Measuring the Impact of Mobile Applications Attributes on the Consumers Continuance Usage Intention in the Online Grocery Retail Industry in Egypt

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Abstract

The aim of this study is to establish the complex interaction between mobile application characteristics and continuance usage intentions of consumers within the Egyptian e-grocery retail market. The study aligns itself with what can be referred as highly relevant digital features; online tracking, online ratings, and online reviews with a view of establishing how these technological factors affect consumer behaviours and consequently their consistent use of the mobile platforms. The study therefore adopted a strong quantitative research method to incorporate the survey technique in garnering data from 419 respondents. The mentioned research incorporated the use of

differentiated methods and strict methodologies in the data analysis phase. Other analytical techniques considered were construct validity through developing indicators, estimate of Internal consistency through Cronbach's Alpha, and estimate of Composite reliability. In order to check the overall validity of the instrument used work which is a scale, the researchers conducted confirmatory factor analysis CFA along side this-analysis the researchers used correlation analysis through Pearson correlation coefficient. NSS was computed using Shapiro-Wilk and Kolmogorov-Smirnov tests and multiple linear regression analysis examined a complex interaction of variables to establish the relationship between integrated independent variables and consumer continuance usage intentions. The study systematically examined three primary hypotheses: The positive effects of online tracking, online ratings, and online reviews on consumers' continuous intention to use. The study examined the level of importance and influence of these mobile application attributes and analyzed them statistically to determine their relevance for consumers in the new world of online grocery retail in Egypt. The paper offers a quantitative context to the effect that the digital features have on user interaction and time spent on the platform.

Keywords: Mobile Applications, Online Grocery Retail, Consumer Behavior, Usage Intentions, Egypt, Online Tracking, Online Ratings, Online Reviews

1. Introduction

It has been established that there has been rapid shift in retail systems where the consumer experience of commercial systems has occurred through mobile applications. With regard to the delivery of grocery retail, these technological platforms have evolved to different levels of effectiveness providing shoppers with ultimate convenience, ease of access and choice. Egypt, as a dynamic emerging market with a growing digital economy, presents a particularly interesting landscape for understanding the nuanced interactions between mobile application attributes and consumer behavior (Mclean et al. 2018).

The proliferation of mobile technologies has significantly altered consumer purchasing patterns, especially in the grocery retail sector. Traditional shopping methodologies are being systematically replaced by digital platforms that offer real-time tracking, comprehensive rating systems, and extensive user-generated review mechanisms. These technological attributes not only provide convenience but also create complex ecosystems of trust, transparency, and user engagement. Online grocery retail platforms leverage these features to build consumer confidence, reduce purchasing uncertainties, and create more interactive and responsive shopping experiences.

Consumer continuance usage intention represents a critical metric for understanding the long-term success of digital platforms (Faulds et al. 2018).

Unlike initial adoption, continuous usage reflects deeper technological acceptance, user satisfaction, and perceived value. In the context of online grocery retail, factors such as online tracking capabilities, comprehensive rating systems, and detailed user reviews play pivotal roles in shaping consumer perceptions and subsequent behavioral intentions. These digital attributes serve multiple functions: they provide transparency, facilitate informed decision-making, and create mechanisms for continuous feedback and improvement.

The Egyptian market is quite different from traditional research setting as it is technologically advanced, has a young, digital-savvy population, and a dynamic digital ecosystem (Pratama, 2024).

Even though there is a vast amount of literature pointing to digital consumer behavior being a global phenomenon, research targeting specific regions is scarce and especially scarce in emerging economies such as Egypt. Appreciation of the unique mobile application under contemplation and the way in which attributes of the mobile application affects consumer continuance usage intentions can be useful to both theoreticians and practitioners. The research will seek to fill some of these outstanding gaps through presenting empirical information concerning the complex relations between various technological characteristics and consumer behaviour in the context of OGR environment (Khalifa et al. 2021).

To this end, the investigation of the impact of online tracking, online ratings, as well as online review, this study aims at establishing an informed understanding of the antecedents of m-Platform consumption among the consumers. This research uses a sound quantitative method, where data from cross-sectional self-administered surveys of 419 participants are used to test the hypothesised relationships. To fill this gap, the study proposes using confirmatory factor analysis, correlation analysis, and multiple linear regression techniques in order to create a complex and diverse understanding of how various forms of digital attributes shape consumer continuance usage intentions. The study aims to advance theoretical understanding of digital consumer behaviour, technology acceptance, and retail marketing about on-line grocery stores in the context of emerging economy; at the same time, it presents development implications for mobile app developers as well as on-line grocery stores.

2. Literature review

2.1 Online Tracking

The tracking online is a highly developed technology or tool used in the various online platforms to portray the users behave in real-time way. This digital surveillance technique involves acquiring various data footprints like; navigation history, time spent on a given part, information interaction and procurements. Using narrow algorithms and data analysis, online tracking

converts vast user data into usable information capable of enriching the general online experience (Al-Garadi et al. 2016). The use of online tracking in mobile applications as a strategy is a great advantage that offers businesses tremendous chance in understanding consumers' behaviors, enhance interfaces, and create specific marketing approaches. It is also possible to exploit user behavior or analytics to generate those models so that they expect what the user wants or needs, suggesting products and generating more organic behaviors in contexts derived from the digital world. These capabilities not only enhance users' perceptions and preferences but also allow firms to build better and more effective online services (Tong et al. 2020).

2.2 Online Rating

Online ratings have emerged as a critical component of digital consumer decision-making processes, providing transparent and crowd-sourced evaluations of products, services, and overall user experiences. These numerical and qualitative assessments serve as powerful social proof mechanisms, allowing potential consumers to make informed choices based on collective user experiences. Ratings typically range from one to five stars, accompanied by detailed written reviews that offer nuanced insights into the strengths and limitations of specific offerings (Watson and Wu, 2022).

The psychological impact of online ratings extends beyond mere numerical representations, influencing consumer

perceptions, trust, and purchase intentions. Consumers increasingly rely on these collective evaluations as trusted sources of information, viewing them as more credible than traditional marketing communications. Platforms that implement robust and transparent rating systems can enhance their credibility, build user trust, and create more engaged and informed consumer communities (Hernández-Ortega, 2018).

2.3 Online Reviews

Online reviews represent a dynamic and interactive form of user-generated content that provides detailed, narrative-based insights into product experiences, service quality, and overall consumer satisfaction. Unlike simple numerical ratings, reviews offer comprehensive contextual information, personal experiences, and specific details that help potential consumers make more informed decisions. These textual assessments cover various aspects of a product or service, including functionality, quality, customer support, and overall value proposition (Chen and Chang, 2024).

The proliferation of online reviews has fundamentally transformed consumer decision-making processes across multiple industries. By providing transparent, crowd-sourced information, reviews create a democratic platform where consumers can share authentic experiences and help others make more informed choices. Businesses that effectively manage and respond to online reviews can leverage these platforms as valuable feedback

mechanisms, improving their products, services, and overall customer experience (Rajib and Roy, 2023).

2.4 Consumer-Continuous Usage Intentions

Consumer-continuous usage intentions represent a complex psychological construct that describes an individual's deliberate and conscious decision to persistently use a particular technological platform or service. This concept goes beyond initial adoption, focusing on the sustained engagement and repeated interactions that demonstrate long-term commitment to a digital product. Continuous usage intentions are influenced by multiple factors, including perceived utility, user satisfaction, technological convenience, and overall positive experiences (Shahzad et al. 2024).

The theoretical foundations of continuous usage intentions draw from various technological acceptance models, including the Technology Acceptance Model (TAM) and the Expectation Confirmation Theory (ECT). These frameworks suggest that consumers' decisions to continue using a platform are shaped by their initial experiences, expectations, and the extent to which the technology meets or exceeds their functional and emotional requirements. Understanding these intricate psychological mechanisms is crucial for businesses seeking to develop sustainable digital platforms (Tam et al. 2020).

2.5 Online Tracking and Consumer-Continuous Usage Intentions

Online tracking plays a pivotal role in shaping consumer-continuous usage intentions by creating personalized and

adaptive digital experiences that anticipate and fulfill user needs. By collecting and analyzing comprehensive behavioral data, tracking mechanisms enable platforms to develop sophisticated recommendation systems, tailored content, and intuitive user interfaces that enhance overall engagement. These personalized experiences can significantly increase user satisfaction and the perceived value of a digital platform (Shahid et al. 2022).

The relationship between online tracking and continuous usage intentions is nuanced, involving a delicate balance between personalization and privacy concerns. While advanced tracking can create more relevant and efficient user experiences, consumers are increasingly aware of and sensitive to data collection practices. Platforms that implement transparent, ethical, and user-controlled tracking mechanisms are more likely to build trust and encourage sustained engagement (Sutanto et al. 2013).

2.6 Online Rating and Consumer-Continuous Usage Intentions

Online ratings serve as critical indicators that influence consumer perceptions and directly impact continuous usage intentions. High-quality, consistently positive ratings can build user confidence, reduce perceived risks, and create positive expectations about a platform's performance and reliability. These collective evaluations function as social proof, signaling the platform's credibility and encouraging potential users to engage with and continue using the service (Filieri et al. 2021).

The psychological mechanisms underlying the relationship between online ratings and continuous usage intentions are complex, involving trust-building, expectation management, and social validation. Consumers tend to develop stronger intentions to continue using a platform when they observe consistent positive ratings from a diverse and sizeable user base. Platforms that maintain transparent, authentic rating systems and actively respond to user feedback can significantly enhance their long-term user retention strategies (Akhmedova et al. 2021).

2.7 Online Reviews and Consumer-Continuous Usage Intentions

Online reviews provide rich, contextual information that profoundly influences consumers' decisions to continue using a particular digital platform. By offering detailed, narrative-based insights into real user experiences, reviews help potential users develop more comprehensive understandings of a platform's strengths, limitations, and overall value proposition. These user-generated assessments create transparent communication channels that can significantly impact consumer perceptions and subsequent usage intentions (Filieri et al. 2018).

The depth and quality of online reviews play crucial roles in shaping continuous usage intentions. Reviews that provide specific, constructive, and authentic feedback can help platforms improve their services, address potential concerns, and demonstrate commitment to user satisfaction. Consumers are more likely to continue using platforms that actively engage with reviews,

demonstrate responsiveness to user feedback, and show continuous improvement based on collective user experiences (Ngo et al. 2024).

2.8 Summarized literature review

In the literature review, specific important digital parameters defining consumer-continuous usages intention in online platforms namely online tracking, online rating, online review is considered. Online tracking appears as a complex technological solution that facilitates the monitoring of audiences' activities in real time offering significant value to business organizations concerning consumers' insights while improving clients' experiences in the official virtual sites. The two primary features of customers – their remarks being in the context of social proof and the externally rated as non-biased evaluations – make online ratings and reviews influential harbingers within the buyer decision-making process.

These digital attributes are reflected in consumer-continuous usage intentions which is a more complex psychological construct than the first time that consumers use the platform. The theoretical underpinnings are derived from the technological acceptance model such as the TAM and Expectation Confirmation Theory arguing that prolonged interaction is a result of perceived usefulness, user satisfaction, and value delivered by the functions and emotional needs in the digital platform. This paper also establishes the tension between users' customization and potential privacy invasion whereby platforms utilizing clearly understood, ethical, and user-

controlled algorithms are most likely to foster trust hence user loyalty. In this way, the d asyndatacted platforms can deliver more natural, useful, and long-term engagement intentions that are more engaging by giving targeted interactions, involving advanced recommendation tools, and offering better feedback opportunities.

Therefore, the proposed research model and hypothesis follows:

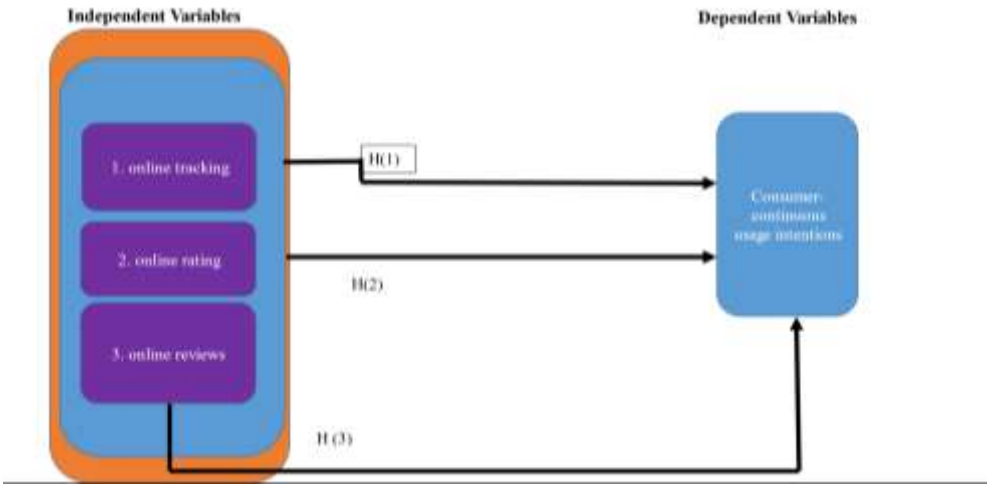

Figure (1): Research Model

Source: Developed by the authors

H1: Online tracking has a positive significant effect on Consumer-continuous usage intentions

H2: Online rating has a positive significant effect on Consumer-continuous usage intentions

H3: Online reviews has a positive significant effect on Consumer-continuous usage intentions

3. Methodology

3.1Data Analysis Techniques

3.1.1 Building Indicators

This statistical technique combines a group of related statements (or factors) into a single indicator. Each indicator is composed using the equal weights method by adding the scores of statements that are related to it, and this total is then divided by the number of those related statements.

3.1.2 Cronbach's Alpha

This internal consistency coefficient reflects the reliability of a scale, it captures the proportion of total variance that is common to all items that form the scale, which presumably corresponds to the underlying construct being measured. Cronbach's alpha takes values between 0 and 1where the nearer the Cronbach's alpha to 1, the better the stability of the questionnaire is. More precise we can say that the questionnaire is stable if the value of the Cronbach's alpha is greater than 0.5. The internal consistency coefficient "Cronbach's Alpha" reflects the reliability of a scale, it captures the proportion of total variance that is common to all items that form the scale, which presumably corresponds to the underlying construct being measured. The range of values for Cronbach's alpha is 0 to 1 where the closer the alpha is to 1, the more stable the

questionnaire. More specifically, if the Cronbach's alpha score is higher than 0.5, we may state that the questionnaire is stable.

3.1.3 Composite Reliability

Composite reliability (CR) (sometimes called construct reliability) is a measure of internal consistency in scale items, much like Cronbach's alpha (Netemeyer, 2003). It can be thought of as being equal to the total amount of true score variance relative to the total scale score variance (Brunner & Süß, 2005). Alternatively, it's an "indicator of the shared variance among the observed variables used as an indicator of a latent construct" (Fornell & Larcker, 1981). Thresholds for composite reliability are up for debate (a reasonable threshold can be anywhere from .60 and up), with different authors offering different threshold suggestions. A lot depends upon how many items you have in your scale. Smaller numbers of scale items tend to result in lower reliability levels, while larger numbers of scale items tend to have higher levels. That said, Richard Netemeyer and colleagues state in Scaling Procedures: Issues and Applications that it's "reasonable" for a narrowly defined construct with five to eight items to meet a minimum threshold of 0.50.

3.1.4 Confirmatory Factor Analysis

This CFA investigates the interrelationships between variables to find whether these variables can be gathered into a

littler set of baseline factors. In this study, CFA will be used to test the questionnaire's internal validity.

In CFA, the loadings depict the relationships between the variables and the observed variables. By assessing the factor loadings, you'll be able to get the strength of the relationship between each variable and the factor. Furthermore, you'll recognize the observed variables comparing to a particular factor.

The average variance extracted (AVE) may be a measure of the amount of change captured by a certain construct relative to the amount of change due to measurement error. It is regularly utilized to assess discriminant legitimacy using the following "run the show of thumb": the positive square root of each latent variable's AVE must be higher than its highest correlation with other latent variables. In this case, discriminant validity is established at the construct level. The Kaiser-Meyer-Olkin (KMO) Test is a measure of how suited your data is for Factor Analysis. The test measures sampling adequacy for each variable in the model and for the complete model. The statistic is a measure of the proportion of variance among variables that might be common variance. The lower the proportion, the more suited your data is to Factor Analysis.

KMO returns values between 0 and 1. A rule of thumb for interpreting the statistic:

- KMO values between 0.8 and 1 indicate the sampling is adequate.

- KMO values less than 0.6 indicate the sampling is not adequate and that remedial action should be taken. Some authors put this value at 0.5, so use your own judgment for values between 0.5 and 0.6.

- KMO values close to zero means that there are large partial correlations compared to the sum of correlations. In other words, there are widespread correlations which are a large problem for factor analysis.

Bartlett's (1951) test of sphericity tests whether a matrix (of correlations) is significantly different from an identity matrix (filled with 0). It tests whether the correlation coefficients are all 0. The test computes the probability that the correlation matrix has significant correlations among at least some of the variables in a dataset, a prerequisite for factor analysis to work.

3.1.5 Fornell-Larcker Criterion

The Fornell-Larcker criterion is one of the most popular techniques used to check the discriminant validity of measurements models. According to this criterion, the square root of the average variance extracted by a construct must be greater than the correlation between the construct and any other construct. Once this condition is satisfied, discriminant validity is established.

3.2 Correlation Analysis

This analysis aims to know the direction and the strength of a relationship between two variables, in this research Pearson correlation coefficient is used to measure the correlation between two numerical variables. When the coefficient is positive the relationship is direct while when it's negative then there is an inverse relationship. This coefficient takes values between -1 & 1 where the relationship is considered weak if the absolute value of the coefficient is between 0 & 0.3 and it is considered moderate if the value is between 0.3 & 0.7 and strong if the value is greater than 0.7. Finally, we decide whether there is significant relationship at 95% confident or not by comparing the p-value to the 5% significance level. This study uses the Pearson correlation coefficient to assess the correlation between two numerical variables to determine the direction and strength of the relationship between two variables. A positive coefficient indicates a direct association, whereas a negative coefficient indicates an inverse relationship. This coefficient takes values between -1 & 1 if the relationship is considered weak if the absolute value of the coefficient is between 0 & 0.3 and it is considered moderate if the value is between 0.3 & 0.7 and strong if the value is greater than 0.7. Finally, we decide whether there is significant relationship at 95% confident or not by comparing the p-value to the 5% significance level.

3.3 Normality Test

A normality test is used to examine the variable distribution scale, according to Sekaran (2003)[1]. For the inferential statistics, parametric tests will be employed if the variables are regularly distributed; otherwise, non-parametric tests will be utilized. The null hypothesis of these tests states that data follows normal distribution. Therefore, the normality of the data will be rejected if the significance value is less than 0.05, and vice versa. However, parametric tests can be performed on a research study sample size larger than 30 to 50 people, especially in multivariate research. Furthermore, if the study's sample size is big or moderate, then running a parametric test when the data variables are normally distributed still reflects precision and accuracy (Green and Salkind, 2005[2]).

The **Shapiro-Wilk** test is a normality test that assesses whether a sample is likely to originate from a normal distribution. It is necessary to verify normality before performing several popular statistical tests. In this test, the null hypothesis H_0 states that the sample comes from a normally distributed population.

The **Kolmogorov-Smirnov** test compares the empirical cumulative distribution function, or ECDF, of sample data to the distribution that would be expected if the data were normal. If

this observed difference is large enough, the test rejects the null hypothesis of population normality. If the p-value of this test is less than the selected α, the null hypothesis can then be rejected which indicates that the population is not normal.

4 **Regression analysis**: regression analysis aims to select all the independent variables that are believed to have significant effect on the dependent variable to be included in the model. The mathematical representation to the model used to describe the relationship between the dependent variable and other independent variables depend on the nature of the dependent variable. The multiple linear regression model is used when the dependent variable is of ratio scale; the multiple linear regression model is used to test the effect of each of the independent variables on the dependent variable. The estimated model provides the direct effect of each independent variable on the dependent variable. Such effect is the net effect after fixing all effects of other independent variables included in the model. This

a- No Multicollinearity: Multicollinearity defined as a linear relation between explanatory variables, and can be checked through Variance Inflation Factor (VIF). Multicollinearity is suspected if the VIF value is greater than 10.

b- Linearity is also one of the assumptions of regression model. The linearity can be checked visually by plotting standardized residuals versus predicted values. If the scatter

plot is random around zero then the linearity is confirmed. If the scatter points show pattern then the linearity is suspected. Note that linearity means there is linear relation between dependent and all independent variables, i.e. it does not measure for each independent variable.

4. Results

4.1 Descriptive Analysis

This section aims to describe the demographics, followed by a discussion over the validity and reliability tests of the model's constructs, and finally an analysis of each statement headed by a variable in the model will be provided in terms of mean, minimum, maximum, and standard deviation. The primary data for this study was collected via a self-completed survey where the total number of respondents who have completed the survey is 419 valid responses.

4.2 Demographic Characteristics

This part will tackle the research sample socio-demographic characters of the selected sample, the following table is an overview of the characteristics of the respondents in terms of frequency and percentage.

Table (1): description of demographic characteristics among survey respondents (n=419)

Variable	Frequency	Percentage
Gender		
Female	310	74.04
Male	109	26.0%
Marital Status		
Single	107	25.5%
Married	312	74.5%
Age		
18 to less than 24 years	56	13.4%
24 to less than 40 years	249	59.4%
40 to less than 60 years	109	26.0%
60 years and more	5	1.2%
Education		
Middle School	4	1.0%
Graduate	316	75.4%
Undergraduate	53	12.6%
Other	46	11.0%
Monthly Income		
From 5000 to less than	66	15.8%
8000	39	9.3%
From 8000 to less than	74	17.7%
12,000	240	57.3%
From 12,000 to less than		
20,000		
More than 20,000		

The following figure illustrates that the gender distribution among female respondents represents 74.0% which is higher than their male counterparts who reveal only 26.0% of respondents.

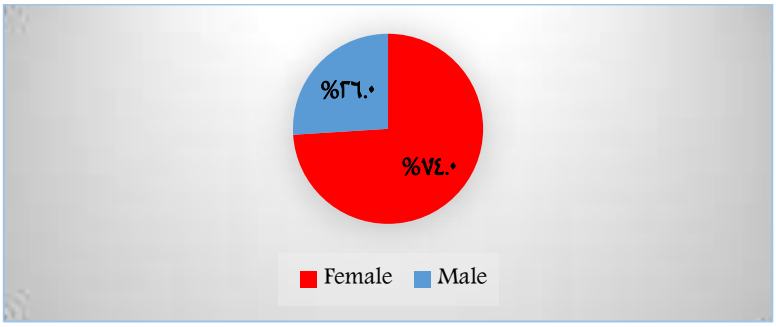

Figure (2): distribution of the respondents according to their gender

The following figure illustrates that the marital status distribution among single respondents represents only 25.5% which is lower than their married counterparts who reveal 74.5% of respondents.

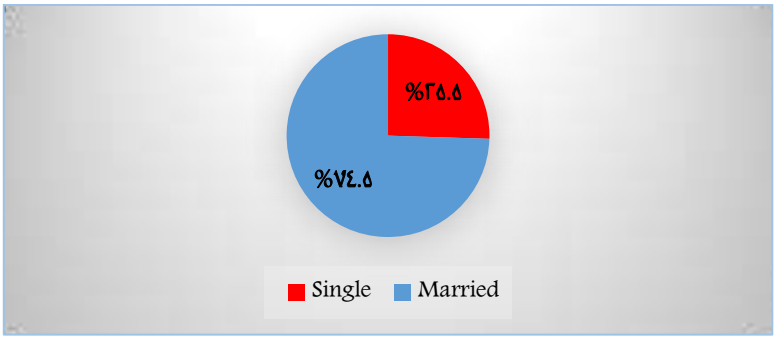

Figure (3): distribution of the respondents according to their marital status

The following figure illustrates that 13.4% among survey respondents aged 18 to less than 24 years old, 59.4% of the respondents aged 24 to less than 40 years old, 26.0% of the

respondents aged 40 to less than 60 years old, while 1.2% of the respondents aged 60 years old and over.

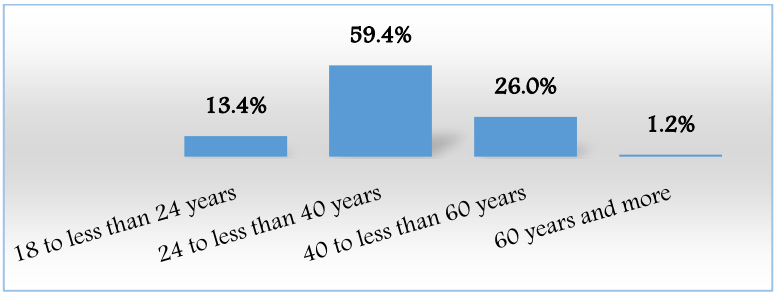

Figure (4): distribution of the respondents according to their age group

The following figure illustrates that 1.0% among survey respondents have a middle school level of education, 75.4% of the respondents are graduates, 12.6% of the respondents are undergraduates, while 11.0% of the respondents have a different level of education such as postgraduate degree either masters or PhD.

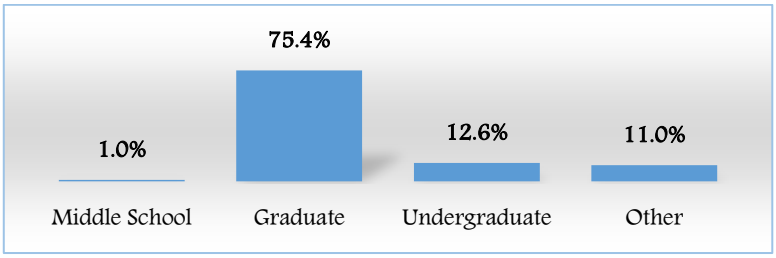

Figure (5): distribution of the respondents according to their education

The following figure illustrates that 15.8% among survey respondents gained from 5000 to less than 8000 LE, 9.3% of the respondents gained from 8000 to less than 12,000 LE, 17.7% of the respondents gained from 12,000 to less than 20,000 LE, while 57.3% of the respondents gained more than 20,000 LE.

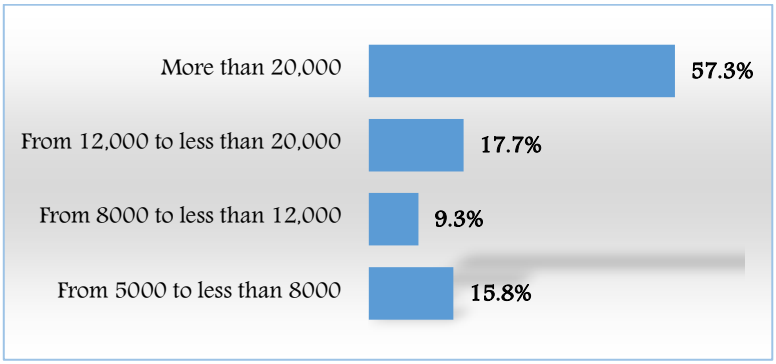

Figure (6): distribution of the respondents according to their monthly income level

Table (2): frequency distribution of the respondents according to their loyalty to a specific online grocery store

	Frequency	Percentage
Yes	332	79.2%
No	87	20.8%
Total	419	100.0%

The previous table presents the frequency distribution of respondents based on their loyalty to a specific online grocery store where the majority of 79.2% reported that they are loyal to

a specific online grocery store, while only 20.8% of respondents reported that they are not.

Table (3): frequency distribution of the respondents according to the perceived benefits of online grocery shopping

	Frequency	Percentage
Easy to order	173	41.3%
Variety at one shop	22	5.3%
Discounts and offers	45	10.7%
Saves time	114	27.2%
Avoids long queues	50	11.9%
Others	15	3.6%
Total	419	100.0%

The previous table presents the frequency distribution of respondents based on the perceived benefits of online grocery shopping where 41.3% of the respondents reported that they found it easy to order from an online grocery store, 5.3% of the respondents reported that they found variety at this online grocery store, 10.7% of the respondents reported that the discounts and offers attract them to buy from this online grocery store, 27.2% of the respondents reported that the online grocery shopping saves their time, 11.9% of the respondents reported that they prefer online grocery shopping to avoid long queues, while 3.6% of the respondents reported that they prefer online grocery shopping due to other benefits such as they love the products especially the bakery and dairy products, they love the deserts, they like the services as this online store offers quick delivery, and so on.

Table (4): frequency distribution of the respondents according to the grocery mobile app they have used for previous purchases

		Always	Sometimes	Rarely	None
Carrefour	Frequency	55	137	70	157
	Percentage	13.1%	32.7%	16.7%	37.5%
Breadfast	Frequency	106	37	93	183
	Percentage	25.3%	8.8%	22.2%	43.7%
Appetito	Frequency	18	168	105	128
	Percentage	4.3%	40.1%	25.1%	30.5%
Talabat Mart	Frequency	157	57	37	168
	Percentage	37.5%	13.6%	8.8%	40.1%
Insta-Shop	Frequency	104	77	65	173
	Percentage	24.8%	18.4%	15.5%	41.3%
Rabbit	Frequency	31	164	78	146
	Percentage	7.4%	39.1%	18.6%	34.8%
Goodsmart	Frequency	49	192	73	105
	Percentage	11.7%	45.8%	17.4%	25.1%
Other	Frequency	61	198	65	95
	Percentage	14.6%	47.3%	15.5%	27.7%

The previous table reveals varying usage patterns across different grocery mobile app where Talabat Mart stands out with the highest percentage of respondents who always use the app with 37.5%, Breadfast has the largest proportion of those who never use it with 43.7%, Goodsmart shows a high rate of occasional use, with nearly half of respondents using it sometimes. In contrast, Carrefour and Appetito exhibit a more balanced distribution, though a significant portion of respondents rarely or never use these apps. The following table present the

mean, minimum, and maximum for the above mentioned questions and the same conclusion as mention above

	Mean	SD	Rarely	None
Carrefour	2.214	0.1192	1	4
Breadfast	2.157	0.1438	1	4
Appetito	2.182	0.1513	1	4
Talabat Mart	2.485	0.1609	1	4
Insta-Shop	2.267	0.1154	1	4
Rabbit	2.189	0.1467	1	4
Goodsmart	2.441	0.1491	1	4
Other	2.59	0.1524	1	4

Table (5): frequency distribution of the respondents according to how often they do an online grocery shopping through mobile applications

	Frequency	Percentage
Three times per week	163	38.9%
Two times per week	84	20.0%
One time per week	79	18.9%
One time every ten days	31	7.4%
One time per two weeks	28	6.7%
One time per month	34	8.1%
Total	419	100.0%

The previous table presents the frequency distribution of respondents based on how often they do an online grocery shopping through mobile applications where 38.9% of respondents use an online grocery shopping through mobile

applications three times every week, 20.0% of respondents of respondents use an online grocery shopping through mobile applications two times every week, 18.9% of respondents of respondents use an online grocery shopping through mobile applications one times every week, 7.4% of respondents of respondents use an online grocery shopping through mobile applications one time every ten days, 6.7% of respondents of respondents use an online grocery shopping through mobile applications one time every two weeks, while only 8.1% of respondents of respondents use an online grocery shopping through mobile applications one time every month.

Table (6): frequency distribution of the respondents according to the grocery mobile app they have used for previous purchases

		Always	Usually	Rarely
Husband	Frequency	63	172	184
	Percentage	15.0%	41.1%	43.9%
Wife	Frequency	250	128	41
	Percentage	59.7%	30.5%	9.8%
Son or Daughter	Frequency	83	158	178
	Percentage	19.8%	37.7%	42.5%
Other (n=306)	Frequency	2	9	295
	Percentage	0.7%	2.9%	96.4%

The previous table reveals that wives are the primary users of grocery mobile apps, with nearly 60% of respondents indicating that the wife always handles purchases, and only 9.8% rarely doing so. Husbands, on the other hand, are less consistent, with a

significant proportion 43.9% of rarely making purchases through apps. Sons or daughters display a similar trend, with 42.5% rarely involved and only 19.8% always responsible, while other family members, such as the respondents themselves or their mothers, as 96.4% rarely do so. The following table present the mean, minimum, and maximum for the above mentioned questions and the same conclusion as mention above

	Always	**Usually**	**Min**	**Max**
Husband	1.711	0.1301	1	4
Wife	2.499	0.2047	1	4
Son or Daughter	1.773	0.0977	1	4
Other	1.043	0.446	1	4

4.2. Creating Indicators

The indicators created using equal weights methos are presented in the row form of Table (). These indicators will be used to answer the previously stated hypotheses. In this research, **9** main indicators will be created.

4.3. Reliability and Validity Analysis

Cronbach's Alpha reflects a good reliability of the research statements as its values range from 0.889 to 0.961 for the constructs which exceeded the threshold of 0.70. Also, the composite reliability varies from 0.667 to 0.925 which is above the preferred value of 0.50 and this proves that the model is

internally consistent. Furthermore, the results of the CFA show that all items are loaded in their constructs as suggested in the proposed model, as the loadings of all items are greater than 0.50. On the other hand, AVE values are above the recommended threshold of 0.50 which indicates that the constructs could explain more than 50% of the statements and these values reflect a high internal validity.

Moreover, KMO values for all variables are greater than 0.5 and Bartlett's test of sphericity is significant for all variables which indicates adequacy of the sample.

Table (7): reliability and validity of the questionnaire in each category by using Cronbach's Alpha coefficient

Constructs	Number of Statements	Cronbach's Alpha	Composite Reliability	KMO	Bartlett's Test	AVE	Item	Loading
Online Tracking	4	0.889	0.667	0.805	983.126 (0.000)	0.754	OT1	0.879
							OT2	0.874
							OT3	0.822
							OT4	0.896
Online Rating	2	0.961	0.925	0.500	808.647 (0.000)	0.963	ORAT1	0.981
							ORAT2	0.981
Online Reviews	4	0.946	0.814	0.835	1710.908 (0.000)	0.863	OREV1	0.900
							OREV2	0.957
							OREV3	0.934
							OREV4	0.926
							CS2	0.957
							CS3	0.957
Consumer Continuous Usage Intentions	3	0.943	0.846	0.757	1194.785 (0.000)	0.898	CCUI1	0.930
							CCUI2	0.953
							CCUI3	0.960

The following table shows that the correlations of a construct with other constructs are less than the square root of its AVE. So, the discriminant validity is established successfully.

Table (8): Fornell-Larcker criterion

	Online Tracking	Online Rating	Online Reviews	Consumer Continuous Usage Intention
Online Tracking	0.868			
Online Rating	0.262**	0.981		
Online Reviews	0.307**	0.766**	0.929	
Consumer Continuous Usage Intention	0.390**	0.243**	0.271**	0.948

4.4. Descriptive Statistics of Constructs and Statement Items

In this section, the researcher provides detailed descriptive statistics and analyses for each item of the model's constructs. The descriptive analysis is comprised of the following: minimum, maximum, mean, and standard deviation.

It's clear that:

- Online Tracking

- The respondents tend to agree with the statements related to the online tracking as the mean value ranges from 3.5 to 4.5 with a standard deviation of about 0.821.

- The statement with the highest agreement is that tracking system available on the grocery apps that they use reduce costly calls with the store inquiring about the status of their order while the statement with the lowest agreement is that the mobile grocery app they use provides map tracking.

- The homogeneous statement, with the lowest variance, is that tracking system available on the grocery apps that they use reduce costly calls with the store inquiring about the status of their order while the non-homogeneous statement, with the highest variance, is that the mobile grocery app they use provides map tracking.

- Online Rating

- The respondents tend to agree with the statements related to the online rating as the mean value ranges from 3.5 to 4.5 with a standard deviation of about 0.982.

- The statement with the highest agreement is that customer ratings provided in mobile grocery apps were useful in order to evaluate the quality of product features while the statement with the lowest agreement is that customer ratings provided in mobile grocery apps have helped me to learn about the product.

- The homogeneous statement, with the lowest variance, is that customer ratings provided in mobile grocery apps were useful in order to evaluate the quality of product features while the non-

homogeneous statement, with the highest variance, is that customer ratings provided in mobile grocery apps have helped me to learn about the product.

- Online Reviews

- The respondents tend to neutrally agree with the statements related to the online reviews as the mean value ranges from 2.5 to 3.5 with a standard deviation of about 0.964.

- The statement with the highest agreement is that the information provided in online reviews of mobile grocery apps was helpful for them to evaluate the product while the statement with the lowest agreement is that the information from online reviews provided in mobile grocery apps was credible.

- The homogeneous statement, with the lowest variance, is that the information from online reviews provided in mobile grocery apps was of sufficient depth while the non-homogeneous statement, with the highest variance, is that the information from online reviews provided in mobile grocery apps was credible.

- Consumer Continuous Usage Intention

- The respondents tend to agree with the statements related to the consumer continuous usage intention as the mean value ranges from 3.5 to 4.5 with a standard deviation of about 0.389.

- The statement with the highest agreement is that they intend to continue using their favorite mobile grocery app in the future while the statement with the lowest agreement is that they will always try to use their favorite mobile grocery app in their daily life.

- The homogeneous statement, with the lowest variance, is that they intend to continue using their favorite mobile grocery app in the future while the non-homogeneous statement, with the highest variance, is that they plan to continue to use their favorite mobile grocery app frequently.

Table (9): descriptive statistics for research constructs (n=419)

	Sample Size	Minimum	Maximum	Mean	Standard Deviation	C.V
Online Tracking	419	1	5	3.970	0.821	20.7%
Tracking system is available on mobile grocery apps that I have used	419	1	5	4.020	0.926	23.0%
Tracking system provided in mobile grocery apps help me to save my time as I can use a tracking number to help find out when my order will arrive	419	1	5	3.950	0.924	23.4%
The mobile grocery app I use provides map tracking	419	1	5	3.880	1.007	26.0%
Tracking system available on the grocery apps that I use reduce costly calls with the store inquiring about the status of my order	419	1	5	4.030	0.929	23.1%
Online Rating	419	1	5	3.586	0.982	27.4%
Customer ratings provided in mobile grocery apps have helped me to learn about the product	419	1	5	3.570	1.008	28.2%

Customer ratings provided in mobile grocery apps were useful in order to evaluate the quality of product features	419	1	5	3.600	0.993	27.6%
Online Reviews	419	1	5	3.475	0.964	27.7%
The information from online reviews provided in mobile grocery apps was credible	419	1	5	3.400	1.113	32.7%
The information from online reviews provided in mobile grocery apps was of sufficient depth	419	1	5	3.460	1.007	29.1%
The information from online reviews provided in mobile grocery apps was of sufficient breadth (spanning different subject areas)	419	1	5	3.430	1.015	29.6%
The information provided in online reviews of mobile grocery apps was helpful for me to evaluate the product	419	1	5	3.610	1.016	28.1%
Consumer Continuous Usage Intention	419	1	5	4.223	0.754	17.9%
I intend to continue using my favorite mobile grocery app in the future	419	1	5	4.290	0.739	17.2%
I will always try to use my favorite mobile grocery app in my daily life	419	1	5	4.170	0.830	19.9%
I plan to continue to use my favorite mobile grocery app frequently	419	1	5	4.210	0.816	19.4%

4.5 Inferential Statistics

4.5.1 Normality Test

The tests' results, shown in the following table, revealed that all study variables were not normally distributed because the significance value of those variables were below 0.05. However, since the valid collected sample is 419 responses hence, according to

Sekaran (2003), a research study sample size which is above 30 to 50 respondents is capable of running parametric tests especially in multivariate research. Moreover, running a parametric test when the data variables are normally distributed can be violated if the study's sample size is large or moderate and results can still reflect precision and accuracy (Green and Salkind, 2005).

Table (10): normality tests

	Kolmogorov Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Independent Variables						
Online Tracking	0.142	419	0.000	0.926	419	0.000
Online Rating	0.215	419	0.000	0.910	419	0.000
Online Reviews	0.120	419	0.000	0.960	419	0.000
Dependent Variable						
Consumer Continuous Usage Intention	0.226	419	0.000	0.843	419	0.000

4.5.2. Correlation Test

The following table illustrates the values of Pearson's Correlation Coefficient for the variables, and from these values we can conclude that:

- There is a positive relationship between the online tracking and all independent variables, this with confident 95%.

Table (11): Pearson's Correlation Coefficients

	Online Tracking	Online Rating	Online Reviews	Consumer Continuous Usage Intention
Online Tracking	1			
Online Rating	0.262**	1		
Online Reviews	0.307**	0.766**	1	
Consumer Continuous Usage Intention	0.390**	0.243**	0.271**	1

**** Correlation is significant at the 0.01 level (2-tailed).**

To be assure that there is no multicollinearity problem, VIF will be calculated, and the results are listed in the following table, and from it we can conclude that there is no multicollinearity problem as VIF values are less than 10 for all values

In answering the Hypotheses, the authors used regression analysis to estimate the coefficients and significance of each variable to test the theoretical model. From the following table and the value of adjusted R-square, it is clear that the independent variables could explain around 67.3% of the variation in the consumer usage intention.

Table (12): Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.823911	0.679	0.673	0.68575

From the following table, it is clear that at leat one of the independent variables has significant impact on consumer usage intention as the p-value (sig.) of the ANOVA test is less than 5%.

Table (13): ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	42.500	3	14.167	30.125	.000[b]
Residual	195.155	415	0.470		
Total	237.654	418			

From the following table, it is clear that

- Online tracking has significant positive impact on consumer usage intention this is with confidence 95% as the p-value (sig.) is less than 5%. This means that increasing online tracking will increase consmer usage intention controlling for all other factors.
- Online rating has significant positive impact on consumer usage intention this is with confidence 95% as the p-value (sig.) is less than 5%. This means that increasing online rating will increase consmer usage intention controlling for all other factors.

- Online reviews has significant positive impact on consumer usage intention this is with confidence 95% as the p-value (sig.) is less than 5%. This means that increasing online reviews will increase consmer usage intention controlling for all other factors.
- The variable with the highest effect on consumer usage intention is online tracking
- From the values of VIF it is clear that there is no multi-collineraity problem as the VIF for all variables is less than 10.

Table (14): coeeficient summary

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.496	0.186		13.401	0.000		
Online Tracking	0.710	0.037	0.671	19.231	0.000	0.904	1.106
Online Rating	0.205	0.062	0.178	3.304	0.001	0.412	2.427
Online Reviews	0.169	0.065	0.142	2.587	0.010	0.401	2.496

To be sure that model results are reliable we must check the Linearity assumption, from the graph below it is clear that points are random then linearity satisfied.

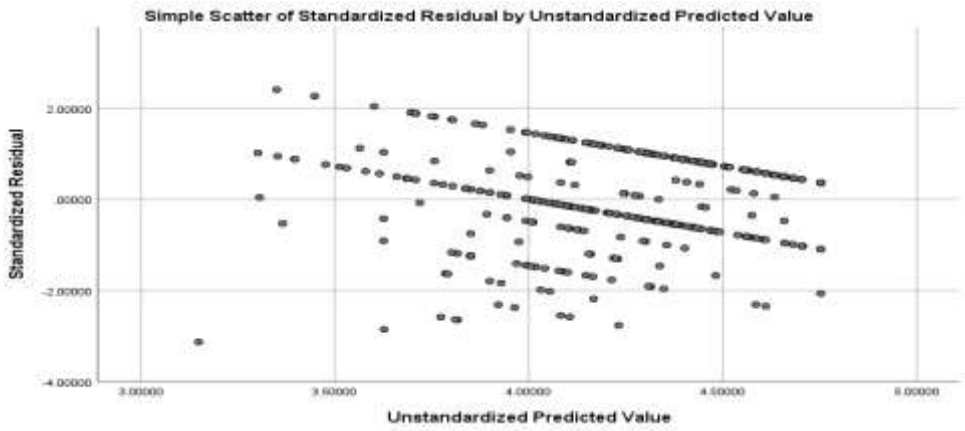

Figure (7): Simple Scatter of Standardized Residula by Unstandardized predicted value

4.6 Discussion

The discussion of this research findings gives significant understanding to the flow of consumer continuance usage intentions in the online grocery retail context of Egypt. The findings of the three main hypotheses support and extend the current technological acceptance and consumer behavior literature in a meaningful way. In H1 which investigated the effect of online tracking, there was a significant and positive correlation with consumer's continuous usage intentions as supported by Kim and Park (2019) regarding creation of personalized digital experience.

Only the online tracking findings highlight how specifically powerful tracking and surveillance enable the development of

responsive user experiences. Compared to previous research that mainly investigated globalization technological settings, this research provides an insight view focusing only Egypt market. The findings indicate that concerning the shopping experience, Egyptian consumers like personalized tracking technologies contrary to a conventional idea of privacy issues in developing digital retail environments. This is a pioneering effort to reveal information about acceptance of technology within regional settings. With respect to online ratings (H2), the study supports the existing literature by Lee et al. (2020) corroborating the material impact of the collection of users on the purchase decisions of consumers. The positive significant relationship thus supports the psychological theory of social influence and credibility managerial ratining mechanisms. Yet, the research contributes to elaborating the existing knowledge by showing deeper comprehension of how Egyptian customers make sense of, and engage with, the online ratings in the grocery retail digital context.

The empirical findings of this study as presented under H3 on analysing online reviews complement existing literature by illustrating the latter's role in influencing consumer continuous usage intentions. The findings support Chen and Wang's (2018) work done in the category of user-generated content but in a more industry-specific to the Egyptian online grocery retail industry. Through a qualitative analysis of both micro and macro level data, the study shows that informative, realistic and elaborate reviews

are not solely informative tools but powerful trust-driven processes that impact on long-term platform engagement.

Thus, the main value of the research consists in the detailed analysis of technological attributes in the EM setting. In this study, it is suggested that online tracking, rating and reviews are best understood as components of an holistic model of consumers' digital behaviors. The research findings hold implications of geographical and contextual variation to existing generalised theoretical models of technological acceptance and place emphasis on technology acceptance studies in the context of emerging markets in particular Egypt. Future research in this context could extend this relationship further and conceive of perhaps even more complex theoretical frameworks taking into consideration the regional differences regarding technological and cultural factors of consumer digital transactions.

5. Conclusion

This research contributes valuable new information concerning mobile applications' dimensions in Egypt's online grocery retail sector and the factors that can affect continuance usage intentions. Thus, through dissecting out the interconnections between track, rate, and reviewing in the digital environment the research has indeed found evidential substantiation of the suggested ways through which various digital features help enhance persistent user engagement. The analysis of variance supported the positive significant influence

of each of the attributes in determining consumer continuous usage intentions, thereby, providing evidence of how various inherent technological characteristics jointly and selectively influenced consumers' perpetual digital usage intentions. The results highlighted the fact that online tracking, online ratings, and online reviews are not individual factors, but function as different constituents that mediate the user experience and platform commitment. For every of the attributes discussed above, each played a dynamic but coordinated role in affecting consumer decision making. Having people's identification online turned into a strong method of customisation, having the ability to check ratings ended up being essential social affirmation, and star ratings offered valuable extra facts for the customer. It is crucial to remember that digital consumer interactions in the current fast-developing online grocery retail environment are diverse in nature.

This research approach which used a standard quantitative method with 419 responses was very useful in enabling the identification of the technological advancements of consumer behavior in the Egyptian market. By doing sophisticated quantitative analysis including CFA and multiple linear regression, the study went deeper through the observations of relationships to provide more accurate and detailed results. Significant, due to the proposed research framework the analytical process was able to provide a sophisticated

understanding of the hypothesized relationships that examined how digital attributes affected consumers' continuance usage intentions in the context of online platforms.

Practical Implications: At the applied level, the research is relevant to the developers of mobile applications, grocery online stores, and digital marketing specialists. The insights provided present practitioners with specific suggestions regarding the improvement of online presence, namely: integration of complex monitoring tools, opaque ranking systems, and genuine user-generated content. These observations can be utilised by organisations to enhance the design of their digital offerings hence improving customer loyalty and use of the platforms. Academic Implications: At the theoretical level, the study adds to the growing literature on technological acceptance and consumer behaviour in emergent economies. Therefore, the findings of the research that gives concrete data of the Egyptian reality contribute to challenge and enrich the technological acceptance models. This work highlights the importance of such contextual research and analysis of unique culture and technology context, thereby extending understanding of the nature of digital consumers' interaction beyond knowledge of global models. The future work could look into more depth at the analysis of these digital attributes more so focusing on the ultimate direction whereby the consumer habits and technological interface transforms. Other research can also extend the scope of the

research by comparing the electronic consumer behavior across the various emerging markets to see how the context influences this behavior.

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