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Factors of in-App Purchase Intention for Smartphones Among Saudi: Theoretical Extension and Analysis

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Abstract

The expansion of the smartphone market and the advancement of its applications (apps) has transformed the economy of mobile apps. However, despite this, many mobile apps fail to attract customers, yet there has been a lack of research and understanding of the factors that affect the decisions to buy them. Accordingly, in emerging nations like Saudi Arabia, there are scant studies to determine and understand the primary determinants that can affect the decision of users to buy paid mobile apps. Therefore, this research aims to explore the key determinants that consumers contemplate while making purchasing decisions for mobile apps for their smart devices. This study adopted a descriptive-analytical technique and data was gathered by administrating an electronic questionnaire survey. A total of 1000 participants was targeted through convenient sampling, of which only 614 questionnaires with complete information were returned. Structural equation modeling (SEM) was employed to conduct the hypothesis testing of the questionnaire. The findings highlight that all determinants are important when deciding to purchase a paid mobile app. These determinants incorporate app trialability, Price value of the app, app usefulness, Electronic Word-of-Mouth about the app (eWOM), app technical reliability, app performance, and app enjoyment. This study provides valuable insights regarding the decisive factors of users to purchase paid mobile apps. It also helps marketers and developers in revenue generation by improving their sales of apps.

Keywords: *Enjoyment, E-WOM, Mobile Applications, Performance, Price Value, Usefulness.*

Introduction

The expansion of the market of smart devices and the advancement of mobile applications (apps) have led to the emergence of an app economy. The rising prominence of smartphones and other mobile devices has raised the demand for mobile applications in numerous fields including gaming, education, healthcare, retail industry. With the increase in acceptance of mobile commerce and payment solutions, the adoption of artificial intelligence and machine learning is also growing in mobile applications. The expectations regarding the growth of the mobile apps market have also increased in succeeding years. The rise in demand for mobile apps and the necessity for businesses to reach their core audience via channels of smart devices are significant determinants of the growth of an app economy. As per the report of Insight Partner (2023), the income generated by mobile apps was around $207.31 billion in 2022 and is expected to achieve $571.62 billion in revenue by 2030, expanding at an average growth rate of 13.5% from 2022 to 2030. Ricard (2023) also argued that the increase in customer base and the use of different devices for the e-commerce industry has led to the expansion of the mobile app market. The segment of the Google Play store maintained the leading share in the market in 2022, which is

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further expected to record the highest average annual growth rate from 2022 to 2030.

In Saudi Arabia, the growing penetration of smart devices and phones lead to the rapid growth of app economy. In 2020, Saudi Arabia had around 2.9 million users of mobile applications. Thus, it is anticipated that by 2024, the revenue generation from the Saudi apps segment could increase with a yearly growth of 13.5%, producing a predictable market volume of around $32 million. This indicates that the more people gain access to mobile devices, it creates a valuable platform for companies to grasp their core audience. Furthermore, mobile apps have become equally important in every field and provide equal benefits to diverse industries such as education, transportation, retail, gaming, education, and healthcare. The reason for this is that mobile apps are more convenient, portable, interactive, and easy to handle than conventional desktop applications. Thereby, the sales of apps are regarded as a crucial source of revenue generation (Taylor et al., 2011). While the publisher of the apps can generate revenues from different sources including in-app purchasing and in-app advertising. In particular, the purchase and use of paid mobile apps are important for the growth and progress of the service developers and providers. However, free mobile applications are accessible to users free of cost without any in-app purchase while, for paid apps users are required to pay in advance to commence downloading. The developers of free Apps used different approaches to generate income instead of making money from paying consumers. To illustrate this the major stream of revenue for free mobile apps is collaboration with advertisement channels to provide ads to users. Therefore, 90% of the share in the app economy is dominated by free mobile apps and it is anticipated that income generation from paid apps will drastically reduce in the succeeding years (Mistry, 2020). Thereby, the app developers and publishers of paid apps have been dynamically looking for approaches to improve sales and the revenues of these apps (Tang et al., 2020). Regardless of this, a significant number of apps did not manage to attract users' attention effectively.

The literature has mainly been focused on highlighting the problems related to the adoption of apps, the development of apps and their designs (Jayatilleke et al., 2018), and the usage of applications (Tam et al., 2020). While Liu et al. (2016), Hajli et al. (2017), and Molinillo et al. (2018) conducted their research to examine the online behaviors of consumers in developed nations. Riaz et al. (2021) explored factors influencing the behavior of consumers and ultimately the decision-making process of consumers. However, in emerging nations like Saudi Arabia, there is a shortage of research examining and evaluating the significant determinants that affect the decisions of users to buy mobile applications. Despite the growing significance of understanding the user's expectations and growth in the sales of apps, only a few studies have discussed how and why users choose to buy paid applications of mobile that strengthen this market, with several apps failing to succeed (Kim et al., 2016). The adoption of mobile Apps is different from the app purchasing, since the users are needed to buy the paid apps before their adoption and usage. Therefore, this research focuses on the users who buy paid apps performing two roles, as they serve as the application purchasers and technology adopters. Undoubtedly, the main motivation for purchasing apps is personal use, as individuals willingly accept the cost associated with these voluntary purchases (Kim et al., 2016). This is not the case in the use of free apps that have been accessible to consumers by an institution. In this light, it is discussed that a deficiency exists in frameworks that elucidate the process of decision-making of users regarding the purchase of mobile apps. The existing literature is restricted in terms of research that provides details on factors related to decision-making of app purchases that can contribute to the revenue generation for mobile app developers and publishers. This gap in the literature, coupled with the important practical concerns it raises, serves as a strong motivation to undertake

the present research. Therefore, this research aims to identify the primary determinants supporting the decisions of users to buy mobile applications in Saudi Arabia.

Review of Literature and Hypothesis Development

App Usefulness

The concept of perceived usefulness refers to the extent to which a person believes that using a particular technology will enhance their overall productivity Davis (1989). The app's usefulness is referred to as the use of a mobile app that enhances the effectiveness of individuals in achieving the targets that they want to accomplish Davis (1989). The study of Kim et al. (2016) stated that perceived usefulness is the functional value of a product, derived utility from the anticipated performance and perceived quality of a product. Functional value can be defined as the consumer satisfaction that they gain from the features of products Davis (1989). Therefore, functional value is identified as a critical decisive factor in influencing the purchasing intentions of consumers (Poushneh & Vasquez-Parraga, 2019). In the purchase of a mobile app, the users are willing to estimate whether the application is useful or not regarding what they require to acquire. The rapid expansion of on-demand mobile apps is mainly reliant on providing features that underscore elements including, enjoyment, creative expression, long-term documentation, and maintaining close social networks that gain collective support (Acheampong et al., 2020). Mobile apps with greater perceived ease of use usually demonstrate higher consumer adoption rates Acheampong et al., 2020). Therefore, the intentions of users to buy a mobile application are likely to have a direct impact on the perceived usefulness of the apps.

H1: *There is a significant and positive correlation between the usefulness of the app and the consumers' intention to buy a mobile app in Saudi Arabia.*

App Price Value

The study of Xu et al. (2015) described the price as the monetary cost needed to acquire and use a good. Concerning mobile Apps, Venkatesh et al. (2012) defined the price value as it acts as the cognitive tradeoff for users, balancing the perceived costs and benefits across several applications. Users assess price value according to their standards, weighing the benefits they obtain against the financial cost they incur. As a result, an increase in the perceived benefits users gain compared to their investment will lead to a stronger sense of enhanced monetary value. Studies have shown that price value is a key factor influencing the decision to purchase mobile applications Hsiao and Chen (2016), particularly in a market where free apps dominate. App stores offer a wide range of applications with similar functionalities, many of which are available at no cost, making users less inclined to pay for apps that provide the same features as their free counterparts (Tang et al., 2020). This proposition remains consistent even if paid apps are offered with better quality in terms of functions than other freely available apps. Users are willing to evaluate the total estimated prices and total estimated benefits of the paid mobile apps. The chances of app purchase increase, when the performance of the app exceeds its price. In different circumstances, it will not achieve good adoption rates. A user considering the purchase of a mobile app is more likely to evaluate its worth and pricing if the app offers significant value. Consequently, the perceived price value of paid mobile applications is expected to have a direct influence on the user's intention to buy them. Liu et al. (2023) mentioned that consumers can minimize uncertainty and boost their confidence in a mobile app by testing its functionality and performance through trial versions, which eventually improves its perceived value. When users perceive that the app's features and benefits justify the cost, they are more inclined to proceed

with the purchase.

H2: *There is a significant and positive correlation between the price value of an app and consumers' intention to buy a mobile App in Saudi Arabia.*

Performance

Performance is identified as the crucial factor in determining the service quality of the mobile application (Wulfert, 2019). The expectancy-confirmation theory (Oliver, 1981) has been established to advocate the satisfaction of a consumer. It is endorsed that users build expectations regarding the performance of services or products before buying and formulate their thinking related to the perceived performance of the service or product after purchasing (Lin et al., 2020). Subsequently, users will compare the perceived performance and their expectations. The satisfaction of users will be higher if perceived performance surpasses their expectations. Conversely, if perceived performance is less than their expectations, then unfavorable contradiction will be prompted, which leads to lower satisfaction of a user. Following Venkatesh and Thong (2012), this research discusses app performance concerning the level at which mobile app is considered to have operational significance relying on expectations, perceived performance, and quality. The perceived performance is higher when the performance of mobile applications exceeds their anticipated performance. In addition, mobile applications are supposed to work efficiently without any breakdown or collapse. Wulfert (2019) mentioned that the mobile app's performance is subjective to its speed of processing (functional quality) and its requirement of resources. Two major characteristics of resource requirement are recognized such as device storage and mobile network usage. The processing performance of mobile apps' function and operation is associated with its speed of processing such as immediate transition and page loading, effortless scrolling, and responding promptly to the user's input (Collier and Bienstock, 2006). Madu and Madu (2002) suggested that the performance speed of mobile applications is related to their ability to handle data downloads efficiently. App enjoyment and perceived usefulness exhibit the functional values related to the specific app (Lin et al., 2020). Additionally, Fassnacht and Koese (2006) highlighted that this performance is closely tied to the quality of data transfer and processing capabilities. Another factor influencing app usage is the consumption of device storage, as downloading applications directly impacts the available disk space on mobile devices. The major concern in deciding whether to download a certain mobile app or not is the usage of high memory (Xu et al., 2011)

Considering that mobile devices have scarce memory capacity Davis et al. (1992), most devices cannot expand their storage capacity, thus mobile apps must have adequate size. The size of an app reflects that it should consume a little disk space in terms of offering m-services to users (Wulfert, 2019). The usage of mobile networks can be linked to the traffic that applications create (Xu et al., 2011). It assesses the network traffic for mobile cellular networks and users' purchased data volume. It is important to consider while developing applications should create as little traffic as possible along with the traffic needed to support their features and information. Thus, the performance of the application is supposed to have a positive impact on the consumer's intention to buy paid applications.

H3: *There is a significant and positive correlation between the performance of an app and consumers' intention to buy a mobile App in Saudi Arabia.*

Perceived Enjoyment

Davis et al. (1992) stated that perceived enjoyment characterized as the activity of operating a

computer is considered as enjoyable in its personal use excluding any performance outcomes that may be expected. Therefore, this research considers app enjoyment as the feeling of delight, pleasure, happiness, and entertainment obtained from the consumption of mobile apps. Certainly, enjoyment reveals the intrinsic (hedonic) importance of service and product, where satisfaction arises from the affections and sensations that the service and products create (Fernandes and Barfknecht, 2020). Users are more inclined to buy the services/products that give them the sensation of pleasure and delight, particularly in the case of indulging products such as mobile games (Malik et al., 2017). Thus, the hedonic significance of a product has been identified as the most crucial factor that substantially affects the decisions of consumers regarding the purchase of an app Fernandes and Barfknecht, 2020). Tang et al. (2020) also advocated that the users of apps are more focused on the satisfaction of their inner soul or desires instead of pursuing their practical targets. Additionally, enjoyment positively influences the intention of app usage due to when the entertainment requisite of a user is satisfied, the congenial sensation regards the use of the app is perceived. Therefore, users may expect to evaluate a mobile application before buying it in a generation the extent of fun from the use of the app, and its tendency to offer joy. Hence, the intention to buy a mobile app is expected to improve the perceived enjoyment of the use of mobile apps directly.

H4: *There is a significant and positive correlation between app enjoyment and consumers' intention to buy a mobile app in Saudi Arabia.*

eWOM about an app

Huete-Alcocer (2017) defined word of mouth (WOM) as the communication among the users regarding the company, service, and products in which corporate influences are not dependent on the sources. These social and idiomatic connections provide avenues to dynamic information concerning the use of services/products along with proper advertisement. Put differently, WOM puts a cover on the messages provided by sellers and impacts the decision-making process of the users. WOM is widely recognized as the most crucial determinant of navigating the behavior of users (Hussain and Song, 2020). Consequently, many scholars observed WOM as a considerable resource for information considering the purchasing behavior of consumers (Seo et al., 2020). Abubakar and Ilkan Al-Adwan (2019) stated that the advent of electronic platforms has led to the extension of WOM to electronic WOM (eWOM) which is considered the crucial source of information on the Web. From the perspective of eWOM, information is provided by the users via the Internet regarding the services or products (Al-Adwan, 2019). The concepts of eWOM in terms of mobile applications in this research are referred to as favorable evaluations delivered by the users regarding the application through online or conventional communications are doubtful. Mostly, satisfaction with the eWOM is produced by reliable users who do not rely on the market (Huete, 2017). Hence, this resilience makes eWOM regarding an app highly reliable and acceptable standard by minimizing the perils and ambiguity related to apps in terms of their purchase and use. As a result, this exercise of assistance and assurance could lead to the enhancement in the confidence and faith of the users in using the apps (Kim et al., 2016). Therefore, eWOM about an App can have a significant effect on its reference price and improve its worth. Considering the value perception, users have a willingness to buy the app. Positive mouths of words from friends and family play a leading role in shaping perceptions of usefulness and enjoyment before the decision-making process (Tk & Ali, 2024). This indicates that consumers' adoption decisions are dependent on e-WOM circulating among their peer circles (Lin, J.R. Bautista, 2017). Thus, positive eWOM regarding an app is supposed to enhance the intention of a consumer to buy such paid mobile applications.

H5: *There is a significant and positive correlation between the positive eWOM about an app and consumers' intention to buy a mobile app in Saudi Arabia.*

App Trialability

Innovation diffusion theory states that trialability signifies those individuals who personally try out and experience innovation in a way that they completely examine that innovation before its adoption (Rogers, 2003). The provision of an opportunity to test an innovation permits the consumers to support anticipation and establish opinions to the level that innovation can satisfy their requirements (Lin & Bautista, 2017). Therefore, it enables the consumers to carefully escape from any possible expenses and engagements by testing innovations. This research discusses mobile app trialability as the measure to consider that possible users can adequately try and test mobile applications before their purchasing (Kim et al., ,2016). A free trial version of any system can prove to be efficient in minimizing any sort of ambiguity and uncertainty, enabling possible consumers to make decisions regarding purchasing (Roma & Dominici, 2016). Trial versions permit consumers to assess and test products and sort out any ambiguity related to the real value of the product including, accessibility and effectiveness (Roma & Dominici, 2016). Additionally, trialability can serve as an indicator of the quality of a product, believing that products offered with free trial versions can serve as an assurance to users. The main concept is that providing free trial versions allows consumers to entirely understand the application before purchasing it, thus minimizing uncertainty and enhancing its perceived value (Liu et al., 2023). As users give more importance to certain products than those that are solely possible, trialability improves product reliability and consequently affects the intentions of consumers to buy mobile apps.

H6: *There is a significant and positive correlation between app trialability and consumers' intention to buy a mobile app in Saudi Arabia.*

App Technical Reliability

Technical reliability refers to the reliability of high-tech elements of a system (Wulfert, 2019). It emphasizes establishing accuracy and consistency in the operations and functions of mobile apps. Mobile applications are supposed to be managed through mobile devices without any collapse or breakdown. As per the Institute of Electrical and Electronics Engineers (1999), reliability is defined as the system's capacity to fulfill its essential functions under defined circumstances for a specified duration. Conversely, Parasuraman et al. (2006) referred the technical reliability as the system availability. Reliability, as per Al-Kuwaiti et al. (2009), is considered the failure-free operation of a system over a specific interval, while availability refers to the system's ability to operate without failure at a particular moment in time. Consequently, it can be said that availability is the assessment of reliability at a specific moment in time The reliability with regards to determining the potential consistency and performance of a mobile app's operations. It specifically underscores the reliability of mobile apps concerning the continuous function beyond any breakdown and the adequate start of the application. Availability denotes the proportion of time across which the system is entirely accessible and operational. Moreover, retrieving the m-services has no temporal and spatial restrictions, these services must be accessible. Since m-services can be retrieved without any restriction thus their accessibility is considered to be required at any moment. Therefore, the non-availability of m-services negatively influences the perceptions of consumers concerning the mobile apps' technical reliability.

H7: *There is a significant and positive correlation between the technical reliability of an app and consumers' intention to buy a mobile app in Saudi Arabia.*

According to the findings obtained from the literature studies, the following framework is presented in Figure 1.

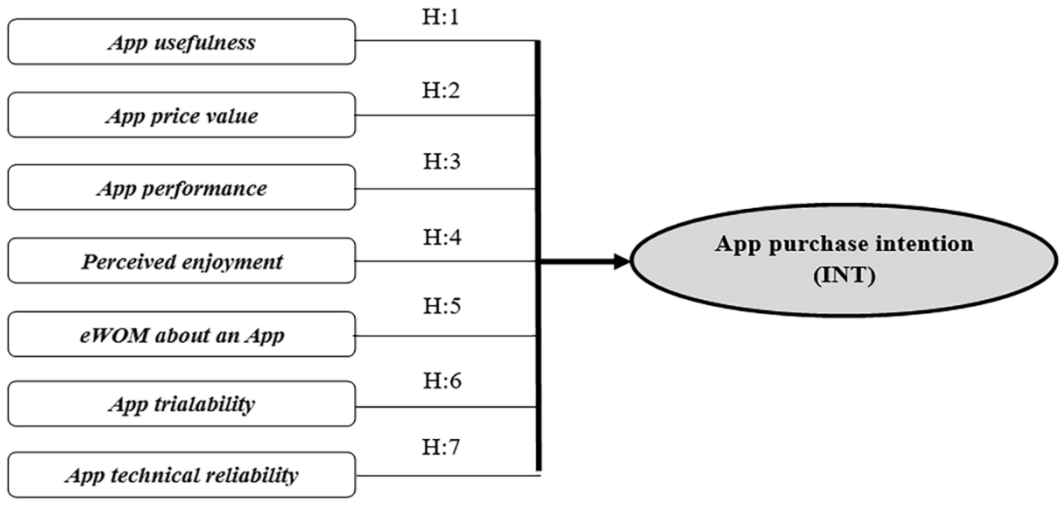

Figure 1. Conceptual Research Model

Methods

Study Design

This study adopted a descriptive-analytical approach, as it is used to understand recent events and outcomes to examine the patterns, trends, and relationships between the variables, entirely devoid of manipulation and interference. It is a quantitative technique that employs a strategy of surveys by administrating questionnaires to gather primary information from focused participants.

Questionnaire Development

This research gathered primary information via administrating a survey-based questionnaire that incorporated items to estimate the constructs of the study. The questionnaire starts with contingency questions that ask targeted participants to indicate whether they purchase mobile applications, only those who respond affirmatively proceed to complete the remaining questions. A cover letter is also attached with a questionnaire that specifies the research objective, assurance of their anonymity and confidentiality of the provided information, and it also ensures that this collected data would only be used to conduct scientific research. This questionnaire included two major sections. The section 1 was incorporated to enquire the information regarding the demographics of the study participants. Section 2 was devoted to an array of questions regarding measurement items (29 items) which were adopted to estimate the constructs of the research. The items of the questionnaire were adopted from previous studies as shown in table 1. These items were scaled on a 5-point Likert scale where 1 = strongly disagree and 5 = strongly agree).

Questionnaire Translation

The questionnaire was initially in English and to translate it into Arabic as the majority of respondents were Saudi, back-translation was needed. Back-translation is a procedure that includes translating a questionnaire from one language to another and then translating it back into the original language for validation. To ensure cultural and linguistic equivalence of study constructs in both the English and Arabic versions, back-translation was performed by two independent language experts fluent in both Arabic and English.

Measures

As mentioned above a 5-point Likert scale ranging from strongly disagree to strongly agree was used. In behavioral studies, the Likert-type scales are popularly used. All the measures used were previously validated and tested. The measures are grouped into two categories independent and dependent variables. Table 1. summarizes the study's variables and their associated measures.

Variables	Factors	Measures
Independent variables	App usefulness	4 indicators (Kim et al., 2016).
	App enjoyment	3 indicators (Wulfert, 2019)
	App trialability	4 indicators (Hsu & Lin, 2015)
	App performance	4 indicators (Lin & Bautista, 2017)
	Price value of App	3 indicators (Tang et al., 2019; Kim et al., 2016)
	App technical reliability	4 indicators (Tang et al., 2019
	eWOM	4 indicators (Wulfert, 2019; Kim et al., 2016)
Dependent variables	App purchase intention (INT)	3 indicators (Kim et al., 2016)

Table 1. The Study's Variables and Measures

Population and Sample

This study targets the population of Saudi Arabia who either purchase mobile applications for their personal use or for other purposes. Saudi Arabia has approximately 36.68 million of the population in total as per the statistics of the World Bank (2023) and the majority of Saudis consume several mobile applications. GSMA Intelligence data revealed that at the beginning of 2023, Saudi Arabia had around 42.50 million connections to cellular mobiles. Probability (random) sampling could be a viable approach since we have no official records of contact numbers and names of the population. Thereby, non-probability convenient sampling was adopted. Convenience sampling enables researchers to access respondents who are easily accessible. Conversely, this method of sampling has been condemned because of its inability to generate representative samples, which may limit the generalizability of the findings and introduce potential biases. To mitigate the potential bias, we assign different weights to the responses based on their likelihood of being selected. Following Bougie and Sekaran (2019), the minimum size of the sample would be 385 units (at a 5% margin error and 95% confidence interval), when a population is more than 10 million units. Thus, to conduct this study, researchers opt for electronic distribution of the questionnaire with an expected average rate between 33%-39% (Baruch & Holtom, 2008). Considering this anticipated response rate and in

pursuit of obtaining the desired sample size, we disseminate around 1, 000 questionnaires electronically.

Data Collection

The data collection was completed in around two months, from May to July 2024. This study employed Google Forms software to handle the process of data collection due to its proficiency in developing online surveys and forms. Social media such as Twitter, Facebook, LinkedIn, and other platforms in Saudi Arabia were used to send requests for participation to the potential participants. A total of 614 questionnaires with complete information were recovered, indicating a 61.4% effective response rate, which was observed quite high for the certain approach of distribution.

Validity and Reliability

The measurement instruments' validity must be established before conducting testing of hypotheses. Validity refers to the appropriateness of the research and determining whether constructs are measuring what they are anticipated to measure (Bougie & Sekaran, 2019). The items of the questionnaire were adopted from the literature which represents the immense reliability and validity of the constructs. The Arabic translations were done to abstain from any misinterpretation by the participants. The research proposal with both English and Arabic versions of the questionnaire was presented to five professors from business schools (public) and five field experts to review the questionnaire items and constructs to verify their meaningful clarity and transparency. In the final version of the questionnaire, a few changes in vocabulary and terminology were made derived from the expert and academic feedback. To ensure face validity, the questionnaire was disseminated to 46 participants to confirm all constructs were understandable and clear and to calculate the time required to go through the questionnaire. Consequently, exploratory factor (EFA) analysis on all items was employed to confirm the content validity. EFA analysis was used along with principal component analysis as the approach for the varimax rotation and extraction process. Since, without the rotation process, several items may exhibit a high loading on one construct while showing low loadings on all other constructs, thus rotation methods were required to be performed with EFA analysis.

Analysis

To conduct the data analysis, a structural equation modeling (SEM) approach was performed by employing AMOS 20.0 software. The model fitness summary (goodness-fit measures) was also evaluated by using Confirmatory Factor Analysis (CFA). Standardized weights are attached to all constructs and their items, which are identified as factor loadings. The factor loadings greater than 0.70 are referred to as optimal however behind 0.60 are also acceptable. Cronbach's alpha was used to assess the reliability of the examined constructs. The constructs' reliability was greater than the minimum suggested value (0.70), representing that the measurement items of the research were consistent and reliable (Baruch & Holtom, 2008). The significance level was established at 0.05.

Results

The demographic profile of study participants is presented in Table 2, which enquires about the participant's gender, age, profession, and experience of using mobile applications. It is observed that 52.1% were males and females were 47.9%. Most of the participants were in age groups over 30. While 52.1% of respondents used the Android platform and 47.9% had more than three

years of usage experience. In terms of profession, most of them (52.1%) were professionals and 34.2% were students.

Demographic Measure Category	**Frequency**	**%**
Gender		
Male	320	52.1%
Female	294	47.9%
Age		
< 20	110	17.9%
21 - 25	180	29.3%
26 – 30	140	22.8%
> 30	184	30.0%
Platform		
iPhone OS	250	40.7%
Android	320	52.1%
Windows Phone	30	4.9%
Other	14	2.3%
Usage experience		
< 1 year	80	13.0%
1 – 3 years	240	39.1%
> 3 years	294	47.9%
Profession		
Students	210	34.2%
Professional	320	52.1%
Not employed	84	13.7%

Table 2. Profiles of Respondents (N=614)

As it is mentioned above, EFA was used to establish the construct validity, Table 3 demonstrates the findings of EFA for the examined constructs. It is observed in the table that five items exhibit a factor loading below 0.40 which were removed from the analysis. EFA analysis indicated seven constructs with eigenvalues exceeded one [62]. Consequently, the eight removed items were not included in further analysis. Overall, the remaining items demonstrate strong associations with their respective constructs, indicating good construct validity.

Item	**App usefulness**	**App enjoyment**	**App trialability**	**App performance**	**Price Value**	**technical reliability**	**eWOM**	**Purchase intention**
USE 1	0.603	-	-	-	-	-	-	-
USE 2	deleted	-	-	-	-	-	-	-
USE 3	0.887	-	-	-	-	-	-	-
USE	0.917	-	-	-	-	-	-	-

4								
ENJ1	-	0.849	-	-	-	-	-	-
ENJ2	-	0.819	-	-	-	-	-	-
ENJ3	-	0.771	-	-	-	-	-	-
TRA 1	-	-	0.798	-	-	-	-	-
TRA 2	-	-	deleted	-	-	-	-	-
TRA 3	-	-	0.815	-	-	-	-	-
TRA 4	-	-	0.675	-	-	-	-	-
PER 1	-	-	-	0.819	-	-	-	-
PER 2	-	-	-	0.576	-	-	-	-
PER 3	-	-	-	0.748	-	-	-	-
PER 4	-	-	-	deleted	-	-	-	-
PR1	-	-	-	-	0.851	-	-	-
PR2	-	-	-	-	0.899	-	-	-
PR3	-	-	-	-	0.773	-	-	-
TEC 1	-	-	-	-	-	deleted	-	-
TEC 2	-	-	-	-	-	0.751	-	-
TEC 3	-	-	-	-	-	0.783	-	-
TEC 4	-	-	-	-	-	0.812	-	-
WOM1	-	-	-	-	-	-	0.854	-
WOM2	-	-	-	-	-	-	0.914	-
WOM3	-	-	-	-	-	-	deleted	-
WOM4	-	-	-	-	-	-	0.871	-
INT1	-	-	-	-	-	-	-	0.841
INT2	-	-	-	-	-	-	-	0.939

INT3	-	-	-	-	-	-	-	0.917

Table 3. EFA of Study Constructs

Table 4 presents the descriptive statistics, reliability, and convergent validity of the study constructs. It is observed that the values of the mean vary from 3.15 (app usefulness) to 4.16 (technical reliability), indicating moderate to high ratings across all constructs. The standard deviations indicate moderately low variability, with values ranging from 0.709 to 1.117, signifying that responses are generally consistent. The value of Cronbach alpha for all study constructs is greater than 0.70 means all constructs are reliable (Hair et al., 2012). Moreover, the CR values exceeded the minimum criteria of 0.70 for all the constructs, which confirmed their convergent validity. (Fornell & Larcker, 1981). The AVE values range between 0.79 to 0.90, which is greater than 0.5, demonstrating increased variance of each construct than the measurement error. Overall, the constructs display good validity and reliability.

Construct	**Mean**	**Std.**	**α**	**CR**	**AVE**
App usefulness	3.15	1.117	0.920	0.96	0.84
App enjoyment	4.04	0.788	0.887	0.94	0.88
App trialability	4.12	0.731	0.886	0.96	0.90
App performance	4.01	0.709	0.904	0.95	0.89
Price Value	4.04	0.731	0.788	0.93	0.79
technical reliability	4.16	0.708	0.901	0.94	0.86
eWOM	3.89	0.753	0.837	0.96	0.85
Purchase intention	3.79	0.879	0.951	0.90	0.87

Table 4. Descriptive Statistics and Reliability of the Study Constructs

The study's hypothesis was tested using path analysis, which permits the testing of all hypotheses simultaneously within the study model. To establish the generalizability of the findings, the data were evaluated to check the multicollinearity and normality distribution. Kurtosis and skewness tests were performed to the normal distribution of the data. Consequently, the outcomes of the multicollinearity and normality test are demonstrated in Table 5. It is noted that the values of kurtosis and skewness tests for all study constructs range between -1 to +1, representing the normal distribution of the data (Hair et al., 2012). Additionally, the variance inflation factor (VIF) and tolerance helped to confirm the multicollinearity. The VIF values for all the study constructs were less than 5 and the tolerance values ranged from 0.483 to 0.702, suggesting that multicollinearity did not affect the analysis [62].

Construct	**Normality**				**Multicollinearity**	
	Skewness Statistic	Std. error	Kurtosis Statistic	Std. error	VIF	Tolerance
App usefulness	-0.747	0.107	0.947	0.602	1.654	0.601

App enjoyment	-0.692	0.107	0.942	0.479	2.059	0.483
App trialability	-0.769	0.107	0.981	0.678	1.139	0.688
App performance	-0.242	0.107	-0.922	0.701	1.399	0.702
Price Value	0.473	0.107	0.887	0.560	1.698	0.561
technical reliability	-0.514	0.107	0.910	0.571	1.578	0.615
eWOM	-0.644	0.107	0.449	0.487	1.312	0.541
Purchase intention	-0.709	0.107	0.871	0.216	-	-

Table 5. Normality and Multicollinearity Tests

After evaluating the model fitness, the study's model was estimated through SEM. The structural model with path coefficient (hypotheses) estimation indicates that all the hypotheses were supported and accepted by the data (Figure 2 and Table 6). Unambiguously, all the constructs including, usefulness, price value, performance, enjoyment, word of mouth, trialability, and technical reliability had a positive and significant influence on app purchase intention. Specifically, the coefficient of price value is 0.232 (p-value = 0.000), suggesting a one standard deviation increase in price value associated with a 0.232 standard deviation increase in consumers' purchase intention. This indicates that more consumers perceive apps as providing good value for their price, and they are more inclined to have positive intentions to buy them. The coefficient of perceived usefulness is 0.157 (p-value = 0.003), implying that one standard deviation increase in perceived usefulness is related to a 0.157 standard deviation increase in consumers' purchase intention. This highlights that as consumers believe a mobile app to be more functional and useful, their intention to purchase it becomes stronger. Similarly, one standard deviation rises in performance (β = 0.141, p-value = 0.001), and technical reliability (β = 0.110, p-value = 0.002), of mobile apps associated with 0.141 and 0.110 standard deviations in consumers' purchase intention, respectively. The results specify that when a mobile app is viewed as dependable in performing its proposed functions, consumers are more inclined to have positive intentions to purchase it. Consequently, enjoyment also has a significant and positive association with purchase intention (β = 0.117, p-value = 0.006), indicating that the more enjoyable consumers perceive an app, they are more inclined to have positive intention to purchase. The coefficient for eWOM is 0.158 (p-value = 0.000), this result highlights that positive eWOM makes consumers more intending to purchase that app in the future. The results of this study also highlight the significant and positive association between the purchase intention and trial-ability of an app ((β = 0.211, p-value = 0.000), indicating that consumers having trial versions of paid apps contribute a leading role in navigating decisions related to purchasing of an app. Overall, these constructs established 79.3% (R^2 = 0.793) of variation in-app purchase intention. This indicates a significant illustration of consumers' intention to buy paid applications.

Hypothesis	**Path**	***β***	***T*-Value**	***p*-Values**	**Result**
H1	USE -> INT	0.157	2.743	0.003	Asserted
H2	PR -> INT	0.232	4.916	0.000	Asserted

H3	PER -> INT	0.141	3.408	0.001	Asserted
H4	ENJ -> INT	0.117	2.191	0.006	Asserted
H5	eWOM -> INT	0.158	3.681	0.000	Asserted
H6	TRA -> INT	0.211	4.387	0.000	Asserted
H7	TEC -> INT	0.110	0.239	0.002	Asserted

Table 6. Structural Model Analysis

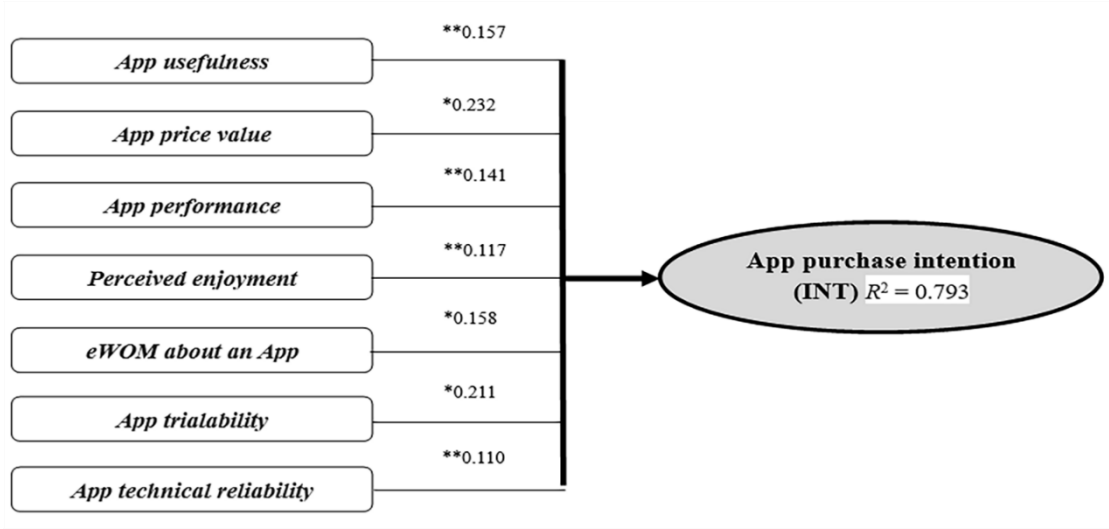

Figure 2. A Structural Model with Path Coefficient Estimates

Discussion

Based on the empirical findings of our study, it is revealed that four decision indicators, app enjoyment, app trialability, app monetary value, and app usefulness directly affect the purchase of mobile application intention. These findings are supported by the results of previous research. App price value as well as app enjoyment demonstrate customer-associated factors.

This study found a positive impact of app usefulness on the purchase intentions of consumers, this confirmed H1 which states that positive and significant correlation between app usefulness and the consumers' intention to buy a mobile app in Saudi Arabia. This outcome shows that the higher the perceived usefulness and functional value of a mobile app, the greater the intention of consumers to purchase that app. Hanjaya et al. (2019) aligned with our findings and confirmed the significance of usefulness regarding the adoption of mobile apps.

This study supported H2 which states a significant and positive correlation between the price value of an app and consumer's intentions to buy a mobile app in Saudi Arabia. Align with previous studies Kim et al., 2016; Hsiao, and Chen (2016), the results indicate that the monetary value of an app is an influential indicator of app purchasing intentions. These results are also consistent with past studies that endorse the substantial contribution of monetary value in escalating behavioral objectives regarding the use of mobile apps (Chopdar et al., 2016). It is positively related to purchasing intentions. This suggests that when consumers perceive that the price of a product is reasonable in comparison to its value and benefits, they are more likely to develop a positive intention to make a purchase. The alignment between perceived value and

cost plays a critical role in shaping their purchasing decisions. Consumers are usually hesitant to buy overly priced mobile applications, particularly in the presence of costless options with analogous functionalities. Therefore, consumers are liable to estimate the total cost against the total anticipated app values/benefits of the app under examination. If the value/benefits of an app exceed its price, the probability of it being bought is higher, beyond that its adoption and download rates will decrease. Subsequently, a diverse series of cost-free apps has been created to respond to the needs and demands of the consumers, unique and good-quality paid applications could cause the intentions of consumers to purchase them.

Similarly, our results also supported H3, asserting a significant and positive correlation between the performance of an app and consumers' intention to buy a mobile app in Saudi Arabia. This indicates a positive impact of app performance on the purchase intentions of consumers. The research of Wulfert (2019) and Tan et al. (2020) supported our results. Importantly, potential users evaluate whether a mobile app operates consistently and remains accessible throughout its usage cycle before making a purchase decision.

H4 was also confirmed by our results which state a significant and positive correlation between app enjoyment and consumers' intention to buy a mobile app in Saudi Arabia. This highlights that perceived enjoyment is an important factor in influencing the purchase intention of a consumer. The study of Hsiao & Chen (2016) also advocated app enjoyment is also a crucial factor affecting purchasing intentions. Moreover, past research endorses the significance of observed enjoyment regarding the behavioral intentions to download the applications (Tang et al., 2020). App enjoyment and purchasing intentions of the consumers are positively related. This highlights that as consumers' perception of an app's enjoyment increases, their likelihood of purchasing it also rises. The more users find the app enjoyable, the stronger their motivation to buy it becomes. The perceptions regarding enjoyment have a connection with hedonic utility observed by the consumers who prioritize the emotions of pleasure and satisfaction. Dissimilar to the case of physical products, the user of apps is more worried about satisfying their spiritual desires instead of chasing practical targets.

Favorable word of mouth (eWOM*)* was also identified as a significant factor for navigating purchasing intentions. Consequently, H5 was also confirmed by indicating a significant and positive correlation between the positive eWOM about an app and consumers' intention to buy a mobile app in Saudi Arabia. This suggests that consumers are more likely to buy a mobile app when they experience positive eWOM about that app. In this context, looking for opinions and reviews pre-purchase is vital for potential users. Therefore, eWOM is a sort of social influence and is a reliable and accurate foundation for product-associated information that offers meaningful views about the product to consumers. The study Liu et al. (2023) aligned with our results while Kim et al. (2016) did not support this outcome.

This study supported H6, demonstrating a significant and positive correlation between app trialability and consumers' intention to buy a mobile app in Saudi Arabia. Kim et al. (2016) also highlighted a significant and positive influence of trailability on purchase intention. Moorthy et al. (2019) mentioned the crucial influence of trialability on intentions toward mobile app adoption. It is normal for possible users to minimize risk and make a rational decision because of the doubts and uncertainties regarding the functionalities of an app. Similarly, technical reliability is also identified as a decisive factor for purchasing a mobile app, as H7 supported by our results. This hypothesis states a significant and positive correlation between the technical reliability of an app and consumers' intention to buy a mobile App in Saudi Arabia. This implies

that users are more willing to buy a mobile app if it is technically reliable. Wulfert (2019) also found technical reliability a driving factor for the purchase intentions of consumers.

This study theoretically contributed as this study examined the decision factors that impact the purchase of paid mobile apps from the perspective of consumers and enriches the existing literature in terms of mobile apps by evaluating and validating these factors. However, a significant amount of studies has been focused on examining the adoption of mobile apps, and online purchasing while limited studies investigate mobile app purchasing. Essentially, mobile app purchase demonstrates an exceptional feature that differentiates it from other mobile-associated mechanisms. Furthermore, this study does not rely on commonly used theories for mobile app adoption, as these may not be fully relevant. Instead, it uses a quantitative analysis, to identify and understand the factors that influence mobile app purchase decisions.

Limitations

This study has some limitations, and it is important to acknowledge them. One of the main limitations of this study is that participants were selected using a non-probability sampling. Another limitation could be that this study adopted a cross-sectional study design. However, future studies could focus on longitudinal research design to explore the in-app purchase behavior over time to enhance the understanding of app purchase intentions of smartphone consumers. In addition, this study did not explore how the identified factors vary across demographic groups. Future research could investigate the demographic differences influence on purchase intentions by incorporating demographics as a moderate variable. Moreover, this study empirically analyzes Saudi consumers' purchase intentions toward mobile apps, overlooking possible cultural and regional variations in the results. Future studies could explore the identified factors in different countries to facilitate comparative research across different cultural contexts.

Study Implications

In the present study price value is identified as a crucial determinant in deciding on the purchase of mobile apps. Therefore, the developers of mobile apps and software should consider maximizing efficiency with minimum price in developing highly accessible and multifunction mobile applications. Consequently, it requires to evaluate comparative advantages in targeting the users in a way that they feel happy to accept paid apps instead of freely available apps (Han et al., 2020).

Enjoyment is another significant determinant that affects the user’s intention to purchase mobile apps. Thereby, it is suggested that should try to consider the user’ perceived curiosity, pleasure, enjoyment, and joy in developing the app. These elements must be imitated in the designs and functions of a mobile app. Trialability is also presented as a crucial determinant that has a significant influence on the intentions of consumers toward the purchase of mobile apps. Therefore, developers of the app should focus their endeavors on releasing free-trail versions or at least low-priced versions for some time before the release of paid versions (particularly the expensive ones). This could offer an appropriate willingness to decide whether to buy that specific application or not as per their need. Subsequently, this will reduce the doubts of users concerning the performance and functionality of an application. The study outcomes also suggested eWOM as an essential determinant in determining the purchase intention of users. The publishers and vendors of the mobile application must encourage their users to develop optimistic eWOM via their ratings, recommendations, and reviews regarding their applications.

Moreover, they also consider the fact that positive eWOM has a significant contribution in attracting potential users as they believe eWOM is an important source of information regarding mobile apps.

The substantial impact of perceived usefulness is also supported by our results. Therefore, vendors and developers of applications must focus on this important determinant regarding the purchase of applications. Pre-usage phase can enhance the app's usefulness by focusing on the needs of users concerning the functional and quality importance of the application. Notably, users should understand the determination of the mobile applications and trust that they can fulfill their intended function. To achieve this, it is important to develop and plan proper communication channels and campaigns that provide users with appropriate knowledge regarding the quality, aesthetic, technical, and functional characteristics of the application, particularly for newly launched. These principles can substantially structure and build the viewpoint of app usefulness. Performance and technical reliability are also identified as essential in driving users' intention the purchase mobile apps.

Recommendations

This study provides recommendations to developers as price value substantially impacts purchase intentions toward mobile applications. Thereby, applications and software developers should focus on delivering high-accessibility and feature-rich apps that improve efficiency and effectiveness with an emphasis on minimizing cost. In addition, enjoyment also plays a significant role in navigating the consumer's purchase decisions. Developers should prioritize improving the perceptions of consumers related to enjoyment, pleasure, curiosity, and fun. These elements must be manifested in the designs and functionality of an application. Trialability is identified as an important factor for determining the consumers' purchase intentions. Publishers and developers should emphasize providing a free trial version before launching the paid version, specifically for applications with higher prices.

Conclusions

The present study aimed to analyze consumer behaviors related to purchase intentions. The study identifies seven main elements that significantly influence the decision to purchase mobile applications. These elements include factors such as the app's cost-effectiveness, its functional performance, the degree of user satisfaction, the option of trial, the influence of online user reviews, the app's technical dependability, and its overall utility to the user. However, the study acknowledges that the intention to buy an app does not always result in an actual purchase, as different variables may affect the decision to proceed with a purchase. Consequently, future investigations are necessary to distinguish between the factors driving intent and those influencing actual buying behavior. This research, conducted among consumers in Jordan, does not address the potential impact of variations such as regional or cultural contexts on buying behavior. Future studies need to focus on differences to confirm these findings and offer comparative insights into how these factors may differ globally.

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