

The use of WhatsApp as a knowledge sharing platform in education- student's perceptions

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Abstract: *This study explores students' perceptions of using WhatsApp as a knowledge-sharing platform in a rural university in the Eastern Cape. A total sample of 105 students participated in the study, with data collected through quantitative questionnaires which was developed using constructivism framework. The research examines the use of WhatsApp for knowledge sharing in a resource-constrained environment. The findings analysis revealed that students perceive WhatsApp as a valuable tool for real-time communication, enhancing peer engagement, and fostering group collaboration. However, students also challenges, such as distractions, data costs, and occasional misuse for non-academic purposes were identified. Despite these limitations, participants acknowledged WhatsApp's role in creating a supportive and interactive learning environment. The findings offer insights for students and lecturers seeking to optimize the use of WhatsApp platforms for educational purposes in rural settings.*

Keywords: *WhatsApp; collaboration; knowledge sharing; student's perception*

Introduction

WhatsApp has developed into a crucial educational communication tool that allows students to share knowledge outside of the conventional classroom (Esan & Esan, 2025). Students can discuss, collaborate, and share resources more easily thanks to the platform's accessibility, usability, and instant messaging capabilities. In the modern era, it facilitates peer learning and raises student academic engagement by enabling real-time interactions.

Since most modern learners have a strong desire to study anywhere at any time, many educational institutions are attempting to integrate WhatsApp technologies into their teaching and learning processes as a means of share knowledge (Cetinkaya, 2017). When compared to other electronic platforms, WhatsApp offers a plethora of benefits, including synchronous chat, transparency, and collaboration (Annamalai, 2017; HUSSAIN, 2023).

There are important ramifications for contemporary learning environments from the use of WhatsApp as a knowledge-sharing platform in tertiary institution. Given the growing dependence on digital communication, knowing how students view WhatsApp as a tool for academic purposes offers important insights into how technology can improve educational opportunities. However, WhatsApp has been shown to be a useful tool for student-teacher and student-student collaboration, especially for students attending rural tertiary institutions (Mbodila & Esan, 2020).

Although students at higher education institutions are using WhatsApp more frequently, there is little empirical data to support the idea that students in rural tertiary institutions are using WhatsApp to share knowledge especially in rural tertiary institutions

(Mojeed & Olaniyan, 2023). According to research, many students become sidetracked when using WhatsApp for collaboration, knowledge sharing, and student engagement (Udenze & Oshionebo, 2020). Therefore, both students and lecturers are not motivated to use the application for online classes in tertiary institutions (Basar et al., 2021).

Additionally, peer interaction is a problem that most students in South Africa's rural tertiary institutions face because many of them speak their native tongues and many find speaking English difficult (Seabi et al., 2014). Therefore, when they arrive at university, they meet with various students that speak different languages, resulting in little interaction between them (Agumbal et al., 2023; Mbodila et al., 2023). This is corroborated by the interaction issues between students and instructors noted by (Mbodila et al., 2023). Many students have found it challenging to communicate with their lecturers because English is the primary language of instruction in South African tertiary institutions. Another problem that many of these universities deal with is how students participate in online courses or WhatsApp discussions. The absence of a computer or phone that can be used to download the apps could be the cause of this (Moonasamy & Naidoo, 2022).

Numerous researchers have demonstrated that WhatsApp-enabled online learning offers students limitless chances to accomplish their learning objectives through real-time learning scenarios and genuine interaction, which makes learning effective, meaningful, and distinct from decontextualized traditional classrooms (Hooda et al., 2022). Research in (Gon & Rawekar, 2017; Robles et al., 2019) supports this. 2019) that emphasizes its function in boosting informal learning, peer-to-peer communication, and student engagement. Even though a lot of research has been done on WhatsApp's overall effects in education, little is known about how students view the app's usefulness as a platform for exchanging knowledge.

This study seeks to contribute to the existing body of knowledge by examining how students perceive the role of WhatsApp in academic knowledge-sharing, considering factors such as collaboration, engagement, interactions, and academic outcomes. Unlike previous studies that primarily focus on the adoption of WhatsApp learning tools, this research delves into students' experiences and challenges in utilizing WhatsApp for academic purposes. By addressing these aspects, the study provides insights that can inform educators, policymakers, and institutions on how to optimize WhatsApp for collaborative learning, ensuring its effective integration into modern educational frameworks. The objectives of this study are:

1. To examine the students' perceptions of the effectiveness of WhatsApp in knowledge sharing.
2. To assess the impact of WhatsApp-based interactions on students' academic performance and engagement.
3. To provide recommendations for optimizing the use of WhatsApp as a digital learning tool in rural tertiary institutions.

The Research Model and Hypotheses

Constructivism theory is used to gauge the perception of students in utilizing WhatsApp as a knowledge sharing social media platform. According to the social constructivist theory (Vygotsky, 1978), WhatsApp is designed to be interactive and with the perspective of the allocation of knowledge sharing with students. This means that students who struggled to achieve cognitive equilibrium and tried to get used to achieving equilibrium cognition can find support in building knowledge. Therefore, constructivism (Vygotsky, 1978) is used to support the goals of the study. By investigating the students perception towards the use of WhatsApp for active knowledge sharing, collaborative learning, interaction, and engagement. Hence, this study aimed to close gaps in the literature by using a constructivism model. Because constructivism maintains that active collaborative learning results from interacting with lecturers and students, it was selected for this study (Macias et al., 2022). In Figure 1, the suggested conceptualized framework is displayed.

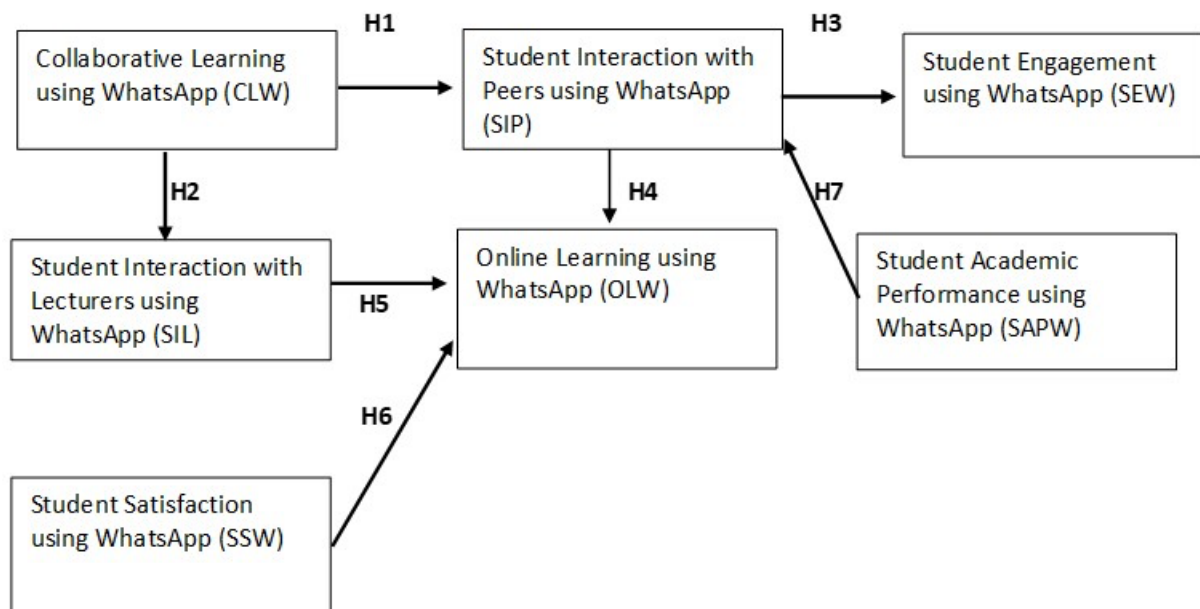


Figure 1: Conceptualize framework

Collaborative Learning using WhatsApp (CLW). To facilitate the learning processes necessary for building a knowing society, new learning platforms that facilitate constructive and collaborative learning are needed (Wang & Li, 2020). Before turning in their final work, students can use collaborative learning assignments to discuss it with others, get feedback, and make adjustments (Costley et al., 2022). According to (Janssen & Kirschner, 2020), learners possess strong cognitive abilities in this area, and active collaborative learning performs better in scenarios involving a variety of knowledge. A number of studies examined WhatsApp's potential as a cooperative and collaborative learning tool (Lacka et al., 2021). Students who advocate for the use of WhatsApp for academic purposes listed a number of advantages of using a WhatsApp course page as a helpful learning tool, such as greater interaction and participation in discussions about course topics, as well as exposure to pertinent media and educational resources (Zgheib & Dabbagh, 2020).

Student Interaction using Lecturer (SIL). Traditional learning methods may stifle the free exchange of ideas among student members of the academic group (Decman, 2020). Academic success is influenced by student participation, although the idea of integration is relevant, commuters' integration is very different from on-campus students', with socio-academic moments (Lai, 2021; Lukszo & Hayes, 2020). The frequency of these interactions or the closeness of the bond between students and lecturers were less significant to those students than the traditional idea of interaction with lecturers and peers. The way students interact with one another both inside and outside of the classroom has been completely transformed by advanced technology, which offers new ways to encourage engagement and collaboration. Relationship facilitation is essential because it promotes better and more efficient learning.

Student Engagement using WhatsApp (SEW). Interactions between the individual and the surroundings are the focus of the engagement, which aims to change student awareness and engagement by fostering social and intellectual ties between study group members and the classroom (Xu et al., 2020). People have therefore integrated online communication into their daily lives as a result of WhatsApp's widespread use, illustrating the different ways in which people communicate with one another through information sharing (Xie et al., 2021). Moreover, several studies that examined the experience of using WhatsApp networks found that it produced outstanding engagement and learning results (Awotunde et al., 2021). WhatsApp platforms have several positive effects, including on the emotional elements of the classroom, student motivation, and engagement in active collaborative learning (Lee & Recker, 2021a).

Student Interaction with Peers (SIP) using WhatsApp. WhatsApp activity shows that learners are more engaged in the course, especially when given an assessment task. One of the best ways to enhance communication, motivate students to study, push them to take their assignments more seriously, and strengthen social networks is through virtual interactions, per recent research (Lee & Recker, 2021b). According to research on WhatsApp's potential for knowledge sharing (Supardi et al., 2021) is still in its infancy, but these studies suggest that it has the potential to revolutionize teaching and learning in higher education. Teachers need to assess their students' intellectual and social backgrounds before designing their courses, choosing the pedagogical approaches they plan to use, and deciding on the kinds of assessments they believe will boost their involvement in the learning process. Using WhatsApp in tertiary institution can improve the relationship between students and lecturers (Greenhalgh et al., 2021). Study in (Bailey, 2022) argues that the use of WhatsApp for educational purposes is equally important as learning objectives; therefore, it is necessary to have a social presence, incorporate interactive learning, and promote active collaborative learning.

Online Learning using WhatsApp (OLW). This social learning and social presence can be fostered by using WhatsApp for academic communication and online learning (Qiu et al., 2021). Additionally, it asserts that using WhatsApp for official academic communication may enhance learning outcomes by establishing an interactive learning environment and promoting social presence. Since online engagement has been extensively studied in recent

decades, a variety of studies have been produced that demonstrate the advantages of interpersonal connections. Faculty satisfaction (Sahibzada et al., 2020a), student satisfaction (Khalid and Quick, 2016), and human involvement in online environments have all been related. 2020a), as well as the academic performance of students (Khalid & Quick, 2016; Long et al., 2011).

Students' Satisfaction using WhatsApp (SSW). The way that students from one cultural context behave in another may influence their opinions about educational interventions. The impact of cultural differences on online student cooperation and the necessity of conducting comparative research on online learner engagement are both highlighted in (Sahibzada et al., 2020b). Considerations such as perceived utility and ease of use are important when it comes to user adoption and enjoyment of technology (Greenhow & Galvin, 2020). While some research has shown that user entertainment significantly influences technology success, other studies have found that user perceptions of entertainment provided by technology are associated with IS systems, as well as with product adoption and satisfaction. In homogeneous groups, this demonstrates that students enjoy interacting with peers who have similar interests, which increases their level of satisfaction with active collaborative learning (Lepp et al., 2015).

Students' Academic Performance using WhatsApp (SAPW). Even though the primary use of WhatsApp is for social rather than academic purposes, most studies conducted on the perception of students in using WhatsApp for teaching and learning concurred that it improved student academic performances most especially during the COVID-19 pandemic (Alamri et al., 2020). Research has demonstrated a connection between academic achievement, engagement, and collaborative learning (Ochs & Sonderegger, 2021). Research has indicated that using WhatsApp in higher education is advised (Ma et al., 2021). Students and their communities view WhatsApp as a tool for sharing knowledge and for helping students or a particular group of people communicate more effectively in a number of ways (Abdullahi et al., 2019).

Proposed Hypothesis. Based on the analysis of the literature review and the study identified seven independent variables: collaborative learning with WhatsApp (CLW) and student interaction with peers (SIP), student interaction with lecturers (SIL), student engagement with WhatsApp (SEW), student satisfaction using WhatsApp (SSW), online learning using WhatsApp (OLW), academic performance using WhatsApp (SAPW). To understand the impact of these variables, the study identified the dependent variable of student perception to use WhatsApp technology for teaching and learning. To measure the study's objectives, these variables were used to create the proposed hypothesis and became the background of the proposed research model. The following hypotheses are being tested following the study's stated goals and proposed model:

H1: Is there a correlation between collaborative learning with WhatsApp (CLW) and student interaction with peers (SIP).

H2: is there relationship between student interaction with lecturers (SIL) and collaborative learning with WhatsApp (CLW).

- H3:** is there a relationship between the student engagement with WhatsApp (SEW) and student interaction with peers (SIP).
- H4:** is there relationship between student interaction with peer (SIP) and online learning using WhatsApp (OLW).
- H5:** is there relationship between student interaction with lecturer (SIL) and online learning using WhatsApp (OLW).
- H6:** is there relationship between student satisfaction using WhatsApp (SSW) and online learning using WhatsApp (OLW).
- H7:** is there correlation between student interaction with peer using WhatsApp (SIP) and student academic performance using WhatsApp (SAPW).

Method

This research employs a quantitative approach to gain a thorough understanding of students' perceptions on the use of WhatsApp. Primary data were collected using structured questionnaires, targeting undergraduate students from the Information Technology (IT) department on one of WSU's campuses. For the purpose of the study, the conceptual model was built based on constructivism theory to measure student perception towards using the WhatsApp platform (Alismaiel et al., 2022). The questionnaire was designed using google form and the literature review informed the design of statement-based questions for the survey, leading to 38 questions in total. Of the 109 students in IT departments that were requested to answer the questionnaires, 105 were satisfactorily completed. Data Collection and Sampling The research method used in this study is descriptive and quantitative. The study uses students at one of the historically disadvantaged universities in South Africa, Walter Sisulu University (WSU) in Eastern Cape in Information Technology (IT) department on one of WSU's campuses who were directly involved with the use of WhatsApp for knowledge sharing.

The questionnaires consisted of self-administered questions, completed by participants online via email, with Google forms used for distribution. The questionnaire was divided into eight parts, beginning with demographic questions (gender, age, level, and provinces). The remaining sections used a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree) to assess participants' perceptions of WhatsApp in teaching and learning.

The data were then analyzed through descriptive statistics and correlation analysis to examine patterns and relationships between WhatsApp use and student perceptions towards their academics (Sugiyono, 2016). The data collected for this study were analyzed using statistical package for social sciences (SPSS). A descriptive statistic was employed to describe the frequencies and percentages of the respondents' demographic profiles. The relationship between the variables was examined using correlation analysis.

Results and Discussion

The results and discussion section contains research findings obtained from the research data. The results and discussion section is divided into several sub-sections.

Respondent's Demographic Profile. Table 1 summarizes the respondents' demographic characteristics. In terms of gender, there were 45.7% males and 54.3 % females who participated. This is not shocking because more quotas are frequently awarded to female students in South African tertiary institutions (Hills, 2015). According to the analysis, 94.3% of participants were between the ages of 17-22, 5.7% of participants were between the ages of 22-30, and 0% were above 30 years. This is not surprise as this questionnaire were only assigned to undergraduate students. Also, in terms of provinces where students come from it shows that Eastern cape has majority number of students with 83.8% followed by Gauteng with 4.8%, while the other have lower percentage. The high percentage in Eastern Cape is due to the fact that the university is located in the Eastern Cape province. The descriptive statistics in Table 2 are based on the mean, standard deviation, and minimum and maximum values.

Table 1: Demographic Profile of the respondents

Demographics	Frequency	Percentage (%)
Gender		
Female	57	54.3
Male	48	45.7
Age		
17-22	99	94.3
23-30	6	5.7
Above 30	0	0
Under graduate Levels		
Level 1	47	44.8
Level 2	36	34.3
Level 3	32	30.5
Province		
Eastern Cape	88	83.8
Mpumalanga	3	2.9
KwaZulu Natal	4	3.8
Gauteng	5	4.8
Western Cape	3	2.9
Limpopo	1	0.9
Northern Cape	1	0.9
North West	0	0

Descriptive Statistics. Table 2 represents the descriptive statistics of independent variables. Table 2 shows that the use of WhatsApp platform on student in tertiary institution is appropriate, and they have significant awareness of these WhatsApp platform in their teaching and learning. However, as per the mean value, it is revealed that all students need to have cellphone or computer that is compatible with WhatsApp technology.

Table 2: Descriptive Statistics of the Constructs

Descriptive Statistics					
Construct	N	Minimum	Maximum	Mean	Std. Deviation
Academic Performance using WhatsApp	105	1.00	5.00	3.0115	0.68002
Interactivity with peer using WhatsApp	105	1.00	5.00	3.0235	0.61196
Interaction with lecturer using WhatsApp	105	1.00	5.00	3.0033	0.69985
Student collaboration using WhatsApp	105	1.00	5.00	3.2246	0.70428
Student engagement using WhatsApp	105	1.00	5.00	3.9284	0.67414
Online learning using WhatsApp	105	1.00	5.00	3.7638	0.66483
Student satisfaction using WhatsApp	105	1.00	5.00	3.4044	0.65617

Validity and Reliability. AMOS 23 was utilized in this study to determine the dependability of each individual item. If each item's squared multiple correlations in the measurement model are greater than 0.5, the item is considered reliable. If the standardized loading is equal to or higher than 0.70, then individual item dependability is proven (Esan & Esan, 2025). With the exception of accounting for actual factor loadings rather than presuming that every item in the composite load assessment is equally weighted, the resulting coefficient is interpreted similarly to Cronbach's alpha (Esan & Esan, 2025). The total amount of variance in the indicators that the hidden construct explains is shown by the average variance extracted (AVE) as shown in Tables 3 and 4.

Table 3: Validity and Reliability of the Constructs

Relationship between Factors and Items	Estimate	Reliability	Cronbach's Alpha	Average Variance Extracted (AVE)
CLW4 ← Collaborative Learning using WhatsApp	0.712	0.801	0.860	0.609
CLW3 ← Collaborative Learning using WhatsApp	0.804			
CLW2 ← Collaborative Learning using WhatsApp	0.822			
CLW1 ← Collaborative Learning using WhatsApp	0.723			
SEW3 ← Student Engagement using WhatsApp	0.707	0.788	0.879	0.646
SEW2 ← Student Engagement using WhatsApp	0.824			
SEW1 ← Student Engagement using WhatsApp	0.757			
SIP4 ← Student Interaction with Peer	0.788			
SIP3 ← Student Interaction with Peer	0.838	0.863	0.889	0.676
SIP2 ← Student Interaction with Peer	0.854			
SIP1 ← Student Interaction with Peer	0.782			
SIL4 ← Student Interaction with Lecturers	0.773			
SIL3 ← Student Interaction with Lecturers	0.843	0.824	0.905	0.673
SIL2 ← Student Interaction with Lecturers	0.768			
SIL1 ← Student Interaction with Lecturers	0.792			
OLW4 ← Online Learning using WhatsApp	0.886	0.887	0.881	0.683
OLW3 ← Online Learning using WhatsApp	0.875			
OLW2 ← Online Learning using WhatsApp	0.814			
OLW1 ← Online Learning using WhatsApp	0.813			
SSW4 ← Student Satisfaction using WhatsApp	0.795	0.826	0.864	0.687
SSW3 ← Student Satisfaction using WhatsApp	0.785			
SSW2 ← Student Satisfaction using WhatsApp	0.793			
SSW1 ← Student Satisfaction using WhatsApp	0.804			
SAPW4 ← Student Academic Performance using WhatsApp	0.793	0.774	0.880	0.691
SAPW3 ← Student Academic Performance using WhatsApp	0.722			
SAPW2 ← Student Academic Performance using WhatsApp	0.807			
SAPW1 ← Student Academic Performance using WhatsApp	0.724			

Table 4: Sample Covariance Reliability

Constructs	CLW	SE	SIP	SIL	OLW	SSW	SAPW
CLW	0.805						
SE	0.133	0.841					
SIP	0.227	0.413	0.844				
SIL	0.301	0.425	0.347	0.813			
OLW	0.222	0.338	0.287	0.294	0.885		
SSW	0.316	0.363	0.376	0.340	0.213	0.926	
SAPW	0.222	0.322	0.338	0.366	0.264	0.318	0.944

Hypothesis Testing. The penultimate phase in the data processing procedure is hypothesis testing. This investigation's objective was to examine the nine choices indicated in Table 5. To ascertain the statistical significance of the parameter estimated the standard error (S.E) and p-values are employed. Since smaller p-values ($p < 0.01$) indicate that the observed difference would only occur once in a hundred if there were no real difference, they are commonly considered to be highly significant. Also, based on the hypotheses the findings shows that there is relationship in all the constructs used as shown in Table 5.

Table 5: Hypotheses Relationships Test

No	Hypothesis Relationship	Estimate	S. E	p	Results
H1	INP $\longleftrightarrow$ CLW	0.422	0.026	0.000	Accepted
H2	SIP $\longleftrightarrow$ CLW	0.297	0.028	0.000	Accepted
H3	SIP $\longleftrightarrow$ SEW	0.361	0.023	0.000	Accepted
H4	OLW $\longleftrightarrow$ SIP	0.273	0.024	0.000	Accepted
H5	OLW $\longleftrightarrow$ SIL	0.278	0.024	0.000	Accepted
H6	SSW $\longleftrightarrow$ OLW	0.385	0.026	0.000	Accepted
H7	SAPW $\longleftrightarrow$ SSW	0.530	0.022	0.000	Accepted

The hypotheses indicate the interrelationships between the components that may impact how higher education research students utilize WhatsApp for active collaborative learning and involvement, as well as their academic achievement.

Discussion and Implications

This study looked at how tertiary institution students felt about using WhatsApp to share knowledge. According to a study by (Esan & Esan, 2025), WhatsApp is anticipated to develop into a potent teaching and learning tool in higher education, facilitating knowledge growth, student engagement, and document sharing. Research has indicated that implementing WhatsApp in the classroom can enhance students' academic performance. Research on the precise impacts of knowledge sharing on the WhatsApp platform is still necessary, though. An investigation by (Sivakumar et al., 2023) looked into how using WhatsApp negatively affected Pakistani university students' academic performance and discovered that frequent disruptions and lost productive time were to blame. Additionally, they discovered that in the digital age, student interaction, document sharing, and knowledge creation are essential for information sharing.

The study emphasizes the importance of students' perceptions on WhatsApp to promote efficient knowledge sharing. The study advances our understanding of how tertiary students perceive knowledge sharing and WhatsApp's potential to enhance instruction in South African rural tertiary institutions. Additionally, this study found positive correlations between online WhatsApp and student academic performance, engagement, interaction, student satisfaction, and learning collaboration.

Conclusion

The study's findings show that the usefulness and visual appeal of the WhatsApp platform have a big influence on students' knowledge sharing. When creating WhatsApp initiatives to encourage knowledge sharing, higher education institutions ought to take these findings into account. Additionally, the study offers a framework for investigating how students view WhatsApp as a platform for academic knowledge sharing that can be used in subsequent research projects. All things considered, the study contributes to the expanding corpus of research on WhatsApp use in higher education and offers insightful advice to practitioners and educators looking to improve student learning outcomes.

According to the study's findings, WhatsApp may present students with opportunities as well as challenges, and it is up to them to take full advantage of the platform in order to improve peer knowledge sharing. But the study also discovered that using this platform can easily divert students. The findings of the study challenge the notion held by other researchers

that students' academic performance suffers when they use WhatsApp. Rather, the analysis showed that WhatsApp features could help students participate, engage, and collaborate in educational activities.

The knowledge of how the WhatsApp platform promotes knowledge sharing among students in higher education also improved by this study. Students tend to contribute more when they post their questions on WhatsApp, according to the research findings, which also demonstrate how WhatsApp use impacts knowledge sharing. This shows that WhatsApp can be a useful tool for students to work together and exchange information while they are studying, which improves their ability to learn

Implications for Future Research

The study's conclusions have important ramifications for South Africa's rural tertiary education system. The results might not precisely represent the conduct of other students in South African urban tertiary institutions, though, as the study only looked at rural institutions. Therefore, more research should be done to evaluate how South African tertiary institutions in rural and urban areas differ in how their students view WhatsApp as a platform for knowledge sharing. The work could be expanded in future studies to examine how particular learning preferences align with the use of WhatsApp tools for instruction and learning.

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