Service Business (2019) 13:557–580
https://doi.org/10.1007/s11628-018-00395-w

EMPIRICAL ARTICLE

Motivation triggers for customer participation in value co-creation

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Received: 1 November 2018 / Accepted: 7 December 2018 / Published online: 14 December 2018

Abstract
Innovative new ideas are no longer bound by internal R&D efforts of the organisation. Many successful innovation ideas stem from external sources, especially engaged customers. This study investigates motivation triggers for customer participation in co-creation of value with the firm by using a dual-research approach: grounded theory to explore the factors that motivate customers to participate in value co-creation, and a survey to identify the primary triggers of customer value co-creation. Six primary triggers identified were affiliation, expertise, expression and experience, recognition, community and tangible reward. The results contribute to the literature on co-creation as well as to practicing managers for formulating effective customer engagement.

Keywords Co-creation · Customer participation · Customer motivation · Value creation · Open innovation

1 Introduction

The world has seen a series of major developmental phases, most significantly the following three waves: the agricultural revolution, industrial revolution and digital revolution (Lee 2015). Today, we live in a networked global community where people are connected through advanced information and communication technologies (ICTs) and interdependent economies. A small ripple in one area of the world can cause a huge storm in many other parts. Globalisation, digitisation, the increasing influence of emerging economies, the changing industry mix and

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demographics, the urgency of environmental changes and other mega trends have all impacted, in varying degrees, the way business firms compete in the dynamic marketplace (Drucker 2001; Friedman 2005).

Mega trends have helped the creation of new market forces, such as the ever shortening product life cycle, service-focused competitive advantage, changing the concept of customer value, increasing importance of social network services and the like (Lee et al. 2012). In such a volatile environment, continuous innovation is imperative to develop dynamic capabilities to compete and survive (Teece 2010). To achieve innovation goals, firms cannot rely solely on their internal knowledge sources. Innovation through collaboration with external parties and open sourcing has become a necessity (Chesbrough 2003; Lee and Trimi 2017).

The customer's role has changed "from isolated to connected, from unaware to informed, from passive to active" (Prahalad and Ramaswamy 2004a). The customer-centric logic, where customers are not only the critical source of unique information but also active participants for new value creation and innovation, has become a new paradigm (Prahalad and Ramaswamy 2004a; Ramaswamy and Ozcan 2014). The Harvard Business Review (Stern 2017) suggested: "When you need to transform a brand or product, you can't just do the same things better. You need to do something new. You tap into the creativity of your customers". Co-creation, where value is created jointly by the firm and its entire stakeholder network, has become an important ingredient of innovation (Gronroos 2008; Perks et al. 2012).

While some argue that co-creation is similar to collective intelligence and crowd sourcing (Howe 2008), it is more of a hybrid form of open innovation where all stakeholders' collaborative efforts are magnified (Barczak 2012; Stiphout 2010). Through co-innovation with customers, firms can not only sharpen their internal ideas but also harmonise them with customers' current and future needs. Most of the previous studies on co-creation have explored the impact of co-creation on organisational performance. These studies generally found a positive impact of co-creation on firm outcomes (Claycomb et al. 2001; Fang et al. 2008; Hau and Thuy 2015; Payne et al. 2007). However, there exists a paucity of empirical studies on motivation factors for customer participation in co-creation. In this study, we explore motivators that attract customers to participate in co-creation activities with the firm such as opportunities to find new and unfulfilled needs, express own creativity, experience participating in corporate strategic decision making and be recognised for their contributions (Hau et al. 2017; Lee et al. 2010; Lee and Kim 2018; O'Cass and Ngo 2011). Thus, businesses not only should understand the importance of co-creation but also embrace it by finding the key motivators that trigger customers to participate in value co-creation and building platforms that will eventually produce effective outcomes that are for the greater good (Lee and Lim 2018).

Despite its growing significance, most studies on co-creation have thus far been rather conceptual. In this study, we first explored, via grounded theory, the factors that trigger customers to participate in the value co-creation process with organisations. Then, the discovered factors were empirically tested with field survey data to identify the critical motivators that positively encourage customers to participate in the process of co-creation of values with the organisation.

The rest of this paper is organised as follows: Sect. 2 reviews relevant literature on co-creation and customer motivation to participate in it. Section 3 explains the research design and methodology to delineate co-creation factors through grounded theory. Section 4 presents the analysis and results of survey data. Section 5 discusses the findings, while Sect. 6 concludes the study by articulating its contributions, limitations and suggestions for future research needs.

2 Literature review

2.1 Co-creation

Simply being customer oriented is not sufficient nowadays for firms to be competitive (Sheth et al. 2000). The customer-centric logic suggests that firms with service-dominant strategy are not only adaptive to customers' individual, collective and dynamic needs but also collaborate with and learn from customers (Hau and Thuy 2015; Payne et al. 2007; Zwass 2010). Customer participation in co-creation brings two major benefits: as an information source for the firm, and a co-developer of product and services (Fang et al. 2008). Thus, rather than unilaterally trying to embed the customer value in the output, firms should define and co-create it by working with customers (Vargo and Lusch 2004). Today customers play a key role by actively involving in co-creation, through interactions that are personalised and meaningful to each participating customer, thus building unique experiences (Prahalad and Ramaswamy 2000). A good example of such co-creation is Threadless, an online business that focuses on designing T-shirts through collaboration with its customers via a social network. Moving away from passive Customerism, delegating the design of its products to customer experts, Threadless not only has proved the power of co-creation but has successfully made it a new core competence of the firm. The CEO of Threadless predicts that soon research labs and product design divisions of manufacturing companies would be outstripped by "Innovation Commons" made of tinkerers, hackers and other devout customers freely sharing ideas (Chafkin 2008).

While many businesses fail because of their inability to quickly adapt to the new digital era, many others thrive because of their absorptive capacity to harness the power of their customers through openness, sharing, collaboration and interdependence (Engelman et al. 2017; Tapscott and Williams 2010). In this new economy, success of any business depends on how well it harnesses knowledge and ideas from its customers through ambidextrous co-creation/co-innovation where internal exploitative and external explorative innovations are converged (Lee et al. 2012). Co-creation puts the customer–company interaction as the locus of value creation strategy (Lee and Trimi 2017; Prahalad and Ramaswamy 2004a). In sum, companies that engage their customers in value creation will be the ones that will succeed in the marketplace.

2.2 Customer motivation for value co-creation

Motivation is the inner strength that reflects goal-directed arousal and is the driving force that impels individuals to action (Schiffman and Kanuk 2007). It is an enabler that can satisfy needs and wants, both physiological and psychological (Kaufman-Scarborough 2013). Customers' motivations are intrinsic and extrinsic. Intrinsic motivation is behaviour driven by internal rewards and gratification, when people act without expectations for any obvious external rewards but for simply enjoying an activity or see it as an opportunity to explore, learn and actualise their potential (Coon and Mitterer 2010). Intrinsic motivation is a drive that is animated by personal enjoyment, interest or pleasure (Lai 2011) that "energizes and sustains activities through the spontaneous satisfactions inherent in effective volitional action" (Deci 1972). It can be the desire for a product, service or experience. Individuals are intrinsically motivated when they engage in an activity that they are interested in and enjoy (Eccles and Wigfield 2002). Some good examples are open source movement, Wikipedia, Linux, Apache.

Extrinsic motivation, on the other hand, is a behaviour that is driven by external rewards such as money, fame, praise. "Extrinsic motivation refers to our tendency to perform activities for known external rewards, whether they be tangible (e.g. money) or psychological (e.g. praise) in nature" (Brown 2007). Extrinsic motivation is external and governed by reinforced contingencies. Extrinsically motivated individuals tend to engage in activities for instrumental or other reasons, such as receiving a reward, a prize, win a status. Intrinsic and extrinsic motivations can both lead customers to participate in co-creation of value with a firm.

Previous research has conceptually explored customer motivators for participating in the co-creation process and classified them in five groups: financial, technological, social, psychological and personal integrative (Brown 2007; Costa and McCrae 1992; Deci and Ryan 2000, 2014; Eccles and Wigfield 2002; Lai 2011; Pink 2011). The financial factor is the customer's motivation for monetary rewards, in the form of prizes, profit sharing or intellectual property ownership. The technological motivator encompasses the desire to gain technological knowledge by participating in forums and development groups run by the firm. The social factor involves recognition such as status, social esteem, "good citizenship" and strengthening of relationships with other parties. The psychological factor focuses on the purely altruistic viewpoint: primarily on creative pursuits, self-expression and pride, all intrinsically motivated (Etgar 2008). Personal integrative is measured by identity construct, advancement in career, personal benefits from products or services and competition with other participants.

According to Prahalad and Ramaswamy (2004a), the four building blocks for co-creation are access, dialogue, transparency and risk assessment. Customers want the freedom of choice to interact with the firm, through a range of gateways based on choices that reflect their view of value. They want quick, easy, convenient and safe access to experiences. Customers want to associate their choice of products/services with the experience they are willing to pay for (Prahalad and Ramaswamy 2004b). New advanced technological platforms, where ideas among people and between firms and customers are easily and effectively shared, have made the dynamic

collaborative innovation and co-creation environment a reality (Lee and Lim 2018). Thus, firms strive to build platforms that will make the transformation from just-doing-transactions with customers to developing-meaningful-dialogues and co-creating value with them, and make this process transparent and accessible to all stakeholders (Ramaswamy and Gouillart 2010). Providing the right platforms where all stakeholders have the access to participation opportunities and knowledge about what motivates customers to actively participate in co-creation of value can provide a new frontier of possibilities for taping deeply into collective talents, passion and commitment among all the stakeholders, including the firm, customers and society at large (Lee 2015). Co-creation has become imperative for firms to successfully compete in today's dynamic global marketplace.

3 Research methods

To identify the factors that motivate customers to participate in value co-creation, this study used two research phases: (1) qualitative phase—use of grounded theory to derive the preliminary research framework of motivators; (2) quantitative phase—a follow-up study to empirically test and refine motivational factors derived from the theoretical model built in the qualitative phase. We refined the motivation factors by using exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural equation modelling (SEM) to explore and test the relationships among the research model variables (Fig. 1).

3.1 Phase I: qualitative design

To build the research framework through grounded theory (Fig. 1), we carefully reviewed previous studies on customer participation in co-creation. We also examined data collected from a variety of other sources, such as newspaper articles, blogs, websites, magazines, books, audio clips, journals, conferences, case studies and one-on-one interviews. The procedure used to develop the framework was as

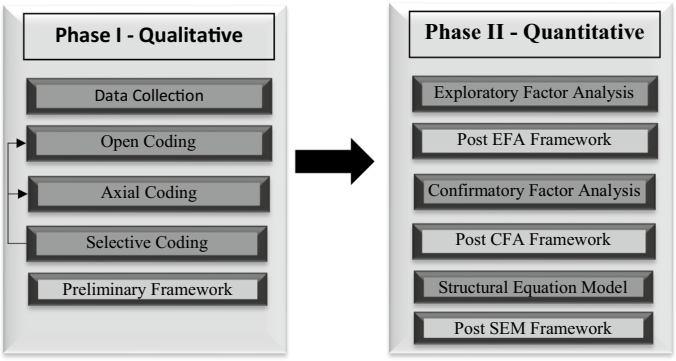

Fig. 1 Research design and phase

follows: (1) develop categories—the first level of coding (open coding) was conducted using narratives from the sources; (2) derive sub-categories—a second level of coding (axial coding) was carried out from the narratives and (3) build the final preliminary research framework by conducting a follow-up selective coding.

3.1.1 Categories: open coding

At the first level of grounded theory, we collected data from newspaper articles, magazines, online blogs, books, audio, video, one-on-one conversations, journals and conference papers and conducted an open coding, based on commonality to identify the motivators that stimulate customers to participate in co-creation of value. The sources were all focused around co-creation and motivators that stimulated customer to participate in co-creation of value. Primary online sources used were Harvard Business Review, Sense World Wide, The co-creators, journals, books and online articles from varied sources such as American Psychologist Association. We were very careful to note all the incidents and events that could be potential indicators of the critical success factors or motivators for co-creation. As the number of sources increased, so did the number of concepts and narratives. NVivo (Version 10 Student) was useful in extracting narratives from numerous sources. Several narratives were related to several concepts, as well as due to the sentence length, one sentence could have been subdivided to create more than one concept. Each time a new concept was discovered, it was added as a node so that all the narratives for each concept were placed in one node and is ready for the next level of coding. Narratives and events that were found to be related to several concepts were subdivided to create additional concepts.

3.1.2 Sub-categories: axial coding

In axial coding (see Fig. 2), the conceptual labels obtained from open coding were reviewed by comparing and noting like-named phenomena and grouping them into sub-categories (Table 1). It should be pointed out that not all concepts became sub-categories, as categories are higher order and therefore more abstract than the concepts they represent (Corbin and Strauss 1990). Once the sub-categories were formed the same steps were repeated again to finalise categories, extrinsic and intrinsic and their sub-categories (Table 1).

3.1.3 Follow-up selective coding and preliminary framework

In the follow-up selective coding process, we did additional research on the categories and the sub-categories to further refine and finalise them to build the preliminary framework model (Leonard et al. 1999; Ryan and Deci 2000). One new motivator, Recognition (for the intrinsic), emerged from the literature and was added as a sub-category, as well as two new categories (intermediate), Inherent Satisfaction and Instrumental Value. Thus, the preliminary framework contains three groups of variables:

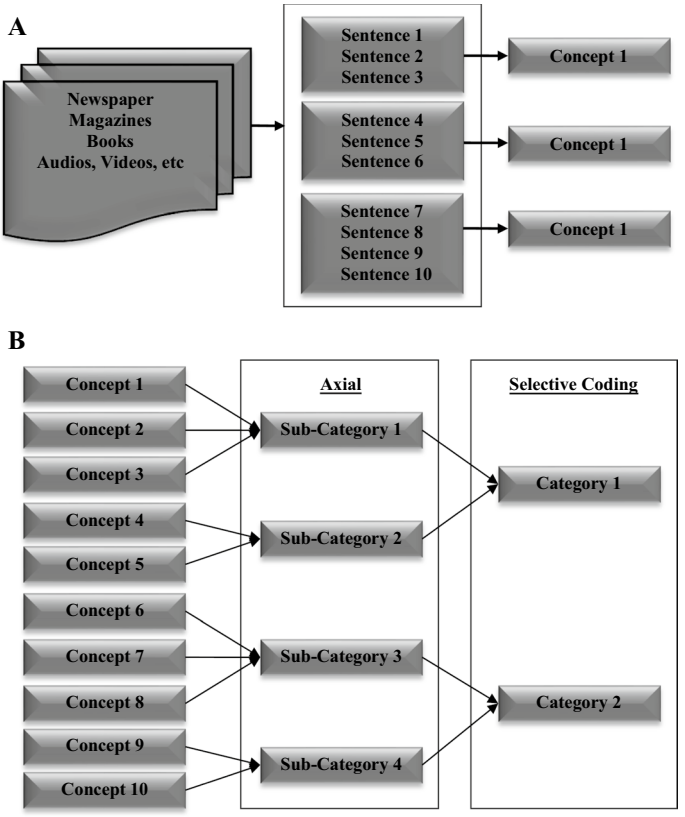

Fig. 2 **a** A grounded theory approach—open coding. **a** A grounded theory approach—axial and selective coding

Table 1 Consumer categories (axial coding)

Categories	Sub-categories
Extrinsic	Community
	Dissatisfaction
	Identification
	Reinvention
	Tangible reward
Intrinsic	Affiliation
	Empowerment
	Experience
	Expertise
	Expression

3.1.3.1 Independent variables These variables encompass the factors that motivate customers to participate in co-creation and are identified as belonging to either extrinsic or intrinsic motivational factors. Extrinsic motivation is behaviour driven by external rewards that are either tangible (e.g. money) or psychological (e.g. fame, praise) in nature (Brown 2007). Intrinsic motivation is behaviour driven by internal rewards and gratification, those for that one acts without expectation of any obvious external rewards. It happens when one simply enjoys an activity or sees it as an opportunity to explore, learn and actualise the potential (Coon and Mitterer 2010).

3.1.3.2 Intermediate variables Inherent Satisfaction indicates the internal happiness that an individual discovers after participating in an activity. When it comes to intrinsic motivation, the individual does something because it is inherently interesting or enjoyable. "Intrinsic motivation is defined as the doing of an activity for its inherent satisfactions rather than for some separable consequence (Deci and Ryan 2000). Thus, Inherent Satisfaction can directly and indirectly increase the level of participation in the co-creation process, thus was added as an intermediary variable. Instrumental Value represents behaviour that is performed to satisfy an external demand or reward contingency (Deci and Ryan 2000). The behaviour either leads to a separable outcome or is done to comply with external control. Thus, Instrumental Value is a tangible outcome or benefit, and can be a reward contingency that motivates the customer to participate in co-creation, thus it is an intermediary variable.

3.1.3.3 Dependent variable "Participation in co-creation of Value" constitutes customers supporting the firm in developing new products/services; helping with favourable word-of-mouth about the firm and/or providing creative ideas to improve the firm's value chain operation. Participation comes from and leads to customer retention, loyalty and satisfaction, which we used as a measurable outcome of customer co-creation. Retention has to do with the firm maintaining its customers; Loyalty is about customers using and continuously repurchasing company's products/services and Satisfaction reveals the customers' overall satisfaction with the firm.

3.2 Phase II: quantitative research

In this phase of the study, we conducted a quantitative analysis of data collected through a survey. The purpose of this phase was to empirically examine the theoretical research framework developed in the first phase and identify the motivation factors for customer participation in co-creation.

3.2.1 Instrumentation

Using a survey instrument, hosted by Qualtrics, we collected data online from participants (customers and other interested parties) that were identified to be involved in co-creation activities. To facilitate comparison, replication, generalisation and validation, the questionnaire items were based on well-established instruments of

previous studies (Costa and McCrae 1992; Deci and Ryan 2014; Leonard et al. 1999). A five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) was used for the items. The instrument was also validated, using procedures recommended by Garrity and Sanders (1998) and Smith and Albaum (2012).

3.2.2 Survey procedures

First, to ensure that the survey instrument items measured what they were intended to measure, we did a pre-test by giving the survey questionnaire to ten researchers of co-creation for their comments and suggestions. As a result, the questionnaire was refined by making some questions simpler and clearer. Subsequently, we conducted a pilot test with the revised questionnaire through Qualtrics collecting data from randomly selected 50 customers who were interested in co-creation. Based on the pilot study outcome, we modified the survey instrument further by tweaking few phrases and wordings in the questionnaire (the survey questionnaire used in the study is available upon request from the first author). Finally, we conducted the research survey, by selecting all participants who have been involved in co-creation through Qualtrics.

3.2.3 Participants

The participants of this study were co-creators: customers and other interested parties knowledgeable about and experienced in co-creation activities with companies. A total of 245 persons volunteered and started the survey. Seventy-three (73) respondents either did not complete the survey or had not actually participated in co-creation activities in the past. Thus, the study sample size was 172, a response rate of 70%. In the sample, 53% of participants were male and 47% were female. The respondents' age ranged as follows: less than 21 (1.2%), 21–30 (23.3%), 31–40 (36.6%), 41–50 (18.6%), 51–60 (18.0%) and over 60 (2.3%).

4 Data analysis results

Upon deriving the preliminary research framework, a quantitative study was conducted to develop the final research model. Exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and construct validity and reliability test were performed in the process of model development. Exploratory factor analysis was performed (using SPSS) to detect if variable items are related to a specific factor being measured and not to the other motivational factors within the theoretical model. After completing EFA, a revised research model was derived based on the data pattern. Next, CFA was conducted to determine how well the theoretical specification of the factors matches our actual data set (model fit). Finally, we performed construct validity and reliability (using AMOS and Stat tool) for variables and their relationships to test the co-creation model.

4.1 Exploratory factor analysis

To extract the main factors or variables, first we conducted EFA for the collected data (Thompson 2004). Prior to EFA, we conducted the Kaiser–Meyer–Olkin (KMO) test to assess the sample's adequacy (Kaiser 1970). This provides an indication of the variation of the motivating factors identified, and if they share a common factor. Should the variables share common factors, then partial correlations will be small and the KMO should be close to 1.0. The KMO index ranges from 0 to 1, where 0.50 and greater is considered as a suitable value for factor analysis. Our sample data showed KMO of 0.919 for independent variables, and 0.888 for both the intermediate and dependent variables. Second, we performed the Bartlett's test of sphericity to assess the suitability of the respondents' data for factor analysis (Bartlett 1950). Bartlett's test of sphericity is valid and considered suitable for factor analysis when the significance is less than 0.05. For our sample data, Bartlett's test of sphericity was 0.000. Thus, test results indicated that our data were suitable for factor analysis.

EFA was conducted by using the principal components analysis (PCA) extraction method with varimax rotation. The three criteria used for factor extraction were the screen test, cumulative percentage of variance and Kaiser's criterion (an Eigen value greater than 1). For the *independent* variables, for example, the cumulative percentage of variance was 54.269 and eight of the components (factors) had Eigen values greater than 1. After the factor analysis was executed for all variables, the results were examined: items that had factor loadings of less than 0.50 were discarded; items that either loaded on several factors, did not load on any factor, or did not conceptually fit any logical factor structure were also discarded. The variables then were assessed for the final verification of the variables that were attributable to a factor and to provide a common theme for each factor. Final factor loadings are shown in Table 2 for independent variables and Table 3 for intermediate and dependent variables. These variables (8 independent variables, 2 intermediate variables and one dependent variable) resulted in the post EFA research model shown in Fig. 3.

4.2 Confirmatory factor analysis

Upon completing EFA, we tested the proposed/post EFA model (Fig. 3) by conducting a model fit analysis. CFA was used to check how well our post EFA model matches the data. The a priori model diagram, which included Kline's (Kline 2010) symbols, was used to create a model with an acceptable level of the goodness of fit. As per Kline's (2010) recommendations, we measured four fit indices: Chi-square; root mean square error of approximation (RMSEA); comparative fit index (CFI) and the standardised root mean square residual (SRMR) or root mean square residual (RMR). To obtain the best model fit, we reviewed the modification indices and removed those that were found to be extremely high (indices of approximately 4.0 or greater) (Hair et al. 2010). Using Hair et al.'s (2010) acceptable thresholds for goodness of fit, our final results showed that all but one recommended fit indices passed

Table 2 Factor loading for independent variables

	Component[a]							
	1	2	3	4	5	6	7	8
Cronbach alpha	0.944	0.933	0.941	0.919	0.910	0.886	0.875	0.886
Experience 5	0.727							
Experience 4	0.702							
Expression 4	0.686							
Expression 6 (EMP 5)	0.658							
Expression 2	0.620							
Experience 1	0.596							
Experience 3	0.578							
Expression 5	0.570							
Expression 1	0.500							
Expertise 6 (R3)		0.708						
Expertise 2		0.685						
Expertise 3		0.680						
Expertise 7 (C8)		0.647						
Expertise 8 (R2)		0.608						
Expertise 9 (R4)		0.558						
Expertise 1		0.508						
Dissatisfaction 5			0.865					
Dissatisfaction 4			0.856					
Dissatisfaction 2			0.850					
Dissatisfaction 3			0.836					
Dissatisfaction 1			0.809					
Affiliation 4				0.707				
Affiliation 5				0.705				
Affiliation 6 (C5)				0.570				
Affiliation 7 (C7)				0.570				
Affiliation 3				0.563				
Community 3					0.687			
Community 4					0.685			
Community 1					0.629			
Community 2					0.623			
Identification 6 (R4)						0.655		
Identification 2						0.639		
Identification 7 (R5)						0.575		
Identification 3						0.509		
Tangible reward 1							0.808	
Tangible reward 2							0.768	
Tangible reward 5							0.584	
Recognition 2								0.616
Recognition 1								0.585
Recognition 3								0.502

[a]1 = Experience and expression, 2 = expertise, 3 = dissatisfaction, 4 = affiliation, 5 = community, 6 = identification, 7 = tangible reward, 8 = recognition

Table 3 Factor loading for intermediate and dependent variables

	Component		
	Inherent satisfaction	Dependent variable	Instrumental value
Cronbach alpha	0.944	0.933	0.941
Inherent satisfaction 2	0.854		
Inherent satisfaction 6 (CS1)	0.826		
Inherent satisfaction 1	0.812		
Inherent satisfaction 3	0.769		
Inherent satisfaction 4	0.649		
Inherent satisfaction 5	0.633		
Dependent variable 5		0.831	
Dependent variable 6 (CS5)		0.769	
Dependent variable 3		0.687	
Dependent variable 4		0.648	
Dependent variable 6		0.606	
Instrumental value 3			0.896
Instrumental value 4			0.837
Instrumental value 1			0.829
Instrumental value 2			0.752

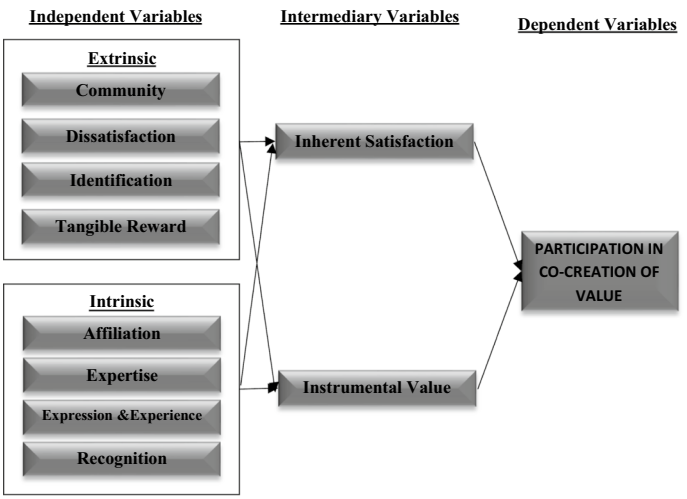

Fig. 3 Research framework post EFA (exploratory factor analysis—phase II)

the test (Table 4). The results obtained indicated that the revised post EFA model (Fig. 4) provided a reasonably good fit (all four measurements met the thresholds), and therefore the model was deemed suitable for our data.

Table 4 Model fit summary from AMOS—revised model

Model	NPAR	CMIN	DF	*p*	CMIN/DF
CMIN					
Default model	105	800.942	360	0.000	2.225
Saturated model	465	0.000	0		
Independence model	30	4909.045	435	0.000	11.285

Model	RMR	GFI	AGFI	PGFI
RMR, GFI				
Default model	0.039	0.789	0.728	0.611
Saturated model	0.000	1.000		
Independence model	0.436	0.114	0.053	0.107

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Baseline comparisons					
Default model	0.837	0.803	0.903	0.881	0.901
Saturated model	1.000		1.000		1.000
Independence model	0.000	0.000	0.000	0.000	0.000

Model	PRATIO	PNFI	PCFI
Parsimony-adjusted measures			
Default model	0.828	0.693	0.746
Saturated model	0.000	0.000	0.000
Independence model	1.000	0.000	0.000

Model	NCP	LO 90	HI 90
NCP			
Default model	440.942	362.795	526.813
Saturated model	0.000	0.000	0.000
Independence model	4474.045	4252.273	4703.105

Model	FMIN	F0	LO 90	HI 90
FMIN				
Default model	4.684	2.579	2.122	3.081
Saturated model	0.000	0.000	0.000	0.000
Independence model	28.708	26.164	24.867	27.504

Model	RMSEA	LO 90	HI 90	PCLOSE
RMSEA				
Default model	0.085	0.077	0.093	0.000
Independence model	0.245	0.239	0.251	0.000

Model	AIC	BCC	BIC	CAIC
AIC				
Default model	1010.942	1057.442	1341.429	1446.429
Saturated model	930.000	1135.929	2393.585	2858.585

Table 4 (continued)

Model	AIC	BCC	BIC	CAIC
Independence model	4969.045	4982.331	5063.470	5093.470
Model	ECVI	LO 90	HI 90	MECVI
ECVI				
Default model	5.912	5.455	6.414	6.184
Saturated model	5.439	5.439	5.439	6.643
Independence model	29.059	27.762	30.398	29.136
Model		HOELTER 0.05		HOELTER 0.01
HOELTER				
Default model		87		91
Independence model		17		18

4.3 Construct validity and reliability tests

We used Excel stat tools from Gaskin (2013) to test for construct reliability and validity of the post CFA research model (Fig. 5). Hair et al.'s (2010) measurements and thresholds for construct validity (convergent and discriminant validity) and reliability were used and the test results showed that our model has strong construct validity and reliability (Table 5).

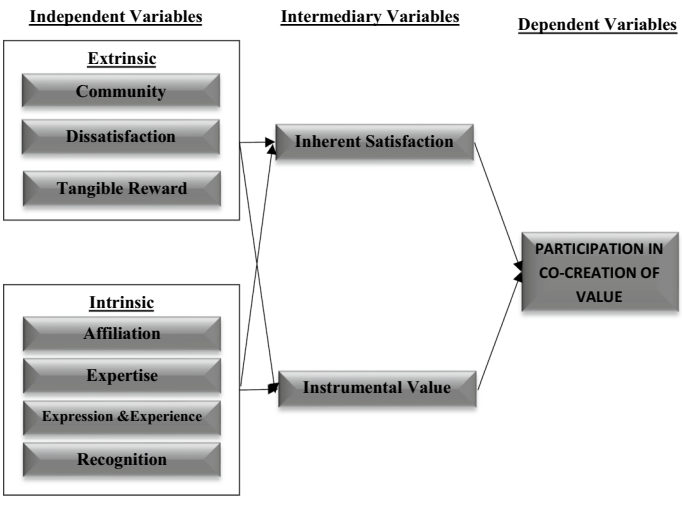

Fig. 4 Research framework post model fit (phase II)

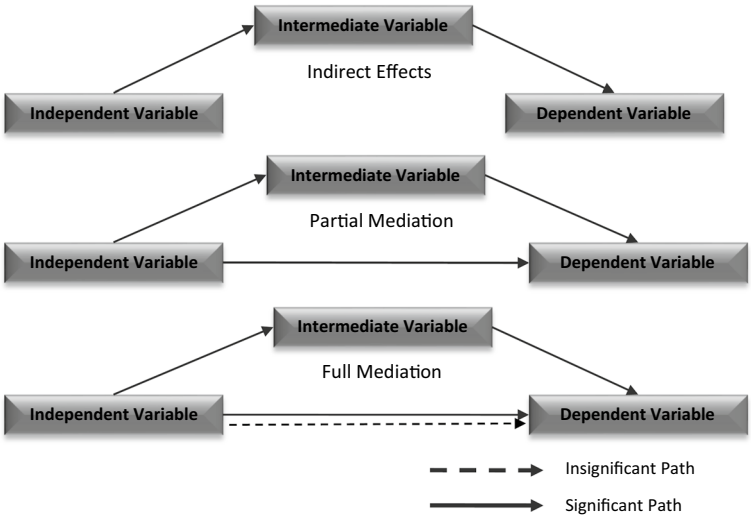

Fig. 5 Types of mediation

Table 5 Construct validity and reliability results

Measure	Threshold	Research model	
Reliability	CR > 0.7	10/10 √	
Convergent validity	CR > (AVE)	10/10 √	
	AVE > 0.5	10/10 √	
Discriminant validity	MSV < AVE	7/10 √	3/10 ×
	AS < AVE	10/10 √	

4.4 Variable relationships in the research model

To test the relationships between variables, we developed a structural equation model (SEM) and used two methods: (1) direct method or the Baron and Kenny method (Baron and Kenny 1986), which measures the direct relationship between independent variables and dependent variable, using standardised regression weights and *p* values; and (2) the indirect relationship method, which uses two-tail significance and measures the relationship between independent variables and dependent variable through intermediate variables, in either partial way (independent variable is related to the dependent variable both directly and indirectly through an intermediate variable) or only fully through it (Fig. 5).

The complete summary of the relationships: without mediation (direct), with mediation, partially and completely indirect, is shown in Table 6. The results are summarised based on the following significance thresholds: (1) 'No mediation' (NM) when "indirect relationship" was greater than 0.05; (2) 'Full mediation' (FM) when "direct relationship" was greater than 0.05 prior to adding the mediator; where

Table 6 Mediation results

Relationship	Direct without mediation	Direct with mediation	Indirect[a]
Affiliation ↔ inherent satisfaction ↔ dependent variable	0.573 (Sig)	0.499 (Sig)	Sig(PM)
Experience and expression ↔ inherent satisfaction ↔ dependent variable	0.369 (Sig)	0.408 (Sig)	Sig (PM)
Expertise ↔ inherent satisfaction ↔ dependent variable	0.087 (NS)	0.257 (Sig)	Sig (FM)
Recognition ↔ inherent satisfaction ↔ dependent variable	− 0.151 (Sig)	0.312 (Sig)	Sig (indirect)
Community ↔ inherent satisfaction ↔ dependent variable	0.114 (NS)	0.264 (Sig)	Sig (FM)
Expertise ↔ instrumental Value ↔ dependent variable	0.087 (NS)	− 0.013(NS)	NS(NM)
Recognition ↔ instrumental Value ↔ dependent variable	− 0.151 (NS)	0.280 (Sig)	Sig (FM)
Community ↔ instrumental value ↔ dependent variable	0.114 (NS)	0.400 (Sig)	Sig (FM)
Dissatisfaction ↔ instrumental value ↔ dependent variable	0.317(Sig)	0.268 (NS)	Sig (NM)
Tangible reward ↔ instrumental value ↔ dependent variable	− 0.126 (NS)	0.681(Sig)	Sig (indirect)
Inherent satisfaction ↔ dependent variable	0.602 (Sig)		Sig (indirect)
Instrumental value ↔ dependent variable	0.270 (sig)		Sig (indirect)

[a]*Sig* significant, *NS* not significant, *NM* no mediation, *PM*, partial mediation, *FM* full mediation

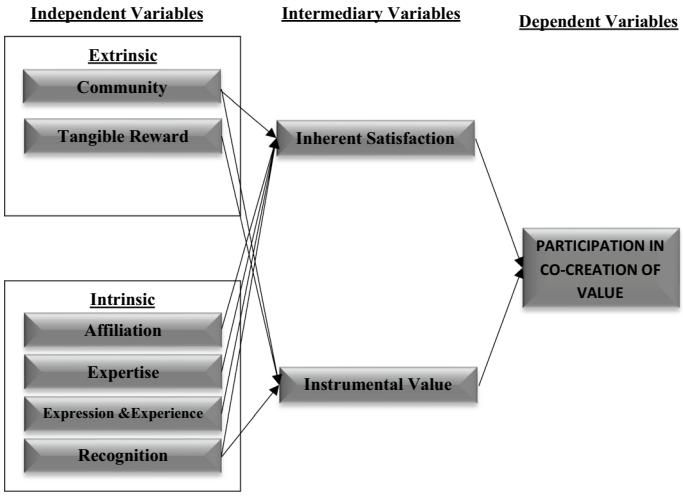

Fig. 6 Final research framework with tested positive relationships—mediation (phase II)

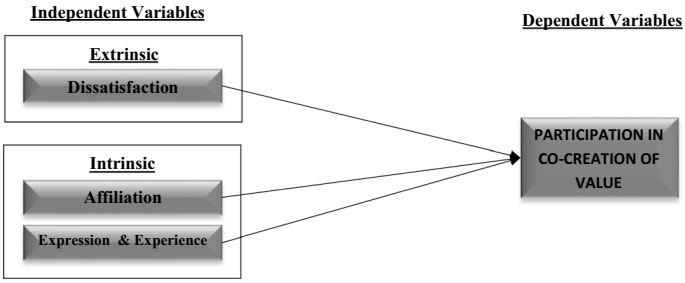

Fig. 7 Final research framework with tested positive relationships—without mediation (phase II)

the focus was on indirect being less than 0.05 and direct greater than 0.05; (3) 'Partial mediation' (PM) when both "direct" and "indirect" were less than 0.05; if their total is less than 0.05, then 'partial mediation' is considered significant (Baron and Kenny 1986; Goodman 1960; Hair et al. 2010; MacKinnon et al. 1995; Sobel 1982). These final tested relationships are shown in Figs. 6 and 7.

5 Results and discussion

After an extensive review of literature, qualitative research through grounded theory, data collection and quantitative analysis, we identified six (two extrinsic and four intrinsic) factors that positively motivate customers to participate in co-creation of value with organisations. The identified factors are discusses in detail below.

5.1 Extrinsic

5.1.1 Community

Community is a group of people, who share similar interest and values, coming together to work with each other for the betterment of their communities and organisations. Community members solve problems by collaborating with each other and they are passionate about their common goals and have varied skills in problem solving. This is the true essence of co-creation, a group of individuals coming together to solve problems that exist within their communities and organisations, through open collaboration. The co-creation community brings together all the right persons who have the expertise, knowledge, passion, concerns and experience in solving shared problems. Customers have the desire to contribute to finding creative solutions to common problems with the firm. The community of customers can provide innovative ideas and solutions for the existing or future products and services. Firms should provide incentives for community-motivated customers that are mostly intangibles for community enhancement, such as making it a better place to work, co-discovering the purpose and meaning and developing shared vision and goals (Lee and Trimi 2017). The community platforms should not only be easy to access and use, but it could also encourage members of the community to join, dialogue and share ideas with other community members.

5.1.2 Tangible reward

Tangible rewards are material or monetary incentives used to help motivate customers to participate in co-creation activities. The typical tangible incentives are financial rewards, proprietary rights, certificates, trips, material goods, employment and the like. Tangible rewards, when used appropriately, can have an enormous effect on task interest. For example, they can be used for high creativity performance, as increased creativity in one task enhances subsequent creativity in the entire task chain. Also, a tangible reward that one perceives as being deserved for successful performance of an activity can maintain or enhance the perception of self-competence. Furthermore, when a previously unavailable reward on performance is made contingent, the reward may be perceived as providing increased freedom of choice (Bandura 1989).

Customers who are motivated by tangible rewards would participate in co-creation activities solely for material gains. These co-creators do not require full autonomy, because they primarily seek to obtain an externally imposed reward contingency (Deci and Ryan 2000). However, even though tangible-reward-seeking co-creators look for financial gains rather than for internal drive fulfilment, in most cases, tangible rewards are supplements to intangible rewards.

5.2 Intrinsic

5.2.1 Affiliation

Affiliation is the need to belong or to be affiliated with others and be socially acceptable (Cherry 2014). Affiliation is a motivator to establish, preserve and restore positive emotional relationships (Atkinson and Walker 1956). Customers who feel affiliated have the desire to belong and be accepted by others; the need to belong is what drives them to seek out stable, long-lasting relationships with others and motivates them to participate in social activities with groups, communities and organisations. Maintaining loyalty to a particular brand becomes important to them as it makes them part of the affiliated group. They not only are loyal to the products and brand, but they would also like to expand their group by recommending the brand to others, such as close relatives and friends through SNS or word-of-mouth, which helps increase market acceptance within the community and eventually the global marketplace.

Firms can encourage participation in co-creation by offering a standard tangible reward to affiliates. Co-creators who are motivated by the Affiliation factor have a strong desire to be liked and will often follow along with the group, because they are seeking to create a sense of belongingness within the organisation and community. Thus, at times a complement can serve as an incentive or social recognition for affiliates. They will participate in co-creation activities with the organisation because many are excited about participation and its experience. They participate not to compete but to collaborate with other community members. They are seeking for personal feedback and a validation of their contribution to the firm. Transparency and honesty of the firm can be used as an incentive to affiliates as they help establish trust.

To encourage and enable co-creation participation of customers who are affiliated, it is important for firms to offer a platform with needed tools and effective incentives, both tangible and intangible. Customers who are satisfied with affiliation and are loyal to a brand expect and demand transparency and integrity, and fast response from the firm. Thus, organisations need to provide a platform that will enable such transparency and help develop capabilities for speedy responses and accountability.

5.2.2 Expertise

In today's dynamic environment, keeping up with competitors, new ventures and demand for innovative products/services has become difficult for all firms, large or small, new or well established. Not to innovate is the single major reason for failure (Drucker 2001). Thus, finding the human resource with right skills and expertise has become one of the most critical management tasks today. One of the largest sources of such talent, that is inexpensive, abundant and skilful, is the creative customer. The desire to learn is an intrinsic motivator as it is done for its inherent satisfaction. Humans by nature are active, inquisitive and curious, and have a ubiquitous

readiness to learn and explore. It is through acting on an inherent interest that one grows in knowledge and skills (Deci and Ryan 2000). Creative customers, seeking for new thrills and experiences, and sometimes fame and money, are interested in value co-creation with the organisation and collaboration with others. They are motivated to participate in co-creation if their ideas and expertise are appreciated and requested by the firm. Firms must offer the right incentives and platforms to engender the co-creation process. Incentives can be financial (tangible longer-term rewards, proprietary shares or ownership) and/or intangible: being able to apply one's skills for self-mastery, the urge to contribute to something that matters to the society, autonomy, to direct own career path and reputation (Pink 2011).

5.2.3 Expression and experience

Expression is defined as ability to be imaginative and creative. It is directly correlated to self-expression and new experience. New experience indicates that the Customer wishes to be a part of something great or simply seeking to try something new to add to his/her life lessons. Expression combined with experience provides an individual with the freedom to fully explore something new and go beyond what is expected or probable. Creative individuals seeking new experiences are able to connect the dots which are what co-creation embodies. With every new form of expression comes a new experience for co-creators. People with a high level of personal mastery approach life like an artist would for a work of art; they become committed to their own life (Pink 2011). Every individual has a gift; however, creative individuals seeking experiences provide more innovative ideas in unchartered territories, thus take more risks. Creative customers seeking experiences tend to be intrinsically motivated, meaning that they are motivated to act for some internal desire rather than for external reward or recognition. For creative customers, enjoyment-based intrinsic motivation while working on a project is the strongest and most pervasive driver (Lakhani and Wolf 2005), which consistently enable them to achieve the results that matter most to them and the organisation. Providing these co-creators a purpose, full autonomy (allowing them to have full control over the task at hand), intangible incentives (such as creative rights, self-mastery) and tangible rewards are all important for their participation in co-creation activities. Providing an ideal platform, conducive for collaboration with others, that helps individuals express themselves more easily and be autonomous, is a vital element to make them happy to participate in co-creation.

5.2.4 Recognition

Recognition is the public acknowledgement of a person's status and/or achievements. The need for recognition drives much of human behaviour as it is a key that pushes people for personal development. Recognition is intrinsic motivation because being recognised by others increases a person's internal satisfaction (Herzberg et al. 1959). To encourage customers who are motivated by recognition to participate in co-creation, firms must offer the right incentives, such as acknowledgement and increased reputation within their communities or place of employment, profit

sharing. To enable the process, the organisation needs to provide an effective platform with the right tools for co-creation and recognition.

6 Conclusion

Today, customers play an active role in the value co-creation process to fulfil their needs and, in the process, they are changing the dynamics of the global market. Thus, co-creating value with customers has become an imperative for organisational survival and success (Lee 2015). Motivating customers to participate in the co-creation process, however, remains a challenging task for firms. Motivation represents the desire to resolve unsatisfied needs. As needs are satisfied, new needs will arise, and the process continues. An individual's motivation is based on unique needs of the person, at a particular time of life. Thus, finding what motivates individuals and involving them in the value co-creation process with the firm are important for organisational sustainability and competitiveness. In this study, we identified and confirmed six motivators that trigger customers' participation in co-creation of value: affiliation, expertise, expression and experience, recognition, community and tangible reward.

The main contribution of this study to the literature of co-creation is not simply for identifying motivators for customer participation in the co-creation activity, but also for developing the process of deriving the model of co-creation motivators. Thus, first, to delineate the motivators, this study undertook a qualitative study by using grounded theory. Once the motivating factors were identified, their significance was tested by using a quantitative method based on a survey data. As the consequence of the dual-research process, six significant factors were empirically identified that motivate customers to participate in co-creation of value with the firm.

The study findings also provide practical implications as the identified motivators of co-creation allow business organisations to focus on these factors to engage customers in innovation efforts of the firm. Through co-creation, organisations can not only enhance their competitiveness but also lower their marketing expenditures by invoking customer loyalty which promotes firms' products/services via social media and word-of-mouth. An increase in customer participation in value co-creation can also expand the knowledge base to support the firm's innovativeness and competitiveness in the long run.

There are few limitations of this study. First, the study dealt with general, not a specific group of co-creators in a given industry. Differences in the type of co-creators can have an effect on the factors that motivate them for active participation in the co-creation process. In addition, the sample size was relatively small considering the expanse of the co-creation paradigm. However, being only the first explorative study in identifying co-creation motivators, its limitations can provide a good starting point for future research. To examine what motivates different groups of co-creators, a future study can focus on specific groups, such as customers who participate in sites that use a business model based on their creativity (e.g. Threadless and Design by Humans), or engineers. Future studies can collect big longitudinal data, from the various segments of the global market, industry type or different size

of firms, to perform analytics and develop a comprehensive knowledge base on customer value co-creation.

Acknowledgements This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2015S1A3A2046781).

References

Atkinson JW, Walker EL (1956) The affiliation motive and perceptual sensitivity to faces. J Abnorm Soc Psychol 53(1):38–41
Bandura A (1989) Human agency in social cognitive theory. Am Psychol 44(9):1175–1184
Barczak G (2012) The future of NPD/innovation research. J Prod Innov Manag 29(3):355–357
Baron RM, Kenny DA (1986) The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. J Pers Soc Psychol 51(6):1173–1182
Bartlett MS (1950) Tests of significance in factor analysis. Br J Stat Psychol 3(2):77–85
Brown LV (2007) Psychology of motivation. Nova Publishers, New York
Chafkin M (2008) The customer is the company. http://www.inc.com/magazine/20080601/the-customer-is-the-company.html (accessed 13 November 2017)
Cherry K (2014) What is intrinsic motivation? http://psychology.about.com/od/nindex/g/needtobelong.htm (accessed 27 January 2017)
Chesbrough HW (2003) Open innovation: the new imperative for creating and profiting from technology. Harvard Business Review, Boston
Claycomb C, Lengnick-Hall CA, Inks LW (2001) The customer as a productive resource: a pilot study and strategic implications. J Bus Strateg 18(1):47–69
Coon D, Mitterer JO (2010) Psychology: a Journey. Cengage Learning, Boston
Corbin J, Strauss A (1990) Grounded theory research: procedures, canons and evaluative criteria. Qual Sociol 13:3–21
Costa PT and McCrae RR (1992) Revised NEO personality inventory (NEO-PI-R) and NEO five-factor inventory (NEO-FFI) manual. Psychological Assessment Resources
Deci EL (1972) The effects of contingent and non contingent rewards and controls on intrinsic motivation. Organ Behav Human Perform 8(1):217–229
Deci E, Ryan R (2000) Intrinsic and extrinsic motivations: classic definitions and new directions. Contemp Educ Psychol 25(1):54–67
Deci E, Ryan R (2014) Self determination theory: an approach to human motivation and personality. http://www.selfdeterminationtheory.org/ (accessed 15 March 2017)
Drucker PF (2001) The essential drucker. HarperCollins Publisher Inc, New York
Eccles JS, Wigfield A (2002) Motivational beliefs, values and goals. Annu Rev Psychol 53(1):109–132
Engelman RM, Fracasso EM, Schmidt S (2017) Intellectual capital, absorptive capacity and product innovation. Manag Decis 55(3):474–490
Etgar M (2008) A descriptive model of the consumer co-production process. J Acad Mark Sci 36(1):97–108
Fang E, Palmatier RW, Evans KR (2008) Influence of customer participation on creating and sharing of new product value. J Acad Mark Sci 36(1):322–336
Friedman TL (2005) The world is flat. Farrar, Straus and Giroux, New York
Garrity EJ, Sanders GL (1998) Information systems success measurement. Idea Group Publishing, London
Gaskin J (2013) Confirmatory factor analysis. http://statwiki.kolobkreations.com/wiki/Confirmatory_Factor_Analysis#Validity_and_Reliability (accessed 2 November 2016)
Goodman LA (1960) On the exact variance of products. J Am Stat Assoc 55(292):708–713
Gronroos C (2008) Service logic revisited: who creates value? And who co-creates? Eur Bus Rev 20(4):298–314
Hair JF, Black WC, Babin BJ (2010) Multivariate data analysis. Prentice Hall, New Jersey

Hau LN, Thuy PN (2015) Customer participation to co-create value in human transformative services: a study of higher education and health care services. Serv Bus 10(3):603–628
Hau LN, Anh PNT, Thuy PN (2017) The effects of interaction behaviors of service frontliners on customer participation in the value co-creation: a study of health care service. Serv Bus 11:253–277
Herzberg F, Mauser B, Snyderman B (1959) The motivation to work. Wiley, New York
Howe J (2008) Crowdsourcing: why the power of the crowd is driving the future of business. Crown Publishing Group, New York
Kaiser H (1970) A second-generation little jiffy. Psychometrika 35(4):401–415
Kaufman-Scarborough C (2013) Consumer behavior motivation. http://crab.rutgers.edu/~ckaufman/ConsumerbehaviorMotivationnotes.html (accessed 30 November 2016)
Kline RB (2010) Principles and practice of structural equation modeling. Guilford Press, New York
Lai ER (2011) Motivation: a literature review. Pearson, New York
Lakhani KR, Wolf RG (2005) Why hackers do what they do: understanding motivation and effort in free/open source software projects. MIT Press, Cambridge
Lee SM (2015) The age of quality innovation. Int J Qual Innov 1(1):3–6
Lee Y, Kim I (2018) A value co-creation model in brand tribes: the effect of luxury cruise consumers' power perception. Serv Bus 4:5. https://doi.org/10.1007/s11628-018-0373-x
Lee S, Lim S (2018) Living Innovation: from value creation to the greater good. Emerald, Bingley
Lee SM, Trimi S (2017) Innovation for creating a smart future. J Innov Knowl. https://doi.org/10.1016/jik.2016.11.001
Lee SM, Olson DL, Trimi S (2010) Strategic innovation in the convergence era. Int J Manag Enterpr Dev 9(1):1–12
Lee SM, Hwang T, Choi D (2012) Open innovation in the public sector of leading countries. Manag Decis 50(1):147–162
Leonard NH, Beauvais LL, Scholl RW (1999) Work motivation: the incorporation of self based processes. Hum Relat 52(8):969–998
Mackinnon DP, Warsi G, Dwyer JH (1995) A simulation study of mediated effect measures. Multivar Behav Res 30:41–62
O'cass A, Ngo LV (2011) Achieving customer satisfaction in services firms via branding capability and customer empowerment. J Serv Mark 25(7):489–496
Payne AF, Storbacka K, Frow P (2007) Managing the co-creation of value. J Acad Mark Sci 36(1):83–96
Perks H, Gruber T, Edvardsson B (2012) Co-creation in radical service innovation: a systematic analysis of microlevel processes. J Prod Innov Manag 29(6):935–951
Pink DH (2011) Drive: the surprising truth about what motivates us. Riverhead Books, New York
Prahalad CK, Ramaswamy V (2000) Co-opting customer competence. Harv Bus Rev 78(1):79
Prahalad CK, Ramaswamy V (2004a) Co-creation experiences: the next practice in value creation. J Interact Mark 18(3):5–14
Prahalad CK, Ramaswamy V (2004b) The future of competition. Harvard Business School Publishing, Cambridge
Ramaswamy V, Gouillart F (2010) Building the co-creative enterprise. Harv Bus Rev 88(1):100–109
Ramaswamy V, Ozcan K (2014) The co-creation paradigm. Stanford University Press, Palo Alto
Ryan RM, Deci EL (2000) Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. Am Psychol 55:68–78
Schiffman L, Kanuk L (2007) Consumer behavior. Prentice Hall, Upper Saddle River
Sheth JN, Sisodia RS, Sharma A (2000) The antecedents and consequences of customer-centric marketing. J Acad Mark Sci 28(1):55–66
Smith SM, Albaum GS (2012) Basic marketing research: handbook for research professionals. Qualtrics Labs Inc, Provo
Sobel ME (1982) Asymptotic intervals for indirect effects in structural equations models. Sociol Methodol 13:290–312
Stern S (2017) A co-creation primer. https://hbr.org/2011/02/co-creation (accessed 13 November 2017)
Stiphout VS (2010) Understanding the impediments of adopting co-creation within medium and large enterprises. Master of Science, Eindhoven University of Technology, Eindhoven
Tapscott D, Williams AD (2010) Macro wikinomics: rebooting business and the world. Penguin Group, New York
Teece DJ (2010) Business models, business strategy and innovation. Long Range Plan 43(2–3):172–194

Thompson B (2004) Exploratory and confirmatory factor analysis: understanding concepts and applications. American Psychological Association, Washington, DC
Vargo SL, Lusch RF (2004) Evolving to a new dominant logic for marketing. J Mark 68(1):1–17
Zwass V (2010) Co-creation: toward a taxonomy and an integrated research perspective. Int J Electron Commer 15(1):11–48