INFLUENCE OF UNDERGRADUATES GENDER ON PERCEIVED USEFULLFNESS, EASE OF USE, INTENTION TO USE PODCAST AND WHATSAPP FOR LEARNING

BY

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Abstract

This study investigates the influence of gender on undergraduates' perceived usefulness, ease of use, intention to use, and reaction towards WhatsApp and podcasts as learning tools. Using a descriptive survey research design, data were collected from 382 university students through a self-reported questionnaire. The findings revealed that there was no significant influence of gender on perceived usefulness, ease of use, intention to use, or reaction towards both WhatsApp and podcasts for learning purposes. All test statistics (Wilks' Lambda, Pillai's Trace, Hotelling's Trace, and Roy's Largest Root) have an F-value of 1.529 and a p-value of 0.193. These results suggest that both male and female students perceive these digital tools, similarly, indicating their potential for widespread integration into instructional practices without gender-based considerations. It is therefore recommended that educational institutions and educators leverage this neutrality to promote the inclusive use of WhatsApp and podcasts for learning. Further research is encouraged to examine other factors, such as technological proficiency and socio-economic background, that may impact the adoption and effectiveness of these technologies.

Keywords: Gender, WhatsApp, podcast, learning tools, perceived usefulness, ease of use, intention to use.

Introduction

In the digital technology world, we cannot do away with the use of digital technologies available to us. It is such that there is no passing moment without using technology in one way or the other. Either in communication, when one wants to talk to a friend, a family member, a course mate, or a working colleague. A smartphone for example can be used to achieve this purpose. In the social interaction process, people also engage in social media interaction using digital technologies available to them (Sen *et al.,* 2022). Social media uses digital tools where users can create and share content between two people, among groups, and within a society in which they find themselves. Social media includes a range of websites and apps like YouTube, Facebook, Twitter, WhatsApp, WeChat. With all these websites and apps people can share all kinds of media like text, pictures, and videos (Akakpo, 2020).

Shankar and Sparks (2023) defined social media 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. Social media in my view is a user-based approach in exchanging media content of interest. As we socially interact with each other and groups by creating and sharing social media content, we also create personal and social networks using Social Network Sites (SNS) (Hai Ming *et al.,* 2022). These are web-based sites or applications that help people to connect for a common interest. Rajawat and Choudhary (2022) defined Social Network Sites as an important category of social media, as web-based services that allow individuals to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system. These web-based Social Network Sites provide interactive platforms where individuals and groups share and discuss issues of interest to them or as a larger group may decide to use a channel of interaction that best suits its needs. In the same way from a constructivist point of view, if sharing of contents and discussion forums can take place through these SNSs platforms then students, teachers, institutions can also use them in effective ways for sharing and building knowledge (Akram, & Kumar, 2017).

WhatsApp can be used in higher education in several ways to achieve different educational goals. For instance, Gachago, Strydom, Hanekom, Simons, and Walters (2015) argued that WhatsApp can be used in higher education to create immediate connections, encourage reflection, and facilitate coordination in

informal and formal learning. Alamer *et al.,* (2023) noted that WhatsApp was a useful electronic tool to facilitate information sharing among university students on a range of subjects related to the courses that they were studying. The author reported that "WhatsApp served as a tool for bridging access to learning resources, rendering peer-based and hierarchical support, leveraging on-task behavior and enhancing meaningful context-free learning".Singh, *et al.,* (2020) noted that WhatsApp can be useful in language assessment. Students can use WhatsApp to record their speech and share their recordings with their teachers and other students. Bensalem, (2018) examined the effect of the use of WhatsApp on English as Foreign Language (EFL)students in written vocabulary tasks in Saudi Arabia. The author found that WhatsApp had a positive effect on students' performances. The students enjoyed using WhatsApp as a learning tool. They perceived the use of WhatsApp as a game rather than a formal class requirement. Suryandari *et al.,* (2023) reported that WhatsApp can be used to facilitate mobile learning. In their study the students used WhatsApp as a communication tool outside the classroom to exchange information about meetings and projects.

Su *et al.,* (2023) noted that the use of WhatsApp to facilitate blended learning had a positive and significant impact on students' learning performance and their attitudes toward blended learning. Gasaymeh, (2017) examined college of education students' experiences of WhatsApp mobile learning and found that the use of WhatsApp increased students' social interactivity with each other and with the instructor, and this facilitated collaborative learning. In addition, the authors found that students had positive attitudes toward the use of WhatsApp in their learning. Asino (2021) noted that WhatsApp could be useful to "create alternative dialogic spaces for student collaborative engagements in informal contexts, which can gainfully transform teaching and learning. Suárez-Lantarón *et al.,* (2021) reported that WhatsApp had been used in different academic disciplines to support students' learning. These academic disciplines included education, mathematics, information systems, and languages. The educational advantages of WhatsApp, students' positive attitudes towards its use, and its popularity suggest that WhatsApp has significant potential for use in higher education. In developing countries, university students have limited access to expensive technologies such as desktops and laptop computers.

The use of WhatsApp in education does not require special infrastructure. University students own the hardware (that is, smartphones) and they can download the software (that is the WhatsApp application) for free. WhatsApp can be used for teaching and learning to bridge the digital divide among students. Some studies examined university students' use of WhatsApp. Güler (2017) examined higher education students' use of WhatsApp. Four hundred and eighteen students

completed a questionnaire. The results showed that most were heavy users of WhatsApp. More than 96% of the participants reported using it for more than three hours a day. Most participants used WhatsApp for chatting while only 7% reported using it for academic work. Also, podcasting is worth examining to determine its usefulness for learning. The core content medium of podcasting is audio, which is not new to education. Audio has been used in distance and face-to-face learning for many years, and its benefits have been well reported (Rosell-Aguilar, 2006).

Butola (2021) revealed that learners as at that time used audio for education for around a century and that they were also able to take advantage of audio recordings. Sari, and Aminatun (2021) stated that students generally enjoyed learning by means of listening to the audio because they felt they learnt well from the sound which had previously been recorded. Podcasting was first introduced in the United States in 2004 and since then, its popularity has grown phenomenally. It was introduced by Adam Curry, an ex-MTV VJ and now commonly known as the "Pod father". Podcasting was initially associated with audio files only, the addition of video capabilities to portable music devices has expanded the common use of the term podcast to include audio and video files (Vajoczki, Watt, Marquis, & Holshausen, 2010). It is important to initially understand what is meant by the notion of podcasting. Podcast is the noun while podcast is the verb. Since its emergence in 2004, many researchers have attempted to define it. Jalali and El Bialy (2019) defined it as the distribution of media files through syndication feeds, through which files are automatically downloaded to subscribers. Tidal, (2021) defined podcast as the distribution of audio/video files in a digital format which can be manually downloaded from the internet or distributed automatically to subscribers. These files can then be accessed directly from a desktop or transferred to any device capable of playing MP3 files. Hoyt *et al.,* (2021) defined podcast as "an episodic program delivered via the internet using an XML protocol called RSS". Though, the term podcast is now commonly used in a more general context to refer to a series of audio recordings that can be distributed and accessed through the internet. In its truest sense, the term podcast refers to the use of audio broadcasts accessed through iPods (Hoydis, 2020). A podcast is often distributed through a syndication feed, such as a Really Simple Syndication (RSS) feed or a virtual learning environment (VLE). Users can subscribe to podcast via an RSS feed, so that when new episodes of podcast are released, they are downloaded automatically onto a user's computer or mobile device such as an iPod or MP3 player once they have internet access (Evans, 2008).

Podcast uses subscription feeds with Really Simple Syndication notification which automatically informs the subscriber as and when new material is available. Adewoye, and Akinde, (2023) revealed that the first Really Simple Syndication

(RSS) feeds appeared in July, 2003 and by mid-2005 there was an estimated 10,000 different podcasts on various subjects. Figure 1 shows a picture of how an RSS feed icon looks like.

Figure 1: Really Simple Syndication Icon
Source: http://goo.gl/9w32DE

Studies have also revealed that students find podcast enjoyable to listen to satisfying, motivating, intellectually stimulating, useful, helpful, and effective with respect to improving learning (Hobbs, 2021). Obviously, the flexibility of podcast, which can be used at any time and any place, has been admitted, as well as their potential to empower students to control the learning process as to place and time frame (Conceição & Howles, 2023). Podcast has been perceived as an assistive technology in delivering lecture and knowledge in higher education (Gunderson, & Cumming, 2023). Educational podcasts are becoming increasingly common on college and university campuses in the United States and the most potential academic uses of podcast in higher education are as follows: recording of face-to-face lectures, news/updates, student presentations, student-produced podcast, interviews with guest experts, tours/fieldwork, internships/residencies, feedback/evaluation of student work, supplementary material such as speeches, music, or other audio recordings, and short language lessons, or other lessons that help students develop listening and speaking skills (Kuswandari, 2023).

Ikrima, (2023) reported that podcast has been used for different purposes, such as vocabulary revision, listening exercises, interviews with native speakers, key point summaries of a lecture or group of lectures, sharing announcements, describing homework assignment assessment, giving feedback, guidelines, reducing the effects of isolation and promoting inclusivity, developing students' study skills through collaborative learning, and providing guidance on student practical work. Brewer and Movahedazarhouligh (2018) noted that the use of podcast provided students with more time to think about the content as well as to apply it. The students in the study gained a deeper understanding of the material and had increased retention. The use of podcasts in higher education enabled the provision of additional, on-demand content that can be directly linked to lectures or seminars

with the objective of encouraging and supporting students' independent learning (Mackay, 2023). Kelly *et al.,* (2022) revealed that many students use podcasts to review the material presented during the lectures. Scholars concluded that this does not prevent students from physically attending lectures. In his case study, Ng'ambi, and Lombe (2012) described the use of podcast in a situation where all students were off-campus and were provided with podcasts. Podcasts are also important tools used for delivery of course contents to enhance the learning experience of students and it could offer a more sophisticated mechanism for delivering educational content.

The perceived ease of use denotes to the belief of an individual of how convenient the use of technology is. The better the method, the more the users would consider it. Likewise, perceived easy-to-use tests an individual's perception that a system is effortless (Albawwat, & Frijat, 2021). Very often, people felt they would benefit from using the easy-to-use technology (De Veer *et al.,* 2015). Moreover, perceived ease of use of individuals and their perceived utility of technology precedes their motive to use them (De Veer *et al.,* 2015). Anastasiei *et al.,* (2023) indicated that a higher degree of perceived ease of the use of social media produces positive feedback from consumers. Correspondingly, Hua et al. (2017) confirmed that increased perceived ease of use of social media would lead to an increased degree of positive attitude toward its strong mindset in favor of destinations for travel. Akdim (2020) presented proof of a positive relationship between ease of perception and attitude. The perceived utility measures a person's belief that a system helps him/her to better perform his/her job (Corkindale *et al.,* 2018). Davis (1989) defined the perceived usefulness as the extent a person considers boosting his or her work output using a particular system. Nevertheless, from the social media viewpoint, Phang Ing and Ming (2018) reported that perceived usefulness as one of the key factors shaping the attitude of consumers regarding the suggestion of bloggers posted on social media.

 In the same vein, Popy and Bappy (2020) examined that perceived usefulness is directly linked to the attitude of clients toward positive reviews on social media. On the other hand, use of social networking to share information by the concerned stakeholders has a perceived impact, such as endorsing social media to expand higher education by knowledge sharing among students, faculties and other administrative in educational institutions (Goswami & Agrawal, 2019). The intention to use social media will be better when users believe a social media tool uses is necessary for the efficient exchange of information, users will be inspired to obtain knowledge from knowledge contributors who are aware of its usefulness (Read *et al.,* 2019). Attitude is a result of one's cognitive values, and it expresses whether a person feels positively or negatively about performing a specific behavior

(Ajzen & Fishbein, 1975). Nonetheless, an individual's attitude can influence how they feel about using a social networking platform, which in turn affects the users' interaction with the site. Several observational studies have previously revealed that attitudes have a positive impact on social networking sites. For example, Phang Ing and Ming (2018) discovered a link between attitude and intention to use social media sites. The users' attitude toward social media use can affect their behavioral intention to use social media (Popy & Bappy, 2020). Erkan and Evans (2016) implied that consumers' positive attitude toward word-of-mouth knowledge in social media has a positive influence on purchasing intention. This shows that the user's attitude toward the use of social media would have a positive effect on users' decision to use social media for learning. This study also considered the mediating role of attitude in investigating users' intention toward the usage of social media. Previously, there were several studies that have been considered that attitude is a mediating construct to anticipate the impact of various prior factors on behavioral intention to use social media.

For instance, Hua *et al*. (2017) illustrated that the attitude with respect to the utilization of social media mediates the positive impact of perceive usefulness and perceive ease of use on the behavioral intention of the travelers. Likewise, it has been shown that attitude is the mediating variable through which information quality directly affects purchase intention. Several experimental studies have been conducted to test the relationship between intention to use and actual use. For example, Dumpit and Fernandez (2017), Lu and Yang (2014), Zhou *et al*. (2011) investigated how motivations affect the intention of using social networking sites. According to another report, little information can be gathered about how positive service feedback on social networking apps can influence consumers purchasing intentions and service perceptions (Malta *et al.,* 2018). Empirical studies revealed that there are differences along gender lines between how males and females adopt and use technologies and specifically social media. In fact, gender is a significant factor in the adoption and attitude towards the use of social media. Ng, and Indran (2023) cited Pew Internet Research (2009) report showed that women outnumbered men on social media platforms. Volkovich *et al*. (2023) examined gender patterns in online social networks. They opined those women outnumbered men for most social networking sites apart from LinkedIn. Amidst the benefits of podcasting mentioned, it also has its own limitations which examples have revealed. Some researchers argued that there could be a potential decline in lecture attendance if podcasts are introduced (Kandiero, & Chizwina, (2023); Meehan, & Howard, (2023); & Rime, Pike, & Collins, (2022).

Williams and Fardon's (2007) reported a perceived decrease in lecture attendance amongst more than 50% of students using recordings. Similarly, in a study by

Emahiser, et al. (2021), over half of the lecturers noted that student attendance decreased following the introduction of lecture recordings. The challenge of taking notes and listening to a podcast as well as divided attention of the listener when listening to a podcast due to environmental interruptions has also been identified (Mulki, & Ormsby, 2022). Podcasts can have a positive effect on students' academic performance and several studies have reported that. Maher *et al*. (2020) revealed that podcast was perceived to have a positive impact on the academic performance of students when used to provide formative feedback. Zureick, *et al.,* (2018) indicated that students who watched podcast with lectures largely outperformed those learners that saw the lecture personally, on average. Their findings revealed that listening to podcasts regularly is the mediating factor that has a positive effect on academic performance of students.

Several studies have reported students' positive attitude towards the use of podcast (Yeh, *et al.,*(2021); O'Connor *et al.,* (2020); Saeedakhtar *et'al*., (2021) & Gunderson, *et al., (*2023). Yeh, *et al.,* (2021) reported that students' attitudes were positive toward the use of podcast. Elekaei *et al.,* (2020) reported students' negative attitude towards the use of podcast. Vranken, *et al*. (2023) explored the relationships between demographic variables and social networking use. The study indicated that users' antecedent beliefs and attitudes towards social networks varied according to their gender, age, marital status and parenthood and more positive perceptions towards social networks were found among females in comparison to males. Similarly, Orben, *et al*. (2022) reported that there were no significant differences between male and female Public Information Officer's use of social media at work.

Statement of the problems
The rapid integration of technology into education has led to diverse tools, such as podcasts and WhatsApp, being utilized to enhance learning. However, students' perceptions of these tools can differ based on gender, influencing their perceived usefulness, ease of use, and intention to adopt them for learning. Understanding these gender-based differences is essential, as it can shed light on how male and female undergraduates approach the adoption of technology in learning environments. This study seeks to explore the influence of gender on students' perceived usefulness, ease of use, and intention to use podcasts and WhatsApp for learning, highlighting the potential disparities in technology adoption.

Research questions
1. Is there a significant gender difference in perceived usefulness, ease of use, intention to use and reaction towards the se of WhatsApp for learning?
2. Is there a significant gender difference in perceived usefulness, ease of use, intention to use and reaction towards the use of podcast for learning?

Research Hypotheses

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

H_{01}: There is no significant influence of male and female undergraduates on their perceived usefulness, ease of use, intention to use and reaction towards the use of WhatsApp for learning

H_{02}: There is no significant influence of gender on their perceived usefulness, ease of use, intention to use and reaction towards the use of Podcast for learning

Methodology

This study adopted descriptive research of the survey type. The study is descriptive in the sense that the research describes events as if they appear without any manipulation. The population for this study consists of undergraduates in all universities in Kwara State, Nigeria. The target population includes all Federal and State-owned universities within the state. The universities were limited to Federal and State institutions. The target sample size was determined from the total number of university students in Nigeria during the 2023/2024 academic session. A stratified random sampling technique was used to select university students, stratified by gender, from the selected universities to obtain data for the analysis. This approach ensures that both male and female students are adequately represented in the study, thereby providing a comprehensive understanding of gender-based differences. The stratification by gender was implemented across departments within each selected university. Additionally, a proportional sampling technique, using Israel's Model (2013), were employed to determine the appropriate sample size for the study based on the population of each university. In all, the researcher administered 382 copies of questionnaires to the undergraduates in University A and B.

The instrument for data collection is a researcher-designed questionnaire. Items were selected based on their relevance to 'perceived usefulness', perceived ease of use of WhatsApp and Podcast for learning'. The questionnaire was chosen as an instrument because of its usefulness as a tool for gathering data from many respondents in a relatively short period. It was structured in a clear and simple language, to enable the respondents to provide relevant and accurate answers to the questionnaire based on their personal perception. The response mode for the items were four-point Likert type rating of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The instrument for this study was validated by five lecturers from the Department of Educational Technology, University of Ilorin, to determine the relevance and suitability of the instrument. They considered its language clarity to the respondents, content coverage in terms of adequacy and its relevance to the stated objectives. Their comments, suggestions and corrections

were used to produce a final draft of the instrument. To determine the reliability of the instrument, 50 copies of the instruments were pilot tested on undergraduates' students from University C which is outside the sample location for the study. Out of the 50 copies of questionnaire administered for the trial testing, 38 were returned as properly filled and thus were used for the reliability analysis. Cronbach Alpha statistical tool was used to establish the reliability coefficient of the instrument section by section at 0.05 levels of significance. The coefficient was 0.74 on the Perceived usefulness, 0.78 on the Perceived Ease and 0.79 on the perceived intention to use podcast; on the other hand, the reliability coefficient was 0.88 on perceived usefulness, 0.86 on perceived ease of use, 0.92 perceived intention to use WhatsApp. Also, it was 0.79 on the reaction of undergraduate towards Podcast and WhatsApp. All the results showed high internal consistencies of the items in the research instruments since it is the general rule in research that reliability should be at least 0.70. The analysis of data gathered through the questionnaire was done using descriptive and inferential statistics. Percentages, frequency and charts were used to answer all the research questions. Hypotheses were tested using multivariate analysis. All hypotheses were tested at 0.05 levels of significance with the aid of Statistical Package for Social Science (SPSS) version 23.0.

Results

Demographic Information

This section presents the summary of the major attributes of the respondents in the study. To guarantee the information collected and the accuracy, questionnaire was administered on the respondents. The demographic information of the respondents and the results of the analysis.

Table 1 and figure 1 present the demographic information of the participants by gender. Out of a total of 382 respondents, 207 are male, representing 54.18% of the sample. Female participants number 175, making up 45.81% of the total. This distribution indicates a slightly higher representation of male respondents in the study compared to female respondents.

Table 1

Demographic Information by Gender

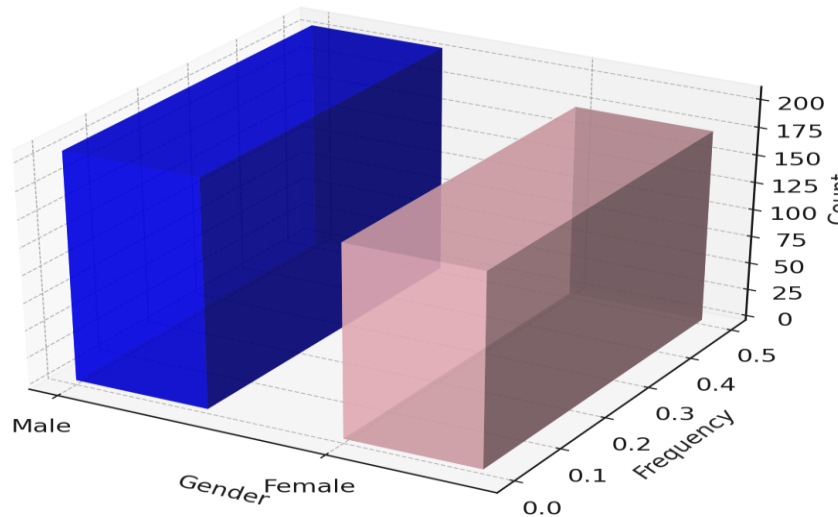| Gender	Frequency	Percentage
Male	207	54.18%
Female	175	45.81%
Total	382	100.00%

Demographic Information by Gender

Figure 1: Demographic information of the Respondents by Gender

The 3D bar chart visually represents the gender distribution of the study participants, highlighting the demographic breakdown. According to the data, out of 382 respondents, 207 are male, accounting for 54.18% of the total sample, while 175 are female, making up 45.81%.

Hypotheses Testing

Hypothesis One:

H_{01}: There is no significant influence of gender on their perceived usefulness, ease of use, intention to use and reaction towards the use of WhatsApp for learning

The results of the multivariate tests indicate that there is no significant difference among the groups for the dependent variables (perceived usefulness, ease of use, intention). The Wilks' Lambda, Pillai's Trace, Hoteling's Trace, and Roy's Largest Root all yielded an F-value of 1.529 with 4 and 377 degrees of freedom, and a p-value of 0.193. This p-value is well above the conventional threshold of 0.05, suggesting that the observed differences among the groups are not statistically significant. Consequently, the null hypothesis was not rejected meaning that there is no significant influence of gender on their perceived usefulness, ease of use, intention to use and reaction towards the use of WhatsApp for learning

Table 2
Significant the Influence of Male and Female Undergraduates on their Perceived Usefulness, Ease of Use, Intention to Use and Reaction towards the Use of Whatsapp for Learning

Test Statistic	Value	F-Value	Num DF	Den DF	p-Value
Wilks' Lambda	0.984	1.529	4	377	0.193
Pillai's Trace	0.016	1.529	4	377	0.193
Hotellng's Trace	0.016	1.529	4	377	0.193
Roy's Largest Root	0.016	1.529	4	377	0.193

Hypothesis Two:

H_{02}: There is no significant influence of gender on their perceived usefulness, ease of use, intention to use and reaction towards the use of Podcast for learning.

The MANOVA results in the influence of gender on students' perceived usefulness, ease of use, intention to use, and reaction towards the use of podcasts for learning, based on a sample of 382 respondents, show no significant influence. All test statistics (Wilks' Lambda, Pillai's Trace, Hotelling's Trace, and Roy's Largest Root) have an F-value of 1.529 and a p-value of 0.193. Since the p-value exceeds the common significance level of 0.05, it suggests that there is no significant influence of gender on their perceived usefulness, ease of use, intention to use and reaction towards the use of Podcast for learning.

Table 3
Significant Influence of Gender on their Perceived Usefulness, Ease of Use, Intention to Use and Reaction Towards the Use of Podcast for Learning

Test Statistic	Value	F-Value	Num DF	Den DF	p-Value
Wilks' Lambda	0.984	1.529	4	377	0.193
Pillai's Trace	0.016	1.529	4	377	0.193
Hotelling's Trace	0.016	1.529	4	377	0.193
Roy's Largest Root	0.016	1.529	4	377	0.193

Discussion of the findings

The findings of this study indicate that gender does not significantly influence undergraduates' perceived usefulness, ease of use, intention to use, and reactions towards the use of WhatsApp and podcasts for learning. This aligns with previous research that has explored the relationship between gender and technology adoption in educational contexts. For instance, Luse, et al. (2021) found no significant differences in technology acceptance between male and female students, suggesting that both genders perceive the usefulness and ease of use of learning technologies similarly. Similarly, Dziuban et al. (2018) reported that the perception of online

learning tools, including messaging applications and podcasts, is generally consistent across genders, indicating that educational technologies can be equally embraced by all students regardless of gender. Conversely, some studies have suggested that gender may influence technology use, albeit in specific contexts. For example, Almarzooqi et al. (2020) highlighted that while men may have higher intentions to use certain technologies, women tend to have a more positive perception of the social aspects of these tools, which could impact their reactions and engagement in learning environments. However, the current findings challenge this perspective, suggesting that in the contexts of WhatsApp and podcasts, the distinctions in gendered responses may not be as pronounced. The lack of significant influence of gender in this study could be attributed to the increasing familiarity and integration of digital technologies in everyday life, which may have leveled the playing field in terms of usage and perceptions among different genders (Khalid & Asim, 2021). Overall, the results imply that educational institutions should focus on promoting the effective use of these technologies without concern for gender-based differences in attitudes or intentions, thereby enhancing inclusive learning environments for all students.

Conclusion

In conclusion, this study demonstrates that gender does not significantly influence undergraduates' perceived usefulness, ease of use, intention to use, or reactions toward the use of WhatsApp and podcasts for learning. These findings suggest that both male and female students view these digital tools similarly in terms of their educational value, ease of adoption, and overall experience. The neutrality of gender in this context highlights the potential for WhatsApp and podcasts to be universally integrated into instructional strategies without the need for gender-specific modifications. As technology continues to play a critical role in modern education, the findings emphasize the importance of focusing on other factors, such as accessibility, training, and support, to enhance students' engagement with digital learning tools. Future research should continue to explore variables beyond gender that may influence the adoption and effectiveness of educational technologies, ensuring that digital learning environments are both inclusive and effective for all learners.

Recommendation

Based on the findings that gender has no significant influence on perceived usefulness, ease of use, intention to use, and reaction towards the use of WhatsApp and podcasts for learning, several recommendations can be made.

1. Educational institutions should leverage this neutrality by designing inclusive learning interventions that incorporate both WhatsApp and podcasts as effective tools for all students, regardless of gender.

2. Since gender does not play a significant role in how students perceive or engage with these technologies, educators can focus on promoting their use across diverse student populations without concern for gender-specific adaptations.

3. Additionally, professional development programs for instructors should emphasize the universal applicability of these tools in creating collaborative and flexible learning environments. By doing so, educators can foster equitable access to technology-enhanced learning, ensuring that both male and female students can benefit equally from digital platforms such as WhatsApp and podcasts.

4. Furthermore, institutions should invest in providing adequate technological support and training for students to enhance their familiarity with these tools, promoting higher engagement and intention to use them for educational purposes.

5. Finally, future research could explore other demographic factors such as socio-economic background, technology proficiency, or learning styles that may affect the perceived usefulness and ease of use of digital learning tools.

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