

THE MEDIATING EFFECT OF BEHAVIORAL INTENTION IN THE RELATIONSHIP BETWEEN SOCIAL INFLUENCE AND WIRELESS TECHNOLOGY USAGE

Kyambadde Abdunool ¹, Mwase Ali ¹, Ssebanenya Muhammad ²
and Saunders Warda ³

¹ Department of Marketing and Management,
Makerere University Business School, Kampala, Uganda

² Department of Accounting and Finance,
Makerere University Business School, Kampala, Uganda

³ Department of Human Resource Management,
Makerere University Business School Kampala, Uganda

ABSTRACT

The adoption of wireless technologies, such as Wi-Fi and mobile tools, is pivotal in enhancing teaching, research, and administrative efficiency in higher education. Despite widespread access to these technologies in public universities in Uganda, the adoption rate among academic staff remains inconsistent. This study investigates the mediating role of behavioral intention in the relationship between social influence and wireless technology usage. This study employs a quantitative approach, utilizing surveys to gather data from academic staff. Findings showed that there was a significant positive mediating effect of behavioral intention (BI) on the relationship between social influence (SI) and Wireless Technologies Usage (WTU). The type of mediation was partial as SI predicts WTU directly and indirectly through BI. There were also significant positive relationships between social influence, behavioral intention, and wireless technology usage. It was concluded that behavioral intention to use is a mediator of social influence and Wireless Technologies Usage. This research contributes to the existing literature by highlighting the importance of behavioral intention as a mediating factor, offering insights for stakeholders aiming to enhance technology adoption strategies. The implications of these findings underscore the necessity for targeted interventions that leverage social influence to foster positive behavioral changes toward wireless technology usage.

KEYWORDS

Social Influence, Behavioral Intention to Use, and Wireless Technologies Usage.

1. INTRODUCTION

The adoption of wireless technologies (Wi-Fi, mobile networks, etc.) in higher education institutions has become essential for improving access to information, learning resources, and communication. In Uganda, public universities have increasingly integrated wireless technologies into their teaching, learning, and administrative operations. These technologies provide a platform for students and faculty to access e-learning resources, communicate seamlessly, and foster collaborative work environments. However, despite their growing availability, the adoption rate of these technologies remains uneven across universities.

Understanding the factors influencing the adoption of wireless technologies is critical to ensuring their effective implementation. Among these factors, social influence (the impact that peers, faculty, or institutional norms have on an individual's technology adoption decision) has been identified as a significant determinant in the context of technology adoption models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) [1]. Social influence can shape attitudes, perceptions, and ultimately the behavior of academic staff toward wireless technology usage.

In addition, behavioral intention defined as the degree to which individuals are motivated and plan to use wireless technologies plays a crucial role in mediating the relationship between social influence and wireless technology usage. The mediating effect of behavioral intention is grounded in psychological theories like the Unified Theory of Acceptance and Use of Technology (UTAUT), which posits that an individual's intention to perform a behavior is a key predictor of whether they will follow through with that behavior [1].

Despite the recognized importance of social influence and behavioral intention in the adoption of new technologies, there is limited research examining how these factors interact in the specific context of wireless technology usage in Ugandan public universities. This study seeks to address this gap by investigating the mediating effect of behavioral intention in the relationship between social influence and the usage of wireless technologies by academic staff.

In many cases, wireless technology usage has been slow, raising questions about whether social influence alone is enough to drive usage, or whether behavioral intention significantly enhances the likelihood of usage. This research aims to determine whether behavioral intention acts as a key mediator in this relationship, providing a clearer understanding of the factors influencing wireless technology usage in public universities in Uganda. By doing so, the study will contribute to more effective strategies for promoting the use of wireless technologies in higher education, thereby enhancing access to learning resources and improving academic outcomes.

2. LITERATURE REVIEW

2.1. Social Influence

Social influence is defined as the extent to which individuals perceive that significant others such as peers, colleagues, superiors, or social groups believe they should use a particular technology or perform a specific behavior. In other words, social influence means the "degree to which an individual perceives that important others believe he or she should use the new system" [1]. In the context of the Unified Theory of Acceptance and Use of Technology (UTAUT), social influence is a critical construct that directly impacts behavioral intention. When individuals believe that important figures in their social circles expect them to adopt a technology, their intention to use that technology is significantly enhanced.

2.2. Social Influence and Behavioral Intention

Numerous studies have consistently demonstrated a positive correlation between social influence and behavioral intention regarding new technology adoption. In educational environments, faculty members often decide to adopt technologies like wireless networks based on the perceived expectations of their peers and students. For instance, recent research conducted in higher education institutions highlights that social influence plays a significant role in shaping faculty members' intentions to adopt e-learning platforms, indicating that academic staff are more inclined to embrace technology when they feel social pressure from colleagues and superiors [2].

2.3. Social Influence, Behavioral Intention, and Adoption

Behavioral intention frequently serves as a mediator between social influence and actual technology adoption. The Technology Acceptance Model (TAM2) illustrates that social influence affects behavioral intention, which subsequently predicts technology usage [3]. This suggests that while social influence may not lead directly to technology adoption, it can strengthen an individual's intention to use the technology. For example, academic staff may hesitate to adopt wireless technologies initially; however, if their intention is bolstered by social pressures, they are more likely to proceed with adoption.

2.4. Technology Adoption in Higher Education

Recent literature increasingly emphasizes the importance of technology adoption within higher education, particularly in developing regions such as Africa. In the context of wireless technology usage, understanding the factors influencing adoption is crucial, especially when considering the role of social influence and behavioral intention. A special issue of the *British Journal of Educational Technology* highlights the unique contextual factors that shape the integration of technology in African universities. The study suggests that post-pandemic, universities must shift their technology adoption strategies to focus on infrastructure development, digital literacy, and institutional flexibility. These adaptations are vital for fostering positive behavioral intentions toward technology usage, which, in turn, can be significantly influenced by social factors [16].

Moreover, the increasing popularity of blended learning models is a key trend in higher education. Blended learning, which merges online and in-person instruction, reflects a broader reevaluation of pedagogical approaches to meet diverse learning needs while incorporating technological advancements. These changes underscore the growing importance of behavioral intention in predicting technology usage. As institutions adopt blended learning, the social environment within which wireless technologies are used may amplify social influence, further reinforcing individuals' intention to use such technologies [17]. Thus, behavioral intention serves as a critical mediator between social influence and the effective adoption of wireless technologies.

2.5. Conceptual Framework

The Unified Theory of Acceptance and Use of Technology (UTAUT) framework remains widely utilized for understanding technology adoption; however, it is essential to note that adjustments may be necessary to fit specific contexts. The Unified Theory of Acceptance and Use of Technology (UTAUT) posits that the intention to use information systems to follow-up use behavior [15]. Studies have consistently conceptualized behavioral intention as a mediator between social influence and actual behavior. In the extension of the Technology Acceptance Model (TAM2), it was demonstrated that social influence affects behavioral intention, which in turn directly predicts technology use [3]. UTAUT is meant to be adjusted to fit the technology being queried; therefore, a certain amount of modification is expected. In this study, UTAUT serves as the foundational model while excluding moderating variables such as age, gender, experience, and voluntariness of use. The proposed research model posits that behavioral intention mediates the relationship between social influence and the usage of wireless technologies as shown in the proposed model below;

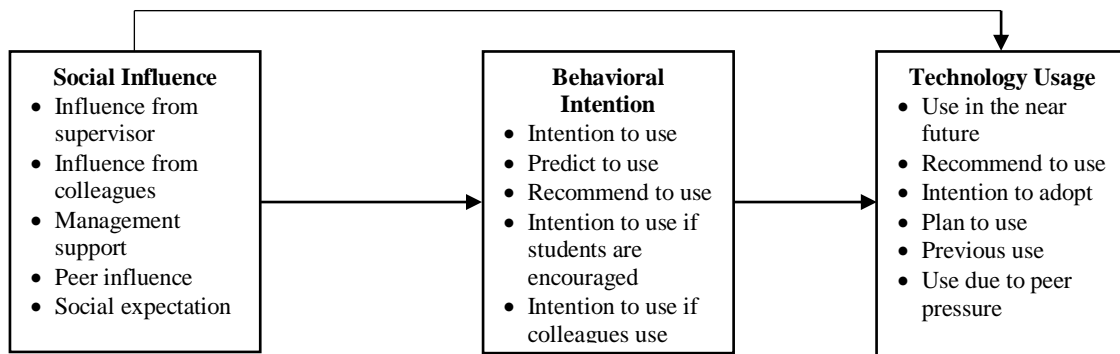


Figure 1: Proposed research model

3. RESEARCH METHOD

3.1. Research Design

This study adopts a quantitative research design to investigate the mediating role of behavioral intention in the relationship between social influence and the usage of wireless technologies in public universities in Uganda. A cross-sectional survey was conducted to collect data from academic staff across selected public universities.

3.2. Population and Sample

The target population included academic staff from five public universities in Uganda, including Makerere University and Kyambogo University. A sample size of 334 participants was determined using Krejcie and Morgan's sample size determination table. The sample was stratified to ensure that academic staff were adequately represented.

3.3. Data Collection

A structured questionnaire was used to collect data. The questionnaire was divided into two sections. The first section gathered demographic information about the respondents, while the second section focused on the constructs of social influence, behavioral intention, and usage of wireless technologies. Items in the questionnaire were adapted from established studies [4], [5] and measured using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

3.4. Validity and Reliability

To ensure the validity of the instrument, content validity was established through expert reviews. The content validity index (CVI) was found to be 0.70 or higher for all variables, which is acceptable according to [6]. Internal consistency was assessed using Cronbach's alpha, with all constructs showing reliability coefficients above 0.70, as suggested by [7]. The validity and reliability of the variables are indicated in Table 1 and Table 2 below respectively.

Table 1: Content Validity Index

SN	Variable	CVI	No. of items
01	Social Influence	.71	6
02	Behavioral Intention	.70	6
03	Technology Usage	.88	6

Table 2: Reliability Test

SN	Variable	Cronbach Alpha	No. of items
01	Social Influence	.778	6
02	Behavioral Intention	.770	6
03	Technology Usage	.773	6

3.5. Data Analysis

The data collected were analyzed using descriptive and inferential statistics. Pearson correlation analysis was conducted to examine the relationship between performance expectancy and behavioral intention. Additionally, regression analysis was performed to assess the mediation power of behavioral intention on the relationship between social influence and technology usage.

4. RESULTS

In order to test the formulated hypothesis, we used the Pearson (r) correlation analysis and regression analysis to establish if there existed a relationship between pairs of different variables of the study. Hierarchical regression was used to predict technology use.

Table 3: Correlation Analysis

S/N	Variable	1	2	3
01	Social Influence	1		
02	Behavioral Intention	.349**	1	
03	Technology Usage	.515**	.340**	1
		<i>N=265</i>	<i>**P<0.01</i>	<i>Level (1-tailed)</i>

Source: Primary Data

Table 4: Hierarchical Regression analyses of SI, BI, and TU

Variable	Model 1		Model 2	
	Beta	t	Beta	t
(Constant)		17.115		13.727
BI	.340	5.864	.182	3.294
SI			.451	8.138
R ²	.116		.294	
Adjusted R ²	.112		.289	
R ² Change	.116		.178	
F	34.392		54.577	

Source: Primary Data

Key: SI = Social Influence, BI = Behavioral Intention, TU = Technology Usage

Table 5: Hierarchical Regression analyses of SI and BI

Variable	Beta	t
(Constant)		14.849
SI	.337	6.049
R ²		.122
Adjusted R ²		.119
R ² Change		.122
F		36.595

Source: Primary Data

4.1. The Relationship Between Social Influence (SI) and Behavioral Intention (BI) to Use WTs

The results in the correlation matrix Table 3 and hierarchical regression summarized in Table 5 indicated that there was a significant positive relationship between social influence and behavioral intention to use WTs ($r = .349$, $p < .001$; $Beta = .337$). SI contributed 11.2 percent of the BI to use the technology. This implies that the level of social influence of the WTs corresponds directly and positively with their behavioral intention to use.

4.2. The Relationship between Behavioral Intention to Use and Technology Usage of WTs

Findings summarized in the correlation matrix Table 3 and hierarchical regression works summarized in Table 4 revealed further that there was a significant positive relationship between behavioral intention to use and technology usage of WTs ($r = .340$, $p < .001$; $Beta = .182$). Behavioral intention contributed 11.6 percent to technology usage of wireless technologies. This implies that the level of wireless technology usage by users was directly associated with their intention to use WTs.

4.3. The Relationship between Social Influence and Technology Usage of WTs

Findings summarized in the correlation matrix Table 3 and hierarchical regression summarized in Table 4 revealed further that there was a significant positive relationship between social influence and technology usage ($r = .515$, $p < .01$; $Beta = .451$, $p < .01$). SI contributed 17.8 percent to the technology usage of the WTs. This implies that the level of technology usage of WTs by users was directly associated with their social influence on the WTs.

4.4. Mediating Role of Behavioral Intention on the Relationship Between Social Influence and Use Behavior

To investigate the mediator, the Sobel test was utilized to examine if behavioral intention significantly mediated the relationship between social influence and use behavior. The results confirmed that behavioral intention significantly mediates the relationship between social influence and use behavior ($Z = 2.86$, $p < .001$).

A bootstrapping method was performed using SPSS Process Macro to examine if behavioral intention mediated the relationship between social influence and use behavior. First, the results of the simple linear regression analysis show that social influence was a significant predictor of behavioral intention ($b = .3373$, $t = 6.0494$, $p < .001$). Next, while controlling for behavioral intention, the results of the second regression analysis show that social influence was a significant

predictor of use behavior ($b = .3341$, $t = 8.1383$, $p < .001$). The results of the indirect effect based on 5000 bootstrap samples show a significant indirect positive relationship between social influence and use behavior mediated by behavioral intention ($a*b = .0473$, Bootstrap CI95 = .0132 and .0961). The mediator, behavioral intention, accounted for approximately 12% of the total effect on use behavior. Furthermore, there was a statistically significant direct effect between social influence and use behavior ($b = .3341$, $t = 8.1383$, $p < .001$). Table 6 displays the results of the mediation analysis.

Table 6: Mediation Analysis

Variable / Effect	<i>b</i>	<i>se</i>	<i>t</i>	<i>P</i>	95% Confidence Interval	
SI → UB	.3341	.0411	8.1383	< .001	.2533	.4150
SI → BI	.3373	.0558	6.0494	< .001	.2275	.4471
SI → BI → UB	.1401	.0425	3.2940	< .001	.0564	.2239
Effects						
Direct*	.3341	.0411	8.1383	< .001	.2533	.4150
Indirect*	.0473	.0211			.0135	.0949
Total*	.3814	.0392	9.7342	< .001	.3042	.4585

5. DISCUSSION OF FINDINGS

The study reveals a significant positive relationship between behavioral intention and the actual usage of wireless technologies (WTs), aligning with previous research that emphasizes the importance of intention in technology adoption. This finding supports the notion that users' intentions are crucial predictors of their actual behavior, reinforcing the theoretical frameworks like the Unified Theory of Acceptance and Use of Technology (UTAUT) [10], [11], [12].

Additionally, the research identifies a strong positive correlation between social influence and behavioral intention to use the WTs, suggesting that the opinions and behaviors of peers significantly impact users' intentions to adopt WTs. This aligns with existing literature that highlights social influence as a critical factor in technology acceptance, particularly in educational settings where collaboration and peer support are vital [8], [9], [3].

There was a significant positive mediating effect of behavioural intention on the relationship between SI and TU (Sobel z -value=9.157887, $p < 0.001$). The type of mediation is partial as SI predicts TU directly and indirectly through BI. This is in line with results from a study by [13], [14].

The study's findings challenge previous models that overlooked social influence as a predictor of technology adoption, thereby refining our understanding of the dynamics at play in technology usage [5]. This contribution is significant as it encourages further exploration of social factors in technology acceptance frameworks.

Overall, the implications of this research underscore the necessity for targeted interventions that leverage social influence to enhance behavioral intentions, ultimately promoting greater adoption of wireless technologies in higher education [4]. This aligns with the call for more nuanced strategies in technology adoption literature, emphasizing the role of social dynamics in shaping user behavior.

6. CONCLUSIONS

The research examined the role of behavioral intention to use as a mediator between social influence and actual technology usage. It is important to highlight that significant positive correlations were found among the variables under study. Social influence played a crucial role in enhancing users' behavioral intention to adopt the technologies. Consequently, as users experience greater social influence, they are more likely to exhibit favorable behaviors toward utilizing the technology.

Furthermore, an increase in behavioral intention to use the technologies correspondingly led to increased actual usage. Thus, the greater the users' inclination to respond positively to the technology, the more they engage with it. Additionally, social influence directly impacted actual technology usage; therefore, heightened social encouragement resulted in increased utilization of the technology.

This study makes a significant theoretical contribution by extending the existing body of knowledge on technology acceptance and usage, particularly in the context of wireless technologies. While prior frameworks, such as the Unified Theory of Acceptance and Use of Technology (UTAUT), have established foundational relationships among various constructs, this research identifies a direct link between social influence and technology usage. This finding challenges and refines previous models that did not explicitly incorporate social influence as a predictor of technology adoption.

By elucidating this relationship, the study enhances our understanding of how social dynamics shape technological engagement, thereby offering a more nuanced perspective on user behavior. Furthermore, the implications of these findings are multifaceted. They not only provide theoretical insights but also yield practical guidance for policymakers, educators, and technology developers striving to foster user engagement with wireless technologies.

For public universities, the results are particularly relevant for academic staff and management, informing their strategies for implementing education-related technologies. Policymakers are encouraged to develop technology usage policies that consider social influence and behavioral intention as critical factors. Additionally, initiatives aimed at stimulating individual staff engagement with technology should be prioritized.

The study advocates for policy frameworks that promote inclusive technologies by addressing behavioral challenges and enhancing service delivery. Recognizing the role of social influence and behavioral concerns is essential for creating effective interventions.

This research suggests that future studies focus on longitudinal studies to examine the evolution of behavioral intentions and social influences over time as new wireless technologies are introduced. Moreover, the decision to exclude age, gender, and experience as moderating factors in this study creates an opportunity for subsequent research to explore how these variables interact with social influence and behavioral intention within technology adoption frameworks. By integrating these dimensions, scholars can achieve a more nuanced comprehension of the complexities associated with technology acceptance in higher education contexts. Such investigations would significantly enhance our understanding of the dynamics of technology adoption in rapidly evolving environments.

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AUTHORS

Mr. Kyambadde Abdunool is a lecturer in the Department of Marketing and Management at Makerere University Business School, Uganda. He is currently a PhD student at ICT University, Cameroon. He was awarded a Master of Science in Information Communication Technology from ICT University, Cameroon in 2017. His research interests include Wireless Technologies and E-Learning.



Mr. Mwase Ali is a lecturer in the Department of Marketing and Management at Makerere University Business School, Uganda. He is currently a PhD student at the University of South Africa. He specializes in Information Systems and IT Security, contributing to both academic teaching and research in these fields. His research interests include Fintechs, Cyber Security, Information Systems, and Ehealth.



Mr. Ssebanenya Muhammad is a lecturer in the Department of Accounting and Finance at Makerere University Business School, Uganda. He was awarded a Master of Business Administration at Makerere University, Uganda in 2024. His research interests include Financial Performance.



Ms. Saunders Warda is a lecturer in the Department of Human Resource Management at Makerere University Business School, Uganda. She was awarded a Master of Human Resource Management from Makerere University, Uganda in 2016. Her research interests include: Employee Engagement

