

"When channels interact": how omnichannel interactions are redefining value co-creation

« Quand les canaux interagissent » : comment les interactions omnicanales redéfinissent la co-création de valeur

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Abstract:

Building on the dominant logic of service, this article examines the effect of interaction via online and offline channels on consumers' value co-creation behavior. As expected, the results showed a positive effect of interaction with all possible sources on value co-creation. These findings enrich the theoretical understanding of value co-creation and omnichannel behavior. The sample consisted of 387 respondents, of whom 144 were men (37.2%) and 243 were women (62.8%). Data analysis identified three dimensions of interaction: interaction with frontline staff, virtual interaction (social network members/community manager), and interaction with other people (friends/community members/family). The results demonstrate that all three types of interaction have a positive effect on value co-creation. The theoretical and managerial implications, limitations, and future directions of the research are discussed.

Keywords : Omnichannel ; Interaction ; Value co-creation.

Résumé

S'appuyant sur la logique dominante du service, cet article étudie l'effet de l'interaction via les canaux en ligne et hors ligne sur le comportement de co-création de la valeur des consommateurs. Les résultats ont montré, comme prévu, un effet positif de l'interaction avec toutes les sources possibles sur la co-création de valeur. Ces résultats enrichissent la compréhension théorique sur la co-création de valeur ainsi que sur le comportement omnicanal. L'échantillon est composé de 387 répondants dont 144 étaient des hommes (37,2 %) et 243 des femmes (62,8 %). L'analyse des données a permis d'identifier trois dimensions d'interaction : l'interaction avec le personnel de contact, l'interaction virtuelle (membres du réseau social/gestionnaire de communauté) et l'interaction avec d'autres personnes (amis/membres de la communauté/famille). Les résultats montrent que ces trois types d'interaction ont un effet positif sur la co-création de valeur. Les implications théoriques ainsi que managériales, les limites et les voies futures de la recherche sont discutées.

Mots clés : Omnicanal ; Interaction ; Co-création de la valeur.

Introduction

According to Chen et al. (2023), interaction has been identified as a fundamental technological characteristic of metaverse shopping environments. Nowadays we talk about human-technology interaction. Radical advances in digital, websites, social media and mobile communication have created a new playing field, requiring specialists of marketing to reinvent consumer behavior to effectively convey value propositions and maintain meaningful consumer-business relationships. According to Lamberton and Stephen (2016, p.159) and Carlson et al. (2017), the emergence of the “always connected” consumer, coupled with the substantial increase in mobile smartphone adoption worldwide, has fueled the growth of omnichannel behavior. This has led to the importance of mixing the multiple channels offered by the company to facilitate the value co-creation. Taking the example of mobile channels allowing marketers to take advantage of their unique characteristics, including being portable, personal, interactive, multimodal and convergent (Larivière et al., 2013; Carlson et al., 2017). In this case WeChat and Weibo applications. However, while the use of omnichannel in marketing practices is growing significantly, scientific research on this topic has not kept pace. Until now, studies have focused on understanding the factors influencing the adoption of such behavior. What remains to be examined is the value consumers derive from the omnichannel experience. Despite this theoretical as well as managerial importance of understanding how consumers interact across different channels, there are a number of research gaps. First, little is known about the different forms of value that consumers derive from their consumption experience across channels. Although value co-creation has been applied in the context of digital technologies and omnichannel, it is limited to being a consequence of this behavior. Furthermore, while studies theoretically discuss the integration of these two concepts (i.e. Journee and Weber, 2017; Yrjola et al., 2018), empirical evidence that demonstrates its influence on consumer behavior is lacking. Therefore, it is necessary to further theoretically and empirically elaborate the specific drivers of omnichannel value co-creation. Such a critical examination of omnichannel value co-creation will help practitioners effectively allocate their resources to benefits that enhance consumers' value perceptions of the presence of multiple channels facilitating value co-creation. By filling these research gaps, this study advances the literature on value co-creation and omnichannel behavior to test the effect of consumer interaction across physical and digital channels on value co-creation omnichannel.

Omnichannel claims to create a new industry or add added value to existing industries by combining traditional distribution channels with new information and communication technologies. This new mode of distribution has attracted attention because various technologies such as websites, smartphones, kiosks, etc. were combined with the traditional store aiming to offer the consumer a holistic experience. In response to this new distribution trend, companies are using various channels to sell their products and services.

Indeed, interactions between businesses and consumers across different channels are attracting increasing attention from researchers and practitioners. The Internet and new digital technologies have provided new opportunities for businesses, allowing them to interact with customers through online channels such as websites, social media and mobile applications in addition to traditional offline channels (Gao and Huang, 2021).

According to a survey conducted by Nandu (2018), 86.3% of physical retailers have deployed online channels, and more than 60% have four or more different online channels. Given that consumers prefer to use online and offline channels when shopping, many companies now use an omnichannel strategy that integrates both online and offline channels to increase value (Shopgate, 2019; Cui et al., 2022). With the rise of omnichannel strategies, consumers can now access product details and read reviews online before making a purchase in a physical store or benefit from after-sales services and offline delivery after purchasing a product online as part of an omnichannel journey (Bell et al., 2014; Cui et al., 2022). Nowadays, consumers use different channels simultaneously before purchasing a product or service. They can use their own device (mobile, tablet, etc.) within the store to carry out research, compare products, ask for advice, and look for cheaper alternatives. Additionally, it can check a product's rating, promote a product or service, or contact someone (or a group) to ask a question, but also share real-time thoughts, opinions, videos and photos, as well as their satisfaction or dissatisfaction with the in-store offering of products or services" (Piotrowicz and Cuthbertson, 2014, p. 9; Schwick, 2016). This means businesses have more opportunities to interact with customers to co-create value. However, little is known about how companies use online and offline channels to promote consumer value co-creation behavior (Cui et al., 2022).

Value co-creation founders such as Prahalad and Ramaswamy (2004) and Vargo and Lusch (2008) demonstrated that consumers are co-creators of value and that effective customer-business interactions are a prerequisite for value co-creation. Previous research on the omnichannel customer journey has mainly focused on interaction choice (Barwitz and Maas, 2018), customer experience and satisfaction (Alexander and Kent, 2020; Tueanrat et al.,

2021a), behaviors omnichannel and channel preferences (Nguyen et al., 2022). However, given the call for the integration of omnichannel behavior into the value co-creation (Journée and Weber, 2017; Yrjölä et al., 2018) and given that it too is a dimension important part of the consumer journey, interaction and its role in the value co-creation requires more attention (Tueanrat et al., 2021b).

Existing literature suggests that business-customer interactions through a single channel play an important role in value co-creation (Zhang et al., 2018; Shen et al., 2020; Cui et al., 2022). However, the effect of these interactions on consumer value co-creation in the omnichannel context is not well understood. In order to answer our research question, we developed a conceptual framework and used structural equation modeling (SEM) for our analysis.

By exploiting the 14 premises of Vargo and Lusch (2004), Şakar and Sürütü (2018) integrated the channel as a fundamental interactivity tool for value co-creation. Shareef et al. (2019) added that the level of interaction initiated by companies is known as channel interactivity. Thus, this article examines the following research questions: How does interaction across online and offline channels affect the value co-creation of mixed consumers?

This article contributes to the literature in the following ways. First, we empirically test the dominant service logic in an omnichannel context to show that interaction across channels is an antecedent of value co-creation. Therefore, the findings contribute to the SDL literature by empirically demonstrating how companies can leverage both online and offline channels in an omnichannel customer journey to promote value co-creation.

Looking at existing studies related to omnichannel, most of them are articles related to the factors influencing the adoption of such behavior. Through this study, it is expected to be significant in that it can predict whether interaction across online and offline channels affects the value co-creation of mixed consumer.

1. Conceptuel framework

1.1. Interaction and interactivity

Interaction refers to interactions with humans and recently with information technologies (Florenthal and Shoham, 2010; Shareef et al., 2018a; Cui et al., 2022). Regarding digital channels, interaction is the extent to which two or more parties can interact through communication media, which is believed to influence consumers' behavioral intentions (Ye et al., 2019; Cui et al., 2019). al., 2022). However, face-to-face communication in a physical location is more frequent and direct than communications via electronic channels. Which

reveals so-called omnichannel behavior. Thus, interaction can be defined as the extent to which one or more individuals respond to specific resources, including objects and content (Cui et al., 2022).

In short, interaction concerns a reciprocal reaction between two phenomena or two people while interactivity, for its part, is rather used to designate an exchange between a human and a technology¹.

The SDL posits that value is not produced by the company alone, but co-created through interactions and the integration of resources between different actors. In accordance with the principles of the SDL, offline and online interactions become key mechanisms for co-creating value.

1.2. Multichannel versus omnichannel behavior

In his thesis on the coordination of a distribution network in the case of retail banking, Plé (2006) divided the types of channels into two categories such as physical and virtual or “offline” and “online”. Which is consistent with the division of Dholakia et al. (2015). For his part, Dennis et al. (2017) divided channel types into traditional and smart. In this context, the term “smart” represents the socio-economic and technological improvements brought about by rapid developments in information and communication and connected technologies (Demirkan and Spohrer, 2014; Roy et al., 2019).

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Cui et al. (2022) Companies are making considerable efforts to expand the channels through which they can interact with their customers, who now move freely between channels and demand a seamless shopping experience (Barwitz and Maas, 2018). During customers' omnichannel journey, their interactions with service providers can favorably influence their

¹ <https://blogs.learnquebec.ca/2011/10/interaction-ou-interactivite-notre-utilisation-des-tbi-et-des-tablettes-electroniques/#:~:text=Interaction%20et%20interactivit%C3%A9,un%20humain%20et%20une%20technologie.>

satisfaction, loyalty and commitment to the company (Alexander and Kent, 2020; Tueanrat et al., 2021a). In omnichannel interactions, customers use multiple online and offline channels to conduct information collection, communications, and transactions for a single purchase (Verhoef et al., 2015).

This study focuses on omnichannel behavior, considered more suitable for our subject, as it emphasizes the integration and complementarity of interactions between points of contact, unlike the multichannel approach which refers to an isolation between channels.

1.3. Value co-creation of mixed consumer

According to the dominant service logic, value is co-created by both the company and its consumers (Vargo and Lusch, 2004) via their interactions (Prahalad and Ramaswamy, 2004). Based on this logic, Tommasetti et al. (2017) posit that value co-creation includes cognitive activities, cooperation, information search and collection, complementary activities, habit changes, co-production, co-learning and connections. However, the specific behaviors of consumers in this process are not yet fully understood (Cui et al., 2022). They do not specify a context of use and do not propose a concrete measurement scheme. Given this, based on the SDL perspective that value co-creators are the actors of resource integration (Vargo and Lusch, 2008), we view value co-creation as the conscious, active sharing and devotion and ongoing connections from personal resources (e.g., information, knowledge, personal energy, and tolerance) that creates unique value for customers.

Nowadays, the consumer creates value through multiple channels. Mixed behavior was developed by Vanheems (2009) which Kotler and Keller (2009) and Cambra-Fierro et al. (2016) had the merit of further developing. However, research on the antecedents of value-cocreation, especially in the context of omnichannel interaction, is relatively limited (Cui et al., 2022). Thus, determining the mechanisms underlying the effect of interactions via different types of channels on value co-creation makes an important contribution to the literature.

2. Theoretical framework and hypothesis development

2.1. Effect of interaction via multiple channels on value co-creation

Thanks to a diversity of channels, today's company can diversify the presentation of its messages via several channels. These effective interactive channels can foster mutual understanding between businesses and consumers (Ranjan and Read, 2016; Jouny-Rivier et al., 2017), facilitating consumers' value co-creation intentions. As a result, a variety of presentation methods encourage consumers to better understand the business, reduce

uncertainty regarding transactions, and share information or ideas, promoting value co-creation. The literature on value co-creation shows that interaction is an important prerequisite for improving the relationship with the brand (Tajvidi et al., 2021; Cui et al., 2022). By interacting with online channels, consumers can make choices by matching the information provided with their needs and demands (Ariely, 2000). For example, if a company provides smooth two-way communications and responds quickly to consumers' questions, the resulting positive interaction experience will improve the consumer's perceived value and interest in the company and its products (Lee, 2005; Merrilees, 2016).

2.2. Effect of interaction with contact personnel on value co-creation of omnichannel consumer

Regarding the offline context, consumers interact with salespeople or each other in a physical store and discover products directly through touch, taste and smell. According to social exchange theory, physical interaction increases individuals' sense of social presence and leads to positive emotions, which can motivate consumers to actively cooperate with companies. Perceived interactivity could also enhance consumers' self-efficacy and willingness to participate in the value co-creation process (See-To and Ho, 2014). Lee and Lee (2019) noted that some consumers still prefer direct interactions with others. They insisted that value cannot be created by simply excluding humans, and face-to-face services should not be rejected.

H1-a. Interaction with contact personnel positively affect the value co-creation of omnichannel consumer.

2.3. Effect of virtual interaction on value co-creation of omnichannel consumer

In the online context and especially the social channel, the interaction within social media is transparent and open to the public, which can affect consumers' experiences and potentially involve them in the process of value co-creation (Yrjölä et al., 2018). This interaction within the social channel opens opportunities for consumers to be involved in the value co-creation process. In this way, the role of consumers is crucial as a resource in the process of value co-creation by exploiting their knowledge (Vargo and Lusch, 2004). According to Kohler et al. (2011) and Füller et al. (2012), virtual communities represent ideal contexts for the study of co-creation, insofar as they constitute spaces in which dialogue is encouraged between the actors who intervene in these communities and allows these actors to fully develop, thus becoming participants in their own co-creation experiences (Rubio et al., 2019). Thus, social media, as a form of customer management, should be a tool to engage consumers in the

process of creating value to be able to satisfy the company's products and services (Piller et al., 2012). In addition, social networks come to replace this product or service offering to give the opportunity to the consumer to interact whose brand has moved from an activity based on the company providing products to consumers to a co-activity. collaborative creation in which companies and stakeholders interact. In addition to the advantages cited, the social channel has brought out two obvious contributions. On the one hand, by focusing on consumer complaints, Rosenmayer et al. (2018) stated that social media has changed the nature of complaints expressed through one-on-one communication between the consumer and the company towards public communications (Schaefers and Schamari, 2016), especially since they are often evaluated through interaction many other consumers (Gu and Ye, 2014). Another contribution mentioned by Yrjölä et al. (2018) reminding that interactions within the store are often not recorded in the company's databases regarding the consumer's purchasing behavior, demographics and past lifestyles which the online channel can fill, thus, this gap. Chahal and Rani (2017) revealed that many of the youth prefer to interact with businesses online via social media rather than in physical environments (Graeber and Dolan, 2007) before making a purchasing decision.

H1-b. Virtual interaction positively affect the value co-creation of omnichannel consumer.

2.4. Effect of interaction with others on value co-creation of omnichannel consumer

In fact, consumers are more likely to value the opinions of others in social media and feel important when providing feedback on the brands or products they use (e-Marketer, 2011). As demonstrated by several researchers (e.g. Nguyen, 2017; Busser et al., 2018; 2019), when consumers are involved in social exchanges through personalized social interactions, they actively create meaning from the co-creation process of value and therefore create value.

H1-c. Interaction with others positively affect the value co-creation of omnichannel consumer.

As a result, all of the channels mentioned above can be used jointly by a mixed consumer with the aim of interacting and thus co-creating value. In this regard, Barwitz and Mass (2016) studied, through 40 semi-structured interviews, consumers' interaction choices thanks to a multiplication of channels both online and offline, in order to better understand their decision-making. decision in a multi-option environment. For their part, Fernandez-Sabiote and Roman (2016) studied the need for interaction and multichannel behavior as moderating effects. They noted that the need for interaction has been identified as a key element in the adoption of self-service technologies (Dabholkar, 1996; Dabholkar and Bagozzi, 2002). As an

illustration, they explained that if consumers have a high need for interaction, they may avoid self-service, especially when it is technology-based, but if they have a low need for interaction, they are likely to seek out such options.

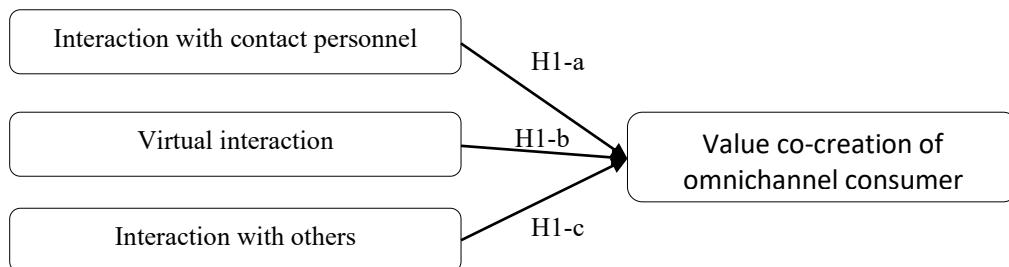
Thus, consumers view their interactions with the business holistically in which each channel serves a purpose in their decision journey and affects their overall experience.

As a result, each channel plays a specific role and the mixed consumer interacts with each channel for a specific purpose. As consumers view their business interactions holistically, marketing executives should further offer multi-channel initiatives. As consumer interactions expand toward more channels, leaders must carefully consider the role of each channel in creating value and how the channels themselves interact. Moreover, to identify and generate new value co-creation opportunities, companies should focus on the nature and stage of the interaction. For example, the consumer's hedonic value often provides more opportunities for differentiation not only in terms of offering, but also in terms of interaction with the company. From these statements, we can conclude that social interaction is the main factor that motivates mixed consumers to co-create value. This has been further proven by previous research which has spoken of the important place occupied by social interaction across several channels in the value co-creation. In this case, Rubio et al. (2019) proposed the moderating effect of the type of platform used (website or mobile application) in the relationship between interaction and the use value perceived by the user of the virtual community. The interaction can take place offline (example: telephone call) or online (example: website) (Ramaswamy and Gouillart, 2010; cited by Leclercq et al., 2016). Which further confirms the importance of this variable in the value co-creation through several channels. According to Rese et al. (2016), augmented reality integrates computer-generated objects with the real environment and enables real-time interactions (Azuma, 1997). These ideas demonstrate the possibility of the existence of an effect between a multichannel environment and the value co-creation.

As interactions become more computer or mobile mediated and teleworking becomes more prevalent (especially after COVID-19), physical proximity which is an important antecedent to building a higher identity and social cohesion may be lacking (Pinto et al., 1993; Kalaignanam, 2021). In this regard, many researchers (e.g., Hadida et al., 2019; Kalaignanam, 2021) have questioned how to effectively cultivate social cohesion in cases where physical proximity is difficult to achieve, especially since the longevity of teams is now greatly reduced. These digital channels save time and money thanks to the better and faster

interactions they enable between businesses and their customers (Marino et al., 2018). Thus, we propose the following hypothesis:

Figure N°1: Conceptual model



Source : Author

3. Methodology

3.1. Sample and procedure

We used an online questionnaire to examine our hypotheses. Data was collected in Tunisia in 2022. Using a non-random sampling technique, we selected 387 respondents aged over 18 years. The questionnaires were sent via Google Forms. To develop our latent variable measures, we relied primarily on validated scales and adapted them for this study. Value co-creation was based on eight dimensions and was measured using 56 items adapted from Yi and Gong (2013). As suggested by Lee and Kim (2010), a selection question was asked start of the investigation to identify consumers who engaged in omnichannel interactions. The question was: "Have you frequently interacted with the same company across its online and offline channels?" Those who answered "Yes" were allowed to continue with the rest of the investigation. Data from these 387 consumers was used in formal analysis and hypothesis testing. Of these, 144 were men (37.2%) and 243 were women (62.8%). The fact that more women than men responded is in line with the actual demographics of multi-channel shopping. Table 1 presents the descriptive statistics. In fact, this profile of young people is not studied for the first time. Marino et al. (2018) and many others (e.g. Bigne et al., 2005; Yang, 2010; Yang and Kim, 2012; Yang and Forney, 2013; Tajvidi et al., 2018) have focused on young people by judging that they are more inclined to use these digital channels. They judged that young people are more innovative and more inclined to accept new technologies than older people. This is notably thanks to the rise of social media (Hew et al., 2015; cited by Mosquera et al., 2018). Tajvidi et al. (2018) found that 41.1% of their dominant age categories are between 20 and 29 years old. Rubio et al. (2019) found that 41.1% of their dominant age categories are between 20 and 29 years old. Chen et al. (2021) found that young people are more likely to have access to social channels

than other groups, 33.6% of whom were under 20 years old and 58.2% were between 20 and 39 years old. For testing and interpreting research hypotheses, we used two quantitative software programs such as SPSS 23 and AMOS 24.

3.2. Measures

For the “Interaction” variable, our choice is understood on the Heitz-Spahn (2010) scale which we have adapted to the multichannel context. This scale takes into consideration the two facets of “seller-consumer” interaction and “consumer-other consumers” interaction, but they did not study the third facet of “consumer-machine” interaction. To do this, we integrated a second measurement scale Rubio et al. (2019) reflecting this third facet while also referring to the interaction channels cited by Barwitz and Mass (2016) namely personal channels (family, friends, seller), semi-personal channels (social media) and impersonal channels (Website, Mobile Application, Comparison Site).

3.3. Purification of the interaction measurement scale

Following the initial data collection, the principal component analysis (PCA) presented the items as a three-dimensional solution to the interaction, suggesting a distribution of the items across three main factors: Interaction with the salesperson, Virtual interaction, and Interaction with other people. The first factor, comprising six items, has an eigenvalue of 3.580 and a variance recovery rate of 27.542%. The second factor, composed of four items, recovers 19.151% of the explained variance with an eigenvalue of 2.490. The third factor, with three items, has an eigenvalue of 2.073 and a variance recovery rate of 15.946%. These three factors together account for 62.638% of the total variance. The reliability of these three factors is acceptable, with eigenvalues of 0.868 for the first factor, 0.782 for the second, and 0.763 for the third.

Table n°1: Exploratory factor analysis of the interaction

Construit	Dimensions	Items	Communalités (qualité de présentation)	Contributions Factorielles	% de variance	% de l'inertie récupérée cumulée	α de Cronbach
Interaction ($\alpha = .876$)	Interaction avec le vendeur	INT2	,664	,784	27,542	27,542	.868
		INT4	,614	,773			
		INT5	,612	,755			
		INT1	,614	,746			
		INT3	,631	,728			
		INT6	,570	,671			
	Interaction	INT12	,769	,852	19,151	46,692	,782

 virtuelle	 Interaction avec les autres	INT11	,572	,712				
		INT13	,523	,695				
		INT10	,573	,637				
	 Interaction avec les autres	INT7	,744	,831	15,946	62,638	.763	
		INT8	,744	,815				
		INT9	,512	,627				
		Déterminant	= 0,004	KMO	= ,853	Chi-deux approximé= /DL=	78	
						Sig de Bartlett	= ,000	

Source : Author

We eliminated item INT9 as it undermines the internal consistency of the "Interaction with others" dimension.

3.4. Analysis of the psychometric quality of the interaction

The initial goodness of fit shows results ranging from mildly unsatisfactory to moderately poor: $\chi^2 = 223.527$; $df = 62$; $p = 0$; $GFI = 0.905$; $AGFI = 0.861$; $TLI = 0.879$; $CFI = 0.904$; $NFI = 0.873$; $RMR = 0.091$; and $RMSEA = 0.091$. Half of the indices are below the norms. Similarly, the Mardia multinormality test yielded a value of 44.662, which is greater than 3, and a CR of 20.069. We used the Bollen-Stine corrected probability value to test the effect of multinormal distribution violation on the model. The pB-S value is 0.05, indicating that the multinormal distribution violation affected the model fit.

As a solution to address these unsatisfactory results, we first eliminated outliers (Mahalanobis = <0.001) for the items in this variable. We noted a strong correlation between the measurement errors of certain items in this variable. Indeed, adding covariance links between measurement errors is not theoretically sound, since the theory stipulates that measurement errors are not correlated (Danes and Mann, 1984, p. 346). In this regard, Diamantopoulos and Siguaw (2006, p. 269) recommended eliminating the item with the lowest SMC (explained variance). Following these recommendations, we eliminated five items: INT 1, INT 2, INT 6, INT 10, and INT 13.

These modifications allowed us to observe a good fit: $\chi^2 = 17.998$; $df = 10$; $p=0.055$; $GFI=0.985$; $AGFI=0.957$; $TLI=0.976$; $CFI=0.989$; $NFI=0.975$; $RMR=0.052$; $RMSEA=0.050$. Furthermore, the pB-S value is 0.154, indicating that the model fits the data well.

The final step is to verify the reliability and convergent validity of this seven-item construct (INT3, INT4, INT5, INT7, INT8, INT11, INT12). Based on Joreskog's Rho, we find that this construct is reliable and has Rho (CR) values greater than 0.6 (Bagozzi and Yi 1988, p. 80) for all three dimensions. Similarly, convergent validity is verified by calculating the mean variance extracted (MEV) of Fornell and Larker (1981). The MEV represents a value greater

than the significance level of 0.5 (Bagozzi and Yi, 1988, p. 80) for all three dimensions. These results confirm the internal consistency and validity of this construct.

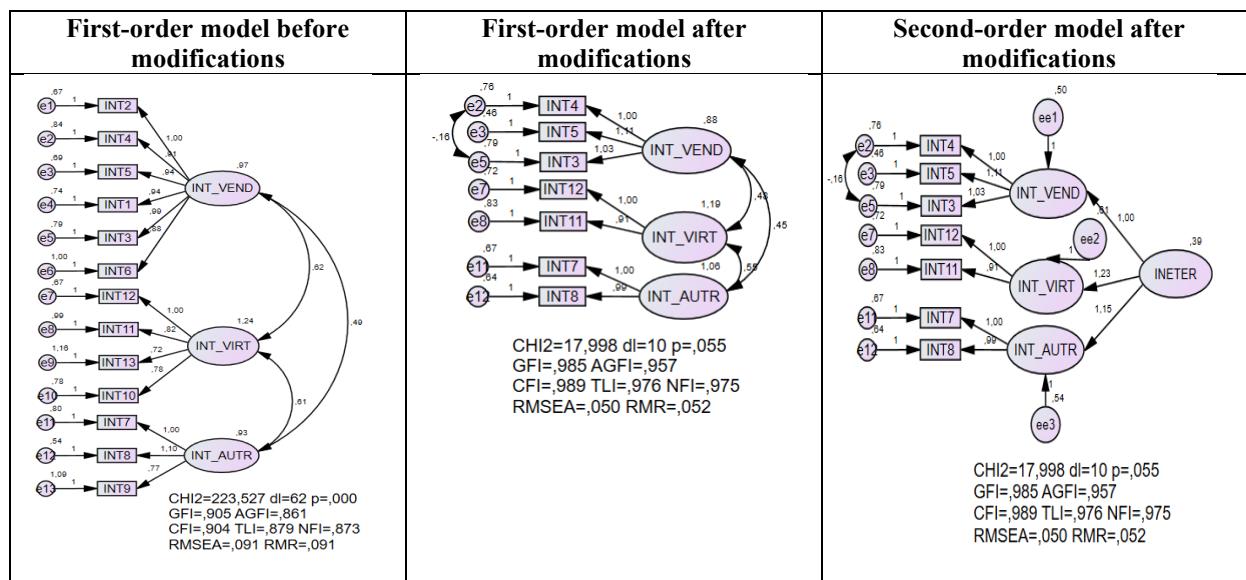
The verification of discriminant validity between the three dimensions of information seeking is based on the approach of Fornell and Larker (1981), which stipulates that the structural relationship between any two dimensions must be less than the value of the MEV (Roussel, 2002, p. 80). The results of the discriminant validity are shown in the following table.

Table n°2: Discriminant validity between the dimensions of the interaction variable

	CR	AVE	MSV	MaxR(H)	INT_VEND	INT_VIRT	INT_AUTR
INT_VEND	0,815	0,595	0,215	0,825	0,772		
INT_VIRT	0,738	0,586	0,239	0,741	0,464***	0,765	
INT_AUTR	0,763	0,616	0,239	0,763	0,464***	0,489***	0,785

Source : Author

Table n°3: Partial model of the interaction



Source : Author

We noted no difference between the first-order model and the second-order model of the interaction construct (TCI= 17.998/17.998= 0).

Table n°4: Convergent validity

	CR	AVE (Rho de Joresqoc)	MISV	MaxR(H)
INT_VEND	0,822	0,606	0,207	0,827
INT_VIRT	0,727	0,572	0,347	0,728
INT_AUTR	0,763	0,617	0,229	0,764

Source : Author

4. Results discussion

To our knowledge, this study is the first to focus on the relationships between offline and online interactions and omnichannel value co-creation.

The results showed, as expected, a positive effect of interaction with all possible sources on value co-creation. Indeed, co-creation comes into play when the company and customers interact jointly. According to Chatterjee et al. (2021), value co-creation is conceptualized through interactions and mutual exchange (Chatterjee et al., 2018; Busser and Shulga, 2019; Grover et al., 2020). At this level, we can assume that a consumer can only co-create value with the company on several channels if he interacts with the company whether directly (salesperson, community manager) or indirectly (other consumers). Which shows that the main motivation for mixed consumers is to interact with all the stakeholders which researchers (e.g. Xu et al., 2021; González-Mansilla et al., 2019) have concluded that value is generated from of these interactions. Thus, value is facilitated by the appearance of multiple communication channels.

The data analysis generated three dimensions of interaction, namely interaction with contact personnel, virtual interaction (social network members / community manager) and interaction with others (friends / community members). family). Table 1 below shows that the three types of interaction have a positive effect on value co-creation.

Table n°5: Hypothesis testing

Research hypotheses	Regression coefficient	C.R.	P	Testing the hypothesis
INT_VEND CCV	,206	6,489	***	Confirmée
INT_VIRT CCV	,011	2,725	,006	Confirmée
INT_AUTR CCV	,166	4,139	***	Confirmée

Source : Author

Note that the dimension of interaction with the contact personnel occupies the strongest regression link ($y=0.206$). This further justifies that the mixed consumer is still attached to contact personnel even in the presence of new digital channels. Which endorses the importance of multichannel behavior. This is granted by Sharma and Stafford (2000) positing that consumers prefer the availability of sales staff to assist them during their purchasing journey (cited by Shankar and Jain, 2021). In fact, inability to access sales personnel may not only inconvenience consumers, but may also result in lost product sales (Haas and Kenning,

2014; cited by Marino et al., 2018). Likewise, the lack of sales assistance was the main disadvantage of online stores encouraging consumers to move towards the final offline purchase (Kacen et al., 2013). For example, a study by Haas and Kenning (2014) claimed that consumers may agree to purchase luxury products only after consulting sellers. In contrast, Shankar and Jain (2021) indicated that consumers of high-involvement products are sophisticated, demanding, and well-researched about the products (Jain, 2020a) and, therefore, they may not need help from the sales staff for their final purchasing decision. Additionally, consumers can sometimes feel intimidated by sellers. They may feel uncomfortable due to the pressure imposed by sales staff.

This first result is in agreement with the main ideas underlying the theory of social capital (Sen and Cowley, 2013; Cambra Fierro et al., 2021). Referring to this theory that arises from the interaction between different agents, Vargo and Lusch (2004) argued that social interaction not only facilitates the sharing of knowledge, the exchange and combination of productive resources and information, but also promotes the co-creative improvement of products and services offering value to the company and the consumer. Cambra Fierro et al. (2021) added that digital channels based on reciprocity norms improve societal efficiency and therefore the value co-creation. Thus, for all parties involved, mutually satisfying relationships are built on the basis of social capital and particularly on the basis of interaction (Sen and Cowley, 2013; cited by Cambra Fierro et al., 2021). Therefore, all interactions and touchpoints are opportunities to strengthen relationships with consumers.

Another theory also linked to interaction is that of social exchange recently identified by Xu et al. (2021). The latter posited that interaction coincides with social exchange theory, which states that when individuals perceive that they benefit from social interaction, they offer a reward to others.

This result seems well confirmed in the work of Shankar and Jain (2021). Concerning the offline (physical) channel, they judged that consumers love the time spent with their loved ones when shopping (Rohm and Swaminathan, 2004), which they miss when purchasing products on the internet (Baker et al., 2018). Thus, offline shopping provides consumers with the opportunity to interact and spend time with friends and families (Liu et al., 2013). In an online channel, Kang (2018) asserted that webrooming is driven by social interaction, which is enabled by the exchange of messages with the online community followed by a final offline purchase via interaction with family members, peers, salespeople, other customers, friends, etc.

Concerning the first type of interaction that of interaction with contact personnel, consumer-business interaction increases the amount of knowledge sharing (Chiu et al., 2006; Hu et al., 2009) and allows the company to respond to consumer needs by modifying or adapting its product or service (Tsai and Ghoshal, 1998; Sashi, 2012). According to Mathis et al. (2016), through this interaction, a more beneficial product or service is co-produced and value is added as resources are shared by both parties. In this regard, researchers have noted that companies are only facilitators of the ongoing process of value co-creation (Rihova et al. 2015). These interaction outcomes ultimately improve the supplier-consumer relationship which brings long-term benefits to businesses.

Concerning the second type, that of virtual interaction, the sharing of knowledge and skills has also generated a value co-creation online. The latter type encompasses two interactions either with other consumers or with the company. For their part, Marino et al. (2018) distinguished three different forms of interaction. These forms of interaction can be initiated (1) by the consumer requesting information, (2) by the business initiating contact with the consumer with promotional services, such as an invitation to an event or game offer, and (3) through chat which can be initiated by the consumer by involving the company such as booking for example. In this third case, the consumer can request information and confirm a reservation, for example. In fact, within smart channels, many people with common interests, similar experiences, and consistent emotions come together to generate and share a large amount of content. This is called user-generated content. According to Chang and Lee, (2015), digital channels are an effective tool for information exchange and social communication. Thus, interaction is an important activity in digital communication channels allowing appropriate interactions between participants in the creative process (Mathis et al., 2016). Indeed, great interest is given in the literature on interaction within the social channel “the virtual community”. In this case, Ding et al. (2021) invested in this channel mentioning that consumers use the community to search for information about products, share a purchasing experience, communicate emotions and establish a good interpersonal relationship between other consumers (Hajli et al., 2015).

Several companies have started to see these channels as a direct and immediate communication space to reach their contacts. Let us cite several examples in this regard. Like Hellmann Mayonnaise, they wanted to promote the use of their products in Brazilian dishes. To this end, Hellmann offered consumers a dedicated contact on WhatsApp called Whatscook where users had the opportunity to ask questions to professional chefs, get recipes that include

the use of mayonnaise, share the contents of their fridge, share videos and images and receive short cooking lessons.

Concerning C2C or consumer-to-consumer interaction, Nguyen and Menezes (2021), in their meta-analysis of the last 30 years of existing literature on C2C interaction, found that C2C interactions on digital channels have the greatest influence on service delivery as well as consumption processes (Rahman et al. 2015; Kim et al., 2020a). In fact, these consumers come together to share space, meet people with similar interests and motivations, and interact over an extended period of time by contributing a variety of resources and verbal or non-verbal behaviors that consumers interact with each other. others in their social contexts to co-create value with each other. Furthermore, the existence of other consumers has been recognized as an important factor that influences the formation of the value or perception of the product or service. As a result, businesses can accrue value through better relationships with consumers. In this context, Ding et al. (2021) postulated that C2C interaction involves information interaction and social interaction, which greatly influence value co-creation. On the other hand, according to these same authors, C2C interaction may not always generate positive value for companies. In fact, negative value results are likely to occur. For example, when consumers develop close friendships with each other, a customer may switch firms if their partner exhibits changing behaviors, increasing risks for the focal firm (Guenzi and Pelloni 2004). Additionally, unpleasant contacts can lead to lower satisfaction, lower brand image, and negative perceptions and behaviors toward companies (Colm et al., 2017; Kim and Yi, 2017; Baker and Kim, 2018).

In conclusion, sharing resources such as feedback, information, knowledge, time, experience and advice only happens through interaction. In addition, social interaction is still an important determinant of value co-creation and this notion is accelerated by the growth of communications across channels. From this, we can conclude that the different types of interaction constitute an important determinant in the value co-creation. Thus, the more the consumer multiplies his sources of interaction, the more he co-creates value with a multichannel company. In other words, the more information exchange across a multiplication of channels allows consumers to obtain complete information about products, the more in-depth understanding the consumer can have about the product or service, the greater the value is co-created.

Conclusion

In this paper, we were able to confirm the positive effect of omnichannel interaction on the different dimensions of value co-creation. Therefore, in both an online and offline context, forms of interaction strengthen the brand and provide a competitive advantage. Similarly, by providing direct feedback to the business on potential improvements to offerings and experiences, blended consumers create unique benefits for the business and its audience.

By combining these three forms of interaction, our model captures all possible channels through which the consumer integrates resources and thus participates in the creation of value.

Theoretical Implications

This research builds upon existing work, which has been limited to discussing the importance of value co-creation within the context of a single channel. It has, to the extent possible, provided a better understanding of the antecedents of value co-creation in a multichannel context where consumers simultaneously use different channels. To date, the literature has not adequately explored the concept of value co-creation across multiple channels. This doctoral work, therefore, sought to deepen this understanding by evaluating the differences between mixed and single-channel consumers.

Managerial Implications

This research provides numerous direct and indirect clues for marketing managers. It has shown and clarified how marketing management has shifted its focus from product-oriented to consumer-related activities by introducing a new concept of value co-creation developed by Prahalad and Ramaswamy (2004) and Vargo and Lusch (2004). As a result, marketing managers must consider consumers no longer as passive recipients of marketing messages from the company regarding product qualities, prices, longevity, and other relevant attributes, but rather as active participants and co-creators of value in any channel offered by the company. In their study on the intention to co-create value, Chatterjee et al. (2021) concluded that consumers must be involved in companies' business activities. For example, they must be given opportunities to share their ideas, designs, and other essential inputs to the business. This can only be achieved through multiple channels, including digital ones.

In addition to digital channels, consumers value the multisensory in-store atmosphere, social interaction, and sales assistance (Yu et al., 2018). They expect personalized service (Atwal and William, 2009). Therefore, businesses must provide sales staff training within physical stores so they can offer customers a personalized relationship.

Limitations and Future Directions of the Research

At first, data collection was conducted solely with Tunisian consumers. This resulted in limited generalizability of our findings. Therefore, a key limitation of this research lies in its focus on a single country. Consequently, for better generalizability of the study's results, the current research framework could be further explored in other contexts.

Second, given the rapid evolution of the nature and dynamics of purchasing channels, on the one hand, and the likely emergence of new channels in the future, on the other, the current results are limited to our observation period. This allows future research to investigate more recent or emerging patterns of new consumer behaviors and new channels offered by businesses. Other useful channels may emerge, and it would be beneficial to include them.

Third, we focused on a single variable, namely interaction. Other variables such as engagement, experience, and participation can influence the co-creation of value for the omnichannel consumer.

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