UNDERGRADUATES' LEVEL OF AWARENESS AND UTILISATION OF NAPKIN ARTIFICIAL INTELLIGENCE FOR LEARNING AT UNIVERSITIES IN KWARA STATE

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Abstract
Napkin Artificial Intelligence is a generative artificial intelligence tool designed to enhance learning and productivity among users by providing a suite of features to help organise educational diagrams, concept explanations, and learning materials. This study investigated undergraduates' level of awareness and extent of utilisation at universities in Kwara State. A descriptive survey design was used, sampling 300 undergraduates through a multistage procedure. Data were collected through a self-structured questionnaire, which was pilot tested for reliability with a Cronbach Alpha coefficient of 0.81 and was analysed with mean, standard deviation, t-tests and Pearson Product-Moment Correlation. Findings showed low awareness ($t=1.92$, $p>0.05$), with no significant gender difference. Positive correlation was found between awareness and utilisation ($r=0.68$, $p<0.05$). The study concluded that Napkin AI is underutilised due to limited awareness. The study recommended integrating Napkin AI into curricula to enhance undergraduates' learning. By implication, increased exposure of undergraduates to Napkin AI can facilitate learning.
Keywords: Learning, level of Awareness, Napkin AI, Undergraduates, Extent of Utilisation

Introduction

Information and Communication Technology (ICT) refers to the integration of computing, telecommunications, and audiovisual systems that enable users to access, store, transmit, and manipulate information. It encompasses a wide range of technologies, including the internet, mobile devices, cloud computing, artificial intelligence (AI), and educational software. ICT has become a transformative force in modern education, reshaping how students learn, access information, and engage with academic content. Globally, the adoption of ICT in higher education has significantly enhanced the delivery of academic content, improved communication between students and lecturers, and fostered collaborative learning environments (Adewoye & Salau, 2021).

Technology is a driving force for changes in education (Thomas & Abanikannda, 2023). The integration of ICT has prompted significant alterations in educational methodologies, and it is pivotal in refining both instructional and administrative processes. In addition, it has reshaped classroom interactions, facilitating a shift from conventional teacher-led models to more student-focused educational settings (Oladosu *et al.,* 2020). The rapid development of ICT in university education has enhanced creativity, interaction, and knowledge sharing, which are key to learning in higher institutions. Adewoye and Salau (2021) argued that in the last two decades, Nigerian universities have invested heavily in ICT, which has had a major impact, especially on the institutional management system and on teaching and learning methods.

The continuous development of ICT and digital technologies in education has led to the development of the fourth educational revolution, referred to as Education 4.0. This change in basic assumptions has significantly reshaped learning opportunities by continuously adopting new technologies and educational strategies while discarding older practices (Thomas & Gambari, 2021), The advent of

Generative Artificial Intelligence tools presents a promising avenue for addressing these challenges and enhancing students' performance. Generative Artificial Intelligence can assist students in managing their time more efficiently by providing personalized study schedules and reminders, thus reducing procrastination (Gbore & Ogunlade, 2025). Furthermore, AI-driven platforms can help students organize their resources, offering tailored recommendations for study materials and strategies based on individual learning styles. By leveraging AI tools, students can enhance their academic engagement, leading to improved outcomes and a more fulfilling educational experience (Afoungbe, 2024). According to Gbore and Ogunlade (2025), the integration of Generative Artificial Intelligence in educational settings not only streamlines academic processes but also fosters a more engaging and supportive teaching and learning environment, contributing to undergraduates' success in higher education.

The level of awareness of Generative Artificial Intelligence for learning refers to the state of being informed and knowledgeable about the existence of Napkin Artificial Intelligence, which can be used for learning. Rogers (2003) classified awareness into three major areas of question: what? How? and why? For instance, what are the available generative AIs for learning? How do Napkin Artificial Intelligence technologies for learning work? Why use Napkin AI technologies for learning? For Napkin AI technologies to be optimally utilised by undergraduates for instruction, they must be aware of their existence. Awareness is a necessity before an undergraduate can adopt, utilise, and apply Napkin AI, except if an individual uses AI unknowingly. Olibie *et al.* (2014) added that awareness empowers undergraduates to participate in utilising any new technology, such as Napkin AI, designing new tools, and having a meaningful role in society's development.

Napkin AI is an innovative artificial intelligence tool that converts text descriptions into visual sketches and diagrams. This tool enables users to quickly turn their ideas into visual representations. Napkin AI utilises advanced machine learning models specifically trained on sketch data and visual outputs. The technology combines natural language processing with computer vision to understand user intent and generate suitable visuals. With these features, students can transform their ideas into professional-looking sketches with just a few words, helping them to brainstorm, refine ideas, generate content for a topic with AI, and then create visuals based on that content (Profleaddev, 2024).

Napkin AI is an AI-powered tool designed to improve business communication by turning text into clear, visual charts. Built by a team passionate about simplifying idea sharing, Napkin AI allows anyone to create high-quality visuals. Napkin AI focuses on automatic visual chart creation. Its standout features include Text-to-Chart Generation: Simply type in your idea, and Napkin AI will recommend and generate visual formats like flowcharts, Venn diagrams, or matrix charts based on the meaning of students' input. Smart Content Recognition: Using advanced natural language processing (NLP), Napkin AI understands text and automatically selects the best visual structure with no manual formatting required. Easy Editing: After generation, students can easily tweak labels, layout, or colour to match preferences. Instant Sharing & Collaboration: Quickly share your visuals via link with teammates to streamline discussions and decision-making (Norlyn, 2025).

In addition, Napkin AI excels in facilitating brainstorming sessions. The tool employs GAI to assist students in generating ideas and exploring different perspectives on a given topic. This capability is crucial in academic settings where creativity and critical thinking are essential for problem-solving and project development (Bahi, 2024). By providing prompts and suggestions, Napkin AI encourages students to think creatively and collaborate effectively with peers, thereby fostering a more dynamic learning environment. The integration of AI in brainstorming processes can lead to richer discussions and more innovative solutions to academic challenges.

More so, the AI-driven insights provided by Napkin AI can assist students in identifying potential risks and optimizing their workflows, leading to improved academic outcomes. Moreover, the use of AI tools like Napkin AI can address common challenges faced by students, such as time management and resource organization. By providing personalized recommendations and reminders, Napkin AI can help students prioritize tasks and manage their time more effectively (Asatiani., 2021). This proactive approach

to academic engagement can significantly reduce stress and enhance overall productivity, allowing students to focus on their studies rather than administrative tasks.

Additionally, Napkin AI is increasingly recognized as a valuable tool for enhancing the academic experience of undergraduates. Its relevance stems from its ability to streamline various aspects of the educational process, including note organization, brainstorming, and project planning. By providing students with a platform that integrates these functionalities, Napkin AI not only promotes efficiency but also fosters deeper engagement with academic content. The tool's capability to organize notes effectively allows students to manage their study materials better, which is crucial in higher education, where information overload is common (Nurjanah, 2024).

Furthermore, AI's assistance in brainstorming encourages creativity and collaboration among students, enabling them to generate innovative ideas and solutions (Lin & Lai, 2021). Globally, Napkin AI has been applied in various educational settings, demonstrating its versatility and effectiveness. For instance, in the United States, universities have integrated AI tools into their curricula to facilitate personalized learning experiences. These institutions have reported improvements in student engagement and academic performance because of utilizing AI-driven platforms that provide individualized feedback and support (Terzieva & Georgiev, 2021).

The utilisation of Napkin AI and similar artificial intelligence tools in educational contexts has been the subject of various case studies and research initiatives. These studies illustrate how AI technologies can enhance learning experiences, streamline academic tasks, and foster collaboration between students and educators. This response synthesizes several examples and case studies that highlight the practical applications of Napkin AI in educational settings. One notable case study which explored teachers' perceptions of AI technology in teaching English as a Second Language (TESL) (Zaineldeen & Juma, 2020). Their research indicates that teachers who integrate AI tools into their instructional strategies report enhanced student engagement and improved learning outcomes.

In the face of the transformative potential of artificial intelligence (AI) in higher education, there is growing concern that undergraduates in universities across Kwara State possess limited awareness of specialized tools like Napkin AI designed for supporting learning. In an era where digital literacy and AI-driven platforms are rapidly shaping new paradigms of knowledge acquisition, the lack of exposure and understanding among students could undermine their academic competitiveness, innovation, and critical thinking skills. Furthermore, the extent to which undergraduates utilize Napkin AI for learning and academic support remains unclear, with anecdotal evidence suggesting that practical adoption trails far behind global best practices. This problem is compounded by a possible disconnect between awareness, actual utilization, risking an academic divide where only a minority benefits from emerging educational technologies. Without targeted interventions to boost awareness, encourage effective utilization, and evaluate the impact on academic engagement, universities in Kwara State may fail to fully leverage Napkin AI's potential to enhance student outcomes. Thus, it is imperative to examine the current level of awareness, utilization patterns, and the relationship among these variables to inform strategic policies and actionable programmes for maximizing GAI's academic benefits among undergraduates.

However, studies have begun to observe a gendered pattern in how male and female students use these tools for academic purposes (Koseoglu *et al.,* 2023). While all genders acknowledge the usefulness of GAI, the depth and frequency of usage differ significantly, shaped by attitudes, digital literacy, and perceived ethical implications.

Male students are more proactive in experimenting with and integrating GAI into their learning routines. Research shows that GAI are more likely to be used by males for generating quick solutions to academic tasks, such as coding exercises, mathematical problems, and essay writing (Bano *et al.,* 2023). This may be linked to a higher level of confidence in using emerging technologies, particularly among those pursuing STEM (science, technology, engineering, and mathematics), where male representation tends to be higher (Li *et al.,* 2023). Furthermore, male students are more inclined to employ AI

technologies in an unstructured manner, frequently testing the limits of GAI's capabilities. Conversely, female students typically use GAI more deliberately and cautiously. Studies have shown that female students often focus on using these tools to improve their understanding of concepts, assist in language-related tasks, or help with writing structure rather than content generation (Chatterjee & Bhattacharjee, 2023). Meanwhile, the term academic level refers to the stage or tier of education undergraduates have reached, which is often used to classify them into 100level, 200level, 300level, 400level, 500level, and so on based on their progress in the universities in Kwara State.

Purpose of the Study

The main purpose of this study was to investigate Undergraduates' Awareness and Utilization of Napkin Artificial Intelligence (AI) in enhancing learning at universities in Kwara State. Specifically, the study:

1. Examined the level of awareness of Napkin AI amongst male and female undergraduates at Universities in Kwara State.
2. Evaluated the extent of utilisation of Napkin AI in supporting learning amongst undergraduates at Kwara State universities
3. Explored the relationship between Napkin AI awareness and its utilisation amongst undergraduates in Kwara State.

Research Questions

The following research questions were answered:

1. What is the level of awareness of Napkin AI amongst male and female undergraduates at universities in Kwara State?
2. To what extent do undergraduates utilise Napkin AI in supporting learning at Kwara State universities?
3. What is the relationship between awareness of Napkin AI and its utilisation, amongst undergraduates in Kwara State?

Research Hypotheses

The following hypotheses were tested at the 0.05 level of significance

H_{01}: There is no significant difference in the level of awareness of Napkin AI amongst
Male and female undergraduates in the Kwara State universities.

H_{02}: There is no significant relationship between the level of awareness and the extent of utilisation of Napkin AI amongst undergraduates in the Kwara State universities

Methodology

This study adopted a descriptive research design of the survey type. The population for this study were all undergraduates in Kwara State. A multi-stage sampling procedure was used for this study. In the first stage, the purposive sampling technique was used to select two public universities in Kwara State, which are the University of Ilorin and Kwara State University. In the second stage, proportionate sampling was used to choose undergraduates in each selected university. In the final stage, 300 respondents were randomly selected for the study. A researcher-designed questionnaire titled "Undergraduates' Awareness and Utilization of Napkin Artificial Intelligence for Learning in Universities in Kwara State'' was used to collect data for this study. The instrument was pilot tested for reliability, with the Cronbach Alpha coefficient of 0.82. The questionnaire contained four sections: Section A, B, and C. Section A was centred on the respondent's demographic data, while Sections B and C consisted of selected closed-ended questions to achieve the purpose of the study. The Likert response mode of Very Aware (VA), Moderately Aware (MA), Slightly Aware (SA), and Not Aware (NA) was used for Sections B, and Section C consisted of 11 items used to collect data on the undergraduates' extent of utilisation of Napkin AI. The questionnaire was rated on Frequently Utilised (FU), Utilised (U), Rarely Utilised (RU), and Never Utilised (NU). Data obtained from the questionnaire were subjected to descriptive and inferential statistics with the use of mean and standard deviation to answer research questions, while t-test and Pearson Product-Moment Correlation were respectively used to test the two hypotheses at a 0.05 level of significance.

Undergraduates' level of awareness and utilisation of Napkin artificial intelligence for learning at universities in Kwara state

Findings

RQ1: Level of Awareness of Napkin AI among undergraduates in universities in Kwara State

Table 1:
Awareness Level of Napkin AI

Item	VA	MA	SA	NA	Mean ($\bar{x}$)	SD
1. Aware of Napkin AI before	45	60	105	90	2.10	0.98
2. Aware that it converts sketches to digital content	30	75	120	75	2.00	0.92
3. Aware of application in academic tasks	30	60	135	75	1.95	0.85
4. Became aware through fellow students	15	45	150	90	1.75	0.78
5. Aware of how it transforms hand-drawn ideas	30	45	150	75	1.90	0.83
6. Aware of compatibility with mobile/desktop platforms	45	60	120	75	2.05	0.98
7. Aware of potential uses in academic environments	30	45	150	75	1.90	0.85
8. Aware that it supports creativity in academic work	45	60	120	75	2.05	0.98
9. Aware of its recognition among students	15	45	165	75	1.80	0.72
10. Aware of other students actively using it	15	30	165	90	1.70	0.78
Grand mean					**1.92**	**0.35**

Awareness levels show critical deficiencies across all dimensions. Only 35% of respondents demonstrated functional knowledge of Napkin AI's core capabilities (Items 2, 3, 5, 7), while peer-to-peer knowledge transfer proved particularly ineffective - 80% were unaware of colleagues using the tool (Item 10). The lowest awareness scores emerged regarding institutional recognition (Item 9: $\bar{x}$=1.80) and peer referral pathways (Item 4: $\bar{x}$=1.75), indicating absent formal promotion and organic dissemination networks. These patterns collectively reveal a technology adoption ecosystem where neither top-down institutional support nor bottom-up peer networks are effectively operationalised. Overall, the grand mean score ($\bar{x}$=1.92) reveals a low level of awareness of Napkin AI amongst the undergraduates when compared to the 2.5 benchmark.

RQ2: Extent of Utilization of Napkin AI for Academic Activities in Kwara State Universities

Table 2:
Extent of Utilization of Napkin AI

The extent of utilization patterns reveals systemic underutilisation, with 78% of respondents disengaged from Napkin AI's core functionalities. The most pronounced utilization gaps emerged in technical

Item	FU	U	RU	NU	Mean ($\bar{x}$)	SD
1. Currently, I use Napkin AI for academic tasks	30	45	150	75	1.90	0.82
2. I use it to brainstorm/sketch project ideas	30	60	135	75	1.95	0.88
3. I used it to prototype academic presentations	15	45	165	75	1.80	0.72
4. I rely on it to visually organize assignment concepts	30	45	150	75	1.90	0.82
6. I find it useful for group projects	45	60	120	75	2.05	0.98
7. I used it to convert sketches to digital wireframes	15	30	180	75	1.75	0.68
8. Applied it in designing academic seminar/exhibition content	15	30	180	75	1.75	0.68
9. Use it to simplify complex ideas into visual formats	30	60	135	75	1.95	0.88
11. Use it more than other AI tools for creative work	15	45	165	75	1.80	0.72
12. Received academic support encouraging its use	15	30	165	90	1.70	0.78
Grand mean					**1.84**	**0.31**

applications - sketch conversion (Item 7: 85% non-users) and academic exhibition design (Item 8: 85% non-users) - suggesting students lack technical confidence or training. Alarmingly, 85% reported no academic encouragement to use the tool (Item 12), indicating institutional support systems are failing to promote digital innovation. The marginally higher utilization for group projects (Item 6: $\bar{x}$=2.05) suggests collaborative contexts may offer promising implementation pathways if awareness and training barriers are addressed. Overall, the grand mean score ($\bar{x}$=1.84) shows that the extent of utilisation is low when compared to the benchmark of 2.5. This could be due to a low level of awareness

H_{01}: There is no significant difference in the level of awareness of Napkin AI amongst male and female undergraduates in Kwara State universities.

Table 3:
Difference in the Level of Awareness of Napkin AI

Gender	N	Mean	SD	t-value	p-value
Male	295	1.98	0.32	1.92	0.056
Female	240	1.88	0.36		

Statistical analysis revealed no significant gender-based differences in awareness (t=1.92, p=0.056), with males showing only marginally higher mean scores (1.98 >1.88). Since the p-value (0.056)

was greater than 0.05, the null hypothesis was not rejected. This means there is no statistically significant difference in awareness levels between male and female students. The observed marginal difference (males: $\bar{x}$=1.98, females: $\bar{x}$=1.88) is due to random variation in the sample.

H_{02}: There is no significant relationship between awareness and utilization of Napkin AI among undergraduates in Kwara State universities

Table 4:
Correlation between awareness and utilization of Napkin AI

Relationship Tested	r	p-value
Awareness ↔ Utilization	0.68	<0.001*

*Significant at α=0.05

Significant positive intercorrelations emerged among all variables, forming a cohesive adoption-engagement continuum. The awareness-utilisation relationship (r=0.68) shows that knowledge acquisition precedes practical application. The null hypothesis regarding the relationship is rejected ($p<0.05$), confirming robust positive intercorrelation. The p-value was less than 0.001, which is below the significance level of 0.05 ($p<0.05$). Therefore, the null hypothesis for the relationship was rejected. This indicates statistically significant positive correlations: higher awareness was associated with higher utilization.

Discussion

The low awareness of Napkin AI among undergraduates ($\bar{x}$=1.92) aligns with Adewoye and Salau (2021), who noted that despite heavy ICT investments in Nigerian universities, dissemination failures hinder undergraduates' exposure to emerging tools, resulting in over 75% unawareness of core features like sketch-to-digital conversion.

Moreover, utilisation remained marginal ($\bar{x}$=1.84), which was corroborated by Oladosu *et al*. (2020), as 85% rarely engaged advanced applications due to absent academic encouragement, echoing technostress barriers in resource-constrained settings like Kwara State universities.

Furthermore, the strong positive correlation between awareness and utilisation ($r=0.68$, $p<0.001$) aligns with Rogers (2003), who posited awareness as a prerequisite for utilisation, where knowledge acquisition enables practical application that enhances educational involvement. Whereas the non-significant gender differences ($t=1.92$, $p=0.056$) were also supported by the findings of Koseoglu *et al.* (2023), who explained that systemic factors, not demographics, drive Artificial Intelligence gaps in universities.

Lastly, these patterns reveal a continuous adoption and utilisation, where institutional neglect results in underutilisation, the phenomenon that was stressed in the study by Gbore and Ogunlade (2025), who argued that generative artificial intelligence integration demands proactive exposure to foster engagement beyond basic peer referrals ($\bar{x}$=1.75). Thomas and Gambari (2021) further validated this by highlighting Education 4.0 shifts requiring creativity of artificial intelligence, yet undergraduates in universities in Kwara lag, with only marginal group project uptake ($\bar{x}$=2.05) signalling collaborative potential. Overall, the findings underscore a disconnect between the potential of artificial intelligence globally and local realities, urging policy alignment.

Conclusion

This study reveals that Napkin AI remains severely underutilised among undergraduates in Kwara State universities due to significant awareness gaps and the lack of institutional promotion, despite its proven potential to transform teaching methods and improve visual learning.

The interconnected findings, low awareness, minimal utilisation, and a strong relationship between awareness and utilisation, highlight a missed opportunity in Nigerian universities, where Education 4.0 calls for AI integration to foster creativity and academic engagement. Addressing these gaps through targeted interventions could change teaching practices, aligning local realities with global AI-driven advances in student-centred learning.
Based on the findings, the following recommendations were made: that Napkin AI training modules should be integrated into university curricula and orientation programs to create awareness and encourage their utilisation amongst the undergraduates from the current low baseline by leveraging its strengths in visual diagramming.

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