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TECHNOLOGICAL ADOPTION AND SOCIAL MEDIA USAGE AMONG UNDERGRADUATE STUDENTS IN PUBLIC UNIVERSITIES IN RIVERS STATE

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ABSTRACT

The study examines technological adoption and social media usage among undergraduate students in public universities in Rivers State. The study was guided by two research questions and two null hypotheses. A correlational design was adopted for the study. The study population comprises of all students in public universities in Rivers state. The study sample was made up of two public Universities namely; Rivers State University and University of Port Harcourt, while the sample consisted of Three hundred and Sixty Five (365) respondents drawn from four departments in the two universities. The sample respondents were randomly selected from the departments. The instrument used for data collection was a questionnaire titled; Technology Adoption and social Media Usage (TASMU). The instrument was validated by experts from department of guidance and counselling, Ignatius Ajuru University of Education. The reliability index of 0.81 was obtained using test retest method. The data collected were analysed using mean and standard deviation for the research questions while Pearson product moment correlation coefficient were used to test the null hypothesis at 0.05 significant level. Major findings of the study shows that whatsapp and facebook significantly related with cloud computer usage among under graduate students, it was however recommended that public universities in Rivers State should establish world class internet facilities in their institutions.

INTRODUCTION

In today's digital economy, success in businesses is attributed to the effective use of information and communications technology (ICT). Higher Education Institutions (HEIs) are not exempted from these rapidly changing technological advancements and hence, cannot afford to lag behind these developments as these can provide valuable insights to the academic community. For instance, students of today have become technologically savvy and pro-active users of ICTs. They are seen as 'active producers of knowledge' as they become responsible for their learning (McLoughlin & Lee, 2008). Thus, HEIs, especially educators, need to plan to address uncertainties by discovering/adapting new ways and processes to enhance student learning, performance, and satisfaction through the use of ICT.

The image of the future that Teilhard De Chardin (1955), a French philosopher, envisaged, which he called 'Future Earth', included the overwhelming importance of ICTs in transforming communities. De Chardin described the Future Earth as a 'noosphere' (Greek word 'nous' = mind and 'sphaira' = sphere), which encompasses interrelated technologies and consciousness (Peters &

Heraud, 2015). He envisioned the role of technology in engendering a global consciousness, manifested for example, in social media in today's businesses. The Internet and social media also facilitate social production (Peters & Reveley, 2015), transform users as consumers and/or producers, and bridge the real and virtual worlds (Levinson, 2011). Together, these arguments strengthen the significance of social media in today's contemporary world.

Social media is considered as one of the game-changers in learning and teaching (Healy, 2015). It is defined by Kietzmann etal (2011, p.241) as one that 'employ mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, co-create, discuss, and modify user-generated content.' Generally, it follows the concept of Web 2.0 and consists two key elements: (1) media research (social presence, media richness) and (2) social processes (self-presentation, self-disclosure) (Kaplan & Haenlein, 2010). Examples of social media are blogs (e.g. WordPress), content communities (e.g. YouTube), social networking sites (e.g. Facebook, Whatsapp), collaborative projects (e.g. Wikipedia), and virtual social worlds (e.g. Second Life) (Balakrishnan & Gan, 2016; Kaplan & Haenlein, 2010).

The overwhelming popularity of social media has led to a proliferation of studies that examined its role in higher education. These include analysis of social media usage for learning in relation to students' learning styles (Balakrishnan & Gan, 2016); relationship between personal, teaching, and professional purposes of use of social media by higher education scholars (Manca & Ranieri, 2016); learner-generated content and its effects on learning outcomes and satisfaction (Orús et al., 2016); impact of online social networks on academic performance (Paul etal 2012); and success factors of social networking sites (Schlenkrich & Sewry, 2012). In his essay 'Social Media in Higher Education,' Selwyn, (2012) discussed the educational implications of social media in terms of new types of learners, learning, and higher education provision. He argued that although there are debates on the actual use of social media for learning and knowledge generation, educators are challenged continually to find ways on how to effectively utilize social media in higher education settings.

Findings of previous studies (Balakrishnan & Gan, 2016; Schlenkrich & Sewry, 2012; Sobaih, etal 2016) revealed that social media has a great potential for improving learning experience through active interaction and collaboration. The central focus of this study, therefore, is to find out the relationship between technology adoption and social media usage among university students in Rivers State, Nigeria.

STATEMENT OF THE PROBLEM

The internet is today the most important source of information and the growing dimensions of the use of social media by students cannot be underestimated. It has been observed that students devote more attention and time to social media than they do for their studies and they cannot pass their examinations well if they do not learn (Osharive, 2015). Also, the study conducted by Maya (2015), revealed that media use contribute to lower academic performance, low self-perceptions

and less interest in college oriented carriers. Academic excellence plays an important role in an individual's life; be it in the family, at social gatherings, at workplace, in an institution or even among peers. Much emphasis is placed on academic excellence because of the role it plays in an individual's life as far as a successful life and respect is concerned in every part of the world. Due to this, many people are concerned with the ways that they can improve their academic performance (Kyoshaba, 2009). Studies have also revealed that social media affects students' use of English. They tend to use short- handwriting to chat with friends and get used to it thereby replicating the same errors during examinations (Obi, etal 2012).

Today students at all levels especially tertiary level have been engaged in the use of social networking sites (SNSs). This research therefore seeks to investigate the relationship between technology adoption and social media usage among university undergraduate students in Rivers State, Nigeria.

PURPOSE OF STUDY

The main aim of this study was to find out the relationship between technology adoption and social media usage among undergraduate students in public universities in Rivers State. Specifically, the study sought to find out the following:

1. To determine the relationship between cloud computing and whatsapp usage among university undergraduates in Rivers State.
2. To ascertain the relationship between cloud computing and facebook usage among university undergraduates in Rivers State.

Research Questions

The following research questions guided the study:

1. What is the relationship between cloud computing and whatsapp usage among university undergraduates in Rivers State?
2. What is the relationship between cloud computing and facebook usage among university undergraduates in Rivers State?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance in the study

1. There is no significant relationship between cloud computing and whatsapp usage among university undergraduates in Rivers State.
2. There is no significant relationship between cloud computing and facebook usage among university undergraduates in Rivers State.

LITERATURE REVIEW

The concept of social media

Social media continuously keeps changing and as such it is difficult to assign a fixed definition to it as Jacka and Scott (2011), argued that ‘’there is no single recognized definition for social media’’. However, some scholars have defined it in different perspectives over the past years. Kaplan and Haenlein (2010), defined social media as a group of internet- based applications that build on the ideological and technological foundations of Web 2.0 and allow the creation and exchange of user-generated content. The Oxford dictionary (2011), also defined social media as “websites and applications used for social networking”. Another definition of social media is that it is a ‘’communication channel which is very popular, extremely fast and broad, has proven to be highly effective, as well as trusted by billions of people, to share and discover content concerning individuals, brands, information, entertainment and knowhow’’ (Dearborn, 2014). One theme that all these definitions underpin is that social media involves some form of communication between individuals over the internet.

Social media began in the late 1990s with the first recognized social media network called “SixDegrees “in 1997 and this technology enabled people to upload a profile and make friends. From 1997 to 2001 a number of community tools; Asian Avenue, blackplanet and MiGente began supporting various combination of profile and publicly articulated friend (Boyd etal 2007). There has been tremendous improvement since this era and today there exist uncountable social networking sites either developed for local use, specific purpose or international use. Kaplan and Haenlein (2010), classified social media into six (6) different categories as follows;

1. Collaborative project (wikipedia)

2. Blogs and micro blogs (twitter)

3. Content communities (youtube)

4. Social networking sites (FB, 2go, BB chat)

5. Virtual game World (world of war craft)

6. Virtual second world (second life)

This classification of social media into classes has been useful to scholars and individuals for easy identification and study of a particular social media type but today a difficulty may arise due to the high proliferation of social media and one may wonder which group a new developed social media type fits into. Social media is considered to be the fastest growing web application in the 21 century and this rapid development is being backed by technological advancement (Heyam, 2014). Mankind has enormously benefited and continues to benefit from it and as such cannot underestimate its importance as far as communication is concerned. Today, social media has taken a new dimension and has encouraged more participation through the introduction of mobile phones that support social networks applications. The use of mobile phones that are powered by Android

applications to social network is termed as Mobile social networking. According to Humphreys (2007), in his study titled "Mobile Social Networks and Social Practices" social network applications have now been migrated from the computer to the mobile phone, network information and communication can be integrated into the public space; and these new services that are developed for mobile phones allow users to create, develop, and strengthen their social ties.

Interactivity with Peers and Lecturers

Interactions and communication reinforce active participation, a necessary component in students' learning (Hrastinski, 2009). According to Liu, (2003), using social media helps facilitate peer interaction and lecturers, as well as increasing knowledge-sharing capabilities. Engaging learning is an instructional approach that involve social networking and web—based learning among students, and it includes a variety of learning styles (Liu, 2003). Those students who register in online courses were found to spend increasing time utilizing online materials as well as social media to support their learning materials in comparison to their peers in face-to-face courses (Abrahim et al., 2019; Liu et al., 2011). Peer collaboration with the help of social media offers opportunities for community development among students (Top, 2012).

Faculty Use of Social Media as Educational Technologies.

Despite the apparent benefits of using social media in the classroom, it appears that faculty members have yet to widely embrace these tools. For instance, in a study by Smith, etal (2009) which investigated the college student use of technology and social media for coursework, 27% used social networking sites, 11.3% used Internet-enabled handheld devices, 6% used video-creation software, and less than 6% reported listening to podcasts. The CDW-G 2009 21st Century Campus Report (2009) concluded that only 5% of faculty used Facebook, 4% used instant messaging, and 1% used Twitter for connecting with students. The report concluded that there is a social media gap between college students and faculty. Gosper et al. (2008) examined the impact of web-based technologies on learning and teaching. They found a gap between student and faculty views of learning outcomes related to web-based technologies. The study revealed that 67% of student participants felt that web-based technologies helped them learn. However, only 30% of faculty participants felt that web-based technologies aided student learning.

Is the situation different among marketing educators? Within the marketing discipline, there are researchers who have implemented social media tools in their teaching and shared these experiences. Kaplan etal (2010) explained their use of blogging as an outlet for student writing in the form of original posts and comments and for building reading comprehension skills. Cronin (2009) and Workman (2008) both utilized wikis in marketing courses as a tool for organizing project-based learning. Munoz and Towner (2009) explored the use of Facebook as an online hub for class discussions. Virtual worlds have been used to host live classes (see Wood, Allan, & Solomon 2008) and serve as a context for project-based learning (Tuten 2009). In addition, marketing educators have used social software tools for creating and sharing multi-media files,

collaborative research and note-taking, and project management (Tuten etal 2010). Lowe and Laffey (2011) and Rinaldo, Tapp, and Laverie (2011) used Twitter as a communication and engagement channel, disseminating current events related to course topics and other commentary to students outside the classroom. Payne etal (2011) required students to create and promote a spoof video on YouTube as part of an experiential learning exercise. Thus, social tools have been used successfully as communication channels, virtual meeting spaces, collaborative tools, production aids, and student engagement activities. Granitz and Koernig (2011) emphasized the need to consider Web 2.0 educational technologies as tools for enhancing experiential learning and explained how the tools could be applied to specific marketing exercises.

Technology and Social Media Usage in Higher Education: The Influence of Individual Innovativeness

Technology Usage in Higher Education

It could prove difficult to delineate the borders of the technologies in use at contemporary universities. The wide spectrum of such technologies includes learning management systems, blogging tools, discussion forums, bookmarking sites, wikis, social networking sites (SNSs), devices, cloud computing services, augmented reality, virtual reality, and robot technology, to name but a few. In the present study, social media, technological devices, and cloud computing services were included as representative of these recently developed technologies.

Social Media

Broadly speaking, social media sites represent a recent innovation intended to foster communication and collaboration on a large scale. Since their invention, such sites have diffused so rapidly that the number of users is growing daily, and they have become an integral part of people's personal and professional lives (Chugh & Ruhi, 2018). Social media can be defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content" (Kaplan & Haenlein, 2010). The term "social media" refers to a set of tools that includes blogging services, discussion forums, bookmarking services, and wikis. Thus, the overarching concept of social media implicitly includes SNSs, which are defined by Chugh and Ruhi (2018) as "an online service allowing users to construct a public or private profile to connect and interact with their social connections." In the interests of both clarity and consistency, the term "social media" will hereafter be used to exclusively refer to SNSs.

Numerous studies have reported on the positive impacts of integrating social media sites into the technological resources of HEIs. Many such studies have targeted students (Al-Rahmi et al., 2015; Dumpit & Fernandez, 2017; Dyson et al., 2015; Hamid et al., 2015; Hung & Yuen, 2010; Uusiautti & Määttä, 2014; Valenzuela et al., 2009), while others have targeted staff members as employees (Al-Daihani et al., 2018; Arshad & Akram, 2018; Dermentzi et al., 2016; Donelan, 2016; Gruzd

et al., 2012; Gu & Widén-Wulff, 2011; Manca & Ranieri, 2016a, 2016b; Moran et al., 2011; Nández & Borrego, 2013; Veletsianos, 2012; Veletsianos & Kimmons, 2013). There may be a certain degree of consensus among staff members as to the perceived benefits of using social media. These benefits include establishing new, maintaining existing, and widening connections (Donelan, 2016; Manca & Ranieri, 2017a). In addition, staff members have acknowledged the value of social media in terms of facilitating collaboration and communication (Rowlands et al., 2011), developing oneself (Donelan, 2016; Manca & Ranieri, 2017a), and increasing visibility through the dissemination of one's work (Manca & Ranieri, 2017a). Surprisingly, some studies have shown that staff members believe social media to be less beneficial when it comes to teaching purposes than in relation to personal and professional purposes (Manca & Ranieri, 2016b).

Studies involving staff members have distinguished between academics and other staff (Moran et al., 2011). Working as an academic at a HEI implicitly involves being a researcher in addition to being an employee of an institution. Tracking technology adoption has resulted in the coining of the term "Research 2.0," which is along the lines of Web 2.0 technologies (Koltay et al., 2015). Conducting research is no longer a solo activity performed with limited access to resources; it is now more likely to involve navigating across a complex and professional network. The benefits of utilizing social networking when carrying out research are quite clear. Consistent results across studies have revealed that social media sites provide a convenient environment for scholarly communication and research dissemination (Al-Daihani et al., 2018; Gu & Widén-Wulff, 2011; Manca & Ranieri, 2017a). For example, publishing research results on Twitter was found to be of significant value in terms of obtaining instant and rigorous informal peer review (Gruzd et al., 2011), having one's research more quickly cited (Priem & Costello, 2010) and establishing a professional personae (Veletsianos, 2012). Mendeley, as a reference management system and academic social network (Gunn, 2013), has helped scholars to explore the metrics and impact of their research. LinkedIn offers the option to build a professional profile, and it has been frequently reported to be used during job searches. Both ResearchGate and Academia.edu were reported to make sharing teaching material with students easier (Manca & Ranieri, 2016a). A study by Gruzd et al. (2012) showed that scholars found social media sites to be useful for keeping themselves up to date in their field, promoting their work online, and maintaining their professional image. For junior researchers, in particular, social media sites may prove to be of great importance with regard to situating them within the scientific community (Gruzd et al., 2012).

Still, there are some barriers hindering the adoption of social media in HEIs. Staff members, for instance, have reported privacy concerns when using social media, such as the blurring of boundaries and endangering one's career (Gruzd et al., 2012). Others reported concerns pertain to copyright issues such as plagiarism and the commercialization of content (Lupton, 2014). Moreover, staff members have cast doubt on the credibility and quality of the material posted on social media (S. Manca & Ranieri, 2017a). Other academics have perceived that social media usage might shift their attention from knowledge creation to knowledge production. For instance, the sample of academics included in the study by Menzies and Newson (2007) believed that being

connected to social media on a 24/7 basis would limit their ability to think deeply about their work and, therefore, decrease their creativity. In addition, researchers who are convinced of the benefits of social media usage have complained that they lack sufficient time to do so (Rowlands et al., 2011).

Cloud Computing Services

A recent report focusing on technology adoption within HEIs highlighted cloud computing services as one of the most influential technologies, with the majority of institutions being found to have started to learn about the possibility of moving some of their on-premises services to the cloud (Reinitz, 2017). The National Institute of Standards and Technology (NIST) defines cloud computing as a recent paradigm for providing real-time and on-demand computing resources, such as networks, servers, storage, applications, and services (Mell & Grance, 2011). Many providers are competing to deliver cloud services, and the IT staff of HEIs have the responsibility for matching their institutions' needs to the affordances of the available technologies.

Cloud computing technology can offer immense benefits to HEIs (Alharthi et al., 2015; Behrend et al., 2011; Klug & Bai, 2015; Pardeshi, 2014; Sultan, 2010). Economically, cloud computing is based on a pay-as-you-go cost structure and, therefore, represents a lower-cost option for acquiring and maintaining up-to-date and efficient services. Technically, the most important benefits are manifested in the scalability and flexible deployment of cloud computing. Pedagogically, cloud services have shown positive effects in terms of facilitating teaching and learning, since both teachers and students can access elegant applications and academic materials anytime and anywhere. Cloud services allow them to communicate in a vivid, flexible, easy-to-use and social-media-like environment. Scholarly, cloud services offer a bunch of tools designed to support joint research activities and to facilitate communication among researchers. Due to these advantages, researchers have devoted significant efforts to proposing models for how cloud computing could be adopted in the higher education field (Low et al., 2011; Okai et al., 2014; Sabi et al., 2016). Other studies have discussed the experiences of their universities in relation to adopting cloud services (Klug & Bai, 2015; Sultan, 2010).

However, some HEIs still have concerns about the security and confidentiality of data stored in the cloud (Okai et al., 2014). In addition, universities have exhibited concerns that cloud services could hijack their control over data, while fears have been reported that they might be locked in to using a specific cloud service provider (Alharthi et al., 2015). In the current study, we will not delve into the issue of the institution as a unit of adoption. Rather, the focus is on the individual as a unit of adoption. By that, we mean the individual factors that hinder or foster the adoption of technology. Among those factors are an individual's tendency to accept the newness (Alharthi et al., 2015), social influence (Talukder, 2012), trustworthiness (Shakeabubakor et al., 2015), and perceived ease-of-use and usefulness of the cloud (Bhatiasevi & Naglis, 2016). For instance, Shakeabubakor et al. (2015) conducted in-depth interviews with 30 researchers and postgraduate students, and they found that 71% of the interviewees reported distrusting cloud services.

WhatsApp Usage

Technology is really changing the modern day educational landscape. Internet technology has shifted teaching and learning from its static state to a more dynamic and mobile platform in the sense that information and knowledge available to both teachers and learners are no longer tied to the boundaries of classroom environment but can be acquired anywhere, even on-the-go. Internet has been found to hold vast array of information that are accessible and retrievable just at the click of buttons without any restriction in respect to someone's location. This internet has also led to the emergence of different technology applications such as the social networks through which these information and knowledge can be constructed, shared and communicated among people of related interest and goals. Social network technology according to Davis, Canche, Deil-Amen and Rios-Aguilar (2012) is defined as mobile and web-based applications through which organizations and individuals can create and exchange content using multiple digital communication platforms. Through this technology, personal and organizational profile and different kinds/formats of information can be created and made public in the internet. Few decades ago witnessed the emergence of numerous types of social networking sites among which are Facebook, Togo, Google plus+, Instagram, Whatsapp, etc. Each of these sites has their unique characteristics, however, they share some common features of allowing users within the same site to invite, connect and share contents both in real-time and in time-lag among friends, classmates, relations, peers and colleagues; and are accessible through the web or mobile phones as mobile applications. Many social networks continue to emerge as technology advances. However, the social network that is of interest in this study is Whatsapp. Whatsapp is a mobile application used for instant messaging purposes to replace the normal phone short messages (SMS) because of its capacity to send large volume of messages and media files unlike the SMS. Whatsapp came into existence in the year 2009 and has become the most popular social media applications used by mostly the young people for communication (Fawzi, 2015). Whatsapp is usually installed from Google play store or an apple store into smart, android or window phones. It can also be accessed directly from web using the window PC or laptop. Once Whatsapp application is installed, users can then create their personal whatsapp account which will be visible to other whatsapp users in their phone contact lists upon synchronization. Users can start communication with people in their lists or invite new users to Whatsapp. Whatsapp therefore enable two people to chat and make video or voice call, and groups of people to make group chat using internet/Wi-Fi connection or data charges. The interesting features of Whatsapp are its ability to encrypt messages so as to secure calls and chats from being visible to third parties or non-group members; enable users to add media files when chatting; to indicate when other users are online and the last time he/she visited Whatsapp, and when chat messages are not delivered, delivered and read. Whatsapp has many features that can make it attractive and be of significance in teachers method of teaching, students methods of learning, and the way students and teachers interact, communicate and collaborate within and among themselves and learning contents in the modern day classroom. Whatsapp utilization for education purposes is supported by connectivism and constructivism learning theories.

There are many literatures that highlight the impact of Whatsapp in teaching/learning. For instance, a study conducted in Uyo, Akwa Ibom State by Etim, Idongesit and Ema (2016) on Whatsapp utilization and academic performance of Geography students, revealed a significant influence of WhatsApp module utilization on geography students' academic performance. Also, Mingle and Adams (2015) investigated the participation of Ghana High school students in social media network and their academic performances, and found that social media network participation negatively affected the students' performance. Jairus, etal (2017) examined the use of mobile phone and its influence on Benue State secondary school students academic performance and found that there was a significant relationship with these students' mobile phone usage and their academic performance

Facebook Usage

An online social networking service, Facebook was founded in February 2004 by Mark Zuckerberg and his roommate and fellow at Harvard University. As a social utility, it helps people communicate more efficiently with their friends, family and coworkers. Many organizations work to develop technologies that facilitate the sharing of information through the social graph, the digital mapping of people's real-world social connections. Anyone can sign up for Facebook and interact, in a kind of trusted environment, with people they know. Facebook was reported to have more than 21 million registered members generating 1.6 billion page views each day (Ellison et al., 2007). Facebook members can join networks based on school affiliation, universities, employers, and geographic regions. Facebook can be used for keeping track of old and new friends. It is free to join Facebook, and this requires only that you be over 13 years of age and have a valid email address. In 2006, Facebook was used at over 2,000 United States colleges and was the seventh most popular site on the World Wide Web with respect to total page views (Ellison et al., 2007). Undoubtedly, Facebook helps you connect and share with others.

One study finds out that students spend approximately 30 minutes on Facebook as part of their daily routine (Pempek et al., 2009). Another study points out a significant negative relationship between Facebook use and academic performance (Kirschner & Karpinski, 2010). A third study shows that the majority of students claimed to use Facebook log into their accounts at least once daily. Similar results are also reported in (Boogart, 2006; Rouis et al., 2011; Junco, 2011; Junco & Cotten, 2012). According to a Nielsen Media Research study, conducted in June 2010, almost 25 percent of students' time on the Internet is now spent on social networking. As for the relationship between social media and grades, study released by Ohio State University reveals that college students who utilize Facebook spend less time on studying and have lower grades than students who do not use the popular social networking sites (Kalpidou et al., 2011). It is reported that, on average, Facebook users score lower GPAs than their peer Facebook nonusers. Another study points out that Facebook is currently used by people of different ages, education levels, gender, social status, and cultural backgrounds, but the same study stresses the fact that the vast majority of Facebook users are university students, aged between 18 and 25 (Mazman & Usluel, 2010). Another study, conducted by (Boyd & Ellison, 2008), shows that Facebook could be used as a

supplemental tool in education. According to (Cavus et al., 2021), e-Learning and social networking sites contribute to solving education problems, especially in times of crises, such as during the COVID-19 pandemic. The study of (Mukhtar et al., 2020) shows many positive advantages of e-Learning in terms of ease of access and convenience of use in many scientific fields. During the COVID-19 pandemic, e-Learning offered an opportunity for sustainable development. The educational institutions that used it gained a competitive advantage, through the redefinition of teaching methods and channels of interaction (Sá & Serpa, 2020). The pandemic has contributed to activating the supporting capabilities, increasing the speed of response levels, managing resources and multimedia elements, and learning and practicing knowledge and skills (Chen et al. 2020; Chapman, & Marich, 2020; Liu, & Hung, 2020). The study of Greenhow and Chapman, published in 2020, indicates that social media has a role in promoting education and building societies whose citizens are aware of the importance of the use of both social media and traditional education systems, especially in times of crises, such as the COVID-19 crisis.

Positive effects of Social Media on Students' Academic Life

Students' academic life has moved to a different dimension since the introduction of these social media networks and several studies have affirmed that social media plays an important role on students in higher education including the study conducted by Wheeler etal (2008); Rifkin, etal (2009). In their study, they recognized four (4) major advantages of social media usage by students in higher education which included; enhancing relationship, improving learning motivation, offering personalized course material, and developing collaborative abilities. Indeed, social media has contributed greatly to facilitating learning in the 21st century. It is shown that a greater percentage of students including those at the PhD level commonly use social media to ameliorate their studies (Khan, 2010).

The answers to the causes of flexible studies today across the globe might not be far-fetched from the great contribution that social media platforms are providing when used judiciously. Even though, there have been other school of thought that states that social media is a nuisance to students' academic life such as Kuppuswamy and Shankar (2010), who argued in their study that social networks distracts the attention and concentration of the students toward learning and converts it towards non educational activities such as useless and unnecessary chatting, there have been several studies conducted afterwards whose findings are contrary to this claim. For instance, the study conducted by Jain, (2012), titled "the impact of social networking in promoting education'' revealed that students benefit from chatting with other students, teachers and external sources to acquire knowledge. Also, Yunus and Salehi (2012), argued in the same direction that students gained more vocabulary, improved their writing skills and reduced their spelling mistakes through social media usage.

In fact, as an educational tool, social media enriches learning by giving both students and teachers the opportunity to connect in new and very exciting ways thereby encouraging flexible mode of learning. It is stated that flexible learning expands the choice on what, when and how people learn.

It supports different styles of learning including E-learning which is highly patronized across the globe (Pappas, 2013). Other scholars; O'keeffe and Clake-pearson (2013), in their study also revealed that social media benefits students by connecting them to one another on assignments and class projects. It is further buttressed in the study of Arquero and Esteban, (2013) and Selwyn, (2007) whose conclusions were that social media undoubtedly generate new opportunities to engage students in higher education as they are remarkably effective at connecting people and facilitating the exchange of information. It is clear and indisputable from these studies that social media usage in the educational sector cannot be underestimated since its introduction.

Negative effects of Social Media on Students' Academic Life

Davies and Cranston (2008), enumerated some of the risks associated with social media which included criminal activities such as identity theft and fake contacts which is prevalent today,sexual abuse or harassment and unsuitable advertising. On the same subject O'keeffe and Clakepearson (2013), also mentioned cyberbullying, online harassment, sexting, face book depression, and privacy concerns as some of the challenges associated with social networking. Cyberbullying: cyberbullying is a category of bullying that occurs in the digital realm or medium of electronic text. ''It is any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others'' (Tokunaga, 2010). Cyberbullying is one the serious threat in the social media environment and has called for a number of studies to determine its causes.

The causes of cyberbullying according to Calvete etal (2010), was significantly related with the use of proactive aggression, justification of violence, exposure to violence and less perceived social support of friends. Privacy concerns: this is another concern that everyone involved in social networking is faced with. The rate at which people post or share fake information calls for alarm and it is difficult to ascertain that, what people say and post are truly who they are. Individuals' private information are publicly displayed on some of these social networks and malicious people take advantage and perpetrate all kinds of harassment. It is also argued that the privacy options offered by most social networking sites (SNSs) do not provide users with the flexibility needed to handle conflicts with individuals who have different conceptions of privacy (Preibusch etal 2007).

Aside these effects, other studies conducted by scholars have also proved that social media can be detrimental to students' academic life if caution is not taken in its usage. For instance, the study conducted by Obi etal (2012), titled "The need for safety consciousness among Youths on social Networking Sites" concluded that social media affects students use of English. They use short-handwriting when chatting with friends and unconsciously get used to it thereby replicating same errors during examinations. Even though one may argue that these are minor challenges, it is important to acknowledge the increasing rate at which these errors are replicated in the education sector and if care is not taken future generation may see it as a norm. Indeed, a number of studies including but not limited to the study of Kuppuswamy and Shankar (2010), Osharive (2015), Maya

(2015), among others have revealed unequivocally that social media can be problematic to students' academic life if caution is not taken in its usage.

THEORETICAL REVIEW

The theory upon which this work is anchored is the Technology Acceptance Model theory propounded by Davis in 1993. The primary objective of TAM was to shed light on the processes underpinning the acceptance of technology, in order to predict the behaviour of and provide a theoretical explanation for the successful implementation of technology.

This means that the use of the information system is determined by an evaluation of the trade-off between the perceived usefulness of the system and the perceived difficulty of using it (Davis, 1989). Perceived usefulness was defined as the individual's perception of the extent to which the use of a given technology improves performance. The conceptualisation of this construct stemmed from Bandura's concept of outcome judgement, which refers to an individual's expectation of a positive outcome triggering behaviour (Bandura, 1982). Perceived usefulness was operationalised based on evidence confirming the effect of system performance expectancy on system usage (Robey, 1979). Perceived ease of use was defined as the degree to which a person believes that using a particular system is free of effort (Davis, 1989). This construct derived from the self-efficacy concept, which refers to a situation-specific belief about how well someone can execute actions for the prospective task (Davis, 1989; Bandura, 1982). Also, perceived ease of use shared a similarity with the complexity factor theorised in the innovation diffusion literature as a barrier to innovation adoption. It was defined as the degree to which individuals find the innovation difficult to understand and use (Mahajan, 2010) The theory was adopted for this work because it talks about perceived ease of use and perceived usefulness which is related to this work. Because students can easily adopt to the use of social media platforms when they perceive that it is easy to use and that is also useful in helping them with their academic work.

Understanding the Role of Digital Technologies in Education

Need for digital technologies adoption in education

Digital technologies have emerged as the savior of education in this critical time. This global crisis highlights the need to be internationally integrated into the education system. Digital technologies assist in developing abilities that will require students' professional performance, such as problem-solving, thinking structure creation, and process comprehension. They are also preparing for a more unpredictable and changing future in which technology will play a critical role. Students' acquired qualities and abilities will be essential to their professional success. Educational resources and digital tools help to improve the classroom atmosphere and make the teaching-learning process more compelling. Furthermore, they give each educational institution greater flexibility and customisation of curriculum based on the requirements of each student.

Children might become more engaged in learning if technology is used in the classroom. Because youngsters nowadays are pretty accustomed to the usage of electronic gadgets, incorporating them

into schooling would undoubtedly assist in piquing their interest and enhancing their involvement levels. Integrating technology into education provides students with an engaging learning experience, allowing them to remain more interested in the subject without being distracted. The utilisation of projectors, computers, and other cutting-edge technical gear in the classroom may make studying fascinating and entertaining for students. Student learning can become more dynamic and engaging by establishing tasks in class that incorporate technology resources, oral presentations, and group participation. Participation can extend beyond verbal communication as well.

Using computers and other devices in conjunction with digital tools allows students to play a more proactive role and be at the centre of the process. The instructor becomes a guide in this process and can approve learning efficiency. Using the myriad of digital resources, learners may download the required information or upload their content. The web 2.0 technologies (wikis, podcasts, blogs etc.) facilitate learners to generate content, collaborate with others, assess each other work and move toward co-learning. Digital technologies make it easy to use classroom tactics like gamification or approaches like flipped classrooms that optimise learning. Learning landscapes have evolved as a didactic tool that mixes several techniques and enables distinct itineraries to be presented to each student. Technology makes the instruction more inspiring and meaningful.

Barriers to the Use of Social Media as Educational Technology.

Just as there are several arguments supporting the use of social media technologies for education, faculty may experience barriers to adopting these tools (Armstrong and Franklin 2008). Regardless of discipline, university faculty are faced with many demands on their time, varying degrees of institutional support, and a healthy skepticism as to whether these tools are worth the effort. Social tools exist alongside other digital educational technologies including traditional tools (such as websites, email, and office software) and course/learning tools (such as lecture capture, white boards, virtual classes, and course management systems). In a study reported by Buzzard etal (2011) of instructors and students, a higher percentage of students and instructors found traditional digital tools to be more effective than social tools. Thus, instructors must determine if social tools are worth the investment for the engagement and learning outcomes potentially affected by the tools. In addition, barriers for adopting new educational technologies may include institutional restrictions, lack of money to support needed infrastructure and training, resistance to new tools from senior academics, and the sheer quantity of tools now available (Armstrong and Franklin 2008). McGee and Diaz (2007) depicted faculty as living in a separate reality from students, one in which there is little to no desire or reward for embracing new learning technologies. They pointed out that faculty members must balance risks and benefits when choosing whether to adopt new instructional tools based on the maturity of the technology, how well the technology integrates with other tools in use, and whether their respective institutions are willing and able to provide support. Faculty members may also face cultural and generational barriers to adopting new educational tools. If today's students are "digital natives," then many faculty members can be considered "digital immigrants" born into a pre-digital world (Prensky 2001).

METHODOLOGY

Research Design: The design adopted for the study is a correlational Design.

Population of the Study: The study population compromised of all the undergraduate students in all the public Universities in Rivers State.

Sample and Sampling Techniques: A sample size of 365 respondents consisting of 212 from RSU and 153 from Uniport were used for data collection.

Below is the sample size distribution

Table 3.1: Sample Distribution table

Department	**Population**		**Sample Size**	
	RSU	Uniport	RSU	Uniport
Management Science	255	186	51	36
Educational Management	360	262	72	52
Computer Science	252	152	52	32
Marketing	186	164	37	33
	1053	764	212	153

Source: Dept. of personnel administrators, RSU, Uniport.

To obtain the sample, 20% was used for the population.

INSTRUMENTATION: An instrument titled; Technological Adoption and Social Media Usage Questionnaire (TASMUR) was used for data collection.

Validity and Reliability of the Instrument: The instrument was validated by the experts from the department of Guidance and Counselling, Ignatius Ajuru University of Education while the reliability was determined using test retest method to obtain a reliability coefficient of 0.81.

Data analysis: The data collected from research questions are analysed using mean and standard deviation while those of the null hypothesis were tested using Pearson product coefficient at 0.05 alpha levels.

RESULT

Research Question 1: What is the relationship- between cloud computing and whatsapp usage among university undergraduates in Rivers State.

Table 1.1: Mean and standard deviation scores on the relationship between cloud computing and whatsapp usage

S/N	**Item Statement**	**Mean**	**Std**	**Remarks**
1	Cloud computing offers a bunch of tools which facilitates communication and research activities	310	1.79	Agreed

2	Through cloud computing and whatsapp ideas through information are shared in virtual networks	2.85	1.68	Agreed
3	Cloud computing enables student have access to a variety of academic materials	3.05	1.75	Agreed
4	Effective use of cloud computing and whatsapp enhances efficient interactions and collaborations among students	3.01	1.71	Agreed
	Aggregate mean and Std.	3.02	1.74	

Source: Field Survey, 2023

Table 1.1 reveals that items 1-4 had all the mean scores above the criterion mean of 2.5, indicating that respondents agreed that cloud computing offers a bunch of tools which facilitates communications and research activities, it enable students have access to a casualty of academic materials , through cloud computing and whatsapp ideas and information are shared to virtual networks

Research Question 2: What is the relationship- between cloud computing and facebook usage among university undergraduates in Rivers State.

Table 1.2: Mean and standard deviation scores on the relationship between cloud computing and facebook usage

S/N	**Item Statement**	**Mean**	**Std**	**Remarks**
5	Cloud allows students to communicate in a wide range of social media platforms such as facebook.	3.11	1.79	Agreed
6	During periods of pandemic, facebook can be used in form of e-learning through cloud application	2.86	1.68	Agreed
7	Through Cloud computing and facebook, students gain access to various academic materials	3.08	1.76	Agreed
8	The application of cloud computing and facebook improves learning mobility offering personalised course materials	3.01	1.83	Agreed

Aggregate mean and Std.	3.05	1.74

Table 1.2 reveals that items 5-8 had all the mean scores above the criterion mean of 2.5, showing that respondents agreed that cloud computing allows students to communicate in a wide range of social media platforms such as facebook; Through cloud computing and facebook, students gain access to various academic materials, the applications of cloud computing and facebook improves learning innovations by providing personalised course materials; this shows that cloud computing relates with facebook in enhancing students learning activities.

Hypothesis I: There is no significant relationship between cloud computing and Whatsapp usage among University undergraduate In Rivers State.

Table 1.3: Pearson Correlation on the relationship between cloud computing and Whatsapp usage

		Cloud Computing	Whatsapp Usage
Cloud Computing	Pearson Correlation	1	0.902
	Sig, 2 tailed		0.000
	N	365	365
Whatsapp Usage	Pearson Correlation	0.902	1
	Sig, 2 tailed	0.000	
	N	365	365

Source: Field Survey 2023

Table 1.3 data analysis reveals that the research correlation coefficient value is 0.902, indicating a strong relationship P<. 000; hence, it can be included that, there is a strong relationship between cloud computing and whatsapp usage among universities undergraduates in Rivers State.

Hypothesis 2: There is no significant relationship between cloud computing and facebook usage among undergraduates in Rivers Sate.

Table 1.4 Research Correlation on the relationship between cloud computing and computer usage.

		Cloud Computing	Facebook Usage
Cloud Computing	Reason Correlation	1	0.835
	Sig, 2 tailed		0.000
	N	365	365
Facebook Usage	Reason Correlation	0.835	1
	Sig, 2 tailed	0.000	
	N	365	365

Table 1.4 data analysis shows that the research correlation value is 0.835, Showing a strong relationship P<.000; Hence, it can be concluded that, There is a strong relationship between cloud computing and facebook usage among university undergraduates in Rivers State.

DISCUSSION OF FINDINGS

The result of research question one and hypothesis one indicated that cloud computing relates with whatsapp usage among university undergraduates in Rivers State; this implies that through the use of cloud computing and whatsapp, effective communication and research activities are carried out with ease, and students are exposed to a variety of academic materials. This finding is the agreement with Pardeshi (2014), Sultan (2010) and King of Bai (2015) who stated that cloud computing and Whatsapp have shown positive effects in terms of facilitating teaching and learning, since both teachers and learners can access elegant applications and academic materials anytime anywhere in the world.

The research question two and hypothesis two findings reveals that there is a positive relationship between cloud computing and facebook usage among university undergraduates in Rivers State, meaning that the use of cloud computing and facebook improves learning innovation by offering personalised course material, this finding is attested by Wheeler et al (2008), and Rifkin et al (2009), who stated that social media usage by students develops collaborative abilities among students, it also offers personalised course materials to both teachers and students

CONCLUSION

The study investigated technological adoptions and social media usage among under graduate students in public universities in Rivers State. The researcher draws the following conclusion that the application of technological devices such as cloud computing relates positively with social media platforms such as; Whatsapp and Facebook. The global crises highlight the need to integrate technological devices and social media platforms into our educational system to save it at this critical period. The study encourages that cloud computing and social media platforms offers a wide range of opportunities for students to gain access to academic materials.

RECOMMENDATIONS

The following recommendations were raised based on the findings of the study

1) Public universities in the Rivers State should establish world, class internet facilities in their institutions.
2) There is urgent need to adopt technological devices and social media platforms in teaching and learning to avert global crises that may affect our educational system.
3) All undergraduate student despite course of study should be computer literate
4) Students should be encouraged to purchase laptops for their educational usage.

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