

## **The impact of Online Food Delivery Applications (FDAs) on Customer Satisfaction and Repurchasing Intentions: Mediating Role of Positive E-WOM**

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### **ABSTRACT**

#### **Keywords:**

food delivery applications (FDAs); convenience; incentives; attractive content; technology Anxiety; security; perceived control, electronic word-of-mouth; satisfaction; repurchasing intentions.

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Catering businesses and customers have largely adopted food delivery apps (FDAs) using companies that introduce catering delivery via FDA applications. A limited number of studies have approached the influence of food delivery applications on customers intending to purchase in Egypt. This paper aims to measure the impact of online food delivery applications (FDAs) on satisfaction and purchasing decisions in Greater Cairo. Therefore, this paper evaluates customer perceptions via food delivery applications to suggest some improvements, to allow the food delivery applications to determine weakness points and to make amelioration to improve customer satisfaction when ordering via food delivery applications. A questionnaire was distributed to customers to identify their satisfaction towards the applications of food delivery. The study involves nine constructs, i.e. convenience; incentives; attractive content; technology anxiety; security, perceived control; E-WOM; satisfaction; repurchasing intentions. This current study utilised SEM via the “Partial Least Squares PLS” technique to investigate the hypotheses of the research with Smart PLS-3.0. to analyze the data collected from 384 questionnaire forms gathered from customers. The research results show that the positive E-WOM variable was a partial mediator between the FDA's cybersecurity variable, customer satisfaction with it, and their decision to reuse these applications. On the other hand, E-WOM was complete mediator between the FDA's content, customer satisfaction, and the reuse of FDA's applications

### **Review of Literature**

Electronic service (e-service) is referred to as how an application simplifies effectual shopping, purchasing, and goods and services delivery (Zeithaml *et al.*, 2002). In addition, the quality of electronic or e-service involves consumers' evaluation of the delivered services that have been bought and perhaps traced and evaluated by an electronic device. Relevant research concluded that e-service quality is merely related

to application and website quality (Parasuraman *et al.*, 2005). Moreover, according to research conducted by Alagoz and Hekimoglu (2012), electronic commerce is emerging broadly all around the globe, and has contributed to raising the development of the food industry.

Mobile devices have been increasingly utilized worldwide. Based on a report by the Global Association of Mobile Operators, the number of universal mobile phone users in 2020 surpassed 5.1 billion (GSMA, 2020). As a result, the mobile applications could be downloaded by many online providers such as Apple's App Store, Google Play Store, and Amazon App Store. Customers may do many activities via online applications such as banking, shopping, searching for information, social networking, entertainment... etc. (Elangovan and Agarwal, 2015; Malik *et al.*, 2017). Food delivery applications (FDAs) are the most significant online mobile services which have lately become popular by providing two-way benefits to catering businesses and users by offering appropriate and effective online ordering services (Zhao and Bacao, 2020). Therefore, customer attitudes towards food delivery applications, such as *Otlob* and *El menus*, are represented in the fact that customers may even use such applications several times because they are useful. The consumer perception theory refers to the way consumers shape opinions about any online or e-commerce product or application. Thus, restaurants can use these applications which are characterized by trust to improve advertising strategies and marketing to maintain their regular customers and attract new ones (Kumar, 2017).

### **Convenience**

The fast urbanization has generated a state where urban resident finds restricted time particularly during the weekdays for them to cook their meals or even to have their meals in the restaurants. As a result, urban residents prefer to eat more junk food or just miss the meals completely (Botchway *et al.*, 2015). Therefore, Jiang *et al.* (2011) mentioned that convenience is a key reason for consumers to embrace e-technology as users must be persuaded of their worth before they are intending to utilize this technology. When companies launch a modern electronic ordering and delivery system to customers, the ease of its usage stimulates consumers to utilize it. Furthermore, Kimes (2011) stated that customers can use modern, simple and secure electronic technology. Consumers will prefer to buy food online rather than shopping it because of permitting users to place orders and receive food at any time and any place. Therefore, Tribhuvan (2020) stated that convenience includes elasticity, speed, portability, and ease of use. Contactless payment permits consumers high elasticity of time included (Mallat, 2007). Hence, mobile payment permits secure and comfortable transactions with appropriate technology such as encryption and decreases fraud (Smolarczyk, 2018).

### **Incentives**

Sales promotions in e-commerce for hospitality involves great volume such as price-discounts, coupon codes, sweepstakes and extra loyalty program points (Christou 2011; Kotler *et al.*, 2010). Mobile applications offer sales promotions appealing features and innovative ways to attract consumers to visit restaurants inside the application through enticing the customers to use the application (Sigala, 2013). For example, the emerging

trend of promoting online deals available for a particular period and with limited inventory has become popular with the rise of promo codes for every discount. These sales create a feeling of product scarcity and increases the customer's likelihood for a purchasing decision (Sigala, 2013). Therefore, the food delivery application offers many benefits that attract customers to this application, including free delivery or decreased delivery charges, lower delivery time, better promotional incentives, and listing all chosen restaurants for customers have a positive impact on customers' intentions to order food from FDA application.

### **The attractive content**

The research results of Chohan (2013) illustrated that internet customers provide messages that have the most attractive content, consequently, marketers need to pay attention to the attractiveness of the content provided by the application to make attractive and influential apps content for customers (Hirvijärvi, 2017). Furthermore, another attractive feature of FDA apps is that it is more cost-effective as it offers the customers a large variety of expedience and preferences to pick from. (Jacob *et al.*, 2019). Therefore, the attractiveness of the emotional impact, concerning FDA applications marketing content, may be the cornerstone of the success of marketing (Ghanem, 2019)

### **Technology Anxiety**

Technology anxiety is a bad emotional condition, or a bad perception encountered by individuals whenever they utilize technology or technology devices (Bozionelos, 2001). Technology anxiety is frequently viewed as an attitude concerning technology. The negative attitude of an individual regarding technology was specified as a feature of a person suffering from anxiety regarding technology (Garland and Noyes, 2004). Therefore, Saadé and Kira (2009) described technology anxiety as being afraid or anxious when utilizing or considering the usage of technology". Technological anxiety is a negative emotional reaction, like panic or nuisance people encountered whenever they believe about technology usage (Hasan and Ahmed, 2010).

### **Security**

Security and privacy have become the prime care for online customers. To pacify customers' minds about the matters of security and privacy, several applications have executed procedures to permit users to confirm, audit and certify policies of privacy for online transactions (Ranganathan and Ganapathy, 2002). Belanger et al. (2002) added that more than seventy percent of customers rejected to offer information online or to make an online transaction because of security and privacy concerns. intention to purchase a product from the applications or website is influenced by the trust. Therefore, security was the most important interest among online consumers (Flavián *et al.*, 2006). Mukherjee and Nath (2007) also added that perceived value over security and privacy characteristics of the applications is the decisive antecedent of trust which in the end leads to positive impacts upon the behavioral intention of the customers. Accordingly, the security and privacy of all the e-service providers have been addressed as the main concern in many studies (Sathye, 1999; Liao and Cheung, 2002; Poon, 2008). Thus, Zulkarnain et al. (2015) suggest that the level of trust can influence consumers' purpose to buy products online. The more security and privacy are certain

to the consumers in online purchasing, the higher the level of users' trust of online purchase (Bashir et al., 2015). Hence, the absence of confidence in FDA applications dealing with personal data and security stimulated many users in the European Union to avert online purchases (Flavián and Guinalú, 2016)

### **Perceived Control**

Although applications for home delivery systems attempt to be extremely easy and have an outstanding customer experience (Teo and Lee, 2010), consumers need to sense that they can control them to decide to utilize and suggest them to others (Liao *et al.*, 2007). If a customer uses a food delivery application; and can control it, its protocols will certainly make the customer repurchase the meals via the application and, consequently, will spread positive Word of Mouth regarding the experience (Belanche *et al.*, 2020).

### **Positive E-WOM**

The internet has become a platform encouraging "social" customer electronic word of mouth (eWOM) and the main resource of customer data and empowerment (Constantinides and Fountain, 2008). Consumers' online reviews are personal perspectives and encapsulate attitudes, experiences, and feelings, described by customers (Floh *et al.*, 2013; Lu *et al.*, 2014). Individuals' perspectives and experiences for services and products in terms of online reviews represent one of the most precious sources of data helping customers to make purchasing decisions (Chua and Banerjee, 2015; Dellarocas, 2003; Henning-Thurau *et al.*, 2003; Huang and Benyoucef, 2013).

### **Satisfaction**

Consumer satisfaction is a personal result of any successful marketing practices, connecting the process of purchasing and consumption to post-purchase phenomena. Satisfying consumers is a significant factor in marketing because it influences future customer behavioral repurchase intention and profitability (Nisar and Prabhakar, 2017; Taylor and DiPietro, 2017). Thus, customer satisfaction through online purchase is an experience that could be shared with millions of other people via online applications as opposed to a traditional shopping experience. In brief, consumers' satisfaction with purchasing a meal through an online food delivery application is consumers' assessment of purchasing a restaurant's food via online food delivery by FDA applications in terms of their previous experiences, and their subsequent emotional condition of fulfillment (Suhartanto *et al.*, 2019).

### **Purchase intention**

Application information, brand familiarity and prior shopping experience may raise customers' intentions to purchase or repurchase a product via internet (Blackwell *et al.*, 2001). Kim and Eom (2002) mentioned that FDA application information such as the firm that owns the application, products, services, and promotions of restaurants positively affect the intention of the customer. Raza et al. (2014) defined purchase intention as a condition between consumers and service providers when the consumer is ready to make a deal with the service provider. Furthermore, many other researchers' experimental results conveyed that data credibility creates a trust in the FDA application if the data are exact, relevant and recent (Mithas *et al.*, 2006; Corritore *et*

*al.*, 2005; Yoon, 2002). Moreover, several worthy advantages offered by FDA application, like data content and promotions offers, result in the formation of customers' trust in and satisfaction with the FDA application (Chen and Barnes, 2007).

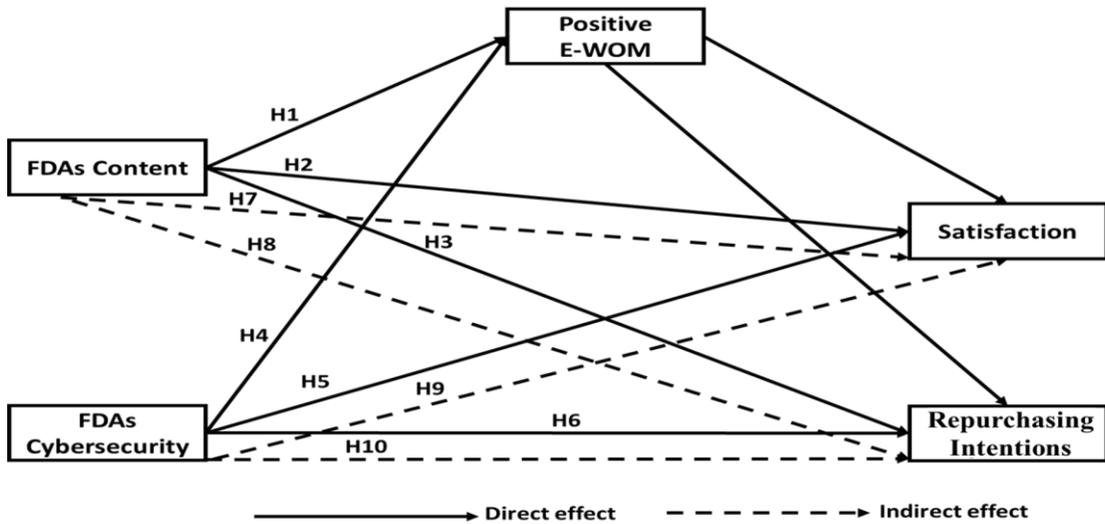
Other researchers have suggested that customers' decision-making approach also includes emotional responses, such as their feelings or experience regarding the product and service features. As an effective system, these emotional responses affect customers' decisions (Darke *et al.*, 2006; Hansen, 2005). Hence, the customer decision-making process model mentioned that consumers go through three phases before they decide to purchase a good or service: need perception, search for information and evaluation of alternatives (Blackwell *et al.*, 2006). Therefore, application contents and security are important factors influencing customer satisfaction and repurchase intentions.

## **Method**

### **Research model overview**

Based on the previous literature, the study model and the relationships between the variables were built. Fig. (1) illustrates the study model and from which the study hypotheses were formulated.:

- H<sub>1</sub>**. FDA's Content has a positive effect on positive E-WOM.
- H<sub>2</sub>**. FDA's Content has a positive effect on satisfaction.
- H<sub>3</sub>**. FDA's Content has a positive effect on the repurchasing intentions.
- H<sub>4</sub>**. FDA's Cybersecurity has a positive effect on positive E-WOM
- H<sub>5</sub>**. FDA's Cybersecurity has a positive effect on satisfaction
- H<sub>6</sub>**. FPA's Cybersecurity has a positive effect on the repurchasing intentions
- H<sub>7</sub>**. FDAs Content has a positive effect on satisfaction through Positive E-WOM (Indirect Effect)
- H<sub>8</sub>**. FDA's Content has a positive effect on repurchasing intentions through positive E-WOM (Indirect Effect)
- H<sub>9</sub>**. FDA's Cybersecurity has a positive effect on satisfaction through positive E-WOM (Indirect Effect)
- H<sub>10</sub>**. FDA's Cybersecurity has a positive effect on repurchasing intentions through positive E-WOM (Indirect Effect)



**Fig.1.** The proposed conceptual framework

**The sample and design**

An online questionnaire form consisting of 29 items was used to measure convenience, incentives, attractive content, technology anxiety, security, positive E-WOM, satisfaction, repurchasing intentions, and demographic data variables to verify the study hypotheses. Data were collected from customers who used food delivery applications (e.g. Talabat and Elmenus) who reside in Cairo, with the help of some restaurants contracting with these applications. Restaurant owners were asked to send the survey link to their registered customers, in order to meet the survey with more interest. A total of 500 questionnaires were distributed to a random sample of customers of food delivery applications and 397 valid samples were collected with a recovery rate of 79.4%. This sample consisted of 62.5% male and 37.5% females. According to Krejcie and Morgan (1970), a sample size of 384 is suitable for a population of 100,000. Accordingly, the study sample is valid.

**Measures**

There are six independent variables, namely: 1) Convenience, 2) Incentives, 3) Attractive Content, 4) Technology Anxiety, 5) Security, and 6) Perceived Control. The six variables were divided into two groups (FDAs content and FDAs Cybersecurity), each group containing three independent variables .Convenience, incentives, and attractive content are categorized under the name of FDAs content and FDAs Cybersecurity includes Technology Anxiety, Security, and Perceived Control. The impact of such variables is generated on two dependent variables: satisfaction and repurchasing intentions through positive E-WOM as a mediator. The main aim of the current research is to conclude the effects of the identified stimuli on satisfaction and repurchase intention. Table 1 displays the Measures of the Variables

**Table I**  
Measures of the Variables

Variables	Reference	items
Convenience	(Kimes, 2011)	3
Incentives	(Ghanem, 2019)	3
The Attractive Content	(Ghanem, 2019)	4
Technology Anxiety	(Kimes, 2011)	4
Security	(Belanche <i>et al.</i> 2020)	3
Perceived Control	(Belanche <i>et al.</i> 2020)	3
Positive E-WOM	(Belanche <i>et al.</i> 2020)	4
Satisfaction	(Kimes, 2011)	4
Repurchasing Intentions	(Suhartanto <i>et al.</i> 2019)	3

All items are measured on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The sentences were encoded as follows: (Table 1)

## Results

This current study utilised SEM via the “Partial least squares PLS” technique to test the hypotheses of the study with SmartPLS-3.0. The proposed theoretical model was examined using a two-step approach suggested by (Leguina, 2015), As follows;

### Assessment of outer measurement model

To assess the outer model's reliability and validity, internal consistency reliability, indicator reliability, convergent validity, and discriminant validity were tested. First, as displayed in **Table 2**, the structures' internal consistency reliability was tested with Cronbach's alpha ( $\alpha$ ) changing from 0.770 to 0.928, and the composite reliability (C.R) ranging from 0.865 to 0.949. Second, indicators' reliability was acceptable as all loading values of the structure indicators were higher than 0.70. Third, convergent validity was evaluated by the average variance extracted (AVE) values exceeding the satisfactory value of 0.50 (Henseler *et al.*, 2009).

**Table 2**

Assessment of the measurement model

	The model items	Outer Loading	$\alpha$	C.R	AVE
<b>FDAs Content</b>	<b>Convenience</b>		0.858	0.914	0.779
	CO1	0.879			
	CO2	0.923			
	CO3	0.845			
	<b>Incentives</b>		0.770	0.865	0.682
	IN1	0.754			
	IN2	0.876			
	IN3	0.843			
	<b>The Attractive Content</b>		0.845	0.906	0.763
	AT1	0.882			
	AT2	0.901			
	AT3	0.837			

Continued

<b>FDAs Cybersecurity</b>	<b>Technology Anxiety</b>		0.928	0.949	0.824
	TE1	0.920			
	TE2	0.931			
	TE3	0.916			
	TE4	0.863			
	<b>Security</b>		0.902	0.939	0.836
	SE1	0.918			
	SE2	0.920			
	SE3	0.906			
	<b>Perceived Control</b>		0.831	0.899	0.750
	PE1	0.905			
	PE2	0.916			
	PE3	0.769			
	<b>Positive E-WOM</b>		0.837	0.902	0.755
EW1	0.823				
EW2	0.908				
EW3	0.874				
<b>Satisfaction</b>		0.865	0.908	0.711	
SA1	0.835				
SA2	0.875				
SA3	0.847				
SA4	0.816				
<b>Repurchasing Intentions</b>		0.848	0.908	0.768	
IU1	0.870				
IU2	0.906				
IU3	0.852				

Finally, three criteria were implemented to assess the discriminant validity of the constructs. They were cross-loading, Fornell-Larcker criterion, and heterotrait-monotrait ratio (HTMT) (Leguina, 2015). As indicated in Table (3), the outer-loading for each latent variable - underlined- was higher than the cross-loading with other measurements.

**Table 3**  
Cross loading results

	Convenience	Incentives	Attractive Content	Technology Anxiety	Security	Perceived Control	Positive WOM	E-Satisfaction	Repurchasing Intentions
<b>CO1</b>	<b>0.879</b>	0.447	0.548	0.508	0.517	0.521	0.349	0.335	0.320
<b>CO2</b>	<b>0.923</b>	0.449	0.559	0.499	0.474	0.484	0.356	0.316	0.303
<b>CO3</b>	<b>0.845</b>	0.471	0.482	0.452	0.437	0.423	0.338	0.304	0.319
<b>IN1</b>	0.386	<b>0.754</b>	0.310	0.301	0.332	0.356	0.430	0.351	0.320
<b>IN2</b>	0.369	<b>0.876</b>	0.405	0.412	0.431	0.441	0.509	0.478	0.417
<b>IN3</b>	0.502	<b>0.843</b>	0.709	0.651	0.654	0.637	0.524	0.534	0.508
<b>AT1</b>	0.539	0.621	<b>0.882</b>	0.688	0.683	0.702	0.506	0.510	0.541
<b>AT2</b>	0.540	0.516	<b>0.901</b>	0.672	0.683	0.666	0.468	0.505	0.541
<b>AT3</b>	0.494	0.436	<b>0.837</b>	0.665	0.626	0.630	0.416	0.496	0.504
<b>TE1</b>	0.520	0.522	0.702	<b>0.920</b>	0.800	0.791	0.509	0.554	0.573
<b>TE2</b>	0.504	0.529	0.696	<b>0.931</b>	0.786	0.818	0.530	0.572	0.550
<b>TE3</b>	0.480	0.512	0.694	<b>0.916</b>	0.790	0.807	0.525	0.595	0.597
<b>TE4</b>	0.497	0.527	0.713	<b>0.863</b>	0.815	0.768	0.546	0.568	0.555
<b>SE1</b>	0.493	0.538	0.704	0.827	<b>0.918</b>	0.771	0.554	0.552	0.557
<b>SE2</b>	0.477	0.545	0.697	0.784	<b>0.920</b>	0.772	0.570	0.586	0.586
<b>SE3</b>	0.509	0.549	0.685	0.799	<b>0.906</b>	0.825	0.542	0.549	0.579
<b>PE1</b>	0.453	0.516	0.677	0.807	0.826	<b>0.905</b>	0.562	0.578	0.614
<b>PE2</b>	0.523	0.520	0.727	0.824	0.814	<b>0.916</b>	0.557	0.606	0.625
<b>PE3</b>	0.424	0.530	0.568	0.631	0.578	<b>0.769</b>	0.586	0.575	0.603
<b>EW1</b>	0.430	0.553	0.506	0.545	0.544	0.653	<b>0.823</b>	0.609	0.618
<b>EW2</b>	0.311	0.507	0.457	0.484	0.535	0.543	<b>0.908</b>	0.643	0.624
<b>EW3</b>	0.285	0.488	0.424	0.484	0.503	0.501	<b>0.874</b>	0.698	0.647
<b>SA1</b>	0.299	0.491	0.422	0.490	0.481	0.517	0.684	<b>0.835</b>	0.613
<b>SA2</b>	0.277	0.491	0.452	0.507	0.494	0.537	0.627	<b>0.875</b>	0.650
<b>SA3</b>	0.290	0.469	0.522	0.549	0.559	0.591	0.559	<b>0.847</b>	0.643

Continued

<b>SA4</b>	0.345	0.442	0.543	0.576	0.538	0.625	0.651	<b>0.816</b>	0.703
<b>IU1</b>	0.285	0.448	0.547	0.531	0.530	0.604	0.618	0.685	<b>0.870</b>
<b>IU2</b>	0.342	0.456	0.543	0.586	0.583	0.645	0.654	0.669	<b>0.906</b>
<b>IU3</b>	0.306	0.450	0.501	0.528	0.537	0.605	0.634	0.683	<b>0.852</b>

As shown in Table 4, the bolded values of the AVEs in the diagonals are higher than the correlation between variables.

**Table 4**

Inter-construct correlations, the square root of AVE.

	Convenience	Incentives	Repurchasing Intentions	Perceived Control	Positive E-WOM	Satisfaction	Security	Technology Anxiety	Attractive Content
Convenience	<b>0.883</b>								
Incentives	0.515	<b>0.826</b>							
Repurchasing Intentions	0.355	0.515	<b>0.876</b>						
Perceived Control	0.540	0.599	0.706	<b>0.866</b>					
PositiveE-WOM	0.394	0.595	0.725	0.651	<b>0.869</b>				
Satisfaction	0.360	0.561	0.775	0.674	0.749	<b>0.843</b>			
Security	0.540	0.595	0.628	0.863	0.607	0.615	<b>0.914</b>		
Technology Anxiety I	0.551	0.576	0.626	0.877	0.581	0.630	0.879	<b>0.908</b>	
Attractive Content	0.601	0.604	0.606	0.763	0.532	0.577	0.761	0.773	<b>0.874</b>

According to Gold et al. (2001), The most HTMT values need to be less than 0.90. The study’s values of HTMT were lower than this (Table 5). According to the results, the model structure has adequate discriminant validity. Consequently, the outer measurement model outcomes were deemed strong enough to continue to evaluate the structural model.

**Table 5**  
Inter-construct correlations, HTMT results

	Convenience	Incentives	Repurchasing Intentions	Perceived Control	Positive E-WOM	Satisfaction	Security	Technology Anxiety	Attractive Content
Convenience									
Incentives	0.624								
Repurchasing Intentions	0.417	0.621							
Perceived Control	0.639	0.730	0.846						
Positive E-WOM	0.465	0.734	0.861	0.789					
Satisfaction	0.417	0.674	0.903	0.798	0.878				
Security	0.613	0.685	0.718	0.987	0.699	0.696			
Technology Anxiety	0.618	0.650	0.706	0.993	0.659	0.702	0.961		
Attractive Content	0.704	0.707	0.715	0.906	0.631	0.673	0.871	0.873	

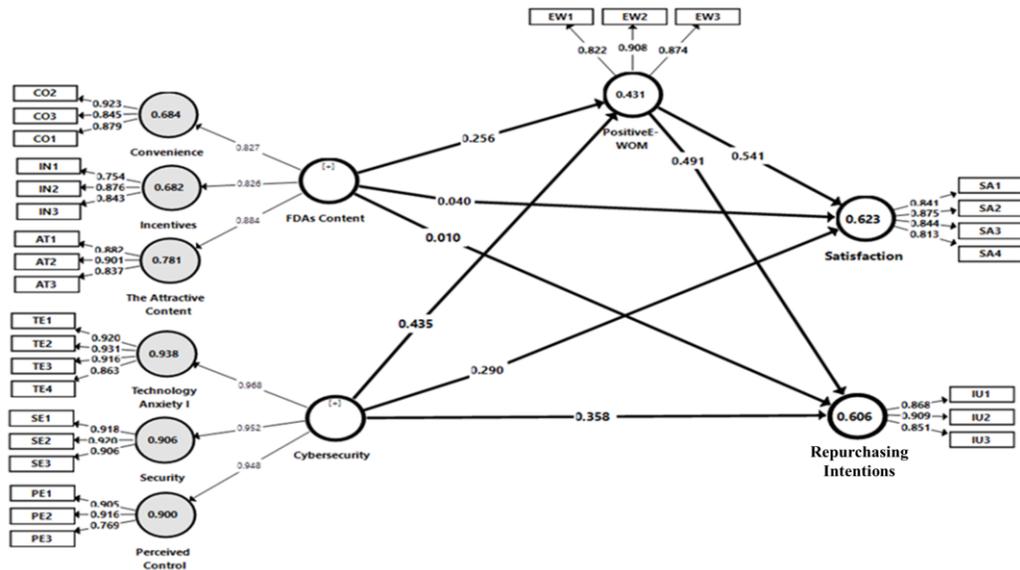
**Assessment of the structural model**

The hypotheses were then tested by a structural equation analysis. In particular, the model’s predictive capacity and the explanatory power were analyzed (Hair Jr *et al.*, 2016). With the VIF values of the manifest indicators changing from 1.5 to 4.7 below 5, the multicollinearity of the structural model has been verified as inexistent. Next, Chin (1998) indicated that the lower limit for the  $R^2$  values is 0.10. Therefore, the  $R^2$  values for the variables of Positive E-WOM (0.431), Satisfaction (0.622), and repurchasing intentions (0.675) are acceptable (**Table 6**). Besides, The Stone-Geisser  $Q^2$  test indicates that positive E-WOM, Satisfaction, and repurchasing intentions values greater than zero (**Table 6**), indicating adequate predictive validity of the model (Henseler *et al.*, 2009). Accordingly, enough predictive validity for the structural model was also confirmed.

**Table 6**  
Coefficient of determination (R2) and (Q2) of the model

Endogenous latent construct	(R2)	(Q2)
Positive E-WOM	0.431	0.305
Satisfaction	0.623	0.415
Repurchasing Intentions	0.606	0.440

Lastly, the path coefficient and t-value of the hypothesized association were analyzed using a bootstrapping technique. **Table 7 and fig 2** below display the hypothesis test results, given the path coefficient values and the relevant significance.



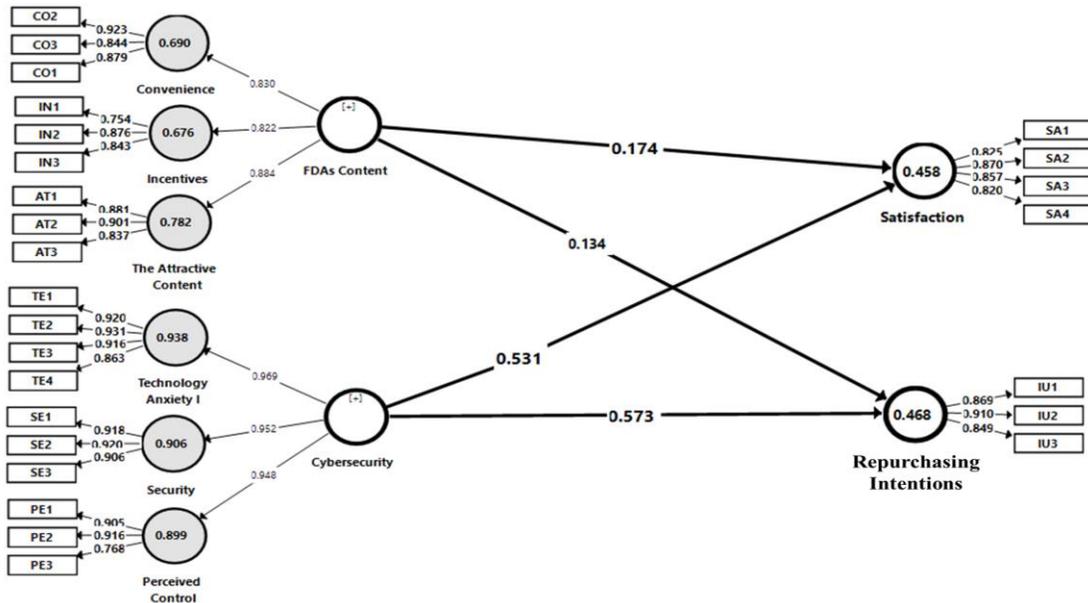
**Fig.2.** The structural and measurement model

**Table 7**  
Path Coefficients

		Original Sample (O)	T Statistics	P Values	
<b>H1</b>	FDAs Content -> Positive E-WOM	0.256	3.768	0.000	supported
<b>H2</b>	FDAs Content -> Satisfaction	0.040	0.793	0.428	Not supported
<b>H3</b>	FDAs Content -> Repurchasing intentions	0.010	0.197	0.844	Not supported
<b>H4</b>	Cybersecurity -> Positive E-WOM	0.435	6.356	0.000	supported
<b>H5</b>	Cybersecurity -> Satisfaction	0.290	5.374	0.000	supported
<b>H6</b>	Cybersecurity -> Repurchasing intentions	0.358	6.917	0.000	supported
<b>H7</b>	FDAs Content -> Positive E-WOM -> Satisfaction	0.139	3.656	0.000	supported
<b>H8</b>	FDAs Content -> Positive E-WOM -> Repurchasing intentions	0.126	3.671	0.000	supported
<b>H9</b>	Cybersecurity -> Positive E-WOM -> Satisfaction	0.236	5.836	0.000	supported
<b>H10</b>	Cybersecurity -> Positive E-WOM -> Repurchasing intentions	0.214	5.398	0.000	supported

On the other hand, **Fig 3** displays that FDAs content and FDAs cybersecurity have a positive and significant correlation to satisfaction and repurchasing intentions before adding the positive E-WOM and Satisfaction variables as mediations. Thus, this supports the role of positive E-WOM and satisfaction as mediations in this relationship. Hence, this model meets all criteria for the assessment of the outer measurement model

and assessment of the structural model according to the Partial least squares PLS method.



**Fig.3.** The structural and measurement model before adding the mediation effects

**Discussion**

**-Direct Effect**

Fig. (3) illustrates the direct correlation between the study variables before adding the mediator. It was found that the cybersecurity of FDAs (Technology Anxiety, Security, Perceived Control) significantly affects customer satisfaction about FDAs and the decisions to reuse these applications to order food. These results are like the study of Flavian et al. (2006) who stated that satisfaction and intention to buy a product from the internet are influenced by the level of trust. Therefore, security has been addressed as the primary concerns among online customers.

On the other hand, the effect of the content of FDAs (Convenience, Incentives, The Attractive Content) on customer satisfaction levels and their decision to reuse these applications to order food was also significant, but to a lesser extent. These results come up with North and Noyes (2002) who mentioned that technology anxiety is entitled as (technophobia) also specified as being terrified from recent or future exposure to technology or devices that have to do with technology, which showed that the obsession with fear of using technology is still prevalent among many customers.

As for the direct effect after adding a positive E-WOM variable as a mediator, as shown in Fig. 2, it was found that the influence of FDAs cybersecurity on consumer satisfaction and their decisions to reuse FDAs and on positive E-WOM is positively significant. Thus, the positive E-WOM variable can be classified as a partial mediator between the FDA's cybersecurity variable, customer's satisfaction with it, and their decision to reuse these applications. Along the same lines with the study of Yi and Gong (2008), customers allocate greater trustworthiness to data provided by other

customers than to traditional advertising. Accordingly, E-WOM recommendations play a more significant role in decreasing perceived risk when choosing alternatives.

By contrast, the effect of FDAs content on customer satisfaction and their decisions to reuse has changed from significant to non-significant. The effect of FDAs content on positive E-WOM was significant. Here, it becomes clear that the variable of positive E-WOM has become a complete mediator. Finally, the positive E-WOM variable also had a significant effect on customer satisfaction and the decision to re-order food through FDA's. These results are like the study of Belanche et al. (2020) who indicated that through positive E-WOM regarding FDAs application content, the consumer reinforces his/her own decision. Moreover, customers contribute to social knowledge by reporting the value of a given product or service.

### **-Indirect Effect**

The practical results revealed that there is an indirect positive significant correlation between the FDAs variable and customer satisfaction with the use of these applications and their decision to reuse them to order food, this relationship is the result of complete mediation of the positive E-WOM variable, and this means that customers depend entirely on the positive E-WOM to reach a state of satisfaction, as well as for deciding to reuse FDAs. This is consistent with Chua and Banerjee (2015) who mentioned that personal opinions and experiences for products and services in the form of E-WOM have become one of the most valued sources of information helping customers when making purchasing decisions.

On the other hand, there was also an indirect positive significant relationship between the FDAs cybersecurity variable and customer satisfaction and the decision to repurchase using FDAs. But this relationship resulted from partial mediation of the positive E-WOM variable. This result leads us to the fact that customers of FDAs still need other elements besides the positive E-WOM variable to reach a state of satisfaction with the FDAs and decide to repurchase food using these programs based on cybersecurity. This is consistent with Law and Leung (2000) as online purchases need customers to complete several procedures to make purchasing by themselves. Moreover, possible credit card fraud makes customers hesitant to purchase online.

### **limitations and future research**

This study consists of various limitations. First, this study utilized only a questionnaire. Further study could do more interviews with managers to identify their perspectives regarding these applications to discover weaknesses and strength points for using these applications. Second, the existing research investigated the effect of 19 independent variables on two dependent variables, i.e., satisfaction and repurchasing intentions. Service quality including (food quality, delivery and customer service) as independent variables should be added into the theoretical framework of future research to evaluate and improve the service and food quality. Third, future research may bid to extend this study to most local and international restaurants to get a generalized view of the situation of customers' perception in other governorates. Fourth, future research could address a comparison study between the food delivery applications and restaurants food

ordering applications and recognizing the customer perception towards these applications.

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**appendix 1: Variables scales**

<b>Construct</b>	<b>Items</b>	<b>Measure</b>
Convenience	CO1	Food delivery applications allows me to initiate a transaction whenever I choose.
	CO2	I value the ability to initiate the transaction from the comfort of home
	CO3	I like the ability to order food without leaving home.
Incentives	IN1	My preference of food meal increases if its online food delivery applications notification involve incentives.
	IN2	When I benefited from an offer related to online food delivery applications, I prefer to pass this message to my relatives and colleagues to benefit them.
	IN3	In many times, I am going to order a specific food meal as a result of the rewards offered such as discounts in its FDA application notification or which be oriented to me through promo code messages.
The Attractive Content	AT1	The Attractive content of online food delivery applications of food product encourages me to purchase these products.
	AT2	I have already purchased many food products because of their attractive image in the online food delivery applications.
	AT3	Recently, I have already shared many online food delivery applications offers through social media.
Technology Anxiety	TE1	I hesitate to use food delivery applications for fear of making a mistake I cannot correct
	TE2	I feel apprehensive about using food delivery applications
	TE3	I have avoided food delivery applications because it is unfamiliar to me
	TE4	Technical terms sound like confusing jargon to me
Security	SE1	think this app has mechanisms to ensure the safe transmission of its users' information
	SE2	This app allows me to make payments securely
	SE3	I feel safe using the app for conducting transactions
Perceived Control	PE1	When I use this app I feel that I have control over the things I do
	PE2	The use of this app would be under my control
	PE3	When using this app I do not feel confused
E-WOM	EW1	If someone asked me about this service, I would give a positive opinion
	EW2	If I had the opportunity, I would highlight the advantages of this service
	EW3	I would recommend this service
Satisfaction	SA1	I am happy with the service of food delivery applications
	SA2	am happy with the quality of the service of food delivery applications
	SA3	I am satisfied regrading honest offerings
	SA4	I am happy with delivering time in suitable time frame
Repurchasing Intentions	IU1	First choice when need food
	IU2	Intention to purchase even if the price increase
	IU3	I predict I will use this service

## تأثير تطبيقات توصيل الطعام (FDAs) في رضا العملاء ونوايا إعادة الشراء: الدور الوسيط للكلمة المنطوقة الالكترونية الإيجابية

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### المخلص

نظراً للتطورات السريعة في التجارة الإلكترونية في العالم بشكل عام وبمصر بشكل خاص، فقد تخطى التسوق عبر الإنترنت العديد من العقبات مثل وقت التحميل الطويل على الويب ومشاكل المعاملات وبظهور العديد من العملاء الذين يفضلون التسوق عبر الإنترنت والذين يعتمدون على الانترنت كجزء من حياتهم اليومية ظهرت في الآونة الأخيرة بعض التطبيقات تسمى بتطبيقات توصيل الطعام مثل تطبيق طلبات وتطبيق المنيز التي تعتبر نفسها وسيط بين العميل والمطعم لتوصيل الوجبة للعميل بجودة جيدة وفي نفس الوقت تعلن عن جودة تطبيقاتها لدى عملائها ولذلك، تقوم هذه الدراسة بتقييم آراء العملاء فيما يتعلق بتأثير تطبيقات توصيل الطعام عبر الإنترنت (FDAs) على قرارات الشراء في مصر. تناول البحث ست متغيرات مستقلة، وهي: (1) الملاءمة، (2) الحوافز، (3) المحتوى الجذاب، (4) القلق من التكنولوجيا، (5) الأمان، (6) التحكم الملحوظ. تم تقسيم تلك العناصر لمجموعتين وكل مجموعة تحتوي على ثلاث متغيرات وتم تصنيف الملاءمة والحوافز والمحتوى الجذاب تحت اسم محتوى تطبيقات توصيل الطعام بينما تضمن الأمان التابع لتطبيقات توصيل الطعام ما يلي القلق من التكنولوجيا، الأمان والتحكم المتصور. وتم تناول تأثير هذه المتغيرات على متغيرين تابعين على النحو التالي الرضا والنية لإعادة الشراء من خلال وسيط E-WOM الإيجابي. تشير النتائج الى ان محتوى وأمان تطبيقات توصيل الطعام FDAs لهما علاقة إيجابية وهامة بالرضا والنية لإعادة الشراء قبل إضافة الكلمة المنطوقة عبر الانترنت الإيجابية E-WOM ومتغيرات الرضا كوسائط. بالنسبة للتأثير المباشر بعد إضافة متغير الكلمة المنطوقة الالكترونية الإيجابية E-WOM كوسيط، فقد وجد أن تأثير الأمان المتصور بتطبيقات توصيل الطعام FDA على رضا العملاء وقراراتهم لإعادة الشراء هو أمر إيجابي وبارز. وبالتالي، يمكن تصنيف متغير الكلمة المنطوقة الالكترونية الإيجابية E-WOM كوسيط جزئي بين متغير أمان تطبيقات توصيل الطعام، ورضا العملاء عنه وفي نفس الوقت وضح البحث ان أن عملاء تطبيقات توصيل الطعام FDAs لا يزالون بحاجة إلى عناصر أخرى إلى جانب متغير الكلمة المنطوقة عبر الانترنت الإيجابية E-WOM الوصول إلى حالة من الرضا وإعادة الشراء عبر تلك التطبيقات الخاصة بالأمان الخاص بتلك التطبيقات، من ناحية أخرى، كان تأثير الكلمة المنطوقة الالكترونية الإيجابية E-WOM للرضا وإعادة الشراء لمحتوى تطبيقات توصيل الطعام FDAs واضحاً هنا، وبالتالي يتضح أن متغير الكلمة المنطوقة الالكترونية الإيجابية E-WOM أصبح وسيطاً مؤثراً ولذلك كان لمتغير الكلمة المنطوقة الالكترونية الإيجابية E-WOM تأثيراً كبيراً على رضا العملاء وقرار إعادة طلب الطعام من خلال تلك التطبيقات.

### معلومات المقالة

#### الكلمات المفتاحية

تطبيقات توصيل الطعام؛ قرارات الشراء؛ إعادة الشراء؛ السياحة المستدامة؛ الكلمة المنطوقة الإيجابية.

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