

The role of social media elements in driving co-creation and engagement

Social media
and value co-
creation

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Abstract

Purpose – The purpose of this paper is to develop and empirically test a research model examining the impact of five social media marketing (SMM) elements—entertainment, customization, interactivity, electronic-word-of-mouth (eWOM) and trendiness—on consumers' intent to participate in value co-creation and on consumer-brand engagement (CBE) and perceived brand value in turn.

Design/methodology/approach – The research model is tested for wearable healthcare technology, a smart-technology product. Data were collected in China from 294 users using a self-administered online survey. Data analysis uses partial least squares – structural equation modelling (PLS-SEM).

Findings – Entertainment, customization and eWOM are the key predictors in driving consumers' value co-creation intention, thereby strengthening the value co-creation process, CBE and perceived brand value. In contrast with previous studies in the area of value co-creation and CBE, the impact of interactivity and trendiness on value co-creation intention is non-significant.

Research limitations/implications – The research contributes to the literature by providing an understanding of how to use SMM dimensions to drive consumers' value co-creation intention for smart-technology products, such as healthcare-wearable technology. However, this study is cross-sectional in nature and its focus is solely on wearable healthcare technology in China. To enhance the generalizability of the findings, future research might consider a longitudinal design and include comparisons between countries with diverse cultures, along with other types of smart-technology products.

Practical implications – The findings provide guidance for marketers to enhance CBE and perceived brand value by strengthening consumers' value co-creation intention, using SMM with entertaining and customized content and encouraging positive referrals on social-media platforms.

Originality/value – Scholarly attention on the importance of SMM in strengthening consumers' value co-creation intention and CBE is limited, and the question of which SMM elements are effective in driving value co-creation and its link to perceived brand value has not been examined. This paper contributes to the marketing literature by developing and empirically testing a research model, revealing entertainment, customization and eWOM as key SMM elements driving value co-creation intention and CBE for a smart-technology product in China.

Keywords Social media marketing, Consumer-brand engagement, Value co-creation, Perceived brand value, Wearable healthcare technology

Paper type Research paper



1. Introduction

The positive association between consumer-brand engagement (CBE) and perceived brand value (by consumers and by the firm) is recognized in the marketing literature (Fang, 2017; France *et al.*, 2018; Hollebeek, 2011). CBE encapsulates consumers' total brand experience, comprising attention, emotions and activation (Gambetti *et al.*, 2012), and this is recognized as a favourable outcome of the value co-creation process (Chathoth *et al.*, 2016). Therefore, value co-creation is linked to CBE, being critical in fostering consumers' perceived brand value (Algharabat *et al.*, 2019; France *et al.*, 2015, 2018; Hsieh and Chang, 2016) and contributing to brand success (Frasquet-Deltoro *et al.*, 2019; Gómez *et al.*, 2019).

What is not known, however, is how this value is actually created, meaning that information for effective operationalization of value-creation is lacking, especially for the value-creation process on social-media platforms (Hollebeek *et al.*, 2019; Li *et al.*, 2020). Addressing this lacuna, the present research draws on service logic (SL) (Grönroos and Voima 2013) and service-dominant logic (S-DL) (Gummesson, 2008; Vargo and Lusch 2008) theory for the examination of value-related CBE drivers, seeking to contribute to a better understanding of the relationship between CBE and perceived brand value (Kamboj *et al.*, 2018; Alexander and Jaakkola, 2016; Chathoth *et al.*, 2016) from a value co-creation perspective.

SL and S-DL research highlights the importance of the interdependent creation of value experiences by consumers and brands (Jaakkola *et al.*, 2015; Vargo and Lusch, 2008). Hence, value co-creation encapsulates the collaborative/joint activities by consumers and brands for creating material and symbolic value for both parties (Galvagno and Dalli, 2014; Nysveen and Pedersen, 2014), as independently perceived by these parties, and plays a considerable role in determining brand success (France *et al.*, 2015).

Consumers interact with the brand as active participants in creating brand experiences and brand value, rather than as passive receivers of branded information and purchasers of the brand (Ind and Coates, 2013; Prahalad and Ramaswamy, 2004; Vargo and Lusch, 2008). Hence, value co-creation depends on the participation of brands and consumers to create joint value (Ind *et al.*, 2013) in a process that involves the interdependent and dynamic integration of a brand's and consumer's resources for mutual betterment. Such resource integration is done in a value-adding way, involving value propositions that are "reciprocal promises of value, operating to and from brands and customers [hence interdependently] seeking an equitable exchange" (Ballantyne and Varey, 2006, pp. 344–345), hence leading to the opportunity to achieve mutual value gains (Grönroos and Helle, 2011; Pires *et al.*, 2015).

Given the recognized importance of value co-creation in marketing, substantial scholarly attention has focused on the value co-creation process itself. For example, Van Doorn *et al.* (2010) found the importance of consumer involvement in driving consumer empowerment and experience sharing. France *et al.* (2015) posited the influence of brand self-congruity on consumers' intention to share their experiences and to contribute to brand communities. More recently, Hsieh and Chang (2016) examined the psychological mechanism whereby the perceived benefits from value co-creation influence consumers' intention to participate in value co-creation activities and thereby strengthen purchase intention.

It is apparent that consumers are potential co-creators of brand value, and co-creation is an important source of brands' competitive advantage (Cheung *et al.*, 2020; Tajvidi *et al.*, 2020). Consumers can co-create brand value by participating in new-product-development processes, contributing their views to influence successful product design (Hsieh and Chang, 2016). Examples include consumer collaboration with Adidas using online communities to co-design products (Piller *et al.*, 2005), and with Nike using consumer-contributed designs on open-source platforms in its product-development process (Ramaswamy and Ozcan, 2016). Consumers can also co-create value with a brand by

sharing their brand experience(s) with other consumers, improving the consumption and usage experience, as well as stimulating innovation processes (Galvagno and Dalli, 2014; France *et al.*, 2018). This justifies the suggestion that brands should consider consumers as resources in brand building, adopting a position of being integrators of the consumers and the brand's resources (Payne *et al.*, 2008).

Independent of the initiator of the interactions, all consumer-brand encounters and interactions can influence how individuals consume or experience the brand (France *et al.*, 2015). Therefore, brands strategically seek to build sound consumer-brand relationships based on consumer-brand interactions (Merz *et al.*, 2009; Ind and Coates, 2013). Accordingly, Prahalad and Ramaswamy (2004) posit that brands should create unique brand experiences to spur consumers' engagement, including concerted initiatives in value-creation and problem solving. This explains that the focus of empirical examinations of value co-creation and CBE to date is mostly on strategic-management issues, focussing on its conceptualization and value-creation processes, with limited attention devoted to the marketing domain, especially for how value co-creation and CBE can be driven in brand-building processes (Cheung *et al.*, 2020b; Galvagno and Dalli, 2014; Ind *et al.*, 2013; Li *et al.*, 2020).

In marketing, the CBE research focus is mostly on conceptualization and scale-validation issues, affording limited attention to brand management (Gambetti *et al.*, 2012; Rosado-Pinto and Loureiro, 2020), particularly where value co-creation is concerned. Hence, understanding of how consumers' participation in the value co-creation process with brands contributes to CBE remains limited (Jaakkola *et al.*, 2015).

From an operationalization perspective, the need for integrative knowledge of value co-creation and CBE justifies enquiry into the potential value-related antecedents and consequents of CBE (MSI, 2018; Mustak *et al.*, 2016), including those related to social media marketing (SMM) suggested by the Adidas and Nike examples above. However, although SMM activities may be influential drivers in strengthening value co-creation activities, themselves a sub-process of CBE (Lima *et al.*, 2019), the links between SMM, value co-creation and CBE remain under researched. In particular, the question of which SMM elements controllable by brands are effective in driving value co-creation, CBE and the subsequent effect on perceived brand value has not been examined.

Seeking to address the above question, this study develops an integrated conceptual framework based on social exchange theory (SET) comprising hypotheses that centre on the elements of SMM as antecedents (independent variables) in a research model, with value co-creation, CBE and perceived brand value as the dependent variables. A research model is then tested, examining the impact of five SMM elements deemed potential antecedents of CBE—entertainment, customization, interactivity, electronic word-of-mouth (eWOM) and trendiness—on consumers' value co-creation intention and perceived brand value for wearable healthcare-technology products in China. Following methodological considerations, the results of the empirical data analysis are presented, followed by discussion of the theoretical and managerial implications, limitations and future research directions.

2. Developing the conceptual framework

This section starts with a brief discussion of social media marketing prior to engaging with the value co-creation process in developing the conceptual framework for this study.

2.1 Social media marketing (SMM)

With the proliferation of social-media communication, marketers increasingly utilize SMM activities to provide readily accessible, low cost, entertaining, customized and trendy information, along with facilitating interaction and referrals amongst consumers. Thus, SMM may be an important facilitator of consumers' participation in the value co-creation process,

providing opportunities for brands to interact and communicate with consumers, thereby strengthening consumers' ability to engage with brands in a value co-creation process that is conducive to mutually increased perceived value (Frasquet-Deltoro *et al.*, 2019). This importance is reflected in a social media global penetration rate assessed at 45% in 2019 (Statista, 2019a), involving more than 3 bn active monthly users (Statista, 2019b), at a yearly growth rate over 10% (Kemp, 2018).

Social media's fast development has led to its extensive adoption by consumers and brands and to the development of social media brand communities (Habibi *et al.*, 2014; Laroche *et al.*, 2012). Seen as a tool to create, communicate, deliver and exchange offerings that have value for consumers, SMM comprises online applications, channels, technological systems and web tools that enable users to create and share content or to participate in social networking, facilitating collaboration between community members (Kaplan and Haenlein, 2010). SMM is increasingly adopted by brands as a primary marketing strategy to interact with consumers on various social media platforms, such as Facebook brand pages, YouTube, Instagram, WeChat, Blog, Twitter, forums and blogs (Constantinides, 2014; Tess, 2013). Able to reach consumers at a lower cost than traditional media, such as print, TV and radio (Iankova *et al.*, 2019), social media communication and interaction are increasingly used to build consumer–brand relationships (Yadav and Rahman, 2018).

Using social media platforms, such as brand pages, consumers interact with brands and other community members to share brand stories, strengthening their involvement with the brand (Chathoth *et al.*, 2016) and contributing to the value co-creation process (Zhang *et al.*, 2017a). Reportedly, more than half of social media users obtain brand-related information by following brand pages (Ismail, 2017), providing unprecedented opportunities for marketers to interact with consumers, ultimately building strong and positive brand knowledge in consumers' minds (Algharabat *et al.*, 2019; Kaplan and Haenlein, 2010; Lee, 2018). This explains why brands increasingly utilize social media platforms as an effective means to communicate and interact with consumers.

A better understanding of SMM and value co-creation is particularly important in the context of wearable healthcare-technology products, comprising smart electronic products that can be attached to consumers' bodies, such as the Apple Watch, Fitbit, Samsung Gear and Mi Band wristband (Marakhimov and Joo, 2017; Zhang *et al.*, 2017b). The development of these products is linked to the proliferation of social media communications, involving consumers' interactions with like-minded peers in social media communities to obtain and exchange health information (Dessart and Duclou, 2019), as well as professional information about health wellness, such as weight management, healthy lifestyles and knowledge about wearable healthcare-technology usage (Kim and Chiu, 2019; Pinto and Yagnik, 2017; Talukder *et al.*, 2019). Hence, consistent with the above theoretical discussion, SMM facilitates consumers' intention in co-creating value for wearable healthcare-technology brands by exchanging health-related professional and trendy information (Dessart and Duclou, 2019). SMM contributes to the diffusion of health information, promoting the sharing of wearable healthcare-technology usage experiences and co-creating brand value for both consumers and wearable healthcare-technology brands (Ba and Wang, 2013; Bagot *et al.*, 2018; Pinto and Yagnik, 2017).

Consumers' involvement in value co-creation activities for wearable healthcare-technology brands implies an investment of mutual resources, such as the provision of brand information to support consumers' discerning and choice between focal brands, potentially evoking positive emotions and strengthening consumer–brand relationships.

2.2 SET, value co-creation and consumer–brand relationships

How SMM drives value co-creation and its subsequent outcomes is discussed using an integrated conceptual framework grounded on social exchange theory (SET). SET explains

how individuals engage in a relationship with their exchange partners from the cost–benefit perspective and how the relationships develop in the long-run (Homans, 1974), involving resources exchanging behaviours of individuals. It is posited that consumers are likely to reciprocate positive feelings and behaviours with brands upon receiving benefits from the two-sided relationship they maintain with brands (Blau, 1964; Hollebeek, 2011). Consumers are thus motivated to participate in value co-creation activities when their perceived benefits, as manifested by shared information and useful and entertaining experiences, are deemed to exceed their participation costs, as manifested in the amount of time, energy and effort invested in the activities (Hollebeek, 2011).

SET offers a rationale for consumers' contributions to exchange processes, positing their willingness to reciprocate the perceived benefits (positive thoughts, beliefs, emotions and behaviours) that are provided to them by the brand in the consumer-brand, relationship-building process (Blau, 1964). Recognized as one of the theoretical lenses in value co-creation research (Lee *et al.*, 2019), SET adopts a cost-benefit perspective to explain how individuals (consumers) engage in a relationship with their exchange partners (brands) and how the relationship develops over time (Homans, 1974). Therefore, SET is relevant for examining why consumers co-create value and engage with brands.

2.3 Why consumers co-create value and engage with brands

Consumers interact with the brand as active participants in creating brand experiences and brand value, rather than passive receivers of branded information and purchasers of the brand (Ind and Coates, 2013; Prahalad and Ramaswamy, 2004; Vargo and Lusch, 2008). In the social-exchange process, how much the parties (consumers and brands) to the relationship give up is perceived as a cost, whilst the benefits received are perceived as a reward (Hollebeek, 2011). Hence, relationship maintenance depends on the perceived costs leading to greater perceived rewards for both parties. Conversely, the relationship is terminated when the perceived rewards are insufficient to cover the related perceived costs (Emerson, 1976). The relationship outcomes are interdependent, depending on both parties' co-contributions (Wieseke *et al.*, 2014), such that the perceived benefits received via consumer-brand interaction encourage consumers to sacrifice their time, energy and effort in co-creating value for brands (Alvarez-Milán *et al.*, 2018; Itani *et al.*, 2020).

The inference is that consumers are willing to invest resources in value co-creation activities when the perceived benefits of the activities—as manifested by practical information, useful experiences and entertainment they receive in the exchange process—are greater than their resources to be invested in the value co-creation activities (Dessart *et al.*, 2015). Consumers always strive for balance between perceived costs and rewards in exchange processes, such that reciprocity in the provision of favours and benefits influences the intent to maintain a consumer–brand relationship (Hollebeek, 2011).

Awareness of the importance of value co-creation in strengthening perceived brand value and in building consumer–brand relationships sustains calls for further empirical research on value co-creation's antecedents and consequences (Chathoth *et al.*, 2016), especially for the role of social media communication in driving value co-creation, and its subsequent effects on CBE as well as brand value (Cheung *et al.*, 2020c; France *et al.*, 2015; Van Doorn *et al.*, 2010). Importantly, the role of firm-initiated social media communication is under-researched, justifying examination of the links between brands' social media marketing (SMM) activities, value co-creation and consumer–brand relationships.

SMM is accepted as one of the most effective tools in facilitating interaction between users and brands and for disseminating brand-related information (Cheung *et al.*, 2019; Gómez *et al.*, 2019; Kamboj *et al.*, 2018). Indeed, applied to the present research context, SET sees consumers' participation in value co-creation as driven by their perceived benefits from the

consumer–brand interaction process related to brands' SMM activities. This suggests that consumers' involvement in brand value co-creation is strengthened by brands' SMM activities that provide entertaining and informative benefits for consumers whilst facilitating interactive sharing with peers (Cheung *et al.*, 2020b; Dolan *et al.*, 2016).

For example, consumers may realize value through the use of resources (such as the access to ways for easily engaging with the brand and with peers in social media) provided by the brand (Hollebeek, 2019; Ashley and Tuten, 2015). By integrating their own resources (such as knowledge of own needs, wants and consumption preferences) with a responsive brand's resources, consumers may gain access to better value promises (or propositions) they perceive as superior to those of other brands, hence being converted into competitive advantage for the brand. One implication here is that brands aim at being perceived by consumers as superior to their rivals, by facilitating, enhancing and being responsive to consumers' resource integration processes, to attain competitive advantage. That is, the integration of ideas/resources and solutions by both parties results in more effective value offerings (or propositions/promises) (Prahalad and Ramaswamy, 2004), increasing the perceived value for both, leading to mutual betterment (Ramaswamy and Ozcan, 2014) and, ultimately, strengthening the consumer–brand relationship (Vargo and Lusch, 2008).

Marketers utilize SMM activities to strengthen consumer–brand interaction, aiming to encourage consumers to participate in brand-value co-creation, conducive to building CBE, as manifested by consumers' energy and efforts in understanding and participating in co-creation activities for brands, ultimately leading to perceived brand value. Yet, research is scant on the link between consumers' perception of social media and value co-creation participation, particularly on the impact of different SMM elements on consumers' intent to participate in brand value co-creation and on CBE (Kamboj *et al.*, 2018; Tajvidi *et al.*, 2020; Zadeh *et al.*, 2019). Hence, it is justified to advance brands' SMM elements as drivers of consumers' value co-creation participation, CBE and perceived brand value, warranting empirical research related to the role of SMM and its elements in the process of consumer–brand interaction, such as value co-creation and engagement.

This section discussed why consumers co-create value and engage with brands. The next section deals with hypotheses development for this research.

3. Hypotheses development

Brands increasingly adopt SMM as a primary marketing strategy to interact with consumers on various social media platforms. The focus here is on the question of which SMM elements controllable by brands are effective in driving value co-creation.

Increasing scholarly attention to SMM identifies five elements treated as antecedents of consumers' participation in the value co-creation process, namely: entertainment, customization, interactivity, electronic word-of-mouth (eWOM) and trendiness (Cheung *et al.*, 2020a; Godey *et al.*, 2016). Next, each of the five SMM elements are briefly reviewed, leading to the development of testable hypotheses.

3.1 Entertainment

Entertainment involves marketers' creation of brand experiences—such as games, video sharing and participation in contests—that consumers perceive as fun and playful when using social media platforms (Agichtein *et al.*, 2008; Manthiou *et al.*, 2013). Playful experiences create enjoyment, happiness and pleasure in consumers' minds, fostering affection and a positive attitude towards the brand (Bianchi and Andrews, 2018; Dessart *et al.*, 2015). This is why marketers increasingly attempt to communicate brand-related information in an

entertaining fashion, typically involving gamification, animations and live videos (Constantinides, 2014; Harwood and Garry, 2015; Parise *et al.*, 2016).

The typical aim of entertaining SMM activities is to encourage consumers' participation in brand-related interactive games, driving the sharing with other users of their joyful experience (Harwood and Garry, 2015) by engaging with the brand-related activity. The suggestion is that, overall, consumers gain a stronger motivation to participate in brand-related activities (such as value co-creation of brand value) and to share their experience with others on social media when they enjoy playful brand experiences obtained from entertaining content (Bianchi and Andrews, 2018). This justifies [hypothesis 1](#):

H1. Entertaining SMM has a positive impact on value co-creation.

3.2 Customization

Customization refers to consumers' perception of the extent to which brands use social-media platforms to offer them tailored offerings, namely personalized information and services that account for their preferences (Yadav and Rahman, 2018). Customization makes it easier to reach consumers, whilst strengthening consumers' perceived value of the brand (Seo and Park, 2018). Content tailored to consumers' preferences delivers personalized brand experiences, building recognition of the brand and strong and positive brand knowledge in consumers' minds (Cheung *et al.*, 2020c). The customization argument is that consumers are more interested in reading brand-related information that is directly relevant to them, thereby exerting greater cognitive effort to understand that information (Kim and Ko, 2012). Advancements in social media technologies allow marketers to maintain a dialogue with consumers and to discuss topics related to their personal interest, motivating them to contribute their views and ideas to improve the brand's offerings (Cheung *et al.*, 2019; Liu *et al.*, 2019), hence facilitating value co-creation. This justifies [hypothesis 2](#):

H2. Customized SMM has a positive impact on value co-creation.

3.3 Interactivity

Interactivity reflects the extent to which SMM activities support the two-way communication between consumers and brands, as well as the exchange of brand-related information and ideas between consumers and like-minded peers (Heggde and Shainesh, 2018; Muntinga *et al.*, 2011), strengthening perceived brand interactivity (France *et al.*, 2016; Manthiou *et al.*, 2013). Regarded as one of the most critical components in driving consumers' intention to co-create value on social-media platforms (Liu *et al.*, 2019), and the most effective way to strengthen consumer-brand relationships, interactivity is rooted in two-way communication amongst brands and consumers (Merrilees, 2016). For example, Facebook brand pages, forums and blogs are used to encourage consumers to share and discuss brand-related information and ideas (Godey *et al.*, 2016), enhancing consumers' interest and understanding of the brand (Dessart *et al.*, 2015). Importantly, the development of social media brand communities motivates consumers to discuss brand stories, attributes and benefits with their peers, as well as sharing their needs with marketers, heightening their participation in value co-creation (Algharabat *et al.*, 2019; Kamboj *et al.*, 2018; Seo and Park, 2018). This justifies [hypothesis 3](#):

H3. SMM interactivity has a positive impact on value co-creation.

3.4 Electronic word-of-mouth (eWOM)

eWOM refers to communication made by potential, actual or former customers about a product, brand or company using social media platforms (Hennig-Thurau *et al.*, 2004). Akin to interactivity, the creation and sharing of eWOM encourages consumer participation in social

media brand communities (Kudeshia and Kumar, 2017). Consumers tend to evaluate brands based on eWOM on social media platforms because eWOM is perceived as credible and trustworthy (Al-Htibat and Garanti, 2019). The content of eWOM reflects brand users' prior experience, which attracts other consumers' attention (Prasad *et al.*, 2019). Thus, eWOM facilitates consumer interaction with other like-minded users on social media brand communities in a value co-creation process that adds to their understanding of their brands of interest (Wu *et al.*, 2017). This justifies [hypothesis 4](#):

H4. eWOM on social media has a positive impact on value co-creation.

3.5 Trendiness

Trendiness is the extent to which the information available on a brand's social media platforms is up-to-the-minute and fashionable, such as updates, latest news and current hot topics about the brand (Cheung *et al.*, 2020b; Naaman *et al.*, 2011). Trendy information attracts consumers' attention, especially those who are motivated to stay updated on the latest trends (Ramadan *et al.*, 2018). To remain trendy, brands frequently update their social media pages, sharing the latest news about the brand, such as product developments and the latest offerings. The aim of trendiness is to strengthen the information quality of their social-media pages, thus encouraging consumers to engage in value co-creation with brands in social media brand communities (Constantinides, 2014; Islam and Rahman, 2017; Yadav and Rahman, 2018). The trendier the information carried by social media brand pages, the more effective they are in prompting consumers to interact with brands and other like-minded users on social media platforms (Dessart *et al.*, 2015; Ramadan *et al.*, 2018). This justifies [hypothesis 5](#):

H5. Trendiness SMM has a positive impact on value co-creation.

[Hypotheses 1 to 5](#) seek to examine the impact of each of the five SMM elements in driving consumers' intent to participate in value co-creation, indirectly influencing CBE and perceived brand value, which are discussed next.

3.6 Consumer-brand engagement

Conceptualized as consumers' specific level of cognitive, emotional and behavioural activity during their interaction with a brand (Hollebeek *et al.*, 2014; Hollebeek, 2018), CBE is critical in creating positive business outcomes (Harmeling *et al.*, 2017). Possible CBE outcomes are varied and include brand love (Suetrong *et al.*, 2018; Wallace *et al.*, 2014), brand relationship quality (Gómez *et al.*, 2019), consumer-based brand equity (Algharabat *et al.*, 2019) and purchase intention (Prentice *et al.*, 2019), amongst others. Scholarly attention has typically focused on CBE conceptualization and measurement, but empirical research on its relationship with value co-creation activities is limited (Algharabat *et al.*, 2019; Dessart *et al.*, 2015; Hollebeek *et al.*, 2014).

The relationship between value co-creation and CBE is underpinned by consumers' psychological connection with brands, however, recent research findings are fragmented and inconclusive (Frasquet-Deltoro *et al.*, 2019; Hsieh and Chang, 2016; Kumar and Nayak, 2019). For Hsieh and Chang (2016), CBE and value co-creation are inextricably linked, highlighting the importance of consumers' perceived self-brand connection and value co-creation benefits for CBE strength. For France *et al.* (2018), the focus is on how consumers' involvement affects value co-creation and CBE, thereby strengthening perceived brand value. In the social media context, Frasquet-Deltoro *et al.* (2019) argue that consumers' value co-creation behaviour is influential in driving CBE. Overall, the recent literature suggests that value co-creation activities are manifested by the exchange and contribution by both parties in the process of

consumer-brand interaction (Harmeling *et al.*, 2017; Jaakkola *et al.*, 2015), whereby value co-creation is a behavioural construct that strengthens the consumer-brand relationship, such that CBE is a relational construct (Jaakkola and Alexander, 2014; Mustak *et al.*, 2013; Schultz and Peltier, 2013). In other words, CBE is reflected in the magnitude of the consumer-brand relationship, being stimulated by value co-creation activities.

Research prioritizes value co-creation in the brand-building process, because the participative value co-creation process strengthens consumer-brand relationships (Chathoth *et al.*, 2016; Carlson *et al.*, 2019). Hence, Nyangwe and Buhalis (2018) posit that brands co-create value with consumers through consumer-brand interactions on social media platforms, calling for brands to invest resources in creating brand stories that appeal to social media brand communities, strengthening consumer-brand relationships. Similarly, Al-Hibat and Garanti (2019) argue that the sharing of referral content available on social media platforms plays a considerable role in driving CBE. Overall, the suggestion is that the interaction between consumers and brands on social media platforms is co-creative in nature, playing a considerable role in strengthening CBE (Chen *et al.*, 2018; Hollebeek and Macky, 2019; Wu *et al.*, 2017), suggesting that value co-creation activities are an influential driver of CBE (Lima *et al.*, 2019). This justifies hypotheses 6:

H6. Value co-creation has a positive impact on CBE.

3.7 Perceived brand value

Conceptualized as consumers' perception of the value received from a brand, perceived brand value refers to consumers' cognitive trade-off of sacrifices and benefits that are related to their consumption of the brand (Zeithaml, 1988), which is affected by consumers' social and emotional values (Fazal-e-Hasan *et al.*, 2018). As such, perceived brand value is also conceptualized as consumers' overall evaluation of brands, as manifested by the perceived benefits given by brands, which plays a considerable role in consumers' decision-making processes (Cheung *et al.*, 2020b; France *et al.*, 2020). Recent studies have found a relationship between value co-creation and perceived brand value, positing perceived brand value as a business outcome of value co-creation activities (France *et al.*, 2018, 2020; Sarkar and Banerjee, 2020). For example, France *et al.* (2018) found the importance of consumers' value co-creation behaviours, as manifested by their intention in creating ideas, feedback and self-developed content for brands on social-media platforms, in driving consumers' perceived brand value. Similarly, France *et al.* (2020) found the importance of consumers' value co-creation activities, as reflected by their feedback, advocacy, helping and development behaviour on social media platforms, in driving perceived brand value. More recently, Sarkar and Banerjee (2020) found that value co-creation activities play a considerable role in strengthening perceived brand value perception and brand performance.

In a similar fashion, recent studies also justify the relationship between CBE and perceived brand value, conceptualizing perceived brand value as positive outcome of CBE (Li *et al.*, 2020). Hollebeek and Chen (2014) argued that CBE play a considerable role in driving consumers' brand attitude. France *et al.* (2016) found that CBE is a significant predictor of consumers' perceived brand value. More recently, Nyadzayo *et al.* (2020) found a positive relationship between CBE and brand evangelism, suggesting that highly engaged consumers are valuable because they are motivated to promote their favourite brands to others, and subsequently strengthening brand value. Similarly, Harrigan *et al.* (2020) found the importance of CBE in driving consumers' brand advocacy, as reflected by consumers' brand value perception. Summing up, the literature supports a positive relationship between CBE and perceived brand value (Tregua *et al.*, 2015). Indeed, the process of value co-creation and CBE formation strengthens consumers' positive brand perceptions, resulting in an increased level of brand value (France *et al.*, 2018). This justifies hypotheses 7 and 8:

H7. Value co-creation has a positive impact on perceived brand value.

H8. CBE has a positive impact on perceived brand value.

Figure 1 depicts the conceptual framework for this research, bringing together the relationships amongst the eight hypotheses.

4. Methodology

4.1 Data collection and sample

The targeted population for the study comprised individuals who were experienced users of WeChat, which is the most popular social media platform in China, with more than 1.2 bn monthly active users in 2020 (Statista, 2020a). The targeted respondents are also equipped with knowledge and experience in using healthcare-wearable technology products, such as Apple Watch, Fitbit, Samsung Gear and the Mi Band wristband. After receiving institutional ethics clearance, primary data collection proceeded by means of an online survey in Chinese hosted on the Qualtrics platform.

We chose wearable healthcare technology products as the product stimulus in this study due to their being identified as one of the most important technologies of the future (Kim and Shin, 2015). Wearable healthcare-technology products are in the sphere of one of the most promising areas in the Internet of things (IoT), allowing users to evaluate their health data as to meet their needs to improve their health (Kim and Shin, 2015; Pinto and Yagnik, 2017). It is thus regarded as having the potential to improve consumers' health conditions as well as quality of life (Cheung et al., 2020d). This technology allows consumers to enjoy unique brand experiences in the value co-creation process, sharing their experiences in using wearable healthcare-technology products on social media platforms, along with their personal needs and ideas, in how to improve the product features (Pinto and Yagnik, 2017), hence contributing to the building of consumers' positive brand knowledge (Vivek et al., 2012). Via the accompanying apps and social media, consumers of these products can share their

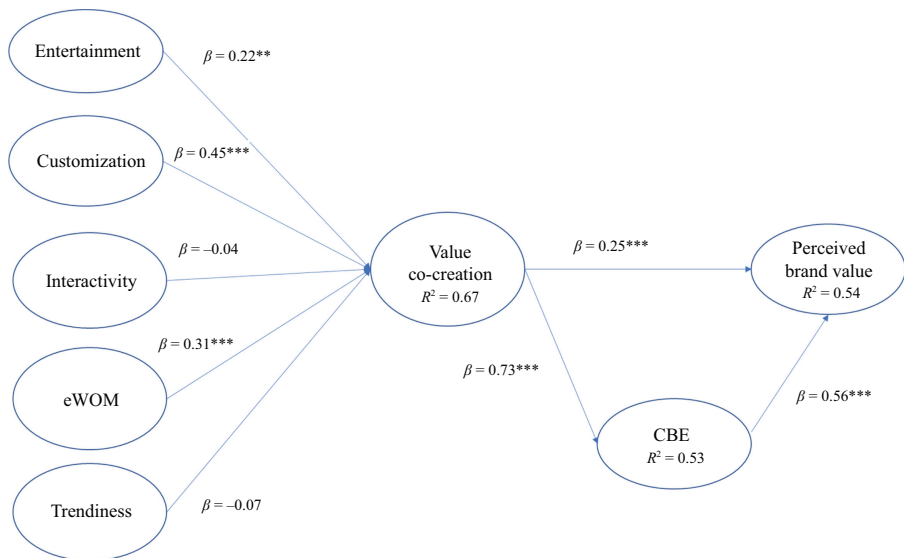


Figure 1. Results of the research model

Note(s): paths significant at * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

experiences and engage with other like-minded consumers of a particular brand, through such things as step and distance-walked/run challenges.

Brands in this product category (e.g. Apple Watch, Fitbit, Samsung Gear and the Mi Band wristband) are expected to be the leading stimuli for consumers because of their popularity and representativeness in the wearable healthcare-technology industry. This explains why these brands have also featured as brand stimuli in prior studies (e.g. [Chuah et al., 2016](#); [Pinto and Yagnik, 2017](#)). For example, Apple Watch, Fitbit, Samsung Gear and Mi Band wristband accounted for more than 50% of the market share of the global wearable-healthcare-technology industry in 2020 ([Statista, 2020b](#)). The conclusion is that the aforementioned wearable healthcare-technology brands are suitable for empirical examination in the areas of value co-creation and brand management, as with this study.

Using a purposive sampling method, WeChat users with knowledge and experience in using wearable healthcare technology were recruited to participate in the study. The targeted respondents were visitors of wearable healthcare-technology brand pages, who were recruited via a questionnaire link and QR code posted on WeChat pages in China. The Participant Information Statement was presented to potential respondents prior to the start of the online survey, explaining that their participation was voluntary. Respondents then nominated their wearable healthcare-technology brand about which they based their survey answers. The online survey took approximately 10 min to complete and remained available for completion for 16 weeks in early 2020.

Responses were validated using screening questions and checked for completeness. The screening questions included: (1) Have you ever used WeChat? (2) Have you ever used a wearable healthcare-technology product? (3) Have you ever read information about wearable healthcare-technology products on WeChat? Respondents without experience in using WeChat or wearable healthcare-technology products were excluded from the study.

4.2 Measurement items

To test the hypotheses that make up the research model, the survey questionnaire relied on scales drawn from previous studies. The response format used seven-point Likert scales (1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5 = somewhat agree, 6 = agree, 7 = strongly agree).

Following [Kim and Ko \(2012\)](#), 11 items covering the five SMM elements—entertainment, customization, interactivity, eWOM and trendiness—were adapted from [Cheung et al. \(2020a\)](#). Six items from [Nysveen and Pedersen \(2014\)](#) measured value co-creation, ten items from [Leckie et al. \(2016\)](#) measured CBE and two items from [France et al. \(2018\)](#) measured perceived brand value. The survey was drafted in English and back translated into Chinese, to ensure consistency in meaning with the English version ([Brislin, 1970](#)).

5. Results

5.1 Sample profile

Of the 486 consumers invited to participate in the online survey, 403 consumers agreed to participate. Lack of experience in using wearable healthcare technology or lack of awareness about wearable healthcare technology resulted in discarding 109 responses. After completing the screening process, 294 useable responses met the requirements for use in this study. All respondents were WeChat users in China, with experience and knowledge in using wearable healthcare technology. The sample equally comprised males (49.7%) and females (50.3%), aged 18 to 55 (mean = 18–25 years) with 98% aged between 18 and 35. Most respondents were typically engaged in full-time employment (80%) and university educated (72%). All respondents were experienced users of WeChat. Of these, 86% of the respondents held a

WeChat account for more than three years, 34% of respondents were signed into WeChat all of the time and 30% accessed WeChat 6–10 times a day on average.

All respondents owned wearable healthcare-technology products at the time of data collection. For brand stimuli, 49% of respondents nominated Apple as their most familiar wearable healthcare-technology brand, followed by Xiao Mi (21%), Huawei (17%) and Samsung (9%). Overall, the sample profile was deemed suitable for the purposes of this research.

5.2 Data analysis

Similar to studies carried out in the value co-creation and brand-management areas (e.g. Koay *et al.*, 2020; Carlson *et al.*, 2019; Harrigan *et al.*, 2018), data analysis used partial least squares-structural equation modelling (PLS-SEM) using SmartPLS v3.2.8 (Ringle *et al.*, 2015) with the 5,000-bootstrap procedure. PLS-SEM is as an appropriate method of analysis due to its unique advantages, being suitable for: (1) studies with relatively small samples (e.g., fewer than 500 participants); (2) models involving a number of constructs; (3) studies with a high number of indicators per latent variable and (4) studies aimed to predict key target constructs in a research model (Hair *et al.*, 2017).

Data analysis used the two-stage approach in PLS-SEM. This involved: (1) the assessment of reliability and validity of the measurement (outer) model and (2) the assessment of the structural (inner) model, examining the path coefficients, p -values, R^2 values and f^2 values and Q^2 values to test the hypotheses and assess the explanatory and predictive power of the model.

5.3 Measurement model results

Reliability of the latent constructs was assessed by evaluating individual item loadings, Cronbach's alpha and composite reliability (CR) (Hair *et al.*, 2017). During this purification process, one interactivity item, four CBE items and three value co-creation items were dropped due to item-loading and AVE (average variance extracted) concerns for achieving a valid and reliable instrument. The final results confirmed that the Cronbach's alpha and composite reliability of each construct exceed 0.88, indicating a good level of internal consistency (Nunnally and Bernstein, 1994). Additionally, the loading of each item was greater than 0.79 and highly significant ($p < 0.001$) (see Table 1).

The convergent validity of the model was assessed using the AVE. The AVE scores of all constructs were greater than the recommended 0.50 thresholds (see Table 2), thus satisfying the AVE criterion (Hair *et al.*, 2017). Discriminant validity was assessed using the Fornell-Larcker (1981) criterion. As reported in Table 2, the square roots of the AVEs for the latent constructs were larger than the corresponding latent-variable correlations; hence, discriminant validity was achieved (Hair *et al.*, 2017).

5.4 Structural model results

We examined the hypotheses using the structural model results by considering the t -values, standardized coefficient beta values, coefficient of determination (R^2 values) and effect sizes (f^2 values). A hypothesis was accepted when the t -value was larger than critical value (i.e. $t \geq 1.96$, $p \leq 0.05$), using a two-tailed test. We used the 5,000-bootstrap procedure to test the significance amongst paths in the structural model (Hair *et al.*, 2017).

Table 3 and Figure 1 show that the results support six of the eight hypotheses. Regarding the relationship between SMM elements and CBE, the impact of customization on value co-creation was the strongest ($\beta = 0.45$, $p = 0.000$), followed by eWOM ($\beta = 0.31$, $p = 0.000$) and entertainment ($\beta = 0.22$, $p = 0.007$), supporting H1, H2 and H4. However, the impacts of

Construct	Loading	<i>t</i> -value	<i>Alpha</i>	CR	Social media and value co-creation
<i>Entertainment</i>			<i>0.93</i>	<i>0.97</i>	
The content found in Brand X's social media seems interesting	0.97	169.12			
It is exciting to use Brand X's social media	0.97	172.99			
<i>Customization</i>			<i>0.89</i>	<i>0.95</i>	
Brand X's social media provide customized services	0.94	91.40			
Brand X's social media provide lively feed information I am interested in	0.96	189.73			
<i>Interactivity</i>			<i>0.89</i>	<i>0.95</i>	
It is easy to convey my opinions or conversation with other users through Brand X's social media	0.95	134.09			
It is possible to have two-way interaction through Brand X's social media	0.98	104.02			
<i>Electronic Word of Mouth (eWOM)</i>			<i>0.92</i>	<i>0.96</i>	
I would like to pass information on brands, products or services from Brand X's social media to my friends	0.96	152.34			
I would like to upload content from Brand X's social media on my Facebook page or my blog	0.97	216.27			
<i>Trendiness</i>			<i>0.89</i>	<i>0.95</i>	
Content found on Brand X's social media is up-to-date	0.95	107.25			
Using Brand X's social media is very trendy	0.95	103.70			
<i>Value co-creation</i>			<i>0.92</i>	<i>0.95</i>	
I often suggest how Brand X can improve its products and services	0.93	85.31			
I am actively involved when Brand X develops new products	0.94	139.16			
Brand X encourages consumers to create solutions together	0.91	74.73			
<i>Consumer-brand engagement (CBE)</i>			<i>0.92</i>	<i>0.94</i>	
Using this brand gets me to think about Brand X	0.81	29.04			
I think about Brand X a lot when I am using <i>i</i>	0.79	26.63			
I feel good when I use Brand X	0.86	41.75			
I am proud to use Brand X	0.88	53.96			
I spend a lot of time using Brand X compared with other brands	0.86	45.14			
I use Brand X the most	0.86	49.46			
<i>Perceived brand value</i>			<i>0.92</i>	<i>0.96</i>	
Overall, the value of this brand to me is high	0.96	171.55			
The benefits of the brand are high	0.96	164.14			

Note(s): All loadings were significant ($p < 0.001$)

Table 1.
Measurement model results

	V1	V2	V3	V4	V5	V6	V7	V8	AVE
1 Consumer-brand engagement	<i>0.84</i>								0.71
2 Value co-creation	0.73	<i>0.93</i>							0.86
3 Customization	0.76	0.80	<i>0.95</i>						0.90
4 eWOM	0.73	0.75	0.80	<i>0.96</i>					0.93
5 Entertainment	0.77	0.76	0.87	0.79	<i>0.96</i>				0.93
6 Interactivity	0.73	0.73	0.85	0.87	0.83	<i>0.95</i>			0.90
7 Perceived brand value	0.72	0.64	0.65	0.69	0.66	0.67	<i>0.96</i>		0.93
8 Trendiness	0.77	0.68	0.80	0.81	0.80	0.83	0.69	<i>0.95</i>	0.90

Note(s): Diagonals (Italic) represent the square root of the AVE, whilst the off-diagonals represent the correlations

Table 2.
Construct correlation matrix and AVE

interactivity ($\beta = -0.04, p = 0.64$) and trendiness ($\beta = -0.07, p = 0.36$) on value co-creation were non-significant, therefore, H3 and H5 were not supported. The influence of value co-creation on CBE ($\beta = 0.73, p = 0.000$) and perceived brand value ($\beta = 0.25, p = 0.000$) was

Relationship	Path coefficient	<i>t</i> -value	<i>p</i> -value	<i>f</i> ²	<i>R</i> ²	<i>Q</i> ²
<i>Value co-creation</i>						
Entertainment → Value co-creation	0.22	2.71	0.007	0.03	0.67	0.52
Customization → Value co-creation	0.45	4.56	0.000	0.11		
Interactivity → Value co-creation	-0.04	0.47	0.640	0.00		
eWOM → Value co-creation	0.31	3.70	0.000	0.07		
Trendiness → Value co-creation	-0.07	0.91	0.361	0.00		
<i>CBE</i>						
Value co-creation → CBE	0.73	23.44	0.000	<i>N/A</i> *	0.53	0.33
<i>Perceived brand value</i>						
Value co-creation → Perceived brand value	0.25	3.69	0.000	0.06	0.54	0.46
CBE → Perceived brand value	0.54	7.01	0.000	0.29		
Note(s): * <i>N/A</i> : Effect size (<i>f</i> ²) is not required to be reported for the path with only one independent variable						

Table 3.
PLS-SEM analysis of
the research model

positive, strong and significant, supporting H6 and H7, whilst the impact of CBE on perceived brand value ($\beta = 0.56, p = 0.000$) was positive, strong and significant, supporting H8.

Next, we used the recommended mediation-testing procedure (Hair *et al.*, 2017; Zhao *et al.*, 2010) to assess the influence of value co-creation on the impact of SMM elements on CBE and perceived value. Specifically, the indirect effect of customization on CBE through value co-creation was the strongest ($\beta = 0.33, p = 0.000$), followed by eWOM ($\beta = 0.23, p = 0.000$) and entertainment ($\beta = 0.16, p = 0.009$). Similarly, the indirect effect of customization on perceived brand value through value co-creation was the strongest ($\beta = 0.11, p = 0.001$), followed by eWOM ($\beta = 0.08, p = 0.022$) and entertainment ($\beta = 0.05, p = 0.039$). The results revealed that the indirect effects of interactivity and trendiness on CBE and perceived brand value through value co-creation were weak and non-significant ($p > 0.05$). Overall, the mediation results confirmed the presence of a complementary, partial-mediation effect for value co-creation on the relationship between the three SMM elements (i.e. customization, eWOM and entertainment) and CBE and perceived brand value.

The explanatory power of the research model was evaluated using the *R*² values (see Figure 1). The *R*² values for value co-creation (*R*² = 0.67), CBE (*R*² = 0.53) and perceived brand value (*R*² = 0.54), along with the average variance accounted for (AVA) being 0.58, suggest the model explains a meaningful amount of variation in the endogenous variables. The *R*² values exceed the recommended criterion benchmark of *R*² values in a model being greater than 0.10 (Chin, 1998), with a value of 0.20 considered high for consumer-behaviour studies (Vock *et al.*, 2013).

We also checked the effect sizes (*f*²) of the paths (see Table 3) to assess the explaining power of exogenous constructs (Cohen, 1988). An effect size is large if *f*² ≥ 0.35, medium if *f*² ≥ 0.15 and small if *f*² ≥ 0.05, whilst the cut-off value is 0.02 (Cohen, 1988). The effect of customization on value co-creation (*f*² = 0.11) is the strongest, followed by eWOM (*f*² = 0.07) and entertainment (*f*² = 0.03). This reveals that the effect size of customization and eWOM on value co-creation is small to medium, but the effect size of entertainment on value co-creation is very small. The effect size of CBE on perceived brand value is medium to large (*f*² = 0.29) whilst the effect size of value co-creation on perceived brand value is small to medium (*f*² = 0.06).

Additionally, we ran the blindfolding procedure to assess the predictive relevance (*Q*²) of the research model. As presented in Table 3, the *Q*² values for value co-creation (*Q*² = 0.52), CBE (*Q*² = 0.33) and perceived brand value (*Q*² = 0.46) were greater than zero, revealing that the exogenous latent variables are good at predicting the endogenous variables and thereby

confirming that the predictive relevance of the model is acceptable (Fornell and Cha, 1994; Hair *et al.*, 2017; Shmueli *et al.*, 2019).

6. Discussion and theoretical implications

Drawing upon SET, the results of this study show the importance of SMM elements in driving value co-creation, CBE and perceived brand value. This extends the extant marketing literature (e.g. Bianchi and Andrews, 2018; Cheung *et al.*, 2020c; Hollebeek, 2011; Liu *et al.*, 2019; Wu *et al.*, 2017) by empirically demonstrating the aforementioned relationships in the context of wearable healthcare technology.

The results show that entertainment, customization and eWOM are key benefits in the social-exchange process between consumers and wearable healthcare-technology brands, strengthening consumers' intention to be involved in the ongoing value co-creation process. This is manifested by consumers' intention to provide suggestions to (co-create with) the wearable healthcare-technology brands of their interest to improve the quality of existing products and in new product development processes (Cheung *et al.*, 2020b; Hollebeek, 2011). Denoting engagement, co-creation subsequently drives CBE and perceived brand value.

The results also show that, contrary to expectations (e.g. Algharabat *et al.*, 2019; Cheung *et al.*, 2020a; Kamboj *et al.*, 2018; Merrilees, 2016), interactivity is non-significant in driving the value co-creation process in this study. The unexpected result can be explained by the features of WeChat, which is nominated as the most popular Chinese social-media platform (Cheung *et al.*, 2020e). Using WeChat, consumers are able to interact with each other on social-media brand pages only when they are mutually added as "friends", whilst they are not able to interact and discuss with strangers (non-friends) on social-media brand pages (Lien and Cao, 2014). In other words, compared to Facebook and Instagram, WeChat brand pages are typically more informative and focus on brand-initiated information, including entertaining and practical messages, along with presentation of consumer product reviews. As such, consumers would search for SMM messages with practical information of personal relevance, such as information about benefits and features, along with product reviews before buying wearable healthcare-technology products on WeChat brand pages (Lien and Cao 2014; Pinto and Yagnik, 2017). However, the inability to interact with non-friends reduces the potential for consumer-to-consumer interactions, which are therefore not the focus of the WeChat platform, and thus helping to explain our non-significant interactivity finding.

Additionally, the non-significant relationship found between trendiness and value co-creation is inconsistent with the findings of previous studies (e.g. Kim and Ko, 2012; Liu *et al.*, 2019; Seo and Park, 2018). This result may be explained by the nature of the focal product in this study. Given wearable healthcare-technology is relatively new, there is ample trendy information that is available on social media platforms, such as detailed explanation of product benefits and features, safety guidelines and general product-use guidelines to help users understand the health information provided by the wearable healthcare-technology products and how to maximize their use. From the SET perspective, consumers need to invest more effort—such as time—to read the trendy information and understand how to use healthcare-wearable technology products effectively. Therefore, they are less likely to provide feedback and suggestions based on the trendiness of the information, and thus value co-creation is less likely to be influenced by trendiness (Richard *et al.*, 2010).

Notably, the results of this study confirm the importance of SMM elements in driving the consumer-brand relationship in social-exchange processes, as manifested by value co-creation, CBE and perceived brand value. SMM elements, including entertainment, customization and eWOM, directly drive value co-creation and indirectly drive CBE and perceived brand value. The complementary, partial-mediation effect of value co-creation on

the relationship between the SMM elements (i.e. entertainment, customization and eWOM) and CBE confirm the findings of prior studies in this area (e.g. [Cheung et al., 2020c](#); [Koay et al., 2020](#); [Lima et al., 2019](#); [Pham and Gammoh, 2015](#)). The results reveal that SMM elements have an indirect effect on CBE and perceived brand value, suggesting that SMM elements are useful stimuli in activating consumers' intention to co-create value, and subsequently drive the consumer–brand relationship ([Algharabat et al., 2019](#); [Hollebeek et al., 2014](#); [Merrilees, 2016](#)), and subsequently strengthening their perceived brand value ([France et al., 2018](#)).

Furthermore, we also found that value co-creation has a strong, positive and significant impact on CBE, empirically confirming the importance of value co-creation in the process of building CBE. Prior studies discuss the intertwined nature between value co-creation and CBE ([France et al., 2015](#); [Hollebeek et al., 2014](#)). Our findings contribute to the marketing literature by empirically showing that CBE and value co-creation are two distinct concepts, as well as revealing the importance of value co-creation in driving CBE. In other words, the process of value co-creation, such as the provision of consumers' feedback aimed at improving the quality of existing products and the ideas in the new product development process, is deemed to be useful in driving consumers' psychological connections with the focal brands and strengthening their CBE ([Lima et al., 2019](#)). As such, the empirical results in this study justify why value co-creation is regarded as an important construct in the brand-building process calling for scholarly attention.

Last, but not least, the findings suggest that both value co-creation and CBE are predictors of perceived brand value, confirming the findings of prior studies (e.g. [Choi et al., 2016](#); [France et al., 2015](#); [2018](#)). Our indirect-effect results also reveal that CBE acts as a conduit for the impact of value co-creation on perceived brand value, suggesting that the effects of value co-creation on perceived brand value are also indirect in nature. In other words, when consumers are involved in value co-creation activities, perceived brand value is strengthened through the engagement processes, including cognitive processing, affection and activation. We also conclude that CBE is more important in strengthening perceived brand value than value co-creation, because the effect size of CBE on perceived brand value ($f^2 = 0.29$) is larger than that of value co-creation ($f^2 = 0.06$).

To conclude, the results of this study contribute to the discussion of the effectiveness of SMM strategies in highlighting the usefulness of particular SMM elements. Specifically, focussing on interactivity and trendiness may not be the best strategy in terms of driving consumers' value co-creation intention for healthcare-wearable technology products in China.

7. Managerial implications

The findings of this study provide several managerial implications. First, this study provides practical implications for marketing managers in general, and for wearable healthcare technology in China in particular, to consider the use of SMM to strengthen consumers' value co-creation intention, and thereby build strong and positive brand perceptions in consumers' minds. Second, rather than mass-directed SMM strategies, we recommend wearable-healthcare-technology marketers use customized SMM strategies, such as personalized messages, personal dialog and a customized interface ([Liu et al., 2019](#)). Third, we also recommend allow consumers to obtain comprehensive information about their interested brands, especially for details of eWOM on wearable healthcare-technology products ([Krishnamurthy & Kumar, 2018](#)). Fourth, we suggest marketers supply entertaining content on social-media platforms, such as interesting posts (wording), animation, videos and mini-games ([Merrilees, 2016](#)). Overall, Chinese marketers of wearable healthcare-technology products are recommended to focus on providing entertaining and customized information, along with eWOM, to drive consumers' intention to co-create value, which in turn strengthens

CBE and perceived brand value. These strategies would help marketers of wearable healthcare-technology brands to drive consumers' intention to co-create value.

Importantly, the findings of this study also suggest that SMM elements, including entertainment, customization and eWOM, have an indirect impact on CBE through value co-creation. In light of this, marketers are recommended to facilitate value co-creation activities with entertaining and customized SMM content, along with eWOM available on social media platforms, in order to build the consumer–brand relationship. Based on the effect of value co-creation on CBE and its indirect effect on perceived brand value, we also suggest marketers to invest more resources to encourage consumer participation, such as in the new product development processes and in co-designing activities, along with voting for product designs and packaging options, to increase the number of views, likes and shares, which in turn build the consumer–brand relationship by strengthening perceived brand value.

Nevertheless, the contrary results in this study also reveal some managerial challenges. In particular, the non-significant relationship between interaction and value co-creation warrants marketers' attention, implying that focussing on interactive content alone may not be the best strategy in terms of driving consumers' intention to co-create brand value, especially for WeChat. Indeed, as interactions between consumers are not the focus of WeChat brand pages, hence interactive discussions between consumers are not useful in driving value co-creation and CBE, suggesting that brand-initiated content is influential in driving consumers' intention to co-create value for brands, and subsequently driving CBE and perceived brand value.

Overall, the results of this study contribute to the discussion of the effectiveness of SMM strategies in highlighting the usefulness of particular SMM elements. Of note, focussing on interaction alone may not be the best strategy in terms of driving value co-creation intention and CBE for wearable healthcare-technology brands in China. Therefore, marketers of wearable healthcare-technology brands in China are recommended to focus on providing entertaining and customized information, along with eWOM, to drive consumers' intention to co-create value, which in turn strengthens CBE and perceived brand value.

8. Limitations and recommendations for further research

Although the findings of this study offer improved theoretical insights that suggest recommendations for improving managerial practice, several limitations need to be considered that future research could address. First, the study was cross-sectional in nature and conducted in China only, thus limiting its generalizability. Future research should consider longitudinal studies, as well as comparisons between countries with diverse cultures to enhance the generalizability of the findings. Second, this study focused on wearable healthcare technology only, a relatively new IT product, which may limit the findings' applicability to different product types, such as fast-moving consumer goods. Thus, future research should consider other product types and make comparisons between products to enhance the generalizability of findings. Third, interpretation of the findings suggests that the extent of user experience as owners of the products being examined may also be a factor that justifies consideration, justifying a need for intelligence on different consumer types, including the role of product ownership. Finally, this study focused on the effectiveness of SMM elements, therefore, the impact of traditional marketing elements was omitted. Since marketing effectiveness requires integration of not only digital-marketing communications but other relevant strategies, future research might investigate the integrated impact of SMM elements and traditional marketing activities, such as place (distribution, location), price, product, service and traditional advertising (e.g. TV, print, radio, out-of-home, sales promotions and loyalty programs), to provide more comprehensive understanding in the area of value co-creation and brand building.

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