


The Impact of Attitude Towards Online Shopping in Strengthening the Relationship Between Online Shopping Experience and E-Customer Engagement

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ABSTRACT

In the last few years, it is clear that changes in technologies have altered the ways people shop across the globe, particularly through the Internet. Online shopping experience represents one of these ways, presenting opportunities for people to shop online. However, online store owners are quite concerned about how online shopping experiences seem to influence customer attitudes. In this regard, this research investigates the relationships between the online shopping experience, the attitude towards online shopping, and e-customer engagement. A survey questionnaire was distributed to 342 online customers shopping in Saudi Arabia, through Google form survey procedure. The application of SPSS, and structural equation methods shows two results. On the one hand, providing a positive online shopping experience leads to cultivating a favorable attitude toward online purchasing, and consequently improving e-customer engagement. Gender, on the other hand, has no effect on the impact of online buying experience, and attitude towards online shopping on e-customer engagement.

KEYWORDS

Attitude Towards Online Shopping, E-Customer Engagement, Customer Online Shopping, Saudi Arabia, Online Shopping Experience

INTRODUCTION

Online shopping has become a dominant form of shopping in the 21st century, growing tremendously due to the rise of internet access and convenience, especially during the COVID-19 pandemic. It has become a convenient option for consumers who prefer to shop from the comfort of their homes or

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offices (Erjavec & Manfreda, 2022; Shao et al., 2022). According to (Coppola et al., 2021), in 2020, retail e-commerce sales worldwide amounted to 4.28 trillion United States (U.S.) dollars, and this was projected to grow to 5.4 trillion U.S. dollars in 2022. Despite its convenience, not all consumers have embraced online shopping with open arms.

Previous studies (Agrawal & Mittal, 2022; Akroush & Al-Debei, 2015; Barari et al., 2020; Brodie et al., 2011; Ho et al., 2022; Izogo & Jayawardhena, 2018a, 2018b; Kawaf & Tagg, 2017; Kim et al., 2013; Lin et al., 2011; Mosteller et al., 2014; Pappas et al., 2014; Utami et al., 2022) have mentioned that some theories, such as flow theory (Mirvis, 1991), the technology acceptance model (Davis, 1989), and the theory of planned behavior (Ajzen, 1991), have been used to investigate online purchasing. This research has emphasized the significance of online shopping experience (OSE), attitude toward online shopping (ATOS), and attitude toward online shopping (E-CE) as even more difficult concerns in the setting of online purchasing. Firstly, OSE is crucial for online shopping as it helps in building a solid connection between customers and their retailers. Engaged customers are most likely to return to the retailer and suggest it to others. E-CE also provides valuable feedback to the retailer, which can assist them in enhancing their products and services. Also, it can aid in increasing brand loyalty and customer satisfaction, which are essential for the long-term success of the retailer. Secondly, the ATOS determines the customer’s overall evaluation of their shopping experience. A positive ATOS can result in greater customer satisfaction, loyalty, and retention. It may also result in favorable word-of-mouth marketing, which can attract new customers to the retailer. Customer trust, satisfaction and loyalty can all suffer because of a poor ATOS. Thirdly, the E-CE contributes to the establishment of a solid relationship between the online shopper and the retailer. Engaged customers have a greater probability of making additional purchases and promoting these online stores to others. E-CE also provides valuable feedback to the retailer and helps to increase brand loyalty and customer satisfaction, which can help them improve their products and services.

Despite these promising results, these studies have not made the connection between these theories to build models for online shopping. Indeed, Table 1 emphasizes current literature shortcomings, such as an absence of research exploring the relationships between OSE, ATOS, and E-CE, and the moderating role of ATOS. Therefore, this study aims to fill these gaps of existing literature on online shopping by investigating the relationships between OSE, ATOS, and E-CE. More specifically, it aims to examine whether ATOS as a moderator strength the relationship between OSE and E-CE. Based on the above discussion, the following are the research questions for the study that came up: which connections exist between OSE, ATOS, and E-CE; and what is the moderating role of ATOS

Table 1. Summary of research results

	OSE	ATOS	E-CE	OSE & E-EC	OSE, ATOS, & E-CE
ABI/INFORM Global					
Scholarly journals	36,289	15,008	648	694	None
Relevant	36,289	15,008		None	
Science Direct					
Scholarly journals	48,683	12,985	21,670	4,106	None
Relevant	48,683	12,985	21,670	None	
Academic Search Complete – EBSCO					
	391	187	169	6,112	None
Relevant	391	187	169	None	

Note. Date: May 9, 2023; search period: 2000–2023.

between OSE and E-CE. Moreover, does gender as a control variable have an impact on the relationship between OSE, ATOS and E-CE.

The paper is divided into nine sections. The theoretical background is shown in section two., while part three outlines the conceptual model and research hypotheses. The research methodologies are covered in section four. Following that, section five provides results obtained from the study. Section six reports a detailed discussion of the results and conclusion. Section seven advances the conclusion reached. Section eight presents theoretical and managerial implications derived from the study. After all, Section 9 opens some chances for the future, in the light of an observed limitation.

THEORETICAL BACKGROUND

Online Shopping Experience

Online shopping has reformed the manner people purchase goods and services. The convenience, accessibility, and ease of use of online shopping have made it increasingly popular. According to (Amoah & Marriott, 2021), OSEs are considered multidimensional with four dimensions: educational, aesthetic, entertainment, and satisfaction. According to a Statista estimate, \$4.9 trillion in worldwide e-commerce sales are anticipated by 2021. Recent studies have indicated that customers are the most inclined to purchase goods and services. To attract customers, online retailers use techniques such as lower costs, distinctive items or services, and successful online platforms. Despite the fact that these techniques can help online traders, authors have advocated that investment in customer experience should be raised due to its impact on satisfaction, repurchase intention, and competitive advantage (Jafari et al., 2016; Bolton et al., 2014). Customer satisfaction with OSEs has mainly been conducted in Europe, Asia, and America, with little emphasis on Africa (Bhattacharya & Srivastava, 2020; Sinha, 2010). It is considered as the most important arena in today's global rivalry (Weinman, 2015).

Understanding what constitutes the consumer experience of online purchases has become crucial (Verhoef et al., 2009) as current conceptualizations of this construction remain messy. There are numerous definitions of online purchasing given the breadth of consumer experience studies. The OSE is regarded differently depending on how often people make purchases online (Chen et al., 2022), the sum of all cues that shoppers recognize in the purchasing process during the online purchasing procedure (Meyer & Schwager, 2007), activities before, during, and after the purchase (Verhoef et al., 2009), personal customer loyalty (Pine & Gilmore, 1999), while some definitions place an emphasis on customer service (Klaus, 2014). As a result, many people approach the idea of online buying cautiously, and it is one of the items that must be available in this form of purchasing. The buyer may be afraid of theft or fraud and forget all their online account credentials for the transaction, such as a password, and they may assume their private data remains safe online (Alalwan et al., 2017; Hadoussa et al., 2022). In this extension toward the online shopping context, several definitions have been proposed (see Table 2).

According to these definitions, the OSE is a complicated phenomenon that can be defined in several ways. It includes both customers' emotional and cognitive experiences when interacting with an online store. Firstly, the OSE refers to the overall perception or evaluation of a customer's interactions with an e-commerce platform. Secondly, they include cognitive and emotional responses as part of the experience. Furthermore, they describe the OSE as a holistic or overall view that encompasses different aspects of the customer's interactions with the e-commerce platform. Overall, these concepts emphasize the significance of knowing the customer's point of view and their subjective assessment of the OSE. By focusing on customer perceptions and experiences, e-commerce platforms can create better user experiences and increase customer satisfaction, loyalty, and sales.

According to flow theory (Mirvis, 1991), recent studies have extensively investigated the factors that contribute to a positive OSE and how to enhance this experience to increase customer satisfaction and loyalty. One such factor is the usability and navigability of the website, which can greatly impact

Table 2. Definitions of OSE

Authors	Definitions
Kim & So (2022)	The OSE focuses on the overall evaluation of a customer's interactions with a retailer's website or app, including perceived ease of use, enjoyment, and satisfaction.
Zhang et al. (2020)	The OSE encompasses the customer's subjective assessment of their cognitive and emotional responses to the various stages of the online shopping process.
Tseng & Chen (2021)	The OSE includes customers' opinions of the usability, product details, and customer service of the online shopping site, as well as their following emotional and behavioral reactions.
Izogo & Jayawardhena (2018a)	The OSE is a comprehensive, internal, and subjective response that guarantees when a consumer actively participates with a business through several online channels, including business blogs and websites, as well as connecting with other customers in order to collaborate on value.
Peng et al. (2019)	OSE describes how a client, taking into account cognitive, emotional, and behavioral responses, perceives how they interact with a platform for online shopping as a whole.

a customer's overall satisfaction and likelihood of returning. Intuitive website design, clear product descriptions, and easy checkout processes all contribute to a positive OSE (Hassanein & Head, 2007). The perceived worth of the goods and services provided is another crucial consideration. Customer satisfaction with their OSE is more likely if they feel they are getting a good deal or if the products meet their expectations (Lee et al., 2012). Furthermore, personalized communication and targeted marketing efforts can also enhance the OSE. For example, tailored recommendations and personalized product offerings can create a sense of individual attention and increase customer loyalty (Moe & Fader, 2004). In depth sympathetic the OSE is central for businesses that work hard to succeed in the competitive e-commerce marketplace. By understanding the various factors that contribute to a positive OSE, businesses can implement strategies to promote client satisfaction and loyalty, which will ultimately result in more sales and money earned.

Attitude Toward Online Shopping

Online shopping has grown in popularity with the increased usage of advanced technology and the internet, as a common activity for many consumers (Kuan et al., 2008). Therefore, it is critical for businesses seeking to capitalize on this trend to understand consumer attitudes toward online shopping. ATOS refers to an individual's feelings and beliefs about buying products or services online. According to Huang (2005), it comprises two dimensions: hedonic and utilitarian. Usefulness means the degree to which consumers think online purchasing is advantageous and fits their demands. Ease of use refers to how simple it is for customers to utilize to navigate and use online shopping websites or apps. Enjoyment is associated with the positive emotions and pleasure derived from the OSE.

Some people have a positive ATOS because of the convenience, wider selection, and often lower prices compared to traditional brick-and-mortar stores. Others may have concerns about the security of online transactions, the quality of products, or the lack of physical interaction with the products before purchasing. These differences in attitudes toward online purchasing can be explained by the influence of several factors. Therefore, businesses seeking to improve the OSE for consumers must consider these factors when developing online shopping platforms.

According to some theories, such as trust theory (Tang et al., 2021) and perceived risk theory (Patel et al., 2023), these factors include trust, security, social influence, convenience, and website design. Trust is an essential consideration that impacts attitudes toward online shopping. Online shoppers must trust that the websites they use are secure and that their personal information is protected. Gefen et al. (2003) unveiled that trust positively influences consumer attitudes toward online shopping. According to Quach et al. (2020), online shoppers who have a greater degree

of trust in online purchasing are more inclined to make an online purchase. Security also affects attitudes toward online shopping. Consumers must feel confident that the websites they use are secure and that their personal information will not be compromised. Recent research by Quach et al. (2020) has shown that consumers who perceive a higher level of security in online shopping are more likely to make purchases online. Wu et al. (2020) showed that perceived risk negatively influences attitudes toward online purchasing. Social influence, such as peer recommendations and online reviews, also plays a role in influencing attitudes toward online shopping. Kuan et al. (2008) detected that social influence positively influences attitudes toward online purchasing. Another significant factor that affects attitudes toward online shopping is convenience (Lee, 2019; Wu et al., 2020). Without having to physically visit a store, shoppers may browse and buy things from the convenience of their homes or any location with internet access. Convenience can also be seen in the flexibility of online shopping, where customers can shop at any time of the day, seven days a week, and have their purchases delivered to their doorstep. Website design is another important factor that influences attitudes toward online shopping (Rahman & Hossain, 2023). Consumers prefer websites that are easy to navigate, visually appealing, and have clear product descriptions. A well-designed website can create a positive shopping experience, leading to favorable attitudes toward online shopping. Lü and Zhou (2011) noted that website design positively influences attitudes toward online shopping.

ATOS can also be affected by demographic factors such as age, gender, and income. Recent research by Singh et al. (2021) has shown that younger consumers are more likely to shop online than older consumers. Similarly, Al Hamli and Sobaih (2023) showed that consumers aged 18–24 had more positive ATOSs than those aged 25–54. Additionally, Kim et al. (2017) revealed that younger consumers were more likely to shop online than their older counterparts. Further, demographic variables including age, gender, and income may have an impact on ATOS. Recent research by Singh et al. (2021) has shown that online shopping is more popular with younger consumers than with older ones.

Regarding gender, Kim et al. (2017) study highlighted that females are more likely to shop online than males. Dholakia et al. (2004) discovered that women tend to perceive online shopping as convenient, while men tend to view it as risky. Kim et al. (2013) indicated that women prefer to purchase online for social engagement and communication, while men tend to use it for utilitarian purposes. Furthermore, Childers et al. (2001) discovered that males are more willing to buy things that are useful and practical, while women are more likely to purchase aesthetically pleasing and emotionally appealing products.

Regarding income, Lee and Cho (2019) have claimed that higher-income consumers are more likely to make purchases online than lower-income ones. Similarly, Kim et al. (2017) indicated that higher-income consumers had more favorable attitudes toward online shopping and were more likely to engage in it. Han et al. (2018) also demonstrated that consumers with greater incomes were more inclined to make purchases online and had more positive sentiments toward doings. Banerjee and Chua (2019) unveiled that income level is significantly associated with the frequency of online shopping, with higher-income consumers shopping online more frequently than lower-income consumers. Additionally, the study detected that higher-income consumers tend to perceive online shopping as convenient and reliable compared to lower-income consumers.

E-Customer Engagement

Since the emergence of information and communication technologies and their integration into all areas of life, the concept of E-CE has become well-established and continues to grow in the fields of marketing and information systems (Brodie et al., 2011; Nenonen & Storbacka, 2016). It is seen as an expansion of the concept of customer engagement in an information and communication technology context. Customer engagement is defined as a complex customer state that involves cognitive, psychological, behavioral, and emotional components that happens when customers engage fully

in interactive communication (Brodie et al., 2011). According to Cheung et al. (2011) it comprises three dimensions: usefulness, ease of use, and enjoyment. Usefulness refers to how much consumers believe that online shopping is beneficial and meets their needs. Usefulness refers to how simple it is for consumers to navigate and use online shopping websites or apps. Enjoyment is associated with the positive emotions and pleasure derived from the OSE. In this extension in the online context, several definitions for E-CE have been proposed (see Table 3).

By these definitions, it is possible to state that E-CE refers to the dynamic interactions that take place between businesses and their customers online via several digital channels, such as email, social media, website chat, and mobile apps. It is a way for businesses to build relationships with their customers and provide them with a personalized experience. E-CE includes activities such as providing personalized content, offering discounts and promotions, and responding to customer inquiries. It is an essential part of any digital marketing strategy and can help businesses increase customer loyalty and satisfaction. E-CE’s mission is to promote a strong bond between a business and its customers by providing personalized experiences that meet their needs and expectations. This includes providing timely and relevant information, responding to customer inquiries and feedback promptly, and offering valuable content and resources that support customers in achieving their objectives. Many theories, including customer engagement behaviors theory (Van Doorn et al., 2010) show that effective E-CE can lead to a range of positive outcomes for businesses, such as improved customer satisfaction, increased loyalty, and enhanced brand image. Additionally, it can result in higher sales and revenue growth since satisfied and engaged customers tend to make repeat purchases and recommend the business to others.

To achieve successful E-CE, businesses need to invest in the right technology and tools to track customer behavior and preferences, analyze data, and deliver personalized experiences across multiple channels. This includes the use of advanced data analytics techniques and artificial intelligence to process large amounts of customer data and provide insights that can inform business strategies. Furthermore, it is essential for businesses to have a dedicated team that is responsive and proactive in engaging with customers online. This team should have the necessary skills and expertise to manage digital platforms effectively and provide timely and relevant responses to customer inquiries and

Table 3. Definitions of E-CE

Authors	Definitions
Chen et al. (2022)	A dynamic, multi-faceted, and reciprocal interaction between customers and online retailers through digital channels that foster brand attachment, loyalty, and advocacy.
Van Doorn et al. (2010)	The degree of active customer participation, interaction, and emotional connection with a brand or firm’s digital channels that contribute to value co-creation.
Hoang et al. (2022)	The process of creating meaningful, two-way, and interactive relationships between customers and online retailers, resulting in the co-creation of value, trust, loyalty, and satisfaction.
Alalwan et al. (2017)	A strategic initiative that involves a continuous process of building and nurturing customer relationships through personalized interactions, emotional connections, and value co-creation across digital channels.
Hajli (2014)	A customer-centric, proactive, and interactive approach that involves online retailers utilizing digital channels to create opportunities for customers to connect, communicate, and co-create value, resulting in long-term relationships and business success.
Brodie et al. (2011)	The extent to which customers use digital channels to connect with a brand, participate in brand-related activities, and contribute to brand-related content, resulting in increased brand awareness, loyalty, and advocacy.
Newman & Harrison (2008)	The degree to which a user is physically, mentally, and emotionally engaged with a particular online social site.

feedback. In sum, E-CE is a critical aspect of modern business and can help businesses build brand loyalty, increase customer satisfaction, and ultimately drive revenue growth.

CONCEPTUAL MODEL AND RESEARCH HYPOTHESES

The Impact of Online Shopping Experience on Attitude Toward Online Shopping

According to many studies, OSE plays a vital role in shaping ATOS. Positive experiences can lead to more favorable attitudes toward online shopping, while negative experiences can lead to unfavorable attitudes. For example, a study by Guo et al. (2023) proved that the OSE, including website design, product information, and customer service, positively influenced the ATOS. Similarly, a study by Ha and Stoel (2009) showed that the OSE, including website design, ease of navigation, and customer service, positively influenced the ATOS. According to Chen et al. (2022), the perceived website usability and trust were positively related to ATOS. Another study by Kim et al. (2017) claimed that factors such as perceived utility, convenience of use, and enjoyment influenced attitudes toward online purchasing in a positive way. Lin et al. (2011) asserted that website quality and perceived risk had significant effects on ATOS. However, some studies have reported conflicting findings. For instance, Han et al. (2018) detected that the OSE, including website design and ease of navigation, did not significantly influence the ATOS. The authors argued that the reason for the lack of significant influence could be due to the widespread availability of high-quality online shopping websites that have similar website design and ease of navigation features.

In light of these studies, the factors that explain the impact of OSE on ATOS can be summarized as follows: website design, product information, ease of navigation, customer service, security, website quality, website usability, trust, convenience, product variety, usefulness, ease of use, and enjoyment. These factors have many implications for retailers and marketers to create a positive OSE and enhance consumer attitudes toward online shopping. Retailers and marketers are called upon to invest in website design, user interface, and navigation, provide detailed and accurate product information, offer responsive and helpful customer service, and ensure a secure online shopping environment. After considering the aforementioned details, we can present the following hypothesis:

H1: OSE affects ATOS directly.

The Impact of Attitude Toward Online Shopping on E-Customer Engagement

There have been several researchers who investigated the impact of ATOS on E-CE. Overall, these studies suggested that ATOS had a significant impact on E-CE in various contexts. In the same vein, Wang and Zhang (2012) established that a positive ATOS influences E-CE, including behaviors such as visiting a website, interacting with other customers, and making purchases. They provided evidence that online retailers should focus on improving customer attitudes toward online shopping to increase engagement.

In the framework of an online bookstore, Chang, Cheung, and Tang (2013) noted that a positive ATOS affects E-CE and retention. They recommended that online retailers focus on enhancing customer attitudes toward online shopping to increase retention. In the context of online travel agencies, Lee (2019) established that a positive ATOS influences E-CE, including behaviors such as browsing, booking, and sharing travel information. They indicated that online travel agencies should focus on improving customers' attitudes toward online shopping to increase engagement.

Given the context of Instagram, Al-Dalameh and Al-Azzam (2019) confirmed that a positive ATOS has a positive effect on E-CE, including liking, commenting, and sharing posts related to online shopping. They highlighted that online retailers should leverage Instagram as a platform to enhance customers' attitudes toward online shopping and increase engagement. In the music industry, Cesareo and Pastore (2014) registered that a positive attitude toward online purchasing significantly

impacts E-CE, including behaviors such as listening to music samples, sharing opinions, and making purchases. They concluded that music retailers should focus on enhancing customer attitudes toward online purchasing to increase engagement and sales.

Looking at the context of social commerce, Zhang and Li (2014) determined that a positive ATOS influences E-CE, including behaviors such as writing reviews, sharing products, and making purchases. They pointed out that social commerce retailers should focus on improving customer attitudes toward online shopping to increase engagement and sales. Considering the above overwhelming findings in different industries, we can suggest the following hypothesis:

H2: ATOS affects E-CE directly.

The Impact of Online Shopping Experience on E-Customer Engagement

With increasing rivalry among e-commerce enterprises, providing a satisfactory OSE has become crucial to engaging and retaining customers. Numerous academics have tried to explore how OSE affects E-CE, which is crucial for businesses that want to succeed in e-commerce. By providing a high-quality shopping experience that meets customers' needs and expectations, businesses can increase customer engagement, loyalty, and ultimately sales. Recently, there has been a high level of attention on the effect of the pandemic of COVID-19 on the OSE and E-CE. Due to social distancing measures, the demand for online shopping has increased, and businesses have had to quickly adapt to changing customer needs and expectations. According to a recent study by Kim et al. (2017), businesses that provided a high-quality OSE during the pandemic saw a significant increase in customer engagement and sales. Thus, various studies have been undertaken on the influence of OSE on E-CE, leading to different results. Table 4 presents these studies and their respective results.

This research provides insights regarding the importance of the OSE in E-CE and offers practical guidance for e-commerce companies looking to enhance their OSE. Some of these studies have shown that a positive OSE can significantly increase online customer engagement, while others have shown that a negative OSE can have a detrimental effect on E-CE. These studies, however, have only looked in one direction, stressing the impact of dimensions of the OSE on online customer engagement, without exploring the second direction, which concentrates on the OSE's effect on the aspects of online customer engagement. To address this gap, we aim to examine this relationship and propose the following hypothesis.

H3: OSE directly affects E-CE.

Centered on the essential role, ATOS and its dimensions (hedonic and utilitarian) play as a moderator in the relationship between OSE and E-CE and its dimensions (vigor, absorption, and deduction), we can imply the subsequent hypotheses.

H4: OSE affects on hedonic indirectly as one of the dimensions of ATOS.

H5: OSE affects on utilitarian indirectly as one of the dimensions of ATOS.

H6: OSE affects E-CE indirectly via ATOS.

H7: OSE indirectly affects vigor as one of the dimensions of E-CE.

H8: OSE indirectly affects absorption as one of the dimensions of E-CE.

H9: OSE indirectly affects deduction as one of the dimensions of E-CE.

H10: ATOS indirectly affects vigor as one of the dimensions of E-CE.

H11: ATOS indirectly affects absorption as one of the dimensions of E-CE.

H12: ATOS affects deduction indirectly as one of the dimensions of E-CE.

Table 4. Research results on the impact of OSE on E-CE

Authors	Definitions
Koo et al. (2021)	The perceived value of online shopping experiences, such as convenience and product selection, had a favorable effect on e-customer engagement
Huang (2005)	Customer reviews can significantly influence customer engagement in e-commerce activities.
Cheung et al. (2011)	E-customer engagement is greatly influenced by social influence, such as referrals from friends or influencers.
Chen et al. (2022)	Personalized product recommendations and customized shopping experiences had a significant beneficial effect on customer engagement.
Luo et al. (2015)	Mobile shopping experiences that provided seamless navigation and a user-friendly interface had a significant favorable effect on e-customer engagement.
Lee, Hosanagar, and Nair (2018)	Personalization as a key element in the online shopping experience that involves tailoring the online shopping experience to the individual preferences and needs of each customer, which can result in enhanced engagement.
Lee (2018)	Online shopping experience dimensions such as website design, information quality, and security and privacy significantly influence e-customer engagement.
Liu et al. (2018)	Customer satisfaction can rise as a result of a successful online purchase, which in turn boosts e-customer engagement.
Nguyen et al. (2015)	Poor website design and navigation can significantly reduce e-customer engagement, leading to lower levels of customer loyalty and repeat purchases.
Kim & Stoel (2004)	Negative online shopping experiences such as product quality issues and delivery delays can negatively impact e-customer engagement.
Yim & Kannan (1999)	The perceived value of online shopping experiences, such as convenience and product selection, had a favorable effect on e-customer engagement

METHODOLOGY

Data Collection

We gathered information through a survey that was distributed throughout Saudi Arabia’s populace and targeted OSE users. This survey was conducted from January 2023 to March 2023. We employed the back-translation procedure, which involved writing the original survey instrument in English and translating it from English to Arabic. This process ensures the accuracy and compatibility of the language employed, as well as the preservation of each item’s meaning, via the translation phase (Brislin, 1980). As a result, three academics rewrote our questionnaire twice.

The study employed an online questionnaire distributed to the Saudi populace, retailing, and e-commerce industries. Respondents were contacted via email and social media sites. A preliminary screening question that inquired if participants spent some of their time in online shopping to identify if they were suitable participants. The gender, age, and income of the respondents were all inquired about. According to the gender distribution, 56.4% of the participants men and 43.6% were women. This showed a slight majority of males compared to females, with a difference of 12.8%. This suggested that gender diversity was present in this sample. Based on the age distribution provided, the largest age group was individuals under the age of 25, accounting for 28.6% of the sample. The next largest age group was those between 25 and 30, making up 23.1% of the sample. The age group between 30 and 35 years old represented 21.3% of the sample, while the age group between 35 and 40 years old only accounted for 13% of the sample. The remaining 15% of the sample consisted of individuals aged 40 years or older. This age distribution showed a relatively young population, with more than half of the individuals being under the age of 30. The income distribution showed that the largest group of individuals, at 26.6%, fall within the income range

of 5,000–10,000 SR. The next largest group, at 24.2%, had an income of less than 5,000 SR. The income range of 10,000–15,000 SR represented 24% of the sample, with the income range of 15000–20000 SR representing 21% of the population. The smallest group, at 5.2%, had an income greater than or equal to 20,000 SR. This income distribution highlighted a relatively large proportion of the sample earning lower incomes, with more than 50% of the sample earning less than 10,000 SR. The sample profile is summarized in Table 5.

Research Instrument Development Measures

The examination of current theoretical items and a review of the literature served as the foundation for the scales’ construction. Three constructs were produced by our model: OSE, ATOS, and E-CE. The measurement items for OSE are adopted from (Amoah & Marriott, 2021). Also, the ATOS items are adopted from (Huang, 2005). Finally, E-CE measurements items are adopted from Cheung et al. (2011). The measurement items for E-CE are adopted from Cheung et al. (2011). We created the survey questionnaire utilizing five-point Likert scale questions (see appendix). Following the translation of the questionnaire from English to Arabic, and some adjustments, the final version of the questionnaire was administered to 342 online shopping customers.

RESULTS

Exploratory Factor Analysis Results

Aiming to identify the main dimensions of our research constructs: OSE, ATOS, and E-CE. We ran three individual models. Firstly, we ran the EFA model for the OSE concept. Our findings in Table 6 showed that the four dimensions of the OSE construct—ESTH (4 elements), ENT (4 elements), EDU (4 elements), and SAT (4 items)—account for 68% of the total variation in the model data that is explained. Factor loadings for remaining items are higher than the customary threshold of 0.6, which indicates that Bartlett’s test of sphericity is significant, and the coefficient of KMO is 0.923, which is above 0.5 as proposed, all of which show that the EFA results for OSE model data meet the basic needs for factor analysis (Hair et al., 2021).

Table 5. Respondent characteristics (N = 342)

Demographic features	Variables	Usable cases	Usable cases %
Gender	Male	193	56.4%
	Female	149	43.6%
Age	< 25	98	28.6%
	25–30	79	23.1%
	30–35	73	21.3%
	35–40	44	13%
	40 ≤	48	15%
Income (Saudi riyal)	< 5,000	83	24.2%
	5,000–10,000	91	26.6%
	10,000–15,000	82	24%
	15,000–20,000	71	21%
	≤ 20,000	15	5.2%

Table 6. Exploratory factor analysis for OSE dimensions

Factors and Variables	Factor Components & Loading				Reliability
	1	2	3	4	A
1.ESTH					.89
Esth1	.69				
Esth2	.75				
Esth3	.73				
Esth4	.70				
2.ENT:					.87
Ent1		.63			
Ent2		.78			
Ent3		.78			
Ent 4		.79			
3.EDU:					.80
Edu1			.74		
Edu2			.71		
Edu3			.69		
Edu4			.63		
4.SAT:					
Sat1				.67	
Sat2				.77	
Sat3				.71	
Sat4				.71	
% of Cumulative variance	23.2	39.2	54.4	68	

Note. Kaiser–Meyer–Olkin (KMO) measure sampling adequacy = 0.923 Bartlett test of sphericity = 3170.75 with df = 120, Bartlett test significance = 0.000.

Second, the EFA model findings for ATOS in Table 7 included two dimensions: utilitarian (four items) and hedonic (three items) as recommended by Huang (2005), accounting for 75.54% of the sum variation clarified in the model data. In addition, Bartlett’s test of sphericity and KMO measurements meets the requirements.

Table 7. Exploratory factor for ATOS dimensions

Factors and Variables	Factor Components & Loading		Reliability
	1	2	A
Hedonic			.87
Hed1	.86		
Hed2	.89		
Hed3	.85		
Hed4	.70		
Utilitarian			.78
Util1		.86	
Util2		.63	
Util3		.85	
% of Cumulative variance	59.44	75.54	

Note. Kaiser–Meyer–Olkin (KMO) measure sampling adequacy = 0.87, Bartlett test of sphericity = 1350.69, with df = 21, Bartlett test significance = 0.000.

Finally, ran EFA model to identify the main factors for E-CE. Our results in Table 8 illustrated that E-CE construct consists of three dimensions which are: deduction (5 items), absorption (5 items), and vigor (3 items), with account for 68.75% of the sum variation clarified in the model data. In addition, Bartlett’s test of sphericity, and KMO measurements meet the required cut-off values.

Confirmatory Factor Analysis Model

After running exploratory factor analysis for all constructs, we ran CFA which was run to evaluate the total model fitness with data as well as assess the unidimensionality of study variables (Mohamed, 2020). Overall, the model-fit parameters had been met, where CMIN/DF is lower than 3, including CFI, RFI, and NFI are greater than .9 and RMSEA is lower than .5, as shown in Figure 1. Regarding convergent validity assessment, Table 9 highlights that all factor loading for all dimensions of research constructs were ≥ 0.5 , where all AVEs for research variables are higher than .5 and all construct reliabilities for them are higher than .7 as endorsed by Jöreskog and Sörbom (1996).

On the other side, Table 10 verified that the evaluation measurements for discriminant validity are satisfactory and meet the cut-off values, demonstrating that all constructs’ discriminant validity are upheld, as suggested by Eisingerich and Bell (2007).

Structural Equation Modeling Results

We used SEM to test our hypotheses. The results of the direct effects among the proposed hypotheses are shown in Figure 2 and Table 11. The findings demonstrate the considerable and advantageous relationship between OSE and ATOS ($\beta_1 = +.55$ with $p < 0.001$) that verified H1. ATOS also affects significantly and positively on E-EC ($\beta_2 = +.21$ with $p < 0.001$), which confirmed H2. Regarding to H3, our findings prove that OSE affects positively and significantly on E-CE ($\beta_3 = +.77$ with $p < 0.001$).

Concerning the indirect impact of the variables in the proposed research model as demonstrated in Table 11, our findings revealed that our model’s indirect effects supplement our comprehension of the function of ATOS in reinforce the influence of OSE and its dimensions on E-CE and its antecedents. These indirect connections amongst research variables are significant linkages (Kline,

Table 8. Exploratory factor for E-CE dimensions

Factors and Variables	Factor Components & Loading			Reliability
	1	2	3	α
Deduction				.89
Ded1	.69			
Ded2	.74			
Ded3	.70			
Ded4	.75			
Ded5	.77			
Absorption				.88
Abs1		.75		
Abs2		.62		
Abs3		.64		
Abs4		.72		
Abs 5		.66		
Vigor				.80
Vig2			.75	
Vig4			.63	
Vig5			.80	
% of Cumulative variance	27.87	.51.70	68.75	

Note: Kaiser–Meyer–Olkin (KMO) measure sampling adequacy = 0.946, Bartlett test of sphericity = 2913.82, with df = 91, Bartlett test significance = 0.000.

Table 9. The assessment of convergent validity

Construct	Factor loadings	AVEs	Construct reliability
1. OSE dimensions:		.58	.84
1.1 Esthetic (ESTH):	.83		
Esth1			
Esth2			
Esth3			
Esth4			
1.2 Entertainment (ENT):	.71		
Ent1			
Ent2			
Ent3			
Ent4			
1.3 Educational (EDU):	.70		
Edu1			
Edu2			
Edu3			
1.4 Satisfaction (SAT):	.79		
Sat1			
Sat2			
Sat3			
Sat4			
2. ATOS dimensions:		.71	.83
2.1 Hedonic	.83		
2.2 Utilitarian	.86		
3. E-CE dimensions:		.66	.85
3.1 Vigor (Vigr)	.70		
3.2 Deduction (DED)	.92		
3.3 Absorption (ABS)	.81		

1998). Our results indicates that OSE affects indirectly and significantly on hedonic as a dimension of ATOS (β_4 via CFSE = +.46) that supports H4, while it also affects indirectly and significantly on utilitarian as a dimension of ATOS (β_5 via CFSE = +.48) that verified H5.

Throughout a moderating role of ATOS, OSE has indirect and significant effect on E-CE with (β_6 via CFSE = +.10), which supports H6. In addition, our findings showed that the standardised coefficient between both constructs is raised because of this indirect effect, going from .77 to .87. OSE also has indirect and significant influence on the three dimensions of E-CE: vigor with (β_7 via ATOS = +.65), absorption with (β_8 via ATOS = +.74) and deduction with (β_9 via ATOS = +.80) which advocates H7, H8 and H9. Finally, ATOS has indirect and significant effects on the three dimensions of E-CE: vigor with (β_{10} via ATOS = +.16), absorption with (β_8 via ATOS = +.18) and deduction with (β_9 via ATOS = +.19) which ropes H10, H11 and H12.

Regarding to table 12, four dimensions of OSE were validated, with esthetic developing as the most powerful contributor in forming OSE in KSA environment, with a coefficient value of 0.83, it has the largest impact on the formation of the OSE, followed by the satisfaction factor with a value of 0.78, the entertainment element with a value of 0.72, and the educational dimension with a value of 0.70 in the KSA environment.

Regarding to ATOS dimensions our findings in table 13 asserted that hedonic and utilitarian are forming ATOS with approximately equal coefficient values (.86 for utilitarian and .83 for hedonic), which means that both sharing equally in forming ATOS in KSA environment.

In the same vein, we examined the degree of contribution of vigor, absorption, and deduction dimensions in forming E-CE. Table 14 indicated that absorption ranked second with a coefficient of 0.74, while the deduction dimension represented the biggest contributor in determining E-CE for Saudi consumers in the online shopping sector with a coefficient score of 0.80, and deduction dimension came lastly with a coefficient value 0.56 in KSA environment.

Figure 1. Confirmatory factor analysis model

Goodness-of-fit indices: CMIN/DF=1.52, NFI=.975, RFI=.963, CFI=.991, RMSEA=.039
 Cut- off values : CMIN/DF≤3, NFI ≥.90, RFI≥.90, CFI≥.90, RMSEA≤.05

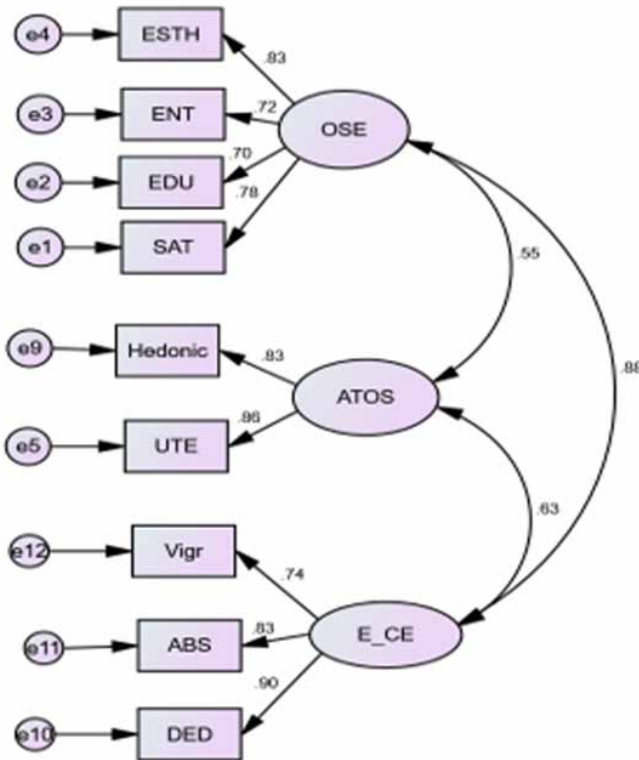


Table 10. Discriminant validity assessment for research variables

Variables	α	OSE	ATOS	E-CE
OSE	0.83	0.77		
ATOS	0.87	.45**	0.79	
E-CE	0.86	.75**	.51**	0.81

Note. $A \geq 0.7$ " (Jaoua & Mohamed, 2021). "Diagonal elements (in bold) are the square root of the average variance extracted (AVE). Off-diagonal elements are the correlations among constructs. For discriminant validity, diagonal elements should be larger than off-diagonal elements" (Akamavi et al., 2015).

Regarding to the effect of gender as a control variable in the relationship between OSE & ATOS as independent variables and E-CE as the dependent variable, Table 15 illustrate that there are no significant differences in gender (men and women) in the effect of OSE and ATOS on E-CE.

DISCUSSION

Where OSE is crucial for businesses that want to succeed in the competitive e-commerce market by tying customers strongly and making them more engaged with online purchasing. Engaged

Table 11. Direct, indirect, and total effects among research variables

Criterion variable	Predictor variables	Direct effect	Indirect effect ^a	Total effect ^b
OSE	ATOS (H1)	.55	-	.55
	ATOS dimensions:	-	.46	.46
	Hedonic (H4)	-	.48	.48
	Utilitarian (H5)	-		
OSE	E-CE (H2&H6)	.77	.10	.87
	E-CE dimensions:	-	.65	.65
	Vigor (H7)	-	.74	.74
	Absorption (H8)	-	.80	.80
	Deduction (H9)	-		
ATOS	E-CE (H3)	.21	-	.21
	E-CE dimensions:	-	.16	.16
	Vigor (H10)	-	.18	.18
	Absorption (H11)	-	.19	.19
	Deduction (H12)	-		

Note. a indicates Indirect effects were computed only for cases in which the relevant structural parameters were statistically significant (Akamavi et al., 2015); b indicates Insignificant direct effects were not included in the computation of total effect (Challagalla & Shervani, 1996). * indicates that p < 0.05; ** indicates that p < 0.01; *** indicates that p < 0.00, n/s = not significant.

Figure 2. Structural equation modeling

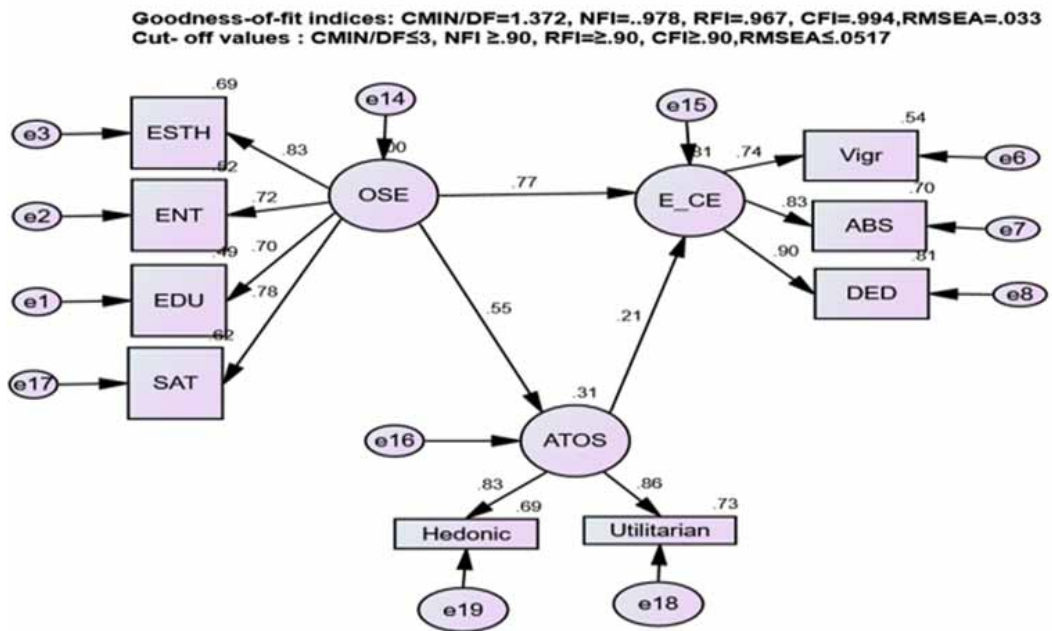


Table 12. Contributions of OSE dimensions in forming OSE construct

Path of the relation	Estimate
ESTH → OSE	.83***
SAT → OSE	.78***
ENT → OSE	.72***
EDU → OSE	.70***

Note. *** p < 0.001

Table 13. Contributions of Attitude toward online shopping dimensions in forming ATOS construct

Path of the relation	Estimate
Hedonic -----▶ ATOS	.83***
Utilitarian -----▶ ATOS	.86***

Note. *** p < 0.001

Table 14. Contributions of E-CE dimensions in forming E-CE construct

Path of the relation	Estimate
Deduction -----▶ E-CE	.80***
Absorption -----▶ E-CE	.74***
Vigor -----▶ E-CE	.65***

Note. *** p < 0.001

Table 15. Results of hierarchical analysis for E-CE

Predictors	B	R ²	ΔR ²
Step 1			
Control variables (Gender)		.001	
Step 2			
OSE, ATOS	.76***	.581	.58***

customers are essential to any successful online shopping website and app. The best method to generate engaged customers is to build positive experiences and attitudes toward online purchasing. Thus, our study aims to integrate three main important concepts in online shopping: OSE, ATOS, and E-CE in one framework. This framework constitutes a model that investigates the direct and indirect effects of our research variables. Aiming to validate our research constructs via EFA and CFA models, our findings identify four main dimensions that constitute OSE in KSA environment which are: esthetic, entertainment, educational, and satisfaction, as recommended by Bierdon and Anderson-Connell (1999) and Chen et al. (2022). In the same vein, our results identified two main items that constitute the dimensions of ATOS: hedonic and utilitarian as verified by Huang (2005). In addition, our results confirmed that E-CE encompasses three main dimensions: deduction, absorption, and vigor.

In the attempt to explore to what extent ATOS can strength the impact of OSE and its dimensions on E-CE and its dimensions. Our SEM results approved that OSE has a large beneficial impact that is powerful on making online shopping customers more engaged with online shopping websites and apps. Furthermore, our findings asserted that ATOS plays a critical role in making online customers more engaged that ultimately leads to increased sales and revenue. OSE also has a large and powerfully positive impact. on E-CE directly and indirectly. Our SEM findings also verified that ATOS was considered as a moderator between OSE and E-CE, where ATOS increases the positive total effect of OSE and its dimensions on E-CE and its dimensions. Moreover, OSE dimensions and ATOS dimensions have additional indirect effects on the relationships between OSE, ATOS and E-CE which add more confirmation to the important role of ATOS and its dimensions as moderator variables in the linkages between OSE and E-CE. Finally, our findings also approved that there is no

effect of gender (men or women) on the impact OSE and ATOS as independent variable on E-CE as dependent variable (Al-Mowalad & Putit, 2013).

CONCLUSION

The results indicate that OSE has strong favorable and substantial effects on increasing E-CE with online shopping websites and apps. This positive effect on customer engagement ultimately leads to boosting sales and profits. Additionally, the study highlights the critical role of ATOS in enhancing customer engagement. ATOS acts as a moderator between OSE and E-CE, amplifying the positive effect of OSE on E-CE. The dimensions of both OSE and ATOS also have indirect effects on the relationships between these factors and E-CE, further confirming the importance of ATOS as a moderator variable. Furthermore, the results reveal that gender does not have an effect on the impact of OSE and ATOS on E-CE. This implies that both men and women are equally influenced by OSE and ATOS when it comes to engaging with online shopping platforms. Overall, these findings emphasize the significance of providing a positive OSE and cultivating a favorable ATOS to enhance E-CE and drive sales and revenue in the e-commerce industry.

Theoretical and Managerial Implications

Strictly speaking, the study concludes that OSE had a positive significant contribution in ATOS among online shopping customers in Saudi Arabia. It implies that customers would ATOS when they have positive experiences in their previous online shopping activities. The study's results would be very valuable to the decision-makers, organisations conducting business activities online in Saudi Arabia. For example, an organization should be able to develop specific strategies and plans that are targeted directly to the online shopping customers who formed most of the online customers. Also, the research model provided could be used by the organisations as a tool for planning and prioritizing resources toward improving purchases among the online shopping customers in Saudi Arabia. Additionally, the study's findings would generate some fascinating new information about online shopping generally among young people in Saudi Arabia. Moreover, gender has nothing to do with ATOS in OSE among customers.

Future Research and Study Limitations

This study aims to add to the pertinent literature by exploring how OSE contributes to ATOS. The study predetermined OSE as a factor propelling ATOS among Saudi online shopping customers. Just like other past studies, this study highlights one limitation. Due to the research's scope being restricted to just one country, Saudi Arabia, the findings cannot be applied to all online shopping customers in all countries. Future studies can carry out cross-cultural studies to investigate the effect of OSE and ATOS on E-CE in various cultural contexts to improve the generalization of the findings. This can help identify potential cultural differences in the relationships between these variables and provide insights into how businesses can tailor their strategies to specific cultural preferences and expectations.

Based on the findings, some future research could be recommended. Firstly, this study only focused on OSE as a factor affecting ATOS, which affects E-CE, other factors, such as promotions on the web and social media, digital loyalty programs, and excellent customer service, should be investigated as they also have a way of affecting ATOS and E-CE. In this case, online shop owners should not celebrate too early after a customer has made their first purchase. Secondly, future studies can delve deeper into the underlying mechanisms through which ATOS affects E-CE. This could involve exploring the cognitive and affective processes involved in forming and changing attitudes, as well as the specific beliefs, values, and emotions that influence E-CE. Understanding these mechanisms can provide valuable insights into how businesses can shape and enhance customers' ATOS to drive E-CE. Thirdly, to understand the dynamics between OSE,

ATOS, and E-CE, it is possible to conduct longitudinal studies. By observing these variables over an extended period, researchers can identify temporal patterns, causality, and potential changes in the relationships over time. This can lead to more accurate predictions and insights for businesses to adapt their strategies.

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APPENDIX

Table A1. Instrument operationalization for research constructs

Constructs	Items	Sources	
Online shopping experience			
Educational	Ol-Edu1 The online shopping websites provide sufficient information about the products or services which is educational to me.	Amoah and Marriott (2021)	
	Ol-Edu2 Browsing online presentations of products or services offerings stimulates my curiosity to learn about new products or services.		
	Ol-Edu3 Browsing the online products or services offerings presentations make me more knowledgeable about new trends.		
	Ol-Edu4 The information given about the products/services on the online shopping website is sufficient.		
Esthetic	Ol-Esth1 The way products or services are presented on the online shopping websites is fascinating to me.		
	Ol-Esth2 The way products or services are presented on the online shopping websites is very entertaining.		
	Ol-Esth3 I enjoy looking at presentations of new products or services online.		
	Ol-Esth4 The online presentation of products or services is amusing to me.		
Entertainment	Ol-Ent1 When looking at the products or services on online shopping websites, I feel I am in a different world.		
	Ol-Ent1 I feel like I am a different person while looking at the products or services presented on online shopping websites.		
	Ol-Ent1 I forget about my daily routine while looking at the products or services presented on the online shopping websites.		
	Ol-Ent1 While looking at the products or services present on online shopping websites, I completely escaped from reality.		
Satisfaction	Ol-Sat1 I tapped am satisfied with the product range offered by online shopping websites.		
	Ol-Sat2 I am satisfied with the delivery time.		
	Ol-Sat3 I truly enjoyed purchasing online.		
	Ol-Sat4 I am satisfied with my most recent decision to purchase online.		
Online shopping attitudes			
Hedonic	HED1: Fun–Frustrating	Huang (2005)	
	HED2: Enjoyable–Unenjoyable		
	HED3: Interesting–Boring		
Utilitarian	UTIL1: Safe–Risky		
	UTIL2: Ordered–Chaotic		
	UTIL3: Wise–Foolish		
	UTIL5: Reliable–Unreliable		
E-customer engagement			
Vigor	Ce-Vig2: I feel strong and vigorous when I am using this online social platform.		Cheung et al. (2011)
	Ce-Vig4: In this online social platform, I always persevere, even when things do not go well.		
	Ce-Vig5: I devote a lot of energy to this online social platform.		
Absorption	Ce-Abs1: Time flies when I am using this online social platform.		
	Ce-Abs2: Using this online social platform is so absorbing that I forgot about everything else.		
	Ce-Abs3: I am rarely distracted when using this online social platform.		
	Ce-Abs4: I am immersed in this online social platform.		
	Ce-Abs: 5 My mind is focused when using this online social platform.		
Dedication	Ce-Ded2: am enthusiastic in this online social platform.		
	Ce-Ded2 ;This online social platform inspires me.		
	Ce-Ded3: I found this online social platform full of meaning and purpose.		
	Ce-Ded44: I am excited when using this online social platform.		
	Ce-Ded5: I am interested in this online social platform.		

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