Examining the Factors Associated with Consumers' Behavioral Intentions to Use Mobile Phone Applications

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Abstract

Technology has brought about a new perspective on marketing. Marketers are continuously looking for recent technologies in communications and other marketing activities for the purpose of spreading their marketing goals. The unified theory of acceptance and use of technology (UTAUT) model and its extensions were used to examine and provide a comprehensive framework about the impact of various constructs on consumers' attitude which shapes their behavioral intentions towards mobile phone applications. Data was collected from 324 mobile apps users in Egypt. The results indicate that there are no moderation effects from all categorical moderators (age, gender and experience) on the relationship between performance expectancy, effort expectancy, and facilitating conditions and consumers' attitudes towards mobile phone applications. Performance expectancy and effort expectancy positively affects consumers' attitudes towards mobile phone apps while facilitating conditions were found insignificant.

1. Introduction

Mobile internet is defined as "the wireless access to internet content through mobile devices, it promises users to have access to a great amount of information and products available on the internet, anywhere and anytime" (Chae et al., 2002). Mobile phone marketing (m-marketing) refers to "any form of marketing communication delivered to a mobile phone, it offers potential opportunities to create value for consumers" (Anckar and D'Incau, 2002). It can also be defined as "a set of programs and practices that firms use to communicate, interact and engage with consumers and enable them to have access to information, download content, or purchase products on mobile devices" (Mobile Marketing association, 2008). According to Scharl et al (2005, p.165), mobile marketing is "using interactive wireless medium to provide customers with time and location sensitive, personalized information that promotes goods, services and ideas, thereby generating value for all stakeholders". It is an attractive source with the ability to reach many users. As Quoted by Synovate (2009), "what could be more attractive than a medium with the power to reach over 82% of all Americans wherever they are and at any hour of the day".

According to a report by Rajput (2015), the first smart phone was announced by IBM in 1993. At that time, it was only equipped with simple features like a calculator, world clock & calendar then blackberry smart phone was released in 2002 which was considered as a key achievement in the field of mobile apps since then mobile apps are developing at a very rapid pace. Consumers are constantly using mobile phones which is a chance for building a relationship between the retailer and the consumer, making it the perfect channel for selling over long distances (Shankar et al., 2010). Companies should use mobile marketing to draw the attention of new customers to their business, otherwise their competitors will be attracting those customers instead (turner, 2010). According to Thomas Husson (2014), Vice President and Principal Analyst at Forrester Research on Mobile as a transformative technology, "mobiles are not only considered as the new digital center, but they can also be used as a connection to the physical world. For this reason, mobiles will not only affect your digital operations but also it will change your entire business".

Finally, according to McKinsey's Global AI Survey report, the rate of adoption of online and mobile services across countries has increased by an estimated 20 to 50 percent in the first few months of the COVID-19 pandemic and this percentage is expected to continue at these higher levels even after the pandemic diminishes. Additionally, it is expected that between 15 and 45 percent are expected to stop visiting the branch by the end of the crisis because they got used to the standards and level of customization they get from technological services. Consequently, a lot of mobile applications have been developed during the COVID-19 pandemic in order to enhance the services and limit the spread of the virus (Alanzi, T., 2021).

2. Literature Review

Due to the new expansions in mobile technologies, mobile devices have been turned into a pioneer and a dominant platform through which consumers can be involved (Shankar and Malthouse, 2007; Shankar, Venkatesh, Hofacker, and Naik, 2010). For a better customer service, today's firms are always introducing new shopping channels, such as the internet (Geyskens, Gielens, and Dekimpe, 2002). According to Philips (2015), it's very important for companies to create a digital relationship with its customers as it reduces any information gap between customers and sellers. It has been reported that the majority of smart device users use their devices whether it is an android, iPad or iPhone as a vital part of their shopping practice and behaviours (Neilsen, 2014). Previous research stated that new technologies are generally preferred by internet users (Bigne´ et al., 2005; Cheong and Park, 2005).

Cui, et al. (2010) illustrated there are two main categories of coping strategies that consumers fall into when they decide to upgrade to a new technology product. The first strategy is: the avoidance strategies which include: refusal and delay while the second strategy: confrontation strategies which include: extended decision-making and pre-test. Table (1) shows the characteristics of mobile marketing which has managed the change in the process of implementing marketing activities. These characteristics can be summarized as follows:

Table 1: **shows the characteristics of mobile marketing which has managed the change in the process of implementing marketing activities**

Author	Attributes
Yousif (2012)	• Ubiquity is a major feature of mobile phones, it gives the ability to access information and track users' transactions (Barnes and Huff, 2003; Okazaki and Mendez, 2013). • Two-ways of communication between the sender and the recipient through sending text messages and receiving the recipients' responses which increase the rate of interaction. • Marketers can identify the consumers' territory and personal characteristics, which assist them in choosing the market segments and they customize the content of advertising messages accordingly. • Companies used mobile marketing in implementing various activities of marketing due to its low cost. • It played a major role in encouraging people to visit stores, and it made salespeople's job easier as customers can collect enough information about market offerings through the information on the application.
Lindstrom (2011)	• The frequent availability of the device with consumers is an important feature. Smartphone and tablet users often experience intensified tension if they are detached from their devices.
Kaplan (2012)	• Mobile phones are continuously on, connected to the internet, and always held by consumers unlike laptops and desktop computers. This allows retailers and consumers to always have access to each other's environment.

Berman (2016)	• Personalized messages and deals can be designed/customized for every consumer based on their demographic characteristics, purchase history, knowledge about their preferences, social media and data usage (Adomavicius and Tuzhilin, 2005).
Shankar et al. (2009)	• Mobile phones can act as a useful marketing tool due to the existence of the following characteristics: (1) Convenience and transferability (2) Personalized relationships (3) Instant information (4) Textual and visual content (5) The ability to merge tasks and facilities

3. Research Problem

Technology based self-service (TBSS), where a service is done by consumers using self-service technology without the interference of an employee (Dabholkar, 1994; Meuter et al., 2000). Internet and mobile devices have made significant changes in self-service technologies and transformed it from interpersonal to interactive service delivery (Wang et al., 2013). Companies have to focus their marketing lenses on a more rational element, which is considered to be the most suitable approach for satisfying and keeping their customers (Hollensen, 2010). For that reason, additional value is being delivered to consumers and the efficiency of operations is getting improved (Hilton et al., 2013; Meuter et al., 2003).

Consumers prefer face to face interaction so they visit the store in order to try the products by themselves. In this context, there is little research on how customers respond to automated and technological services (Wang et al., 2020). Accordingly, the research gap is to find out the variables that encourage consumers to use mobile applications to buy a product or perform a service. It also aims to understand consumers' behavior towards mobile phone applications. Specifically, to detect the variables that affect the willingness of customers to use mobile marketing applications as a tool to know the different products or services provided by companies, place orders or reservations including mobile ticketing, purchase or delivery and also to identify the reasons causing some customers to prefer face to face communication over the mobile marketing.

4. Hypotheses Development and Research Model

4.1 The Independent Variable

a- Performance Expectancy

It refers to "the degree to which using a technology will provide benefits to consumers in performing certain activities". When users anticipate that they will get an upcoming positive value, they will be willing to use mobile applications. It is considered to be a significant factor affecting user behavior according to the unified theory of

acceptance and use of technology (Venkatesh et al., 2003). Accordingly, the below hypothesis was developed:

H1: Performance expectancy positively affects consumers' attitude towards mobile phone applications.

b- Effort Expectancy

It refers to "the degree of ease associated with consumers' use of technology" (Brown and Venkatesh 2005, p.159; Venkatesh et al. 2003). When consumers find it easy to use the new system or technology, they will be more willing to accept adopting it (Pikkarainen et al., 2004). Wong et al. (2012) explained that when the new system/technology is user friendly, consumers will face fewer obstacles. In Marchewka et al.'s (2007) concluded that effort expectancy (EE) in UTAUT had a significant impact on the adoption of 132 undergraduate students to the course management software. Also, consumers believe that technology will be less useful when they exert high effort in using it (Venkatesh and Davis, 2000). Zhou et al. (2010) applied UTAUT paradigms and revealed that there is a significant influence power of EE over performance expectancy. Therefore, the below hypothesis was developed:

H2: Effort expectancy positively affects consumers' attitude towards mobile phone applications.

c- Facilitating Conditions

Facilitating conditions (FC) is defined as, "the degree to which an individual believes that the external support from both organizational and technical infrastructures is available when using an information technology artifact" (Venkatesh et al., 2003). Venkatesh et al. (2003) operationalized FC as the assessments of consumers about the sufficiency of the knowledge, resources and support provided by a technology (Song and Zahedi, 2005). FC aggregates both: internal and external support aspects in UTAUT. Hence, the hypothesis developed is:

H3: Facilitating conditions positively affect consumers' attitude towards mobile phone applications.

4.2 The Mediating Role of Consumers' Attitudes

Attitude refers to "the individual predisposition to evaluate an object or an aspect of the world in a favorable or unfavorable manner (positive or negative feelings) toward specific behavior or issues" (Werner 2004). Solomon (2009) defined attitude as "a lasting general evaluation of people (including oneself), objects, advertisements or issues".

Kleijnen et al. (2004) pointed out that a positive attitude will have a positive effect on the intention to use mobile services. The research discovered that a positive attitude towards websites is formed when the website is well organized, includes relevant

information and ensures that it's safe to use (Van Noort et al., 2008). Attitude is seen as a strong predictor of explaining people's behaviors (Stevenson et al., 2000).

H4: Consumers' attitudes positively affects consumers' behavioral intentions to use a mobile phone applications.

4.3 The Moderating Effect of Age, Gender and Experience on the Independent Variables

Previous researchers used consumers' demographic characteristics to observe the usage of mobile services (Bigne ´ et al., 2005). It has been also found that consumer technology innovativeness is associated with age and gender (Lee et al. 2010).

a- **Age**

Regarding age, it has been proved consistently by researchers that young adults use mobile phones more than old consumers do and they have great intentions to use mobile services (Bigne et al., 2005). According to Forrester research (2010), young women from 18 to 24 years of age are most likely to be more fascinated to use mobiles, compared to other age groups.

According to the UTAUT, old users are more influenced by effort expectancy (Venkatesh et al., 2012) while younger users are more concerned with performance expectancy including the benefits, functions and performance of using technology. Moreover, empirical results indicated that the FC influence on usage behaviour is moderated by age such that older users will ask for someone to support and assist them when using the respected technology (Venkatesh et al., 2008, 2012), since they focus more on exerting less effort to learn how to use new technologies. As a result of the above mentioned empirical studies, the below hypothesis was developed:

H5: Age moderates the relationship between each of: performance expectancy, effort expectancy, and facilitating conditions with consumers' attitudes towards mobile phone applications such that:
   a) The effect of performance expectancy on consumers' attitudes towards mobile phone applications is stronger among young users than old ones.
   b) The effect of effort expectancy on consumers' attitudes towards mobile phone applications is stronger among old users than young ones.
   c) The effect of facilitating conditions on consumers' attitudes towards mobile phone applications is stronger among old users than young ones.

b- **Gender**

Even though, both genders are active mobile users, some significant differences lie in the way they use their mobile devices in shopping (uSamp, 2012). Differences related to gender (Hasan, 2010) and its moderating effect on the acceptance of new technology were analysed in previous studies (Wynn, 2009). According to the IT diffusion process model (Straub, 1994; Gefen and Straub, 1997), gender differences were proven to

influence the intention to use a new technology which has a direct effect on actually using it. Adding to this, in computer adoption studies, gender has been used as a demographic variable (Igbaria and Chakrabarti, 1990; Teo, 2001). Therefore, based on the main classical models (TAM, TRA and UTAUT), gender was included as a moderator, together with the variables identified in prior literature.

According to UTAUT, men search for task success, innovativeness and making more planned purchases such as: purchasing devices or online downloads (Van Slyke et al., 2002) so they are more likely to be affected by PE than females (e.g., Chau and Hui 1998). Teo (2001) also found that females have a higher tendency to use the internet to communicate with others and they are more likely to use it in shopping. On the other hand, EE influences women more than men as they respond less to new technologies.

H6: Gender moderates the relationship between each of: performance expectancy, effort expectancy and facilitating conditions with consumers' attitudes towards mobile phone applications such that:
   a) **The effect of performance expectancy on consumers' attitudes towards mobile phone applications is stronger among males than females.**
   b) **The effect of effort expectancy on consumers' attitudes towards mobile phone applications is stronger among females than males.**
   c) **The effect of facilitating conditions on consumers' attitudes towards mobile phone applications is stronger among females than males.**

c- Experience

According to prior studies, experience is a chance to use a selected technology and it is usually conceptualized as the passage of time from the initial use of a technology by an individual (e.g., Kim and Malhotra 2005; Venkatesh et al. 2003. Klein (1998) found that past experience with internet shopping has an influence on the attitude. Liang and Huang (1998) found that prior consumer experience had a moderating effect in predicting their acceptance of Internet shopping. It was stated in previous studies that users are affected by EE and FC in the early stages of experience with a new technology while habit is formed at later stages of experience (Arning and Ziefle, 2007; Morris et al., 2005). Thus, the below hypothesis was developed:

H7: Experience moderates the relationship between each of: effort expectancy and facilitating conditions with consumers' attitudes towards mobile phone applications such that:

   a) **The effect of effort expectancy on consumers' attitudes towards mobile phone applications is stronger in the early stages of experience with a technology.**
   b) **The effect of facilitating conditions on consumers' attitudes towards mobile phone applications is stronger in the early stages of experience with a technology.**
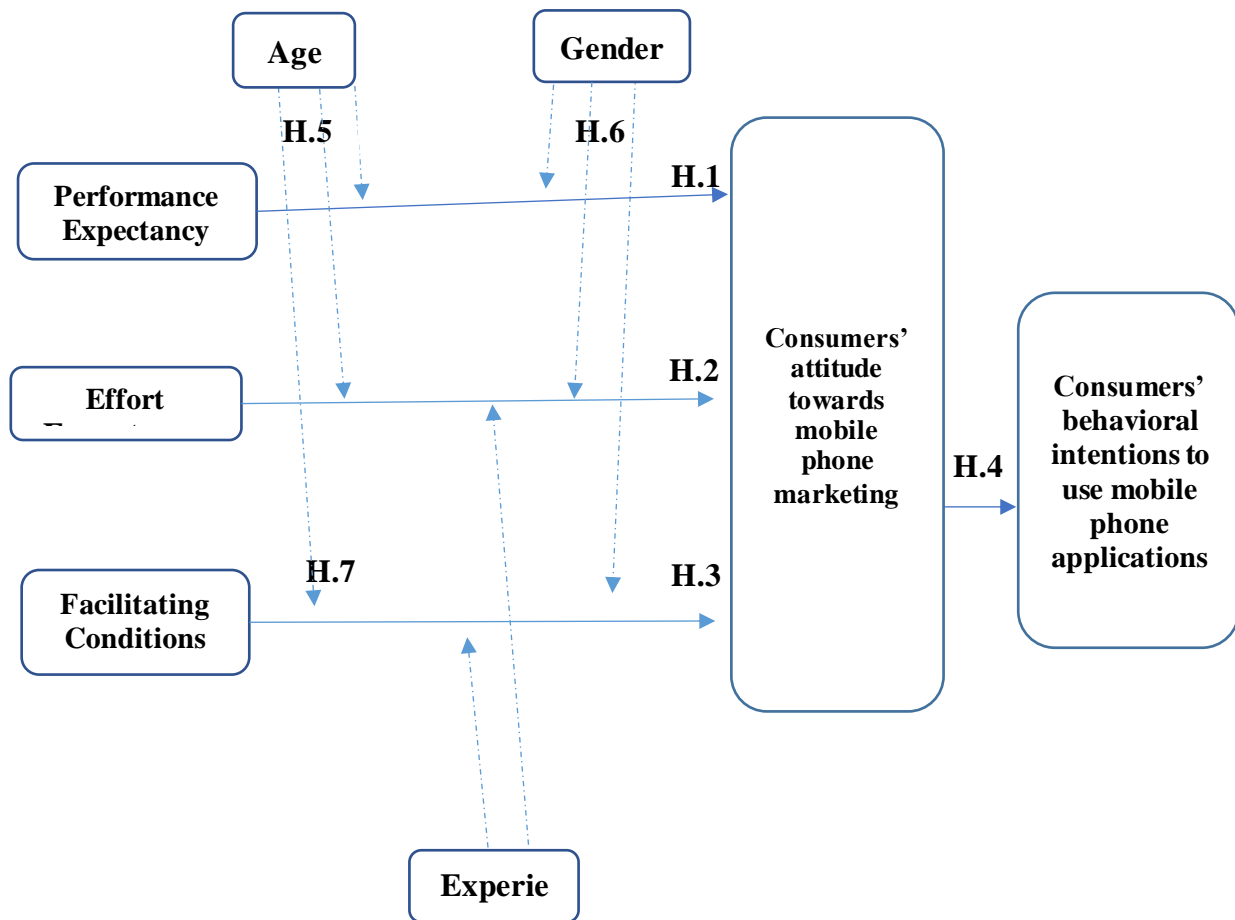
Figure 1: **Proposed Conceptual Model**

5. Research Design and Sampling

A descriptive research design was selected in this research in order to describe the sample characteristics and profile different patterns of behaviour. A quantitative research approach was chosen to test the hypothesized relationships between variables. A questionnaire survey method was employed to collect data and measure the constructs presented in the research framework as they enable making interpretations about the consumer behavior for given populations based on a sample (Babbie, 1990). The questionnaire was conducted using Google forms. It was posted online through Facebook, 432 responses were received in total out of which 324 mobile phone apps users and 97 non apps users.

6. Measurements of Research Variables

In order to measure the different independent variables, a five-point likert scale was used to develop the questions in the questionnaire (Bauer et al., 2005). The measurement

items for each construct asked the respondents to rate the extent to which they agreed with the statements on a scale from 1 to 5, where 1 = strongly disagree, and 5 = strongly agree. The below table shows the measurement items for each construct.

Table 2: **Questionnaire Justification: Scale Items and Measures**

Construct	Scale Items for Measures	Source
1) Performance Expectancy	PE1. I find mobile phone applications useful in my daily life. PE2. Mobile phone applications enable me to do shopping or use a service easily. PE3. Mobile phone applications are faster compared to websites.	Venkatesh et al. (2003) and Davis et al. (1992)
2) Effort Expectancy	EE1. I find mobile applications easy to use. EE2. Mobile phone applications are easy to learn how to use them. EE3. My interaction with mobile applications is clear and understandable. EE4. I find it easy to become skillful at using mobile applications.	Venkatesh et al. (2012)
3) Facilitating Conditions	FC1. The resources required to use mobile phone applications are available. FC2. I have the knowledge necessary to use mobile phone applications. FC3. Mobile phone applications are compatible with other technologies I use.	Venkatesh et al., 2003)
4) Customer's Attitude	CA1. Mobile phone applications make it easy for me to build a relationship with the company. CA2. I feel comfortable in surfing mobile phone applications. CA3. I like using mobile phone applications. CA4. I'm satisfied with the service provided by mobile phone applications.	Huff and Alden (1998)
5) Behavioral Intention	BI1. I have the intention to continue using mobile phone applications in the future. BI2. I will always try to use mobile phone applications in my daily life. BI3. I plan to continue to use mobile phone applications frequently.	Venkatesh et al. (2003)

7. Data Analysis and Results

Descriptive research design including mean, median and standard deviation is used in this study to describe the sample characteristics. The measurement items' descriptive statistics using SPSS v.25 to determine the highest and lowest means as well as the normality assumption test, followed by an application for structural equation modeling

(SEM) with hypotheses testing using Smart PLS v. 3.2.7. (Ringle et al., 2015).

8. Descriptive Statistics of The Study Variables

Table 3: **Measurement items' descriptive statistics**

Variables	Measurement item	N	Mean	Std.	Skewness	Kurtosis
Behavioural Intentions	BI1	324	1.59	1.176	2.050	3.009
	BI2	324	1.98	1.167	1.119	.488
	BI3	324	1.99	1.122	1.142	.655
Consumers' Attitude	CA1	324	2.08	1.238	1.004	.049
	CA2	324	1.93	1.152	1.149	.469
	CA3	324	1.88	1.195	1.358	.908
	CA4	324	2.13	1.082	.869	.236
Performance Expectancy	PE1	324	1.79	1.110	1.603	1.983
	PE2	324	1.75	1.077	1.678	2.291
	PE3	324	1.92	1.207	1.276	.693
Effort Expectancy	EE1	324	1.76	1.103	1.546	1.679
	EE2	324	1.74	1.125	1.647	1.902
	EE3	324	1.81	1.121	1.444	1.306
	EE4	324	1.85	1.151	1.416	1.188
Facilitating Conditions	FC1	324	1.86	1.162	1.340	.946
	FC2	324	1.86	1.172	1.475	1.431
	FC3	324	2.01	1.076	1.083	.678

As shown in Table (3), the number of valid cases is 324, according to the surveyed customers, the highest acceptable measurement item is CA4 (consumers' attitude) which has the highest mean with 2.13 from 5. This means that the sample tends to disagree with the statement "I'm satisfied with the service provided by mobile phone applications". This demonstrates that consumers are not satisfied with the services provided by mobile phone applications. On the contrary, the most rejected measurement item is BI1 which has the lowest mean of 1.59. This means that the sample tends to disagree the most with the statement "I intend to continue using mobile phone applications in the future". This indicates that there is a pattern of consumers who are not willing to use mobile apps in the future which can be for any reason such as credibility, negative word of mouth, the difficulty of use, etc.

9. Confirmatory Factor Analysis

CFA has five steps (Hair et al., 2010; 2014. Malhotra, 2010). First, specify constructs and measurement types and levels. Second, draw a theoretical model with the proposed relationships. Third, a theoretical model evaluation. Fourth, a theoretical model improvement. Finally, measurement model building.

However, in Smart PLS, a researcher can merge the first two steps in one graph. There are three exogenous (independent variables); performance expectancy, effort expectancy, and facilitating conditions. Also, there is an endogenous variable that is Behavioral intentions. As well as, the consumer's attitude is an exogenous-endogenous variable. All constructs are measured by reflective first order measurement level. Table (4) illustrates item loadings on their constructs.

Table 4: **Measurement items' loadings of theoretical model**

Measurement items	Loadings
CA1 <- Consumers' attitude	0.799
CA2 <- Consumers' attitude	0.895
CA3 <- Consumers' attitude	0.915
CA4 <- Consumers' attitude	0.784
PE1 <- Performance Expectancy	0.921
PE2 <- Performance Expectancy	0.922
PE3 <- Performance Expectancy	0.833
EE1 <- Effort Expectancy	0.896
EE2 <- Effort Expectancy	0.949
EE3 <- Effort Expectancy	0.920
EE4 <- Effort Expectancy	0.904
FC1 <- Facilitating conditions	0.890
FC2 <- Facilitating conditions	0.927
FC3 <- Facilitating conditions	0.852
BI1 <- Behavioral intentions	0.890
BI2 <- Behavioral intentions	0.887
BI3 <- Behavioral intentions	0.883

Table (4) showed item loadings per construct in theoretical model. All items' loadings are above 0.708. (Hair et al., 2010; 2014; Malhotra, 2010).

Third, the theoretical model is evaluated on some "quality criteria", by examining the validity via Average Variance Extracted (AVE) and discriminant validity. If all constructs are valid, the reliability analyses should be done for all valid constructs. Table (5) shows the Reliability and Validity of the constructs.

As indicated in Table (5), the model meets convergent validity since all of the AVEs are higher than 0.5. (Hair et al., 2010; Malhotra, 2010). As well as, discriminant validity using Fornell Larcker criterion has been established since the square root of each AVE higher than the correlations between a construct and all other constructs at the same model. (Henseler et al., 2015). Therefore, Reliability analyses using Cronbach's alpha and Composing Reliability (CR) reveal reliability of all constructs since each one exceeds 0.7.

Thus, the **fourth** step, which is model improvement by eliminating low loading and cross loading items, will not be conducted. As well as, the **fifth** step, which is developing

measurement model, which is the last improved model, is already the same theoretical model, since the theoretical model is acceptable.

Table 5: **Constructs' Reliability and Validity of theoretical model**

Construct	Reliability		Validity						
	Cronbach's Alpha	Composite Reliability	Convergent validity (AVE)	Discriminant validity					
				Behavioral intentions	Consumers' attitude	Effort Expectancy	Facilitating conditions	Performance Expectancy	
Behavioral intentions	0.864	0.917	0.786	0.887					
Consumers' attitude	0.870	0.912	0.723	0.844	0.850				
Effort Expectancy	0.937	0.955	0.842	0.797	0.757	0.917			
Facilitating conditions	0.869	0.920	0.793	0.776	0.697	0.822	0.890		
Habit	0.841	0.892	0.674	0.701	0.643	0.626	0.664		
Hedonic Motivation	0.913	0.945	0.851	0.641	0.673	0.641	0.599		
Performance Expectancy	0.873	0.922	0.797	0.820	0.792	0.843	0.783	0.893	
Social Influence	0.848	0.908	0.766	0.556	0.556	0.529	0.539	0.539	

R^2 for Behavioral intentions $= 0.713$, R^2 for Consumer's attitude $= 0.694$.

10.   Structural Model, Hypotheses Testing

The structural model with the proposed measuring levels and types and relationships between constructs explains 71.3% of Behavioral intentions and 69.4% of Consumer's attitude. (See table 6).

Table 6: **Direct hypotheses testing**

H	Path	β	*t*-value	*p*. values	Result
H1	Performance Expectancy -> Consumers' attitude	0.388	4.644	0.000	Supported***
H2	Effort Expectancy -> Consumers' attitude	0.210	2.309	0.011	Supported*
H3	Facilitating conditions -> Consumers' attitude	0.011	0.144	0.443	Not supported
H4	Consumers' attitude -> Behavioral intentions	0.844	34.408	0.000	Supported***

*** Significance level is 99.9%, p value < 0.001, t value ±3.21.
**   Significance level is 99%, p value < 0.01, t value ±2.58.
*   Significance level is 95%, p value < 0.05, t value ±1.96.

As can be shown in table (6), Performance expectancy has a significant positive effect on consumer's attitude by 38.8% at a confidence level 99.9%. Effort expectancy has a significant positive effect on consumers' attitude by 21.0% at a confidence level 95%. Facilitating conditions has a non-significant positive effect on consumers' attitude. Consumers' attitude has a significant positive effect on behavioural intentions by 84.4% at a confidence level 99.9%.

According to this table, it can be concluded that H1, H2, H4 were all accepted and supported while H3 has been rejected. It can be also concluded that performance expectancy is the highest predictor for consumers' attitude towards mobile phone applications which means that ease of use, usefulness and speed encourages consumers to use mobile apps.

Before testing the indirect effect, researcher illustrates that there is a need to combine subgroups together since each subgroup may be not sufficient to run the analysis since the minimum sample size to run the analysis for each group before testing the difference between them is the maximum number of relationships directed to a dependent variable at the structure model (Hair et al., 2014). Ten times rule indicates that the minimum sample size is 60 observations for each subgroup. Therefore, in order to test the moderation effect of Age and Experience, researcher had to merge four groups of age, so the comparison will be between (group a, less than 20 years, n = 77) vs. (group b, 20 years and more, n = 247). In addition, to test experience level, the comparisons will be between three groups (group a, less than 1 year, n= 76) vs. (group b, 1 to 3 years, n = 137 vs. (group c, 3 years and more, n= 111).

Table (7) illustrates that there is no moderation effects from all categorical moderators (age, gender and experience) on the relationship between each of performance expectancy and effort expectancy with consumers' attitude towards mobile phone applications at a confidence level 95%.

Table 7: **Indirect hypotheses testing, (MGA)**

Age				
H5	Path	(|GROUP_Age(a) - GROUP_Age(b)|)		
		Path Coefficients-diff	t-value	p-value
H5a	Performance Expectancy -> Consumers' attitude	0.267	1.321	0.188
H5b	Effort Expectancy -> Consumers' attitude	0.217	0.977	0.329
H5f	Facilitating conditions -> Consumers' attitude	0.129	0.695	0.488
Gender				
H6	Path	(| GROUP_Gender(males) - GROUP_Gender(females)|)		
		Path Coefficients-diff	t-value	p-value
H6a	Performance Expectancy -> Consumers' attitude	0.022	0.127	0.899
H6b	Effort Expectancy -> Consumers' attitude	0.064	0.329	0.742
H6f	Facilitating conditions -> Consumers' attitude	0.065	0.376	0.707

Experience									
H7	Path	(| GROUP_Experience(a) - GROUP_Experience(b)|)			(| GROUP_Experience(a) - GROUP_Experience(c)|)			(| GROUP_Experience(b) - GROUP_Experience(c)|)		
		Path Coefficients-diff	t-value	p-value	Path Coefficients-diff	t-value	p-value	Path Coefficients-diff	t-value	p-value
H7b	Effort Expectancy -> Consumers' attitude	0.097	0.452	0.652	0.311	1.522	0.130	0.214	1.132	0.259
H7f	Facilitating conditions -> Consumers' attitude	0.094	0.541	0.589	0.200	0.999	0.319	0.106	0.593	0.554

*** Significance level is 99.9%, p value < 0.001, t value ±3.21.

** Significance level is 99%, p value < 0.01, t value ±2.58.

* Significance level is 95%, p value < 0.05, t value ±1.96

11. Discussions

Previous studies have repetitively observed that females are less comfortable with using computers and they are more reactive to emotions and uncertainty, therefore they feel more hesitant to develop enough computing self-efficiency (Beyer, 2008; He and Freeman, 2010; King et al., 2002). It was also stated that females are more likely to be affected by effort expectancy and facilitating conditions when utilizing a technology than males (Venkatesh et al., 2000). When it comes to age, previous studies demonstrated that young adults are more willing to use technology than old consumers do (Bigne ́ et al., 2005).

In contrast to prior research, moderating variables (age, gender and experience) have no effect on the relationship between the independent variables with consumers' attitudes. This points out that users have the same attitude towards mobile phone applications regardless of their age, gender or experience.

According to the results in this study, performance expectancy is the highest factor affecting consumers' attitudes. This demonstrates that users embrace positive attitudes towards mobile apps when they are efficient, useful and of assistance in performing shopping activities.

Findings confirmed that effort expectancy has a positive effect on consumers' attitudes so they are more willing to use mobile apps when they are easy to navigate. Adding to this, the app should be user friendly so that consumers feel that they can make shopping smoothly.

In contrast, facilitating conditions were found not significant which explains that consumers' attitudes towards mobile apps are not influenced by supporting factors whether they are external or internal such as: the availability of technical resources, knowledge and skills necessary to perform a task through mobile apps. As a result, slow internet and expensive prices for internet bundles or packages provided by telecommunications or internet providers in Egypt will not affect consumers' attitude towards mobile apps and they will still use it.

Lastly, attitude was confirmed to be an important factor for predicting consumers' behavioral intentions. This explains that consumers will have a higher intention to use mobile apps when they hold a positive attitude towards it and on the other side, they will not use it if they have negative feelings towards it.

12. Theoretical and Managerial Implications

In 2015, it was reported that the most used apps in Egypt were subway surfers, Facebook, Messenger, Instagram, What's app and YouTube (Marks, 2017) which means that most Egyptians use mobile apps for networking and socialising not for shopping and services. This is consistent with the feedback received from respondents that they have doubts about the quality, issues with credibility and fear of security. The study identifies the significant factors that affect the consumer usage of new technology (mobile phone apps). The study findings offer important implications not only for companies and marketers, but also for the Egyptian economy.

The results suggest that consumers attach a lot of importance to performance expectancy so companies should create apps that are useful to customers and help in increasing their daily productivity. Unlike the past, customers prefer performing tasks online over going to the store to save their time. This should encourage service sectors to give more focus to mobile apps then websites because mobile devices are always with customers.

Marketers should make sure to receive instant feedback from their customers to prevent the spread of any negative experience. Additionally, in the app development stage, companies can involve and ask their customers about their preferences and let them share with their friends to increase their engagement.

Companies can achieve a competitive advantage using personalized marketing. This can be done if they tracked the preferences of each customer through their app usage and then customize offers, products or services according to the preferences of each customer.

A major drawback was apps credibility which indicates that further improvements are still needed in the infrastructures of electronic commerce and online security technologies to reduce customer anxiety and increase their trust regarding online shopping.

Finally, we cannot ignore the importance of mobile applications and how they brought benefits to consumers. However, app developers and companies should consider the reasons mentioned in this research and work on providing more credible applications by mentioning clear details about the specifications of products and services to avoid doubts and hesitance. Apps should be simple and easy to navigate. Moreover, they should be tested periodically and ask consumers for their feedback to improve the overall performance and features. If the recommendations are taken into consideration, consumers will be satisfied. Consequently, business companies can achieve more profits and offer more job opportunities for developers and apps designers which will positively affect the entire economy.

13. Limitations and Future Research

The first limitation is concerned with the generalization of the findings. The study sample cannot be generalized to the entire population of online shoppers so future research can be more specific and the researcher can apply it to a specific industry or on a particular online store as the sample introduced in this study represents the general views of mobile phone apps users. Additionally, this study was conducted in Egypt, so the findings may not apply to other countries because the influence of variables will differ in each country according to their level of awareness about technologies. It is recommended to be aware of the effects of cross-cultural differences if the findings of this study will be applied to consumers in other countries (Ashraf et al., 2014).

Credibility was a major draw mentioned by the respondents so future research can consider credibility as a variable influencing consumers' attitudes. This study identified some of the reasons why some consumers refuse to use applications and others might not be willing to reuse them in the future so future research can dig deeper into these reasons for better improvements.

Data was collected online using Google forms, future researchers can do an experimental study by creating an app through which they can gather customers' feedback on this app. Researchers can also make use of this study to try this gradually on new services, even it can be tried on habitual products by creating apps for supermarkets, through which consumers can select the products they want and the inventory level can be updated so they can view the number of products available, product specifications to increase credibility and pricing information.

A heterogeneous sample or a stratified sampling technique can be employed by future researchers as convenience data was chosen in this research and it showed no significant differences for the moderating variables.

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