



Evaluation of Digital Literacy and Emerging Technology Adoption among Educational Psychology Students in Federal University of Education Zaria

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ABSTRACT

The increasing prevalence of a knowledge-driven economy has made digital literacy a key area of competence towards academic achievement; while emerging technological advancements continue to transform the education and psychological studies landscape. This study assessed the level of Information and Communication Technology skills among undergraduate students of Educational Psychology at the Federal University of Education, Zaria, with a particular focus on their use of electronic information resources. The study employed a cross-sectional survey design and was guided by four hypotheses based on the Technology Acceptance Model, Digital Literacy Framework and the Diffusion of Innovation: perceived ease of use, perceived usefulness, digital innovation, and social norms. A structured questionnaire was used to collect data from a simple random sample of 86 students. The findings revealed a significant relationship between all four variables and the students' ICT skills in using electronic information resources. The results indicated that students' ability to access and use digital tools effectively was influenced by their perception of the usefulness and ease of the technology, their exposure to digital innovations, and prevailing social norms. The study concluded that strengthening these factors could significantly improve ICT skill acquisition and the use of electronic information resources for academic purposes. Recommendations were made to improve infrastructure, training, and policy implementation to promote better digital literacy among undergraduates.

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INTRODUCTION

Information and Communication Technologies have significantly transformed the processes through which information is created, organised, and disseminated. These technologies have also influenced how educational psychologists access, manage, and apply information in teaching and research contexts. As such, professionals in educational psychology must adapt to these changes to deliver effective information and academic services. The application of information and communication

technologies in institutions of higher learning, such as the Federal University of Education, Zaria, is essential for modern academic operations. The integration of these technologies is a key determinant of the quality and accessibility of information available for supporting teaching and learning processes.

Organisations of varying types and sizes, including educational institutions, increasingly acknowledge the significance of employing digital technologies such as computers and communication tools in the work environment.

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These technologies offer both challenges and opportunities, encouraging individuals to develop critical and creative thinking abilities essential for thriving in an information-rich society. According to Kumar, Rose, and DaSilva (2008), the rapid expansion of information knowledge and digital technologies demands individuals to adapt their skills to fully utilise emerging opportunities.

Information and Communication Technology, often used interchangeably with information technology, encompasses systems and tools that facilitate unified communication and the integration of digital resources, including telecommunications, wireless signals, computers, enterprise software, and audio-visual systems. These components enable users to store, retrieve, transmit, and manipulate data effectively. Abolade and Yusuf (2005) identified information and communication technologies as indispensable instruments within educational systems. Similarly, Ebijuwá and Anyakoha (2005) defined information and communication technologies as tools and processes used for the collection, processing, storage, and dissemination of data. David (2005) observed that students become more engaged in their learning processes when interacting with computers, thus becoming more self-aware of how they learn. Furthermore, information and communication technologies enhance the relationship between teachers and students by promoting collaboration and shared access to learning resources. To ensure effective utilisation of these technologies among university students, it is crucial that the benefits are clearly communicated, both to students and to the broader society.

In the current digital age, technological advancements have significantly reduced the constraints of time and space. Adebayo (2008) described this period as an era of information explosion, characterised by individuals' increasing desire to access and explore digital information systems. Timely access, appropriate utilisation, and effective communication of relevant and accurate information are now considered essential attributes for effective teaching and learning. In Nigeria, the growing importance of information and communication technologies in university

education is evident in the increased provision and use of computers and other digital resources by academic staff and students. Empirical studies have indicated that the successful integration of these technologies into teaching processes depends not only on their availability and usability but also on students' willingness and ability to adopt them.

Information and communication technologies offer substantial potential for meeting the diverse learning needs of individual students. They also promote equity in educational access, support the development of high-quality learning materials, and promote self-directed learning and professional growth among teachers. Apanpa and Lawal (2009) asserted that the ability to use technology effectively to support learning has become a critical skill for professional teachers. In this context, the role of teaching is vital for enabling individuals to acquire the competencies required to contribute meaningfully to society (Adebayo, 2008). Jegede (2008) recognised information and communication technologies as fundamental elements in creating a conducive learning environment for the twenty-first century.

However, Lau and Sim (2008) reported that despite their benefits, many students are unable to fully harness the potential of digital technologies due to limited information and communication technology literacy. With the rapid evolution of digital technologies, contemporary society increasingly relies on both information and communication technology skills and broader information literacy. These competencies are essential for national development in the knowledge era. As digital technologies become integral to daily life, mastery of these skills is now regarded as important as traditional literacy in reading, writing, and numeracy. According to Spiranac and Banek (2008), twenty-first-century literacy encompasses the ability to use digital technologies effectively, understand and analyse natural and social phenomena, solve problems, make informed decisions, collaborate with others, and engage in lifelong learning.

Recent empirical evidence highlights that digital literacy is a critical determinant of students' capacity to leverage electronic

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information resources in Nigerian universities. A study by Agina Obu and Okwu (2023) found that students with higher digital literacy levels utilised digital resources more effectively and frequently, underscoring the importance of competency in information and data literacy for academic success. In addition, a systematic review of higher education in sub Saharan Africa identified significant barriers—including limited internet access, insufficient training, and low awareness of digital tools—that substantially reduce students' readiness to adopt and use emerging technologies (Mireku, Bervell, Dzamesi, & Nimo, 2024).

Taken together, these findings emphasise that beyond mere availability of ICT infrastructure, it is the development of digital literacy and institutional support that drive meaningful technology adoption among undergraduate students—affirming the relevance of perceived ease of use, perceived usefulness, and digital competence in our study. However, previous studies have largely focused on the availability and usage of digital resources, but have not adequately examined how perceived usefulness, perceived ease of use, and digital literacy competencies influence the actual adoption of emerging technologies among educational psychology students in Nigerian universities.

STATEMENT OF THE PROBLEM

In the present era of information and communication technology, the utilisation of digital tools—including computers, scanners, printers, internet services, intranet platforms, and electronic mail—is essential for enhancing educational productivity and efficiency. The integration of these technologies into the curricula for Educational Psychology students is intended to facilitate more effective teaching and learning. Nevertheless, in developing countries such as Nigeria, severe infrastructural deficits such as inadequate hardware resources and poorly equipped computer laboratories persist (Onohwakpor, 2023; Edema, 2023). As a result, only a minority of Nigerian youth (approximately 7 percent) possess sufficient ICT competencies,

while the majority lack the foundational skills necessary for information retrieval and digital content creation (Edema, 2023).

At the Federal University of Education, Zaria, anecdotally and informally, many Educational Psychology students appear unable to navigate digital platforms or access online academic resources without assistance. These experiences echo broader findings within Nigerian tertiary institutions, where limited digital literacy, unfamiliarity with electronic content, and inadequate ICT skills impede technology adoption (Chigbundu & Oluwabiyi, 2023). Therefore, despite the presence of ICT infrastructure, students' perceived ease of use, perceived usefulness, and digital literacy remain low, inhibiting meaningful engagement with electronic information resources. Therefore, this study addresses these issues by investigating the factors that influence ICT adoption among Educational Psychology students—specifically examining the extent to which students' perceptions of usability and utility, coupled with their digital skillsets, impact their capacity to use emerging technologies for academic success.

Objective of Study

The main objective of the study was to examine the digital literacy and emerging technology adoption among educational psychology students in federal university of education Zaria. Specifically, the study sought to:

1. Examine the influence of perceived ease of using electronic information resources on undergraduate students' technology adoption in the Federal University of Education, Zaria.
2. Determine the influence of perceived usefulness of using electronic information resources on undergraduate students' technology adoption in the Federal University of Education, Zaria.
3. Ascertain the influence of perceived digital innovations in the use of electronic information resources on undergraduate students' technology adoption in the Federal University of Education, Zaria.

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4. Examine the influence of perceived social norms on the use of electronic information resources and their effect on undergraduate students' technology adoption in the Federal University of Education, Zaria.

Research Hypotheses

The hypotheses of the study reflect each objective as stated below:

1. There is a positive and significant influence of perceived ease of using electronic information resources on undergraduate students' technology adoption in the Federal University of Education, Zaria.
2. There is a positive and significant influence of perceived usefulness of using electronic information resources on undergraduate students' technology adoption in the Federal University of Education, Zaria.
3. There is a positive and significant influence of perceived digital innovations in the use of electronic information resources on undergraduate students' technology adoption in the Federal University of Education, Zaria.
4. There is a positive and significant influence of perceived social norms regarding the use of electronic information resources on undergraduate students' technology adoption in the Federal University of Education, Zaria.

LITERATURE REVIEW

Theoretical Framework

The theoretical foundation of this study integrates three established frameworks to comprehensively investigate technology adoption among Educational Psychology students at the Federal University of Education, Zaria. The first is the Technology Acceptance Model (Davis, 1989) asserts that perceived usefulness and perceived ease of use are primary predictors of technology adoption; recent findings confirm that higher digital

literacy significantly enhances students' perceptions of AI's ease of use and usefulness, thereby increasing their intention to adopt such technologies (Böreki & Çelik, 2024). The JISC Digital Literacy Framework outlines core competencies—including information and data literacy, communication, collaboration, digital content creation, safety, and problem solving—as essential for effective participation in a digital society (JISC, 2019).

Finally, Rogers' Diffusion of Innovation Theory (2003) describes how individuals adopt innovations at different stages—innovators, early adopters, early majority, late majority, and laggards—providing a valuable lens through which to examine varying student adoption patterns of emerging technologies. By integrating these models, the study captures both the cognitive determinants of technology use (TAM), the practical skill sets required (JISC, 2025), and the social-temporal dimensions of adoption (Diffusion of Innovation), thereby aligning directly with the objectives of exploring perceived ease, usefulness, digital competence, and adoption rates among students in the target institution.

The Concept of ICT

Information and communication technology is perceived differently by various educators and researchers, leading to diverse interpretations and definitions. Yusuf (2007) defines information and communication technology as the use of electronic technology to access, process, gather, manipulate, present, and disseminate information. He further asserts that when effectively integrated into education, these technologies can strengthen fundamental skills such as reading, writing, arithmetic, and scientific inquiry, while also promoting students' motivation, autonomy, and responsibility for learning.

Moreover, Nwakundo, Oguejiofor, and Nwankwo (2006) view information and communication technology as a collection of electronic tools and devices—including both hardware and software—used to address the information and communication requirements of institutions, organisations, students, and individuals. These technologies encompass

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computers, networking infrastructure, telecommunication devices, video and multimedia tools, and internet applications, all of which facilitate the conversion of information, sound, and motion into digital formats. Thus, information and communication technology refer to the use of computer systems and telecommunication networks to store, retrieve, disseminate information, and share knowledge across various platforms.

According to DeWestvilla (2008), information and communication technology encompasses the acquisition, analysis, manipulation, storage, and distribution of information, alongside the design and provision of equipment and software to support these functions. Similarly, Eze (2007) describes information and communication technology as a complex electronic network that integrates various hardware and software components through technical protocols. These tools and systems not only support local and global communication but also enhance the flow and acquisition of both public and private knowledge. Therefore, the implementation of information and communication technology in higher education is essential for enhancing teaching and learning processes, equipping students with critical digital competencies, and enabling them to contribute effectively to the nation's socio-economic development.

Hence, the needs, aspirations, and cultural heritage of a society significantly shape the type of knowledge and skills individuals are expected to acquire (Adebosin, 2004). Consequently, the form of education provided should facilitate skill development, enabling individuals to contribute meaningfully to the socio-economic progress of their communities. In an era marked by rapid global transformation, any nation aspiring to educational advancement must prioritise the integration of information and communication technology within higher education institutions. University students, in particular, should be granted access to the vast repository of online resources and opportunities for digital collaboration, which can significantly

enhance the quality and relevance of tertiary education (Nwfe, 2007).

ICT Facilities

The internet is a global system of interconnected computer networks that use the standard internet protocol suite to serve billions of users worldwide. It is a network of networks that consist of millions of private, public, academic, business and government networks of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies. Mathew and Schrum (2003) stated that the internet provides several opportunities for the academia. The internet carries on extensive range of information resources and services, such as the interlinked hypertext documents of the worldwide web (www) and the infrastructure to support e-mail which is mostly used by students (Robinson, 2005).

The internet has enabled or accelerated new forms of human interactions through instant messaging, internet forums and social networking. Students use the internet for couple of things such as looking up information on events, getting directions or telephone numbers, getting information on products and to shop (Alleyne, 2006). These varieties of ICT facilities depending on one's level of ICT skills which the students are expected to learn for the development of their individual creative and intellectual abilities some of these facilities according to Yusuf (2012) are; computer, the internet, worldwide web (www), uniform resource locator, hypertext links, browsers, search engines, printer and scanners, laptops, online chats, email.

ICT Skills

Information and communication technology skills is seen by Nwagwa (2006) as information and communication technologies use for information storage and retrieval, development partly to be determined by the ability to established a synergy interaction between technological innovation and human value. There is a growing acceptance among academics, education policy makers and employer groups that the development of ICT skills is part of the role of

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higher education. Employees are seeking graduates with a range of knowledge in ICT skills and personal attributes in addition to degree status (B-hert, 2002).

The ICT skills that have become increasingly important in the pursuance of a degree-level education will affect both how students manipulate these e-learning. ICT skills deal with the application of ICT to specific purposes. It is not just about using software packages or using operating systems, neither is it concerned only with keyboarding skills and students' ability to copy-type or follow instruction, rather, ICT skills among undergraduates is about students' ability to use their knowledge about ICT to find, develop and present information whether it is text, image, or number of all of these in an integrated task (Tariq & Cochrane, 2013). Tariq and Cochrane reported that ICTs skills among undergraduates have broken the barriers of time, distance, location, and cost of study. The ability of undergraduate to manipulate ICTs through the skills they have acquired means a lot to institutional management.

ICT skills are related to the user of computers and other technologies such as the ability to transmit stored information through fixed line networks or through wireless phone networks (Affwell, 2005). The ability to use computers effectively has become an essential part of every students' education. These skills constitute a set of computerized practices that form the core ICT skills packages spreadsheet, word processors, database and presentation (Haywood, 2003). In a rapidly changing world, information and communication technology skills are essential for students to be able to access and apply information. ICT skills are needed in this global village for students to function optimally. Consequently, there is continuing concern among universities, government and employers about undergraduates' ICT skills because graduates are the leaders of change and innovation in many walks of life (Israel & Edisiri, 2013).

Tariq and Cochrane (2003) noted that in recent years, employers require graduate employees to be skilled in a range of areas including information and communication

technology and employers look to the higher education institutions to equip their graduates with these requisite skills. Tyler (2005) stated that in the world of higher education, virtually every aspect of scholarship has been influenced by technology. Students are conducting research through the web, drawing from academic journals, newspaper articles and speech transcripts. Affwell (2005) stated that in order to provide both flexible and security in an era characterized by constant change, 21st century students need knowing how to learn skills that enable them to acquire new knowledge and skills, connect new information to existing knowledge, analyzes, develop habits of learning and work with others to use information.

Iwona (2008) noted that in order to utilize the growing range of electronic resources, students must possess and practice the skills necessary to exploit them. These skills include basic knowledge of computer proficiency in using productivity software, electronic communication skills as well as internet skills (Menthouski and Associates, 2000). There is a growing interest by universities to ensure that students possess the appropriate ICT skills required by providing e-learning resources for students to access and use outside of the conventional lecture theatre setting (Taylor et al, 2004).

Loanna (2008) stated that there has been a great attempt by all universities to integrate ICT more and more in their study programmes in order to help undergraduate students to develop their ICT skills. Universities need to be aware of the changing nature of the workplace and the requirement of employers and must play a role in acquiring students with more than a profound knowledge of an academic study a range of explicit attributes which will allow them to subsequently engage effectively in the world work. One of those attributes particularly in this day and age is competency in ICT skills (Candy, 2008).

ICT Skills Possessed by Undergraduate Students in using Electronic Information Resources

Students who lack these skills experience delays and frustration when attempting to complete course-related work which

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requires the ability to locate information is necessary for quality research. According to the American Library Association (1989), to be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate and use the needed information effectively. Studies have indicated the need to improve information technology skills early, particularly during the first year, where undergraduate students' computer proficiencies do not correlate with their research knowledge (Freeman & Lynd-Balta, 2010; Oakleaf & Owen, 2010).

However, it is to note that information literacy is the basis for life-long learning. Julien (2002) observed that it is the ability to make efficient and effective use of information sources, and that an information literate person today should possess specific online searching skills which include the ability to select appropriate search terminologies, construct a logical search strategy and evaluate information appropriately. Thanuskodi (2012) opined that electronic resources are the electronic representation of information. They are available in various forms like e-books, digital libraries, online journals, magazines, e-learning tutors and on-line tests. Because of the effective presentation with multimedia tools, these e-resources have become the source of information, electronic information sources can be seen as the most recent development in information technology and are among the most powerful tools ever invented in human history. Electronic information sources are becoming more and more important for the academic community (Kumar & Kumar, 2008).

In today's information age it would seem that undergraduate students would not only be eager to take advantage of the convenience electronic resources have to offer, but would be fully immersed in the new technologies (Elam, 2007). Electronic information resources offer today's students new opportunities not available for previous generations. Liew, Foo and Chennupati (2004) argue that while reading an e-journal is not the same as reading a printed issue, may people now acknowledge that electronic documents offer users advanced features and

novel forms of functionality beyond those possible in printed form. Furthermore, e-resources enable academic libraries to benefit from shared storage and easier integration to virtual learning environments. While the majority of students are now using e-books, none are yet relying on them as a primary source of information (Dadzie, 2005).

Ukachi (2005) argued that students show an increased reliance on online databases and electronic resources, especially when the products are made available by libraries at no cost. Tellaet *al* (2007) noted that students' ability to find and retrieve information effectively is a transferable skill useful for their future lives as enabling the positive and successful user academic electronic resources. The ability to explore the digital environment is a requirement for academic success today. In order to make use of the growing range of electronic resources, students must acquire and practices the skills necessary to exploit them. Skills learning is essential in a technology driven environment and it can be enhanced through the use of innovative learning strategies (Lawson, 2005).

The access to electronic information resources in academic libraries and among university students is rapidly increasing as a result of the massive adoption of information communication technology. Electronic Information Resources (EIR) play vital roles in helping libraries in their quest to support the teaching due and learning process at university level and to provide quality assistance to its users. As an emerging field, information technology has been facilitated by providing electronic and internet resources for fulfilling the day-to-day academic and research requirements of the university students (Manoj, Kumar, Gauri & Bimal, 2011).

Challenges Faced by Undergraduate Students in Acquiring Information and Communication Technology ICT

In the current era of information and communication technology, there is a growing concern regarding the adoption and utilisation of information and communication technology resources in Nigerian universities. However, several challenges hinder the effective integration

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of information and communication technology in tertiary education. These challenges include inadequate curriculum content, limited student access to digital resources, insufficient funding, a lack of basic infrastructure, a shortage of qualified personnel, and poor policy formulation and implementation.

One major concern, as Gbadamosi (2006) identified, is inadequate funding, which adversely affects areas such as teacher training, provision of technological infrastructure, software development, and electricity supply. The insufficient financial resources are often redirected to other pressing national needs, thereby limiting investments in information and communication technology development. In addition, the absence of qualified personnel to manage and utilise available information and communication technology tools is evident. Obanya (2005) and Ibadin (2008) noted that most institutions suffer from a shortage of well-trained professionals capable of designing and delivering content through electronic means, necessitating intensive training and retraining efforts.

The lack of essential facilities—such as computer rooms, electricity, and power-generating systems—also hampers the effective use of information and communication technology. The National Policy on Education (2004) advocates the provision of necessary infrastructure for promoting information and communication technology at all educational levels, yet implementation remains poor. Akudolu (2007) broadened the concept of information and communication technology beyond computer basics, including tools such as interactive compact discs, satellite systems, and optical fibre technologies. Similarly, Osakwe (2006) stressed the need for computer literacy, which could be attained through various levels of education, including certificates, diplomas, and degrees. Tanner (2007) highlighted additional obstacles such as the limited availability of computers, insufficient training time for educators, and lack of classroom time for students to engage with information and communication technology resources. Oshodin and Idehen (2007) echoed concerns over resource costs, weak

infrastructure, inadequate skills, lack of software, and limited internet access.

The importance of exposing students and educators to information and communication technology cannot be overemphasised, especially in enhancing teaching, learning, research, and development. Nwufe (2007) remarked that the progress of any educational system depends on a functional information and communication technology-driven framework. According to Yusuf (2007), information and communication technology refers to the electronic technology used to access, process, gather, manipulate, present, and disseminate information. When applied effectively, it can improve learning outcomes and promote independent learning. Julien (2002) added that information literacy, which is foundational to lifelong learning, involves the efficient and effective use of information resources. This highlights the necessity of understanding how well students, particularly in Educational Psychology at the Federal University of Education, Zaria, can use electronic information resources and whether they possess the required information and communication technology skills.

Robinson (2005) observed that the internet provides a wide range of information services, including web-based documents and email communication. Thanuskodi (2012) referred to electronic resources as digital representations of information, such as e-books, online journals, and digital libraries. These resources, presented using multimedia tools, have become significant sources of academic information. The New Media Consortium (2007) asserted that information and communication technology has created a new learning environment that demands advanced competencies such as critical thinking and evaluation skills. Elam (2007) also observed that students, when adequately supported, tend to immerse themselves in technology due to its practicality and accessibility. In the context of the Federal University of Education, Zaria, the effective use of computers, internet facilities, and other digital tools must be prioritised. Hence, this research seeks to evaluate the level of information and communication technology competencies among Educational Psychology undergraduate

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students in using electronic information resources, which is crucial for transforming teaching and learning practices within the institution.

METHODOLOGY

The study employed a cross-sectional survey research design to investigate the digital competencies and technology adoption behaviours of undergraduate students in the use of electronic information resources. This approach was selected to facilitate the collection of both quantitative and qualitative data, providing a comprehensive understanding of students' current practices, skills, and challenges in utilising digital tools. The design enabled close engagement between the researcher and participants, thus offering in-depth insights into the study variables, in line with Egvide and Ekobia (2001), who noted that survey designs are effective in capturing and interpreting people's opinions. Additionally, this design was cost-effective and suitable for the study context. The target population consisted of 861 educational psychology students ranging from 100 to 300-level, excluding 400-level students due to their engagement in project activities, as defined by Neuman (2003) and Mugenda (2003), who emphasised the importance of specifying a clearly bounded population for generalisation.

Data were collected using a structured questionnaire based on a 5-point Likert scale, designed to measure levels of digital literacy, usage of electronic tools, and awareness of emerging technologies. The methodology section was organised under the following subheadings: research design, population of the study, sampling technique, research instrument, data collection procedure, and data analysis procedure. The population for this study is presented in Table 1.

In regards to the sample size and sampling technique, Aina (2007) defined a sample as a selection of a subset from a larger population of interest, particularly when the total population is too large for comprehensive study. Osuala (2005) supported this view by emphasising that it is impractical for researchers to involve all members of a large population due to financial, logistical,

and time constraints, making sampling a necessary procedure. Similarly, Aina (2004) described sampling as a method of selecting an unbiased and representative portion of a population for research purposes. In line with these perspectives, this study employed simple random sampling to ensure that each student from the 100, 200, and 300 levels of Educational Psychology had an equal chance of being selected. A total of 86 respondents were chosen, representing 10 percent of the entire population, which aligns with Nwena's (1981) guideline that when a population is in the hundreds, a sample size of 10 to 20 percent is appropriate. This approach ensured both fairness and representativeness in the selection process. The sample of the study is presented in Table 1.

The primary instrument used for data collection in this study was a self-structured questionnaire designed to gather the views of respondents on issues directly related to the research objectives. According to Aina (2004), a questionnaire is a valuable tool for eliciting the opinions of individuals within a sample or population. The instrument comprised a structured 30-item questionnaire formatted using a five-point Likert scale: Strongly Agree (5 points), Agree (4 points), Disagree (3 points), Strongly Disagree (2 points), and Undecided (1 point). To ensure fair representation across academic levels, a stratified random sampling technique was employed to select the 86 undergraduate Educational Psychology students from the 100, 200, and 300 levels. The questionnaires were administered both physically and electronically (via Google Forms). In accordance with ethical research standards, informed consent was obtained, and participants' confidentiality and anonymity were strictly maintained. The physical administration of the questionnaires was conducted with the assistance of a trained research assistant, allowing for on-the-spot clarification of ambiguities and ensuring prompt collection to reduce the incidence of unreturned instruments.

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Table 1: Population and Sample for the Study

S/N	Level of Study	Number of Students	Sample Size
1.	300 level	363	36
2.	200 level	363	36
3.	100 level	135	14
	Total	861	86

Source: Department of Educational Psychology Examination Office (2025)

RESULTS

Demographic Characteristics of Respondents

The analysis of the demographic characteristics of the respondents, as presented in Table 2, reveals several key insights. All the participants in the study were undergraduate students of Educational Psychology, representing 100 percent of the sample (n = 86). With regard to gender distribution, a larger proportion of the respondents were female (n = 56; 65 percent), while males accounted for a smaller share (n = 30; 35 percent). The age distribution indicates that the majority of the students were between 18 and 25 years old (n = 52; 60 percent), followed by those aged 26 to 35 years (n = 26; 30 percent), and a minority above 35 years (n = 8; 10 percent).

Concerning the respondents' levels of digital literacy, the data show that nearly half of the participants (n = 59; 49.2%) demonstrated a moderate level of digital literacy. Meanwhile, 28.3% (n = 34) exhibited a high level of digital literacy, and 22.5% (n = 27) were assessed to have low digital literacy. These results suggest that although a significant proportion of students possess moderate proficiency in digital technologies, a considerable number still experience limitations in digital literacy skills. These findings imply that while digital literacy is developing among undergraduate students, targeted interventions are still necessary to support those with lower proficiency in order to enhance equitable access and effective utilisation of digital learning resources.

Table 2: Demographic Characteristics of Respondents

Items	Frequency	Percentage
Student Profile: undergraduate level	86	100
Gender:		
Female	56	65%
Male	30	35%
Age Range:		
18–25	52	60%
26–35	26	30%
Above 35	8	10%
Level of Digital Literacy		
High	34	28.3%
Moderate	59	49.2%
Low	27	22.5%

Descriptive Statistics

The data in Table 3 present the descriptive statistics on the variables examined in the study, based on responses from 86 undergraduate Educational Psychology students. The results show that students generally agreed

with all measured constructs, as indicated by mean scores above 4.00 on a 5-point Likert scale. For the construct of perceived usefulness, two items were recorded with high agreement, having mean scores of 4.22 (standard deviation = 0.858) and 4.41 (standard deviation = 0.692),

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respectively. This reflects a strong belief among students in the relevance and benefit of using electronic information resources for academic purposes. Perceived digital innovations also received high agreement, with a mean score of 4.44 and a standard deviation of 0.695, indicating that students recognise the value of digital innovation in enhancing learning efficiency and engagement.

Similarly, the mean score for perceived social norms was 4.32 (standard deviation = 0.778), indicating that students are positively

influenced by peers, academic culture, or institutional expectations in their use of electronic resources. Finally, the highest mean score was recorded for undergraduate students' technology adoption, at 4.67 (standard deviation = 0.472), reflecting a very high level of acceptance and actual use of technology among the participants. These findings shows that students hold strong perceptions toward digital tools and innovations, which significantly support their high level of technology adoption for academic engagement.

Table 3: Descriptive Statistics

Constructs	Mean	Std. Deviation	N	Remark
Perceived usefulness	4.22	.858	86	Agreed
Perceived ease of use	4.41	.692	86	Agreed
Perceived digital innovations	4.44	.695	86	Agreed
Perceived social norms	4.32	.778	86	Agreed
Undergraduate students' technology adoption	4.67	.472	86	Agreed

Hypotheses Testing

Hypothesis One

There is a positive and significant influence of perceived ease of use on undergraduate students' technology adoption in the Federal University of Education, Zaria.

Table 4 presents the results of the regression analysis conducted to examine the direct influence of perceived ease of use on undergraduate students' technology adoption in the context of Educational Psychology. The regression analysis revealed that perceived usefulness has a standardised beta coefficient (β) of 0.66, a t-value of 7.58, and a p-value of 0.001. These values indicate a statistically significant and positive relationship between perceived usefulness and students' adoption of technology. This finding implies that students who consider electronic information resources to be useful are more inclined to adopt them for their academic tasks.

Hypothesis Two

There is a positive and significant influence of perceived usefulness on undergraduate students'

technology adoption in the Federal University of Education, Zaria.

Table 4 presents the results of the regression analysis conducted to examine the direct influence of perceived usefulness on undergraduate students' technology adoption in the context of Educational Psychology. The second regression model also examined perceived usefulness, yielding a beta coefficient (β) of 0.49, a t-value of 5.32, and a p-value of 0.002. This result further confirms the influence of perceived usefulness, showing that it remains a robust and significant predictor of technology adoption. This suggests that students who consistently view technological tools as helpful are more likely to utilise them in their educational activities.

Hypothesis Three

There is a positive and significant influence of perceived digital innovations in the use of electronic information resources on undergraduate students' technology adoption in the Federal University of Education, Zaria.

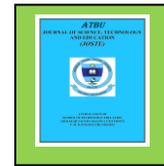
Table 4 presents the results of the regression analysis conducted to examine the

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direct influence of perceived digital innovations on undergraduate students' technology adoption in the context of Educational Psychology. The findings show that perceived digital innovations have a beta coefficient (β) of 0.54, a t-value of 6.95, and a p-value of 0.002. This statistically significant result suggests that the perception of innovation in digital tools positively affects students' willingness to adopt such technologies. It implies that the more students perceive digital platforms as innovative and educationally relevant, the more they are likely to engage with them.

Hypothesis Four

There is a positive and significant influence of perceived social norms regarding the use of electronic information resources on

undergraduate students' technology adoption in the Federal University of Education, Zaria.

Table 4 presents the results of the regression analysis conducted to examine the direct influence of perceived social norms on undergraduate students' technology adoption in the context of Educational Psychology. The regression output for this hypothesis demonstrated the highest influence, with a beta coefficient (β) of 0.78, a t-value of 8.78, and a p-value of 0.000. These figures reveal a strong, statistically significant positive effect of perceived social norms on technology adoption. This finding indicates that when students feel social encouragement or pressure from peers and the academic environment, they are more likely to embrace technological tools for learning.

Table 4: Direct Path Influence Regression

Influence Path	B	T values	P values	Remark
Perceived usefulness on undergraduate students' technology adoption	.66	7.58	.001	Supported
Perceived usefulness on undergraduate students' technology adoption	.49	5.32	.002	Supported
Perceived digital innovations on undergraduate students' technology adoption	.54	6.95	.002	Supported
Perceived social norms on undergraduate students' technology adoption	.78	8.78	.000	Supported

Major Findings of the Study

1. The study found that perceived ease of using electronic information resources had a statistically significant and positive influence on undergraduate students' technology adoption in the Federal University of Education, Zaria.
2. The results indicated that perceived usefulness of electronic information resources significantly influenced undergraduate students' technology adoption in the Federal University of Education, Zaria.
3. The findings showed that perceived digital innovations in the use of electronic information resources had a significant and positive effect on undergraduate

students' technology adoption in the Federal University of Education, Zaria.

4. The study revealed that perceived social norms significantly influenced the use of electronic information resources and positively affected undergraduate students' technology adoption in the Federal University of Education, Zaria.

DISCUSSION OF FINDINGS

The first major finding of this study revealed that perceived ease of using electronic information resources had a statistically significant and positive effect on undergraduate students' adoption of technology. This suggests that when students find it easy to access, navigate, and utilise digital resources, they are more inclined to embrace and integrate them into their academic

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activities. This aligns with the position of Davis (1989), who emphasised that ease of use is a critical factor influencing user acceptance of technology. Similarly, Chigbundu and Oluwabiyi (2023) noted that when students encounter minimal difficulties in the use of digital platforms, their adoption rate significantly increases. According to Uhegbu (2009), ease of use also contributes to reduced resistance to technological innovation, thereby improving user engagement and learning outcomes in higher education.

The second finding indicated that perceived usefulness of electronic information resources had a significant influence on students' adoption of technology. This means that students are more likely to use digital tools when they perceive them as beneficial to their academic tasks such as assignments, research, and communication with lecturers. Davis (1989) also underscored the importance of perceived usefulness in determining technology acceptance. This is supported by Agina Obu and Okwu (2023), who found that the perceived academic value of digital resources increased students' frequency of use. In the same vein, Osuala (2005) argued that perceived usefulness enhances the motivation to integrate new methods in educational settings, especially when students observe tangible academic benefits.

The third major finding showed that perceived digital innovations in the use of electronic information resources significantly and positively affected technology adoption among undergraduates. This implies that the introduction of innovative digital tools and platforms plays a significant role in encouraging students to engage with educational technologies. According to Börekci and Çelik (2024), digital innovations such as artificial intelligence-powered tools, personalised learning environments, and interactive platforms significantly shape students' willingness to adopt technology. Similarly, Yusuf (2005) affirmed that continuous innovation in the digital environment serves as a motivating factor for the integration of information and communication technologies in higher education. Furthermore, Dadzie (2005) highlighted that innovation not only improves the quality of access

to resources but also enhances students' academic performance.

The fourth finding revealed that perceived social norms had a significant influence on the use of electronic information resources and technology adoption among students. This suggests that peer influence, academic culture, and institutional expectations contribute to how students perceive and use digital tools. Rogers (2003) noted that social influence is a powerful force in the diffusion of innovations, especially among youth. In support of this, Alleyne (2006) found that university students are more likely to adopt new technologies when their peers or academic staff encourage such behaviour. According to Neuman (2003), behavioural intentions are often shaped by the social environment, which means that students conform to the norms established by their learning communities. Consequently, institutions must promote supportive digital cultures that encourage the use of electronic resources across academic and social platforms.

CONCLUSIONS

In conclusion, the study established that perceived ease of use, perceived usefulness, perceived digital innovations, and perceived social norms all significantly influenced the adoption of electronic information resources among undergraduate students. These findings revealed the importance of designing user-friendly digital platforms, demonstrating the academic benefits of digital tools, promoting innovative technologies, and promoting positive social and institutional attitudes towards technology use. By addressing these factors, higher education institutions can enhance students' digital engagement and promote effective integration of electronic resources into academic activities, thereby improving learning outcomes and digital literacy.

RECOMMENDATIONS

1. It is recommended that universities should provide regular training and user support to ensure undergraduate students can confidently navigate and utilise electronic information resources.

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2. Academic staff of the university should consistently integrate digital tools into coursework to demonstrate their relevance and practical benefits in achieving academic success.
3. Universities should invest in up-to-date and innovative technologies that align with students' learning needs and global digital trends.
4. Public universities should encourage peer-to-peer learning and promote institutional policies that support a culture of technology acceptance and use.

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