



## **Predicting the Intention to Adopt WhatsApp Groups as an Innovative Source of Business Financing: An Application of the Technology Acceptance Model**

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### **ABSTRACT**

The purpose of this study was to examine the intention to adopt the WhatsApp group as a source of business financing. The study incorporated anxiety, perceived content quality (PCQ), perceived system quality (PSQ), and image into the Technology Acceptance Model (TAM) to forecast the adoption level in WhatsApp groups based on these variables. Employing a quantitative research approach, data was gathered through an online questionnaire from 362 respondents in Ghana. Structural Equation Modeling (SEM) was employed for data analysis using Amos 27. Findings revealed positive effects of image, perceived content quality, and perceived ease of use on perceived usefulness. Additionally, the study identified that perceived system quality had a significant effect on perceived ease of use, while perceived ease of use and perceived usefulness had significant effects on attitude towards use. Also, perceived usefulness and attitude towards use had significant positive effects on behavioural intention. Finally, the study found that attitude toward use played a partial mediating role in the relationships between perceived usefulness and behavioural intention to use. This empirical paper is one of the first to have tested the TAM in the users' intention to adopt the WhatsApp group as a source of business financing.

**JEL Classification:** M21, M15

**Keywords:** WhatsApp Groups; Innovation; Business Finance; Technology Acceptance Model –TAM; Mobile Instant Messaging

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*Article history:*

Received: 27 January 2024

Accepted: 30 July 2024

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DOI: <http://doi.org/10.47836/ijeam.18.2.02>

© International Journal of Economics and Management. ISSN 1823-836X. e-ISSN 2600-9390.

## INTRODUCTION

Mobile instant messaging (MIM) is a rapidly evolving digital technology that is reshaping communication dynamics. Notably, MIM applications such as WhatsApp, WeChat, Facebook Messenger, Telegram, and Snapchat operate across diverse operating systems like Android, iOS, and Windows. These applications have transcended their initial purpose, becoming integral web platforms for various purposes, including entertainment, education, health, and work (Afful and Akrong, 2020; Cruz-Cárdenas et al., 2019; Ezra et al., 2020; Motteram et al., 2020).

WhatsApp is the leading MIM, with two billion monthly users as of January 2023 (Statista, 2023). The dynamic nature of users' behavior on this platform necessitates a continuous review of market expectations, especially with the global proliferation of smartphones and mobile apps (Kritzinger and Ronnie, 2020). One of the key features of WhatsApp, the Group chat, has emerged as a popular means for users to connect, share information, and exchange ideas (Chris, 2019).

While existing research has explored the adoption of WhatsApp groups in various contexts, such as education, politics, healthcare, and waste management, limited attention has been given to its application in business financing (Ibrahim et al., 2014; Roitman and Yeshua-Katz, 2022; Chory et al., 2021; Chen and Neo, 2019). In particular, Gazit and Aharony (2018) conducted an examination of the characteristics and dynamics of individual WhatsApp groups. Their study revealed that various psychological factors, including socialization, social support, selfishness, age, and the perceived importance of the group, serve as predictors of individuals' intentions to participate in WhatsApp groups. This research provided valuable insights into the intricate elements shaping the dynamics of single WhatsApp groups. Conversely, other studies have explored different dimensions of WhatsApp group usage. For instance, research by Baishya and Maheshwari (2020), Bouhnik and Deshen (2014), and Rosenberg and Asterhan (2018) focused on the utilization of WhatsApp groups for teaching and learning in a classroom setting. Additionally, Resende et al. (2019) investigated the role of WhatsApp groups in information dissemination, while Aharony and Gazit (2016) explored the significance of WhatsApp groups within family systems.

A significant motivation for this research is the rising trend of businesses, particularly in Africa, Europe, and Brazil, facing challenges in obtaining loans from traditional banks, leading to increased reliance on alternative funding sources (Godke and McCahery, 2019). In Ghana, WhatsApp groups have emerged as platforms where group members pool funds to support various social activities, including weddings, funerals, school projects, and healthcare expenses. This alternative channel for raising funds can be important for the growth and survival of small businesses. Despite these observations, there has been a notable gap in research regarding the potential use of WhatsApp groups for raising finance in a business context. Except, Ahmad and Farooqi (2020) who focused specifically on the utilization of WhatsApp in conducting business transactions within the unorganized retail sector. Their work represents an effort in exploring the applications of WhatsApp groups, particularly in the area of business finance, where limited attention has been directed thus far.

This study pursues a dual objective. Firstly, it aims to examine the intention to adopt WhatsApp groups as a source of business financing, leveraging the Technology Acceptance Model (TAM) as a theoretical foundation. The model incorporates factors such as image (I), perceived content quality (PCQ), perceived system quality (PSQ), anxiety (A), perceived usefulness (PU), and perceived ease of use (PEOU) to explore their interrelationships.

Secondly, the study investigates the mediating role of attitude towards use (ATU) in the relationship between perceived usefulness (PU), perceived ease of use (PEOU), and behavioral intention to use (BITU). In line with previous research highlighting the significance of attitude towards (ATU) use in influencing behavioral intentions (Vahda et al., 2021; Abdulquadri et al., 2021), this study aims to understand how ATU may impact the intention to use WhatsApp groups for business financing.

The potential contributions of this research are substantial. The findings may enhance our understanding of the factors influencing the adoption of WhatsApp groups for business financing, offering valuable insights for individuals, groups, and small ventures. From a theoretical standpoint, the study contributes to existing literature by explaining the importance of the intention to use WhatsApp groups for business financing. On a managerial level, the insights gained may assist mobile instant message operators in harnessing the business potential of their platforms.

## REVIEW OF LITERATURE

### Theoretical Background

This study integrates theory of reasoned action (TRA) (Ajzen and Fishbein, 1975) and technology acceptance model (TAM) (Davis, 1986) to predict the intention to adopt WhatsApp groups as an innovative source of business financing. According to TRA, most behaviors are under an individual's volitional control and can be predicted from their behavioral intentions. TRA posits that a person's behavior is driven by their intention to perform that behavior, which is influenced by their attitude towards it. This theory offers a structured approach to understanding how personal attitudes and social norms shape behavioral intentions and actions. A person's intention to engage in a specific activity is the direct predictor of their actual behavior (Ajzen and Fishbein, 1980). Moreover, TAM (Davis, 1986) asserts that attitude towards technology use is influenced by perceived ease of use and perceived usefulness. TAM provides a comprehensive framework for understanding the factors that affect user acceptance and technology usage, offering valuable insights for the design and implementation of new technologies across various fields. It also aims to explain and predict how users come to accept and utilize technology. Both the attitude towards system use and perceived usefulness are key predictors of the intention to use the system (Davis, 1989).

The technology acceptance model (TAM) stands out as the predominant conceptual framework for explaining the adoption dynamics of innovations related to computers (Chen et al., 2008; Davis, 1989; Masrom, 2007; Walczuch et al., 2007). In alignment with Calisir et al. (2014), the conceptual framework is expanded by integrating the following factors into TAM: image (I), perceived content quality (PQC), perceived system quality (PSQ), and anxiety (A).

### Hypothesis Development

#### **Image (I) and Perceived Usefulness (PU)**

Image is defined as "the degree to which the use of an innovation is perceived to enhance one's image or status in one's social system" (Moore and Benbasat, 1991). The perception that using WhatsApp groups may enhance one's status or prestige in securing funds for business is a potential motivator for users. By doing so, individuals may impress their WhatsApp group members, paving the way for new career opportunities in the future. This concept aligns with the findings of Phatthana and Mat (2011), who observed a positive influence of website image on both perceived ease of use (PEOU) and perceived usefulness (PU). Various studies have explored the relationship between image and attitude in different contexts. Notably, in the tourism domain, image plays a crucial role in shaping tourists' attitudes toward the places they plan to visit (Yoon and Uysal, 2005). Similarly, in the realm of products, studies by Brijs et al. (2011) and Elliot et al. (2011) have highlighted the impact of image on attitudes. Additionally, in the context of national cuisine, Phillips et al. (2013) have demonstrated the influence of image on attitudes toward specific culinary offerings. Furthermore, the link between image and perceived usefulness has been a subject of investigation in the literature. Sang et al. (2009) found that subjective image, along with norms, output quality, and perceived ease of use, serves as a significant predictor of perceived usefulness. These findings collectively underscore the importance of image not only in shaping attitudes but also in influencing the perceived utility of a particular innovation or platform, as demonstrated by the significant effect of image on perceived usefulness in various studies (Sang et al., 2009; Venkatesh and Davis, 2000). Therefore, we hypothesize as follows:

*H1: Image will have a positive effect on the perceived usefulness of WhatsApp group as an innovative source of business financing.*

#### **Perceived Content Quality (PCQ) and Perceived Usefulness (PU)**

Perceived Content Quality refers to the perception of information related to product characteristics and features (Flavián et al., 2009). In the context of this study, the variables used to measure perceived content quality are associated with different types of information generated on WhatsApp platforms that are essential for users. It is anticipated that as the perception of content quality increases, potential users are likely to view the system as valuable, consequently leading to system adoption. Several studies have validated the importance of perceived content quality, particularly its impact on the perceived ease of use of WhatsApp (Nyasulu and Dominic, 2019; Shambare, 2014).

Nyasulu et al. (2019) further identified that ease of use, perceived usefulness, perceived behavior control, and subjective norm collectively influenced the intention to adopt WhatsApp. Therefore, we hypothesize as follows:

*H2: Perceived content quality will have a positive effect on the perceived usefulness of WhatsApp Group as an innovative source of business financing.*

### **Perceived System Quality (PSQ) and Perceived Ease of Use (PEOU)**

Perceived System Quality as defined by Gorla et al. (2010), pertains to the quality of the information system processing itself, encompassing both software and data components. It serves as a measure of the technical soundness of the system, with reliability, convenience, response system accessibility, and flexibility being key indicators of system quality. When potential users encounter security challenges or interruptions while using the system, it may lead to a discontinuation of use. Such withdrawal from system usage can subsequently diminish the perception of system ease of use, thereby influencing the behavioral intention to continue using the system (Lee and Lee, 2008). Numerous scholars have explored the significant impact of perceived system quality on perceived ease of use. Wang (2016), for instance, investigated the relationship between website quality and perceived usefulness, while Alsabawy et al. (2016) delved into the effects of IT quality and IT services on the perceived usefulness of learning systems. Wang and Wang (2009) found that self-efficacy, system quality, and service quality collectively exert positive influences on the perceived ease of use. These studies collectively highlight the crucial role of system quality in shaping users' perceptions of ease of use and overall usability of information systems. Therefore, we hypothesize as follows:

*H3: Perceived system quality will have a positive effect on perceived ease of use of WhatsApp Group as an innovative source of business financing.*

### **Anxiety (A) and Perceived Ease of Use (PEOU)**

Venkatesh et al. (2003, p. 432), described anxiety as “evoking anxious or emotional reactions when it comes to performing a behaviour”. Calisir et al. (2014) conceptualized anxiety as a feeling of nervousness, worry, or unease related to an uncertain outcome, accompanied by a strong desire or concern for a particular event or action to occur. It is acknowledged that anxiety is a normal human emotion experienced by everyone, often arising in situations such as taking exams, facing work-related challenges, or making important decisions. Bervell and Umar (2020) identified three main factors contributing to Learning Management System anxiety: outcome expectation, colleague influence, and support for use. Additionally, several scholars, including Dönmez-Turan and Kir (2019) and Verkijika (2020), have linked anxiety to the adoption of information systems. Empirical research by Bai et al. (2019) further confirmed that anxiety negatively impacts the adoption of information and communication technology (ICT). The heightened cognitive stress during anxious or stressful situations can potentially affect decision-making processes and cognitive abilities. Simple tasks may seem more challenging, and the individual may find using straightforward devices or navigating familiar websites more difficult. Anxiety introduces a mental fog that interferes with the ability to focus, comprehend instructions, and make rational judgments. This cognitive fog can distort perceptions, making interfaces, systems, or procedures appear more complicated or daunting than they are under calm and relaxed conditions. In this way, anxiety can significantly influence the perceived complexity and difficulty of tasks, impacting user experiences with various technologies. Therefore, we hypothesize as follows:

*H4: Anxiety will have a negative effect on perceived ease of use of WhatsApp group as an innovative source of business financing.*

### **Perceived Ease of Use (PEOU) and Perceived Usefulness (PU)**

Perceived Ease of Use refers to “the degree to which a person believes that using a particular system would be free from effort (Davis, 1989)” p.320. The TAM model posits that perceived ease of use predicts both attitudes toward the use and perceived usefulness (Davis, 1989; Davis et al., 1989). The literature provides evidence of a positive effect of perceived ease of use on the perceived usefulness of WhatsApp adoption (Al-Marroof et al., 2021; Chan et al., 2020; Magogwe and Jaiyeoba, 2019; Shambare, 2014). When users find a system easy to use, they tend to perceive it as more useful. Simplicity and ease of interaction contribute to a positive attitude toward the system, leading users to

believe it will be beneficial in achieving their goals (Paramita and Hidayat, 2023; Ziouache et al., 2023). Therefore, we hypothesize as follows:

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*H5: Perceived ease of use will have a positive effect on the perceived usefulness of WhatsApp Group as an innovative source of business financing.*

#### **Perceived Usefulness (PU) and Attitude Towards Use (APU)**

Perceived Usefulness refers to the “degree to which a person believes that using a particular system would enhance his or her performance” (Davis, 1989, p.320). The TAM model suggests that attitude to use is predicted by both perceived usefulness and perceived ease of use. Davis (1989) indicates that perceived usefulness is one of the most important predictors of intention to use a system. Thus, as users perceived that using a system can improve their performance, then they may intend to use the system. Thus, for the use of WhatsApp system, perceived usefulness becomes very important. In addition, the positive effects of perceived usefulness on behavioural intention to use WhatsApp is established in the literature (Chan et al., 2020; Magogwe and Jaiyeoba, 2019; Ogbonnaya, 2019; Shambare, 2014). Therefore, we hypothesize as follows:

*H6: Perceived usefulness will have a positive effect on Attitude towards the use of WhatsApp Group as an innovative source of business financing.*

#### **Perceived Ease of Use (PEOU and Attitude Towards Use (APU)**

Perceived ease of use refers to the user's perception of how easy or difficult a particular system or technology is to use (Davis, 1989). It involves the user's subjective judgment about the effort required to use the technology effectively (Davis, 1989). TAM proposes that perceived ease of use predicts both perceived usefulness and attitude toward use (Davis, 1989). The relationship between perceived usefulness and ease of use can be articulated that, when the WhatsApp group is user-friendly, it reduces the time required for potential users to learn it. This could potentially be a factor contributing to an enhanced perception of the WhatsApp group usefulness, assuming all other factors remain constant (Davis, 1989; Venkatesh and Davis, 2000). Several studies have supported the direct and indirect relationships between PEOU and ATU, contributing to the development and refinement of technology acceptance models used in various domains (Lee and Lee 2008; Ogbonnaya, 2019; Shambare, 2014; Calisir et al., 2014). Therefore, we hypothesize as follows:

*H7: Perceived Ease of Use will have a positive effect on Attitude towards the use of WhatsApp Group as an innovative source of business financing.*

#### **Perceived Usefulness (PU) and Behavioural Intention to Use (BITU)**

Perceived Usefulness refers to an individual's subjective perception of how using a particular technology will enhance their job performance or make tasks easier (Davis, 1989). It represents the belief that using the technology will result in tangible benefits and effectiveness in achieving specific goals or tasks (Davis, 1989). TAM asserts that the inclination to use WhatsApp is determined by both how easy users perceive it to be and how beneficial they find it. Additionally, both the attitude towards using WhatsApp groups and the perceived usefulness of these groups are factors that forecast the intention to use them (Davis, 1989). “Among the factors, perceived usefulness is found to be a most significant predictor of intention to use” (Davis 1989). Research in technology acceptance models has consistently shown that perceived usefulness plays a pivotal role in shaping users' behavioral intentions to adopt and use technology. When users perceive a WhatsApp group as useful and beneficial, they are more likely to intend to use it. Therefore, efforts to enhance perceived usefulness through demonstrating its relevance and benefits can positively impact users' intentions to adopt WhatsApp group as an innovative source of business financing. (Lee and Lee 2008; Ogbonnaya, 2019; Shambare, 2014; Calisir et al., 2014; Hidalgo-Baz et al., 2017). Therefore, we hypothesize as follows:

*H8: Perceived Usefulness of WhatsApp Group will have a positive effect on behavioural intention to use WhatsApp as an innovative source of business financing.*

### Attitude Toward Use (ATU) and Behavioural Intention to Use (BITU)

Attitude depicts how a user is likely to react either negatively or positively in response to an event, object, or incentive (Fishbein and Ajzen, 1975). Fishbein and Ajzen argued that attitude is a complex construct with an affective,

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behavioural, and intellectual elements. The intellectual elements contain prior knowledge of an object or subject. The affective elements relate to an individual's likes and dislikes, this consists of personal attributes, but the behavioural elements refer to the type of action an individual takes concerning a matter or an object (Fishbein and Ajzen, 1975). This study seeks to find out the actions users take towards the adoption of WhatsApp group for business finance and what influences the decisions to take these actions. Even though attitude is argued to predict intention than behaviour (Ajzen and Fishbein, 1975; Morwitz and Munz, 2021), meanwhile recent studies show that there is a direct link between attitude and behavioural intention (see, Morwitz and Munz, 2021; Akkaya et al., 2017). The reason for the positive influence of attitude on consumers' buying behaviour is timely and easily accessible to a lot of product options and comparison of prices (Akkaya et al., 2017). Carvalho et al. (2016) found no positive correlation between a positive attitude and purchasing behaviour. Furthermore, Hidalgo-Baz et al. (2017) showed that due to the environmental benefits of organic products, and consumers' knowledge about organic products users' attitudes related significantly positively to digital purchasing behavior. Therefore, we hypothesize as follows:

*H9: Attitude towards the use of WhatsApp Group will have a positive effect on behavioural intention to use WhatsApp as an innovative source of business financing.*

### Mediating effect of Attitude toward use (ATU): on behavioural intention to use (BITU)

The Theory of Reasoned Action posits that attitude and subjective norm collectively influence behavioral intention (Ajzen and Fishbein, 1980). According to Calisir et al. (2014), behavioral intention acts as a stimulant for factors that subsequently influence behavior, representing a person's likelihood of performing a particular behavior. In the context of mobile applications, several studies have explored the impact of intended use. Shambare (2014), for example, identified that a positive attitude towards using WhatsApp groups was linked to the intention to use the system. Empirical evidence in the literature consistently supports the positive influence of attitudes toward the use of WhatsApp on both behavioral intentions to use the system and actual usage. This evidence is found in studies by (Bere and Rambe, 2016; Damanik, 2020; Gasaymeh, 2017; Panah and Babar, 2020; Salem et al., 2018). Empirical evidence from the literature suggests that ATU is likely to influence the association between PU and BITU. Therefore, it is hypothesized that attitude toward use mediates perceived usefulness, perceived ease of use and behavioural intention to use WhatsApp groups.

*H10: Attitude towards use positively mediates the relationships between perceived usefulness and behavioural intention to use WhatsApp group as an innovative source of business financing.*

This conceptual framework (Figure 1) illustrates Image and PCQ as antecedent to PU, and PCQ and Anxiety as antecedent of PEOU. Further, it shows the impact of PEOU on PU and ATU. Moreover, it depicts the mediating effect of ATU in the association between PU and BITU.

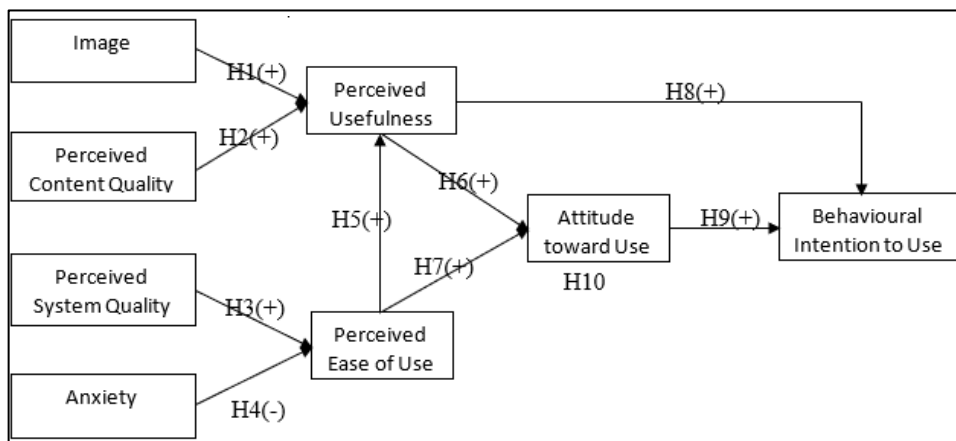


Figure 1 Conceptual Framework

## RESEARCH METHODOLOGY

### Sample and Data Collection

The study employed a non-probability sampling technique known as purposive sampling to select respondents from WhatsApp groups. To determine the minimum sample size, the G\*Power 3.1.9.7 Analysis Programme (Hair et al., 2010) was utilized. By setting the effect size at 0.15 (medium effect),  $\alpha$  at 0.05, and power at 0.95 in the input parameters, the power analysis indicated a minimum required sample size of 146. However, considering various factors such as the research method, time constraints, available resources, adequacy of the effect size, completion rate, the number of variables or model complexity, previous study sample sizes, and recommendations by Kline and Walters (2016) and Memon et al. (2020), a predetermined sample size of not less than 300 individuals was deemed appropriate for the study. The research employed a quantitative approach through an online survey questionnaire (Regmi et al., 2016). A Google Form survey was created, and the link was shared across identified groups, including Old Student associations, Student Associations, Religious groups, Family Groups, Political groups, Dancing groups, Sports groups, and Cultural groups, from June 1, 2021, to August 2021. A total of 362 members responded to the online questionnaire.

Table 2 presents three measurement items under the category of "image," adapted from Calisir et al. (2014). Additionally, three measurement items were listed under perceived content quality, also adapted from Calisir et al. (2014). Three measurement items under perceived system quality were derived from Calisir et al. (2014). Four measurement items under anxiety were adapted from Calisir et al. (2014). Perceived usefulness was measured using four items adapted from Davis (1986), while perceived ease of use employed four measurement items adapted from Suh and Han (2003). Attitude towards use was measured with four items adapted from Calisir et al. (2014). Lastly, behavioral intention to use was measured with four items adapted from Wu et al. (2008) and Venkatesh et al. (2003).

### Measures

The questionnaire developed for this study designed from an extensive review of relevant literature concerning Mobile Instant Messaging (MIM) and the Technology Acceptance Model (TAM) proposed by Davis in 1989. Table 1 presents the demographic profile of the study participants, indicating that 73.8% of respondents were male, while 26.2% were female. The majority of participants, accounting for 68%, held university degrees. In the second section of the questionnaire, respondents utilized a 5-point Likert scale to express their agreement levels on each item. These items were drawn from various relevant studies that affirmed the reliability and validity of the employed instruments. Within the Likert scale, a rating of 1 denoted "strongly disagree," while 5 signified "strongly agree." The constructs and their corresponding sources are detailed in Table 2. To make the items applicable to the WhatsApp group research, some items were slightly modified. The initial version of the questionnaire was piloted on 30 respondents, who were subsequently excluded from the final survey sample. Valuable feedback from the pilot study informed revisions to the wording and structure of the questionnaires, ensuring improved clarity and relevance for the study participants.

Table 1 Demographic Profile of the respondents

Items	Frequencies	Percentages
<i>Gender</i>		
Male	267	73.8
Female	95	26.2
<i>Educational Background</i>		
Bachelor's Degree	247	68.2
Master's Degree	56	15.5
Diploma/HND	47	13.0
Senior High School	12	3.3
<i>Job Description</i>		
Teacher	110	21.5
Student	78	23.5
CEO/Owner/Manager	85	13.8
Unemployed	50	3.3
Nurse	12	2.5
Fashion Design	9	1.1

Agric Extension Officer	4	1.1
Driving	4	1.1
National Service Personnel	4	1.7
Other	6	30.4

Table 1 Cont.

Items	Frequencies	Percentages
<i>Internet Experience</i>		
More than 5 years	280	77.3
2 – 5 years	41	11.3
6 months to 1 year	16	4.4
1 – 2 Years	13	3.6
Less than 6 months	12	3.3
<i>WhatsApp Use in a Week</i>		
More than 3 hours per day	240	66.3
2 – 3 hours per day	41	11.3
1 – 2 hours per day	40	11.0
Less than 1 hour per day	41	11.3
<i>Device Used for WhatsApp</i>		
Mobile phone	294	81.2
Mobile phone; Laptop	38	10.5
Tablet	8	2.2
Laptop	8	2.2
Mobile phone; Tablet; Laptop; Desktop Computer	6	1.7
Mobile phone; Laptop; Desktop Computer	4	1.1
Mobile phone; Desktop Computer	3	0.8
Mobile phone; Tablet	1	0.3
<i>Amount Raised (GHC)</i>		
Below 1000	36	9.9
1000-2000	80	22.1
2000-3000	228	63.0
3000 and Above	18	5.0

### Reliability and Validity

As part of the preliminary analysis for the estimation of the structural equation modeling, a Confirmatory Factor Analysis (CFA) was conducted using the Maximum Likelihood estimation method, with results presented in Table 2. The standard factor loadings for the CFA were expected to be at least 0.5, and any measurement item with a factor score of less than 0.5 was deleted (Dogbe et al., 2020; Iddris et al., 2022). Results presented showed that the least factor score for the image was 0.707, that of perceived content quality was 0.659, that of perceived system quality was 0.684, that of anxiety was 0.691, that of perceived usefulness was 0.724, that of attitude towards use was 0.611, and that of behavioural intention to use was 0.739.

The internal consistencies of the measurement items were assessed by calculating Cronbach’s alpha (CA), of which an alpha score of at least 0.7 indicates the construct was reliably measured by its observed variables. Convergent validity was estimated by calculating the Average Variance Extracted (AVE) from the CFA. Convergent validity is said to be achieved when the AVE is greater than 0.5, with its Composite Reliability (CR) also being at least 0.7 (Fornell and Larcker, 1981), which were all achieved for this study.

The study presented the model fitness for the CFA performed, to assess if the data appropriately fit the model of the study. From Hair et al.’s (2010) recommendation, CMIN/DF should be less than 3, GFI supposed to be at least 0.8, TLI and CFI were to be greater than 0.9, while RMSEA and SRMR should be less than 0.08 (Hair et al., 2010). As could be seen from the results presented in Table 2, all fit indices met their respective thresholds.

Table 2 Confirmatory Factor Analysis (CFA)

Model Fitness: CMIN=814.15; DF=417; CMIN/DF=1.95; GFI=0.832; PClose=0.114; TLI=0.922; CFI=0.959; RMSEA=0.054; SRMR=0.067	Std. Loadings	Factor
<i>Image: CA=0.781; CR=0.779; AVE=0.542</i>		
IM1: People using WhatsApp platform have more prestige than those who do not		0.786
IM2: People using WhatsApp platform have a high profile		0.712
IM3: People using WhatsApp platform have a status symbol		0.707
<i>Perceived Content Quality (C Quality): CA=0.827; CR=0.808; AVE=0.587</i>		
PCQ1: I think that WhatsApp platform will provide various information		0.875
PCQ2: I think that the information I will get from WhatsApp group is valuable		0.659
PCQ3: WhatsApp platform will provide the information and services I need		0.749
<i>Perceived System quality (S Quality): CA=0.791; CR=0.778; AVE=0.539</i>		
PSQ1: I think that WhatsApp platform will provide very reliable service		0.782



PSQ2: I think that the speed of WhatsApp platform will be fast	0.733
PSQ3: I think that WhatsApp platform is secure to use	0.684

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Table 2 Cont.

Model Fitness: CMIN=814.15; DF=417; CMIN/DF=1.95; GFI=0.832; PClose=0.114; TLI=0.922; CFI=0.959; RMSEA=0.054; SRMR=0.067	Std. Loadings	Factor
<i>Anxiety: CA=0.798; CR=0.832; AVE=0.554</i>		
ANX1: I feel apprehensive about using the WhatsApp platform		0.691
ANX2: It scares me to think that I could lose a lot of information using the WhatsApp platform by hitting the wrong key		0.772
ANX3: I hesitate to use the WhatsApp platform for fear of making mistakes I cannot correct		0.788
ANX4: The WhatsApp platform is somewhat intimidating to me		0.723
<i>Perceived Usefulness (Usefulness): CA=0.804; CR=0.853; AVE=0.592</i>		
PU1: Using WhatsApp platform would enable me to get funding more quickly		0.766
PU2: Using WhatsApp platform would increase the productivity of my information in case the fund collected exceed the requested amount		0.724
PU3: Using WhatsApp platform would make it easier for me to get funding		0.806
PU4: Using WhatsApp platform would enhance my effectiveness on getting funding		0.779
<i>Perceived Ease of Use (Ease): CA=0.768; CR=0.840; AVE=0.567</i>		
EU1: It would be easy for me to learn how to use WhatsApp platform,		0.748
EU2: I would find it easy to get a WhatsApp platform to do what I want it to do		0.786
EU3: It would be easy for me remember how to use a WhatsApp platform		0.692
EU4: My interaction with the WhatsApp platform would be clear and understandable		0.783
<i>Attitude Towards Use (Attitude): CA=0.865; CR=0.806; AVE=0.511</i>		
ATU1: Using the WhatsApp platform is a good idea		0.706
ATU2: Using the WhatsApp platform is a wise idea		0.752
ATU3: I like the idea of using the WhatsApp platform		0.611
ATU4: Using the WhatsApp platform is unpleasant		0.779
<i>Behavioural Intention to Use (Intention): CA=0.799; CR=0.870; AVE=0.626</i>		
INT1: Overall speaking, the effect of using WhatsApp platform makes me feel satisfied		0.828
INT2: I predict I would use WhatsApp platforms in the near future		0.811
INT3: I plan to use WhatsApp platforms in the near future		0.739
INT4: My intention would be to use WhatsApp platform rather than traditional financing tools		0.784

**Discriminant Validity and Common Methods Bias**

There are several options for assessing discriminant validity, but this study adopts a popular approach widely used by researchers such as Bamfo et al. (2018). By their approach, the square-root of Average Variance Extracted ( $\sqrt{AVE}$ ) was measured against the correlation scores. Discriminant validity is said to have been achieved when the least  $\sqrt{AVE}$  was larger than the largest correlation score. Results as presented in Table 3 indicates the study achieved discriminant validity. Discriminant validity implies that the observed variables highly correlated with their respective latent variables, much better than other latent variables or constructs. Secondly, the study also assessed multicollinearity by assessing the correlation scores. Multicollinearity is said to be present in data when a correlation score was greater than 0.8. The highest correlation from this study's dataset was 0.623 (less than 0.8), it was concluded there was no multicollinearity which could potentially lead to a confounding effect.

Table 3 Discriminant Validity and Common Methods Bias

	1	2	3	4	5	6	7	8	9	10	11
Exp (1)	-	.266	.171	0.09	.057	.120	.053	.083	.065	.060	.542
Edu (2)	.261**	-	.300	.152	.030	.014	.113	.061	.006	.029	.017
Gender (3)	.168**	.297**	-	-.218	-.179	-.102	-.105	-.184	-.229	-.121	-.186
Image (4)	.070	.154**	-.217**	<u>0.736</u>	.623	.336	.305	.257	.371	.362	.312
C_Quality (5)	.052	.029	-.176**	.623**	<u>0.766</u>	.620	-.240	.471	.531	.553	.556
S_Quality (6)	.100*	.017	-.106*	.337**	.620**	<u>0.734</u>	-.134	.501	.411	.544	.500
Anxiety (7)	.050	.110*	-.101*	.307**	-.242**	-.134	<u>0.744</u>	-.172	-.208	-.274	-.041
Ease (8)	.085	.065	-.189**	.256**	.472**	.500**	-.169**	<u>0.751</u>	.617	.468	.662
Usefulness (9)	.062	.001	-.224**	.375**	.529**	.412**	-.206**	.610**	<u>0.769</u>	.419	.513
Attitude (10)	.062	.031	-.118*	.366**	.551**	.540**	-.270**	.465**	.407**	<u>0.715</u>	.432
Intention (11)	.539**	.017	-.185**	.311**	.558**	.497**	-.042	.664**	.513**	.431**	<u>0.791</u>

Note: \*\*Sig. at 1%; \*Sig. at 5%.  $\sqrt{AVE}$  are bold and underlined.

Finally, two approaches were adopted to address Common Method Bias (CMB). Initially, a correlation-based marker variable was used, by running a partial correlation. With this approach, a variable which is theoretically unrelated to the main constructs of the study was supposed to be controlled for (Podsakoff et al., 2012). This study

controlled for Job Description (from Table 1), which met this criterion. To conclude there was no CMB, the correlation coefficients of both the partial and zero-order correlations are not supposed to be significantly different (Borah et al., 2023). From the results presented in Table 3, it could be realised that the partial correlations (above the diagonal) were not significantly different from the zero-order correlation scores (below the diagonal). Based on this, it could be concluded that there was no CMB in this study. Further, Harman’s one-factor test was conducted, and the results showed that limiting the factor extraction to 1 gave a total variance of 29.673%, lower than 50%. No single

factor, therefore, explained the majority of the variance in the model and was thus concluded that there was no CMB (Podsakoff and Organ, 1986).

### Descriptive Statistics and Normality

The eight main variables of the study were measured on a 5-point Likert scale. Based on this, a mean score closer to 5 is more desirable. From Table 4, the highest mean score was 3.8179 for Perceive ease of use, while the least mean score was 2.2362 for Anxiety (main variables). In assessing normality in the distribution of the variables for the study, skewness and kurtosis tests were run. For a normally distributed dataset, the value of skewness is expected to be  $\pm 2$  and kurtosis of  $\pm 7$  (Hair et al., 2010; Bryne, 2010). From Table 4, it could be concluded that the dataset was normally distributed for all variables, including the control variables.

Table 4 Descriptive Statistics and Normality

Variables	N	Mean	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Exp	465	3.3077	-1.428	.113	.840	.226
Edu	465	2.6593	-1.733	.113	1.512	.226
Gender	465	1.5773	-.787	.113	2.092	.226
Image	465	3.4030	.145	.113	-.581	.226
C_Quality	465	3.5341	-.200	.113	.135	.226
S_Quality	465	3.7503	-.571	.113	-.061	.226
Anxiety	465	2.2362	.247	.113	-.798	.226
Ease	465	3.8179	-.841	.113	.720	.226
Usefulness	465	3.4250	-.331	.113	-.348	.226
Attitude	465	3.5102	.053	.113	1.635	.226
Intention	465	3.4888	-.119	.113	-.696	.226

## RESULTS AND DISCUSSION

### Results

The estimation of the structural paths was done by Structural Equation Modelling (SEM) approach. The estimation was based on Bias-Corrected (BC) Percentile Method, with 5000 Bootstrap samples and 95% Confidence level. Results from the model estimation were presented in Table 5 and Figure 2. The study controlled for three demographic variables, which were the number of years in using WhatsApp (Exp), the educational level of the respondent (Edu), and the gender of the respondent. The educational level of respondents, although had a positive effect on WhatsApp group adoption propensity, this effect was not statistically significant ( $\beta = 0.025$ ;  $C. R. = 0.455$ ). Gender also had an insignificant negative effect on the adoption of the WhatsApp group ( $\beta = -0.051$ ;  $C. R. = -0.879$ ).

Results indicated a very significant and positive effect of years of experience on the behavioural propensity of using WhatsApp group as an innovative source of financing for business ( $\beta = 0.905$ ;  $C. R. = 7.479$ ). The coefficient indicates that an increase in the number of years in using WhatsApp, increases the chance of adopting the WhatsApp group as a source of financing, by about 90.5%, and vice versa. This was incredibly higher because this was a control variable. This thus indicates how the years of experience, greatly predicted the chances of adopting the WhatsApp group as a source of financing. That is, respondents with higher WhatsApp experience are very much likely to adopt WhatsApp group as a source of financing, compared to respondents with less experience in the use of WhatsApp.

For the direct paths, the study found that image regarding the use of WhatsApp had a significant positive effect on the perceived usefulness of WhatsApp as an innovative source of business financing ( $\beta = 0.609$ ;  $C. R. = 3.030$ ). This implies that an enhanced image will cause an increment in the perceived usefulness of the WhatsApp group by about 60.5%, and vice versa. H1: “Image will have a positive effect on perceived usefulness of WhatsApp as an innovative source of business financing”, was thus supported. Perceived content quality was identified to have a direct

positive effect on perceived usefulness of WhatsApp as an innovative source of business financing ( $\beta = 0.691$ ;  $C.R. = 3.618$ ). This implies that enhanced perceived content quality will cause an increment in perceived usefulness of the WhatsApp group by about 69.1%, and vice versa. H2: “*Perceived Content Quality will have a positive effect on perceived usefulness of WhatsApp as an innovative source of business financing*”, was thus supported.

Perceived system quality had a significant positive effect on the perceived ease of use of WhatsApp as an innovative source of business financing ( $\beta = 0.517$ ;  $C.R. = 7.716$ ). This means that an enhanced perceived system quality will cause an increment in perceived usefulness of WhatsApp group, by about 51.7%, and vice versa. H3:

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“*Perceived System Quality will have positive effect on perceived ease of use of WhatsApp as an innovative source of business financing*”, was thus supported. Anxiety in the use of WhatsApp however had a negative but statistically insignificant effect on perceived ease of use of WhatsApp as an innovative source of business financing ( $\beta = -0.107$ ;  $C.R. = -1.029$ ). H4: “*Anxiety will have positive effect on perceived ease of use of WhatsApp as an innovative source of business financing*”, was thus not supported.

Perceived ease of WhatsApp use, had a significant positive effect on perceived usefulness of WhatsApp as an innovative source of business financing ( $\beta = 0.528$ ;  $C.R. = 2.901$ ). This means that an enhanced perceived ease of use will cause an increment in perceived usefulness of WhatsApp group, by about 52.8%, and vice versa. H5: “*Perceived ease of use will have positive effect on perceived usefulness of WhatsApp as an innovative source of business financing*”, was thus supported.

Perceived usefulness of WhatsApp had a significant positive effect on attitude toward the use of WhatsApp as an innovative source of business financing ( $\beta = 0.616$ ;  $C.R. = 4.597$ ). This indicates that enhanced perceived usefulness of WhatsApp will cause an increment in attitude towards the use of WhatsApp group, by about 61.6%, and vice versa. H6: “*Perceived Usefulness will have a positive effect on Attitude towards the use of WhatsApp as an innovative source of business financing*”, was thus supported. Similarly, Perceived ease of use of WhatsApp had a significant positive effect on attitude towards the use of WhatsApp as an innovative source of business financing ( $\beta = 0.975$ ;  $C.R. = 7.222$ ). This indicates that enhanced perceived ease of use of WhatsApp will cause an increment in attitude towards the use of WhatsApp group, by about 97.5%, and vice versa. H7: “*Perceived Ease of use will have a positive effect on Attitude towards use of WhatsApp as an innovative source of business financing*”, was thus supported.

The study identified the perceived usefulness of WhatsApp to have had a significant positive effect on behavioural intention to use WhatsApp as an innovative source of business financing ( $\beta = 0.874$ ;  $C.R. = 6.028$ ). This indicates that the enhanced perceived usefulness of WhatsApp will cause an increment in behavioural intentions towards the use of WhatsApp group, by about 87.4%, and vice versa. H8: “*Perceive Usefulness will have positive effect on behavioural intention to use WhatsApp as an innovative source of business financing*”, was thus supported. It was also found out that, attitude towards the use of WhatsApp had a significant positive effect on behavioural intention to use WhatsApp as an innovative source of business financing ( $\beta = 0.573$ ;  $C.R. = 8.953$ ). This indicates that an increase in attitude towards the use of WhatsApp will cause an increment in behavioural intentions towards the use of WhatsApp group, by about 87.4%, and vice versa. H9: “*Attitude towards use of WhatsApp will have positive effect on behavioural intention to use WhatsApp as an innovative source of business financing*”, was thus supported.

The study also assessed the mediating effect of attitude in the relationship between perceived usefulness and behavioural intention; as well as perceived ease of use and behavioural intention. From the analysis (Table 5), it was realized that the indirect effect of perceived usefulness on behavioural intention through attitude towards use was 0.353. Since both the lower and upper BCs were positive, the study concludes that this attitude had a significant mediating effect. The mediating effect was however partial, as the direct effect of perceived usefulness on behavioural intention was also significant positive. H10: “*Attitude towards use positively mediates the relationships between perceived usefulness and behavioural intention to use WhatsApp as an innovative source of business financing*” was thus supported.

Table 5 Direct and Mediating Path Estimates

Direct Paths	UnStd. Estimate	S.E.	C.R.
Image → Usefulness	0.609	0.201	3.030**
C_Quality → Usefulness	0.691	0.191	3.618**
S_Quality → Ease	0.517	0.067	7.716**
Anxiety → Ease	-0.107	0.104	-1.029
Ease → Usefulness	0.528	0.182	2.901**
Usefulness → Attitude	0.616	0.134	4.597**
Ease → Attitude	0.975	0.135	7.222**
Usefulness → Intention	0.874	0.145	6.028**

Direct Paths	UnStd. Estimate	S.E.	C.R.
Attitude → Intention	0.573	0.064	8.953**
Exp → Intention	0.905	0.121	7.479**
Edu → Intention	0.025	0.055	0.455
Gender → Intention	-0.051	0.058	-0.879
<i>Indirect Effect</i>			<i>Lower BC</i> <i>Upper BC</i>
Usefulness → Attitude → Intention	0.353	0.145	0.552

Note: Bootstrap Bias-Corrected Confidence Interval at 95%. \*\*Sig. at 1%.

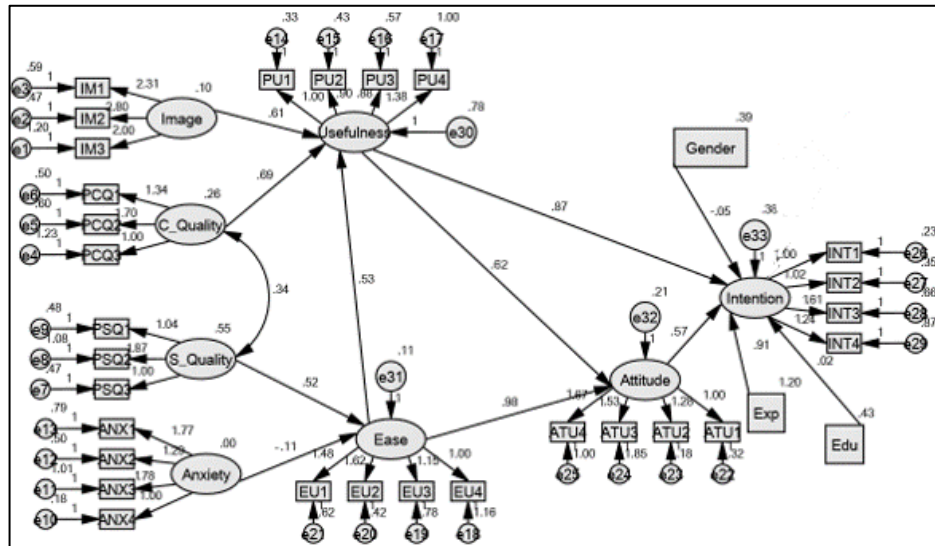


Figure 2 Diagrammatic Presentation of SEM

**Discussion of Results**

This study examined the factors influencing the adoption of the intention to use WhatsApp groups as an innovative source of business financing, employing a modified Technology Acceptance Model (TAM). Firstly, we affirm the importance of perceived usefulness (PU), perceived ease of use (PEOU), attitude towards use (ATU), and behavioral intention to use (BITU) among the original TAM factors as determinants of WhatsApp groups as an innovative source of business financing. Also, attitude towards use positively mediated the relationship between perceived usefulness and behavioural intention to use WhatsApp as an innovative source of business financing.

Secondly, our contribution to modeling research extends the TAM by incorporating image (I) and perceived content quality (PCQ) as antecedents of perceived usefulness (PU) within the conceptual framework. Additionally, perceived system quality (PSQ) and anxiety (I) were identified as antecedents of perceived ease of use (PEOU). The results indicate that behavioral intention to use (BITU) a WhatsApp group is directly explained by perceived usefulness (PU), with perceived content quality (PCQ) exerting an indirect significant effect through perceived usefulness (PU). This suggests that individuals are more inclined to use the platform when they anticipate that the information and services provided will enhance their fundraising prospects. Our findings align with existing literature highlighting the significant impact of perceived usefulness (PU) on the intention to use (BITU) WhatsApp. For instance, (Vahdat et al., 2021; Ahmad and Farooqi, 2020) explored the significant effect of perceived usefulness on the use of Whatsapp. Ahmad and Farooqi (2020) found that ease of use, perceived usefulness, and user attitude strongly predict the intention to use WhatsApp in the retail sector. Correspondingly, our findings align with other research confirming the indirect impact of perceived content quality on the behavioral intention to use electronic systems. For instance, Calisir et al. (2014) delved into the significant indirect effects of perceived content quality, anxiety, perceived system quality, image, perceived ease of use, and perceived usefulness on the intention to use a web-based learning system from automobile workers in Turkey.

Thirdly, the study reveals that PEOU is influenced by factors such as anxiety and PSQ. Notably, PSQ has a higher direct impact on the ease of use of the WhatsApp group, with the perception of higher system quality enhancing an individual's perception of ease of use. Contrary to potential negative expectations, anxiety about using the WhatsApp group negatively affect the initial perception of the system's ease of use. This finding aligns with previous research indicating that anxiety may not significantly impact the adoption of technology, particularly in specific age groups. Bailey et al. (2017) found that anxiety is not significantly linked to perceived usefulness and perceived ease of use in

the adoption of mobile payment among consumers in the United States. This results, which confirmed our findings, suggests that the non-significant relationship between anxiety and the perceived utility and ease of use of mobile payment adoption may be contextualized within the age group of the majority of participants. The study posits that the environment in which these consumers grew up might mitigate the impact of anxiety on the adoption of mobile payment, considering the prevalent technological landscape of their formative years.

Fourthly, a substantial percentage of perceived usefulness is explained by perceived content quality and image. This underscores the significance of businesses providing compelling and useful information on the WhatsApp platform to attract potential users. Our findings differ from some studies, such as Grover et al. (2019), which explored

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behavioral control in predicting consumers' use of social media for transactions. Additionally, the relationship between perceived usefulness and perceived content quality in our research contrasts with the findings of Salloum et al. (2019), who found statistically insignificant effects of content quality on perceived usefulness.

In summary, our results align with the foundational principles of the Technology Acceptance Model (Davis et al., 1989). The study suggests that perceived usefulness and perceived ease of use on the WhatsApp group platform contribute to the behavioral intention to use the system, particularly when users perceive the system to be beneficial. This insight reinforces the relevance of perceived usefulness and ease of use in shaping users' behavioral intentions in the context of innovative platforms like WhatsApp groups.

### **Theoretical Contributions**

This study makes significant contributions to the existing literature by emphasizing the importance of the perceived image of WhatsApp Groups as a determinant of its perceived usefulness in the context of business financing. As individuals and businesses form perceptions about the platform's image, these perceptions can influence their assessments of how valuable WhatsApp Groups can be as an innovative source of financial support.

Furthermore, the research advances our understanding of the role of perceived content quality in shaping the perceived usefulness of WhatsApp Groups for business financing. By identifying the impact of the quality of information and discussions within these groups, the study contributes insights into the factors that enhance the perceived utility of WhatsApp Groups as an innovative financial resource.

Moreover, this research contributes to the Technology Acceptance Model (TAM) literature by highlighting the significance of perceived system quality in influencing the ease-of-use perception of WhatsApp Groups for business financing. The positive relationship indicates that a well-perceived system quality can contribute to the overall ease of use of the platform, fostering its adoption for financial purposes.

Additionally, this study extends the understanding of factors affecting the ease of use of WhatsApp Groups by examining the negative impact of anxiety. By acknowledging the role of anxiety in hindering the ease-of-use perception, the research contributes insights into the psychological barriers that users may face when considering WhatsApp Groups for business financing.

Furthermore, this research advances the understanding of user attitudes towards WhatsApp Groups for business financing by establishing the pivotal role of perceived usefulness. The positive relationship underscores the importance of users' assessments of the platform's utility in shaping their overall attitude toward its adoption for innovative financial purposes.

Furthermore, this study extends the TAM framework by proposing and validating the mediating role of attitude towards use in the relationships between perceived usefulness and behavioral intention. By explaining the cognitive processes through which attitudes mediate this relationship, the research provides a more comprehensive understanding of the factors influencing users' intentions to adopt WhatsApp Groups for business financing. This specific mediation pathway underscores the importance of users' perceptions of the utility of WhatsApp Groups in shaping their overall attitude and, consequently, their behavioral intentions. The identification of this mediating role contributes to a nuanced understanding of the cognitive processes underlying the adoption decision.

### **Managerial Implications**

The findings of this study underscore the application of the Technology Acceptance Model (TAM) into the Ghanaian context, complemented by additional factors. Firstly, the research suggests that individuals and start-ups can explore WhatsApp groups as a viable avenue for securing funds for business financing. When users perceive that the platform enhances the efficiency and outcomes of their financing activities, it stimulates motivation. This heightened motivation, in turn, fosters a sense of value in utilizing WhatsApp groups for business financing intentions. The resulting

competition among group members not only spurs motivation but also encourages the utilization of the system in areas where knowledge may be lacking.

The quality of content emerges as an important factor influencing WhatsApp group usage. Therefore, during the design phase of WhatsApp groups, special attention should be given to content quality. Users are more inclined to engage with the platform when they perceive it as a source of valuable, up-to-date, and relevant information pertaining to their activities. Moreover, perceptions of the platform's reliability, security, and speed play a crucial role in enhancing ease of use. Organizations can contribute to this by establishing secure, reliable, and fast digital centers that users can access round the clock, potentially increasing future usage of WhatsApp systems.

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Addressing the factor of anxiety during system use is identified as another critical consideration. Given that anxiety is not a permanent characteristic, interventions such as suitable training programmes can effectively mitigate this concern. Therefore, organizing training and learning activities focusing on internet usage and modern digital devices becomes essential, especially for individuals lacking proficiency in these areas.

Furthermore, the empirical results of this study have the potential to guide stakeholders in making informed decisions regarding the acceptance of WhatsApp groups. This insight is particularly valuable for supporting the implementation of digitalization systems not only in the Ghanaian context but also in similar contexts. By understanding the factors that influence users' acceptance of WhatsApp groups for business financing, stakeholders can make strategic and effective decisions to facilitate the integration of digital systems in their operations.

## **CONCLUSIONS**

The study focused on investigating the intention to adopt WhatsApp groups as a means of business financing, assessing the impact of external factors associated with the Technology Acceptance Model (TAM) on the adoption and acceptance of WhatsApp groups. Our findings revealed positive effects of image, perceived content quality, and perceived ease of use on perceived usefulness. Additionally, the study identified that perceived system quality had a significant effect on perceived ease of use, while perceived ease of use and perceived usefulness had significant effects on attitude towards use. Also, perceived usefulness and attitude towards use had significant positive effects on behavioural intention. Finally, the study found that attitude toward use played a partial mediating role in the relationships between perceived usefulness and behavioural intention to use. This underscores the importance of users' attitudes in shaping their intentions to adopt and utilize WhatsApp groups for business financing.

## **LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH**

This study explores the factors influencing the adoption of the intention to use WhatsApp groups as an innovative source of business financing, employing a modified Technology Acceptance Model (TAM). While the findings contribute valuable insights to our understanding of TAM's extension in the context of adopting WhatsApp groups for business financing, it is important to acknowledge certain limitations.

Primarily, this study focuses on individuals within common WhatsApp platforms, offering insights into how funds can potentially be raised for business financing. However, it falls short in its scope by not encompassing other social media group platforms. The study also does not research into the specific WhatsApp groups that may exhibit a greater willingness to contribute funds for business financing. Future research endeavors could broaden the scope by comparing WhatsApp with other social media platforms, aiming to identify the platforms that facilitate easier fundraising for businesses. Additionally, further studies could explore specific groups within WhatsApp that are more interested in having the intention to raise funds for business financing, providing a clearer understanding of the dynamics at play.

## **ACKNOWLEDGEMENT**

We like to thank all the respondents who made time to complete our survey instrument.

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