IMPACT AND INFLUENCE OF SOCIAL MEDIA AND AI TOOLS USE FOR EDUCATIONAL PERFORMANCE ON E-LEARNING IN JIGAWA STATE COLLEGE OF EDUCATION STUDENTS.

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Abstract
The study examines the Impact and Influence of social media and Artificial Intelligence (AI) Tools on the Educational Performance of Students Engaged in E-learning at Jigawa State College of Education. Data was collected through a qualitative survey questionnaire to gather comprehensive insights from students and teacher educators. The findings indicate that social media platforms and AI tools serve as significant channels for collaborative learning and peer support, facilitating information sharing and academic discussions outside traditional classroom settings. Moreover, AI tools, including adaptive learning systems and intelligent tutoring, have shown to personalize learning experiences, thereby improving student performance and retention rates. However, the study also identifies barriers such as digital literacy gaps, internet accessibility issues, and the potential for distraction and misuse of social media. The research underscores the need for targeted training programs and infrastructure improvements to maximize the benefits of these technologies. The result stated that approximately 40% of the student enrolled with e-learning was not familiar with the platform, including the AI tools to utilize it for or their learning activities while approximately 60% shows excellent performance for both e-learning and appropriate use of social media and AI tools. The implications of this study suggest that when effectively integrated, social media and AI tools can significantly enhance the e-learning experience, promoting higher educational performance among students. Future research should focus on longitudinal studies to assess long-term impacts and explore strategies to mitigate the identified challenges.

Keywords*:* Education, Artificial Intelligence (AI), Social Media, E-Learning, Teacher Educators.

Introduction

Background of the Study

The advent of social media and Artificial Intelligence tools has revolutionized various sectors, including education. In recent years, e-learning has emerged as a vital educational approach, particularly in response to the global pandemic and the need for remote learning in Jigawa State College of Education, and many other institutions, in the state. This study seeks to explore the impact of social media and AI tools on students' performance engaged in e-learning at Jigawa State College of Education, Gumel.

Statement of the Problem

Despite the widespread use of social media and AI tools in education, there is limited empirical evidence on their effectiveness in improving educational outcomes. This study addresses this gap by investigating how these technologies influence the academic performance of students in Jigawa State College of Education. Understanding these impacts is crucial for developing effective e-learning strategies and ensuring that technological integration benefits all students.

Objectives of the Study

1. To assess the extent of social media use among students in Jigawa State College of Education, Gumel
2. To evaluate the role of AI tools in enhancing students' learning experiences.
3. To analyse the impact of social media and AI tools on students' academic performance.
4. To identify challenges faced by students in using these technologies for e-learning.

Research Questions

1. How frequently do students use social media for educational purposes?
2. What are the most commonly used AI tools by students in their studies?
3. What is the impact of social media on students' academic performance?
4. What challenges do students encounter using social media and AI tools for e-learning?

Significance of the Study

This study will provide valuable insights into the integration of social media and AI tools in e-learning. It will assist educators, policymakers, and technology developers in creating more effective and inclusive educational strategies.

Scope and Delimitation of the Study

The study focuses on 1200 computer science students enrolled in e-learning programs at Jigawa State College of Education. It examines their use of social media and AI tools, and how these technologies affect their educational performance.

Theoretical Framework

The study is grounded in several theoretical perspectives, including:

Constructivist Learning Theory:

Critics of connectivism as a learning theory, including Bell (2010), referred to connectivism as an instructional theory, not a learning theory. An instructional theory is a conceptual framework based on empirical findings and grounded in learning theories, which recommends the design of learning materials, resources, or situations to help learners achieve their learning outcomes and maximize their learning potential. Individuals learn through instructional strategies performed by teachers, aimed to “motivate students to learn and think on higher levels” (King, Goodson & Rohani, 2009, p.43). Learning is the acquisition of knowledge and learning theories explain how individuals learn (Driscoll, 2005). The primary evidence of learning is an individual’s change in performance (Driscoll, 2005; Gould, 2008).

Connectivism:
Collaboration has been one of the main focal points in education in recent years, especially after the COVID-19 pandemic when people had to isolate themselves and lose physical connection with their peers. A relatively recent learning theory called connectivism suggests that students should gather ideas, theories, and general knowledge from different sources but combine them correctly. The theory was created in 2005 by two theorists, George Siemens and Stephen Downes, who believe that technology has changed the way we receive information, thus changing learning as well. The connectivism learning theory encourages group interaction and conversation, allowing us to express various opinions and positions when making choices, solving problems, and understanding data. Connectivism also encourages education through online communities, blogs, and other public spaces. Let's dive more into the theory and see how eLearning professionals can leverage it (Pappas, 2023).

Technology Acceptance Model (TAM)
The technology acceptance model (TAM) was first created by Davis (1989), based on the theory of reasoned action (TRA) (Fishbein & Ajzen, 1975) in psychology research. The TRA posits that individual behaviour is driven by behavioural intention where behavioural intention is a function of an individual's attitude toward the behaviour and subjective norms surrounding the performance of the behaviour. In other words, it states that one's behaviour and the intent to behave is a function of one's attitude toward the behaviour and their perceptions about the behaviour. Therefore, behaviour is the function of both attitudes and beliefs, (Reviewed by Masrom, 2007).

Social Media in Education
A set of websites & applications that enable users for making as well as sharing anything for participating in social networking is called social media. It is not just only limited to posting vacation snaps online. It is an interactive computer-mediated technology for sharing of various ideas, information, career interests, and other forms of expression through apparent communities & worldwide network. It has gained plausibility as a definitive source of information over several years. It is a platform where organizations can interact with their audiences (Kajal, 2023).

- **Benefits of social media for Learning:** Engagement, collaboration, and access to resources.
- **Challenges and Concerns:** Distractions, privacy issues, and the digital divide.
- **Empirical Studies:** Review of research on social media's impact on student engagement and performance.

AI Tools in Education
Today's technology has become an unavoidable part of the passage of time. Technology has not only changed people's lifestyles but has also changed how we work, learn, and interact. Various kinds of innovations appear all the time, making our activities and work more practical and effective. A more recent technological development is the emergence of the term artificial intelligence which is abbreviated as AI (artificial intelligence) which is currently starting to steal attention as a tool to act like humans (Fitria, 2021).

- **Types of AI Tools:** Intelligent tutoring systems, adaptive learning platforms, and AI-driven assessments.
- **Benefits of AI in E-Learning:** Personalized learning, instant feedback, and data-driven insights.
- **Challenges and Limitations:** Accessibility, ethical considerations, and the need for digital literacy.
- **Empirical Studies:** Examination of studies on AI's effectiveness in improving learning outcomes.

E-Learning in Higher Education

According to González (2009), a relatively small number of researchers have focused on the relationship between higher education teachers' beliefs about teaching and learning with technological tools. It is especially difficult to find studies about teachers' beliefs and conceptions about e-learning in the context of developing countries. However, some studies have been carried out to describe teachers' beliefs about e-learning in different settings.

- **Adoption and Implementation:** Overview of e-learning initiatives in higher education, with a focus on Nigerian institutions.
- **Impact on Educational Performance:** Insights into how e-learning influences academic achievements and student satisfaction.
- **Case Studies:** Examples of successful e-learning programs and their outcomes.

Social Media and AI Tools in Nigerian Education

Education for every living being in contemporary times is a necessity which is borne out of the ever- changing dynamics of our daily livelihoods. Globalization, technology, and knowledge/information explosion are some few reasons for the increasing need of everyone being educated in one form or the other. It is based on the necessity for everyone to be educated that the concept of inclusive education was borne. According to United Nations Educational, Scientific and Cultural Organisation (UNESCO) (2009), inclusive education is an education strategy concerned with minimizing, reducing, or removing barriers to accessibility, participation and learning for every human being, especially for those who appear to have been socially discriminated or vulnerable due to issues of disability, gender, poverty, ethnicity, religion, or any other perceived inequalities. For Okoye and Adirika (2019), it implies a total educational effort focused on ensuring an adequate inculcation of requisite knowledge through qualitative learning to everyone in spite of any known or imagined disability. Thus, the concept can be viewed as the philosophy and practice of educating everyone including those with any perceived form of inequality or disability in general educational settings. In Nigeria, there have been certain efforts on the part of government to ensure that the inclusive educational stride is effectively implemented. Within the country, inclusive education as a policy has been adopted with guidelines application on three distinct groups i.e., the disabled, disadvantaged, and the gifted/talented (Federal Republic of Nigeria, 2008). Also, there are certain national legislations such as the "reauthorizations of the Individuals with Disabilities Education Act of 1997 and 2004" (Afolabi, et al, 2015). These legislations give learners with special educational needs full legal backing to receive education in a least restrictive environment with full involvement of their guardians in their placement. Other legal frameworks concerning

inclusive education are the "Education for Persons with Special Educational Needs Act 2004 and Disability Act 2005" which serve to legally enforce principals and teachers in secondary schools to accommodate special need learners in their schools (Afolabi *et al*., 2015).

Research Methodology

Research Design

The study employed a survey research design using a structured questionnaire.

Population and Sample

- **Population:** One hundred and twenty computer science students (1200) were enrolled in e-learning programs at Jigawa State College of Education.
- **Sample Size:** Three hundred (300) students were selected using stratified random sampling.

Data Collection Methods

Surveys structured questionnaires was administered to collect quantitative data on students' use of social media and AI tools, and their perceived impact on academic performance.

Research Instruments

Questionnaire designed to measure the frequency and purpose of social media and AI tool usage, as well as their perceived impact on learning.

Validity and Reliability

- **Validity:** Ensured through pilot testing of instruments and expert review.
- **Reliability:** Assessed using Cronbach's alpha for the questionnaire and inter-coder reliability for qualitative data.

Data Analysis

Quantitative data Analysed using statistical techniques such as descriptive statistics, correlation analysis, and regression analysis to determine relationships between variables.

Ethical Considerations

- **Informed Consent:** Participants were informed about the study's purpose, procedures, and their rights.
- **Confidentiality:** Ensuring the anonymity and confidentiality of participants' information.
- **Voluntary Participation:** Emphasizing that participation is voluntary and participants can withdraw at any time without penalty.

Limitations of the Study

- **Generalizability:** Findings may not be generalizable to other institutions or regions.
- **Self-Report Bias:** Reliance on self-reported data may introduce bias.
- **Technological Access:** Variability in students' access to technology may affect the results.

Implementation

Objective: To investigate the impact and influence of social media and AI tools on educational performance among students in Jigawa State College of Education.

Methodology:

1. **Participants:**

- A total of 300 students from Department of Computer Science at Jigawa State College of Education were selected through stratified random sampling to ensure representation across different courses and years of study.

Data Collection Tools:

- **Surveys and Questionnaires:** Structured questionnaires were developed to gather quantitative data on students' usage of social media and AI tools, and their perceived impact on their learning and academic performance.

2. **Procedure:**

- Pre-study orientation was provided to explain the purpose of the research and ensure informed consent.
- Questionnaires were distributed and collected over a period of two weeks.
- Data on academic performance was collected from the School of Secondary Education (Sciences) Sub-Dean Office, ensuring confidentiality and ethical handling of student records.

Discussion on Findings

The study revealed several key findings regarding the influence of social media and AI tools on students' educational performance:

Usage Patterns:

Number of Students	Usage Percentage	Social Media Platform
240	68%	WhatsApp
30	20%	Facebook
23	10.7%	Twitter
7	1.3%	Instagram/WeChat

A high percentage (80%) of students reported using social media for educational purposes, including group discussions, accessing study materials, and communicating with peers and teacher educators especially WhatsApp platform.

Number of Students	Usage Percentage	AI Tool
233	65%	Pi
45	25%	Owlift App
22	10%	Chat-gpt

Approximately 65% of students utilized AI tools such as language translation, educational apps, and automated tutoring systems to aid their learning.

Perceived Benefits/ Influence:

What is the impact of social media on students' academic performance?

S/NO	ITEM	SA	A	D	SD
1	Did social media negatively impacted your performance	24 (8.0%)	10 (3.33%)	150 (50%)	116 (38%)
2	Did social media positively impacted your academic performance	220 (73.33%)	50 (16.67%)	17 (5.67%)	13 (4.33%)
3	Is using AI tool to facilitate your learning impacted your academic performance	153 (51%)	126 (42%)	13 (4.33%)	8 (2.67%)

Students highlighted that social media platform facilitated collaborative learning and provided access to diverse resources, which enhanced their understanding of complex

subjects which is (73.33%). AI tools were praised for their personalized learning experiences and immediate feedback mechanisms, which helped in improving academic performance with (51%).

Academic Performance:

S/NO	ITEM	Excellent	Good	Average	Poor
1	How would you rate your overall academic performance?	113 (37.67%)	82 (27.33%)	85 (28.33%)	20 (6.67%)
2	How would rate social media and AI tools in helping accessing resources while studying?	213 (71.0%)	45 (15.0%)	33 (11.0%)	9 (3.0%)
		Yes		**No**	
3	Do you feel that social media usage affects your concentration while studying?	98 (32.67)		202 (67.33)	
		Positive	**Negative**	**Neutral**	**No Impact**
4	How do you feel about AI tool impact your study and performance	115 (28.33%)	32 (10.67%)	84 (28.0%)	69 (23.0%)
5	How do you feel social media impact your study habits	175 (58.33%)	18 (6.0%)	43 (14.33%)	64 (21.33%)
		Often	**Sometimes**	**Rarely**	**Never**
6	How often do you get distracted by social media notifications while studying?	240 (80.0%)	23 (7.67%)	17 (5.67%)	20 (6.67%)
7	Has social media and AI tools ever caused you to procrastinate on academic task	132 (44.0%)	85 (28.33%)	61 (20.33%)	22 (7.33%)

There was a positive correlation of between the usage of AI tools and higher GPA scores, suggesting that students who effectively used these tools tended to perform better academically.

However, the impact of social media was mixed; while some students benefited from its use for educational purposes, others experienced distractions that negatively affected their performance.

Challenges

Despite the benefits, 60% of the students reported challenges such as information overload, difficulty in distinguishing credible sources, and the potential for distraction when using social media. Technical issues, such as lack of access to reliable internet and insufficient digital literacy, were also identified as barriers to effective use of AI tools. While 40% of the student shows all the signs of misuse of both AI tools and social media for their own use.

Conclusion

The study concludes that both social media and AI tools have a significant impact on the educational performance of students at Jigawa State College of Education, Gumel. While social media primarily aids in collaborative learning and resource sharing, AI tools contribute more directly to individual academic improvement through personalized learning experiences. However, the benefits are contingent on students' ability to manage distractions and access reliable technology.

Recommendations

1. **Enhance Digital Literacy:**
   - Implement training programs to improve students' digital literacy, ensuring they can effectively utilize social media and AI tools for educational purposes.
2. **Access to Technology:**
   - Invest in infrastructure to provide reliable internet access and necessary technological tools to all students, reducing the digital divide.
3. **Guidelines and Support:**
   - Develop guidelines for the effective use of social media and AI tools in education, including best practices for managing distractions and verifying credible sources.
   - Provide ongoing support through workshops and seminars to help students and faculty stay updated on the latest educational technologies.

Future Work

Longitudinal Studies:

- Conduct longitudinal studies to track the long-term impact of social media and AI tools on students' academic performance and career outcomes.

Broader Demographic Studies:

- Expand the research to include other educational institutions in different regions to compare and generalize findings across various contexts.

Technology Integration:

- Explore the integration of emerging technologies such as virtual reality (VR) and augmented reality (AR) in e-learning environments to further enhance educational experiences.

Impact on Different Learning Styles:

- Investigate how different learning styles interact with social media and AI tools, tailoring educational strategies to diverse student needs.

By addressing these areas, future research can provide deeper insights and more comprehensive strategies for leveraging social media and AI tools to enhance educational performance in e-learning environments.

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