of noveau, useful merchandise. It is equally the production of "something authentic and worthwhile". It is worthy of note that creative life is usually characterized by using nonconforming attitudes and behaviours as well as flexibility. And this is where digital learning comes into play. Digital learning is one of the recent educational innovations in our society hyped to enhance creativity. It is usually dynamic and non-conforming. The key term learning translates to the alternation of behaviour as a result of experience. Learning is often viewed as a process that leads to a relatively enduring change in behaviour. It involves the acquisition of requisite and exquisite knowledge, skills and values.

Digital learning as a phenomenon of interest can be packaged as learning facilitated with the aid of technology that offers students a few details of control over time, area, route and/or tempo. Learning in our contemporary society is no longer constrained to the school day or the school year. The internet and a proliferation of internet facilities have given college students the capacity to learn anytime and anywhere.

Chubko, Morris, McKinnon, Slater and Lummis (2020) disclosed that digital learning method may encompass any of or a mixture of any of the following: adaptive learning, badging and gamification, blended learning, classroom technologies, e-textbooks, learning analytics, learning objects, mobile mastering, example mobile phones, tablet computers, laptops, computers personalised learning, online mastering (or e-learning of) open educational resources (OERs) generation-superior teaching and learning virtual reality and augmented reality inter alia. Chubko et al. (2018) advanced that digital learning is supposed to enhance the learning experience. The digitalization of the learning process in Rivers State secondary schools following the COVID-19 pandemic saw to the emergence of virtual classrooms, gamification and electronic books.

Codina (2018) disclosed that a virtual class room is a web studying environment that allows for stay interplay between the teacher and the learners as they are participating in learning activities. In different words, the virtual class room is a shared online area where the learners and the teachers work together simultaneously. Usually, these interactions take place through video conferencing. The most common equipment one may discover in a digital lecture room include: Video conferencing, Online whiteboard for actual-time collaboration, Instant messaging tool, Participation controls and Breakout rooms.

It is worthy of note that although teaching and learning in a virtual study room provides an experience just like the physical one, it calls for new pedagogical approaches and a redecoration of the educational model that includes the subsequent characteristics: high interactivity, collaborative learning, student-centered instruction, variety of content presentation and learning activities, psychologically safe environment, positive and constructive feedback Based on the nature of virtual class rooms, creativity among secondary school students in Rivers State may be related to it.

Gamification on its part involves adding recreation mechanics into nongame environments, like an internet site, online community, learning management gadget or business' intranet to foster participation. The goal of gamification is to have interaction with consumers, employees and partners to encourage, collaborate, share and interact. Gamification usually works by providing audiences with proactive directives and comments through sport mechanics and recreation dynamics brought to online systems that lead to the accomplishments of commercial enterprise desires and objectives. Based on the nature of gamification, creativity among secondary school students in Rivers State may be related to it.

Chubko et al. (2020) posited that an e-book is a written or typed material made available in virtual form, which include text, photographs, or each, readable on the flat-panel show of computers or other electronic devices. E-books can be examined on committed e-reader devices, however additionally on any computer tool that features a controllable viewing screen, which include laptop computer systems, laptops, tablets and smartphones. Based on the nature of electronic-book, creativity among secondary school students in Rivers State may be related to it.

Abedini (2020) examined students' creativity in virtual and real life classrooms based on their personality traits. The study aimed at comparing the creativity of students in virtual and real life classrooms at University of Isfahan and examine its prediction primarily based on the personality trends of these college students. The statistical population of the study consisted of all faculty participants and college students at University of Isfahan in 2017-2018 academic session. Among them, one hundred and fifty subjects were selected using Morgan Table and random sampling approach. The facts collection was completed through Abedi's Creativity Questionnaire (1993) and Costa and McCrae Personality Questionnaire (1992). Data were analyzed through T-test for unbiased groups, Pearson correlation coefficient and more than one regression analysis. Results showed that there is a substantial distinction in creativity ratings of college students attending virtual classrooms and people attending physical class rooms, in addition to among female and male college students.

Barata et al. (2013) researched on improving student creativity with gamification and virtual worlds. Games are of super interest in training. Their motivational characteristics make gamers extra persistent and resilient. In particular, digital environments have proven to be appropriate mastering engagers, as they generate opportunities to create, explore and communicate. The researchers delivered a gamified route; a 2.5D digital surroundings that grows along with student grading, called AvatarWorld. There, college students were represented with the aid of customized avatars, and they also could create custom content. The result revealed that even though college students did now not spend too much time in AvatarWorld, they have been stimulated to perform creative obligations that required knowledge received within the direction.

Chew and Eau (2015) investigated creativity teaching through ebook reading program among a few of the children in Malaysia. This study was conducted to identify the effectiveness of the literature lesson plans through E-picture ebooks designed on the creativity elements; originality, elaboration and fluency. There were 42 youngsters 12 months 4-to-12 months antique children from two personal preschools inside the district of Petaling Jaya, Selangor.

These experimental studies applied the Wallis Model of Creativity (1926) as the research framework and the Torrance Test of Creative Thinking (TTCT) as the tool of study. Data was analyzed using Statistical Package for the Social Science (SPSS). Finding indicated that there was considerable distinction between pre-test and post-test carried out among the children in originality, elaboration and fluency elements of creativity with the entire mild effect size at .61. Chinese female children scored higher than Malay male kids in creativity. In other words, literature lesson plan via E-image, ebook analyzing was effective to inculcate the creativity among the children at the young age.

Until now, little or no studies have been conducted on the relationship between digital technology learning and creativity among secondary school students in Rivers State. It was against this background that the researcher conducted the study.

Statement of the Problem

Digital technologies such as; virtual classrooms, gamification and electronic books have gradually found their ways into our classrooms. The researcher observed that the COVID-19 pandemic heightened the adoption and adaptation of the aforementioned digital technologies in Rivers State secondary schools. Thus, it is not uncommon to see teachers in the State secondary schools employing these digital technologies to facilitate teaching and learning processes in the Post COVID-19 19 era.

Although the aforementioned digital technologies have been observed to easily activate and captivate the interest of the students during the teaching and learning process, not much is known about the extent to which they foster creativity and this is giving the researcher concern as regards their relationship with the creativity of the students considering the fact that more innovations are needed in our society to solve basic educational problems and better the lives of the citizenry. The problem of the study therefore was to investigate the relationship between digital learning and creativity among secondary school students in Rivers State.

Aim and Objectives of the Study

The aim of the study was to investigate digital learning and creativity among secondary school students in Rivers State.

Specifically, the study intended to investigate:

i. The extent to which virtual classrooms learning relates to creativity among secondary school students in Rivers State;

ii. The extent to which gamification learning relates to creativity among secondary school students in Rivers State;

iii. The extent to which electronic books learning relates to creativity among secondary school students in Rivers State.

Research Questions

The study was guided by the following research questions:

1. To what extent does virtual classrooms learning relate to creativity among secondary school students in Rivers State?

2. To what extent does gamification learning relate to creativity among secondary school students in Rivers State?
3. To what extent does electronic books learning relate to creativity among secondary school students in Rivers State?

Hypotheses

The study was further guided by the following null hypotheses:

H01: Virtual classrooms learning does not significantly relate to creativity among secondary school students in Rivers State.

H02: Gamification learning does not significantly relate to creativity among secondary school students in Rivers State.

H03: Electronic books learning does not significantly relate to creativity among secondary school students in Rivers State.

Methodology

This study adopted a correlational design. The study was conducted in Rivers State. The population of the study comprised all the 36,837 senior secondary (S.S.) 1 students in the 261 public senior secondary schools in Rivers State (Source; Rivers State Ministry of Education: Students' Enrollment Data, 2021 /2022). The stratified sampling technique was used to select the sample size for the study as determined using Taro Yamane formula. The sample of the study consisted of 396 senior secondary (S.S.) 1 students in public senior secondary schools in Rivers State as derived using Taro Yamane formula. The researcher randomly selected 132 students from each senatorial district, making it a total of 396 senior secondary school students. Three schools were randomly selected from each of the senatorial districts and 44 students were drawn from each of the schools. The instrument for data collection was one researcher developed instrument titled; "Digital Learning and Creativity Scale" (DLCS). The instrument (DLCS) was checked for face and content validity by an expert in Measurement and Evaluation and another expert in Educational Technology in Rivers State University. The reliability coefficients of the instrument were determined using test re-test method which yielded a reliability coefficient of .76. The research questions and hypotheses were answered and tested using Pearson's product moment correlation statistics. All data were subjected to analysis using Statistical Package for Social Sciences (SPSS).

Results and Discussion

Research Question One: To what extent does virtual classrooms learning relate to creativity among secondary school students in Rivers State?

Hypothesis One: Virtual classrooms learning does not significantly relate to creativity among secondary school students in Rivers State.

Table 1: Virtual Classrooms and Creativity

Correlations

		Virtual classrooms	Creativity
Virtual classrooms	Pearson Correlation	1	.731**
	Sig. (2-tailed)		.000
	N	396	396
Creativity	Pearson Correlation	.731**	1
	Sig. (2-tailed)	.000	
	N	396	396

**. Correlation is significant at the 0.01 level (2-tailed).

Table 1 above shows the extent to which virtual classrooms learning relates to creativity among secondary school students in Rivers State. An over view of the table revealed that virtual classrooms learning has a high positive relationship (r=.731) with creativity among secondary school students in Rivers State. The table further revealed that the extent to which virtual classroom learning relates to creativity among secondary school students in Rivers State is statistically significant as the calculated p-value of .000 is below. 05 level of significance. Thus, the null hypothesis earlier stated that virtual classrooms learning does not significantly relate to creativity among secondary school students in Rivers State is rejected. The implication is that virtual classroom learning significantly relates to creativity among secondary school students in Rivers State.

Research Question Two: To what extent does gamification learning relate to creativity among secondary school students in Rivers State?

Hypothesis Two: Gamification learning does not significantly relate to creativity among secondary school students in Rivers State.

Table 2: Gamification Learning and Creativity

Correlations

		Gamification learning	Creativity
Gamification learning	Pearson Correlation	1	.410**
	Sig. (2-tailed)		.000
	N	396	396
Creativity	Pearson Correlation	.410**	1
	Sig. (2-tailed)	.000	
	N	396	396

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 above shows the extent to which gamification learning relate to creativity among secondary school students in Rivers State. An over view of the table revealed that gamification learning has a moderate positive relationship (r=.410) with creativity among secondary school students in Rivers State. The table further revealed that the extent to which gamification learning relates to creativity is statistically significant as the calculated p-value of .000 is below. 05 level of significance. Thus, the null hypothesis earlier stated that gamification learning does not significantly relate to creativity among secondary school students in Rivers State is rejected.

Research Question Three: To what extent does electronic books learning relate to creativity among secondary school students in Rivers State?

Hypothesis Three: Electronic books learning does not significantly relate to creativity among secondary school students in Rivers State.

Table 3: Electronic Book Learning and Creativity

Correlations

		Electronic book learning	Creativity
Electronic book learning	Pearson Correlation	1	.533**
	Sig. (2-tailed)		.000
	N	396	396
Creativity	Pearson Correlation	.533**	1
	Sig. (2-tailed)	.000	
	N	396	396

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 above shows the extent to which electronic book learning relates to creativity among secondary school students in Rivers State. An over view of the table revealed that electronic book learning has a moderate positive relationship (r=.533) with creativity among secondary school students in Rivers State. The table further revealed that the extent to which electronic book learning relates to creativity is statistically significant as the calculated p-value of .000 is below. 05 level of significance. Thus, the null hypothesis earlier stated that electronic books learning does not significantly relate to creativity among secondary school students in Rivers State is rejected.

Summary of Findings

The study examined digital learning and creativity among secondary school students in Rivers State. It adopted a correlational research design.

1. Virtual classrooms learning has a significant high positive relationship with creativity among secondary school students in Rivers State.
2. Gamification learning has a moderate positive relationship (r=.410) with creativity among secondary school students in Rivers State.
3. Ellectronic book learning has a moderate positive relationship (r=.533) with creativity among secondary school students in Rivers State.

Discussion

Virtual Classroom Learning and Creativity

The results of research question one and hypothesis one revealed that virtual classrooms learning has a significant high positive relationship with creativity. This is a clear indicator that when students learn using virtual classrooms, the simulations that they are exposed to and the concomitant social expectations fosters their ingenuity. This result agrees with the findings of Abedini (2020) which revealed that there is a substantial distinction in creativity ratings of college students attending virtual classrooms and people attending physical class rooms.

Gamification Learning and Creativity

The results of research question two and hypothesis two revealed that gamification learning has a significant moderate positive relationship with creativity. The creativity of the students is enhanced by gamification learning; however, the excessive usage of this form of digital learning can predispose the students to internet addiction hence its significant moderate relationship with creativity. The result gives credence to the findings of Barata et al. (2013) which revealed that even though college students did now not spend too much time in AvatarWorld, they have been stimulated to perform creative obligations that required knowledge received within the direction.

Electronic Book Learning and Creativity

The results of research question three and hypothesis three revealed that electronic book learning has a significant moderate positive relationship with creativity. This result shows that the use of electronic books among the students remarkably fosters their creativity. This is attributable to its flexibility and easy accessibility. This result agrees with the findings of Chew and Eau (2015) which revealed that literature lesson plan via E-image, ebook analyzing was effective to inculcate the creativity among the children at the young age.

Conclusion

The study examined digital learning and creativity among secondary school students in Rivers State. Based on the findings, it can be concluded that digital learning plays an important role in enhancing students' creativity. Specifically, virtual classroom learning demonstrated a significant high positive relationship with creativity, indicating that the use of virtual learning environments can provide students with opportunities to explore ideas, interact with learning resources, and develop creative thinking skills. Similarly, gamification learning showed a moderate positive relationship with creativity, suggesting that the incorporation of game-based elements into teaching and learning can stimulate students' interest, engagement, problem-solving abilities, and creative expression. Furthermore, electronic book learning also demonstrated a moderate positive relationship with creativity, indicating that access to electronic books and digital reading resources can expose students to diverse information and ideas that may foster creative thinking.

Overall, the findings suggest that the integration of digital learning strategies, particularly virtual classrooms, gamification, and electronic books, can contribute meaningfully to the development of creativity among secondary school students in Rivers State. Therefore, schools

and relevant educational stakeholders should encourage the effective and purposeful integration of digital learning into classroom instruction to promote students' creativity and prepare them for the demands of a technology-driven society.

Recommendations

Based on the findings, the researcher recommended as follows:

1. Parents, teachers and significant others should foster secondary school students' use of virtual classroom learning in Rivers State through positive reinforcement as it contributes immensely to creativity among them.
2. Secondary school students in Rivers State should limit the time they spend on gamification learning to avert internet addiction.
3. Teachers, parents and significant others should provide the secondary school students in Rivers State with more creative e-books to boost their creativity.

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