Value Co-creation for Innovation Process in Small Business Community

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Abstract

Purpose – This paper explores the interaction of multi-actors to co-create value and its influence toward innovation process in small business community. This study offers a research model that is derived from a fundamental premise of Service-Dominant Logic (SDL) concept and supported by Consumer Culture Theory (CCT).

Design/methodology/approach – Quantitative approach was applied through self-administered survey using purposive sampling method. The research model and hypothesis was analyzed by using Structural Equation Modeling.

Findings – Educating among members in the small business community shows significant influences to dynamic interaction and value co-creation. Enriching negatively influences value co-creation. Dynamic interaction did not influence value co-creation, but dynamic interaction and value co-creation drives innovation process significantly.

Practical implication – Small business should educate each other to develop positive connectivity with other members to exchange and integrate collective resources. This situation could be beneficial to build synergy that drives innovation process as a survival and development strategy in challenging business environment.

Originality/value – The previous study on value co-creation is dominantly performed in established companies using qualitative approach. This research offers a new perspective from small business community in emerging market by applying quantitative approach.

This article gives contribution to the collaboration of service-dominant logic and consumer culture theory. The research model will be beneficial to develop an alternative marketing and business model as well as to drive the growth and the contribution of micro, small, and medium enterprises on society, environment, and economy.

Keywords - Consumer Culture Theory, Service-Dominant Logic, value co-creation, small business community, innovation process.
Introduction

Indonesia is one of the Asian countries, together with China and India, predicted to be a strong economic potential. The World Bank's (2017) report projected Indonesia's real GDP to grow from 2016 to 2018 by 5.3%. The consumer confidence index also showed stability throughout 2016 following growing private and government consumption. Small to medium sized enterprises (SMEs) have been proven to be effective means of surviving economic crises (e.g. 1998 crisis) contributing to a country's emerging economic potential. Given the important role of SMEs in a country's economic development and sustainability, studies in this area are of value. The challenge for every SME is limited resources. This situation forces businesses to re-think their survival strategy. Collaboration among the SMEs could be an alternative strategy to leverage this capacity. The SME community provides many opportunities for its members to interact and co-create value (value co-creation). As a result, it is expected to stimulate the innovation process, which can lead to long-term sustainability. Value co-creation is in-line with the Indonesian traditional culture, *gotong royong*, which reflects mutual assistance and cohesiveness in communal living to achieve the goals of the community or society (Irawanto, 2015). The value is built through their spontaneous dynamic interaction. The value from within the culture seems to enhance the value-co-creation potential of the SME community in which actors can play multi-faceted roles. For instance, the owner of SME does not only act as producer, but also a consumer or a supplier for other entities. This research offers a model of value co-creation by combining the concepts of service-dominant logic (SDL) and consumer culture theory (CCT). SDL has continued its evolution with the introduction of the fifth axiom (eleventh fundamental premise) to expand the concept and practice of marketing. It adds the role of institutions and institutional arrangements generated by many actors to co-create value in society as broad markets. Knowledge, skill, and experience, as “service,” become the focus of SDL. This main element is the exchange among the actors to create a service ecosystem (Vargo & Lusch, 2016). The service system was also described by Maglio & Spohrer (2008) as basic theoretical construct of systematic service innovation: it orchestrates the interaction within an organization and allows the exchange of operant resources (service) to build competencies in the service system. CCT has made significant contributions to marketing and other fields, such as sociology, anthropology, and politics, through an eclectic approach. Its existence enriches the exploration of marketing because it can explain the interaction between the consumers with the market in the wider perspective. The elaboration has shifted from value-in-use to value-in-context and the exposition of value co-creation. This situation is an opportunity for researchers to make contributions to theory development through collaborative projects with many actors to accommodate the critique and perform reformatory action (Arnould & Thompson, 2015). The topic of collaborative alignment between SDL and CCT has been studied in some published articles. Arnould (2006) observed the same meaning and understanding between some terminologies used in both SDL and CCT. Shifting from value-in-use to value-in-context and the exposition of value co-creation, SDL explores the flow of resources from resource integration and service exchange (interdependent of rules, norms, meanings, symbols, and practices) that generate value co-creation (Vargo & Lusch, 2016). Nevertheless, it still overlooks the mechanism of interaction among the actors (Arnould, 2006). CCT, however, elaborates the interaction between consumer and the market at large, including multi-actors in society, to build consumption patterns and cultures (Arnould & Thompson, 2007). However, it has not
explicitly mentioned the operant resources as important elements that lead to value co-creation. Extensive studies on value co-creation have been performed by several researchers, such as the role of service systems in firms' adaptability and survivability (Vargo, Maglio & Akaka, 2008), the role of service innovation in accelerating value co-creation (Maglio & Spohrer, 2008), the evolution of value creation from collaborating to co-innovation (Lee, Olson & Trimi, 2012), advantage comparison between two different innovative companies (Ramasvamy, 2010), knowledge-based services as co-producers of innovation (Hertog, 2010), a framework of value co-creation and capture (Reypens, Lievens & Blazevic, 2016), and the role of collaborative consumers on service innovation performance (Sharma et al., 2016). However, these articles have not employed a combination of SDL and CCT as fundamental theories. The research has also been predominantly conducted in established companies rather than in SMEs. The combination of SDL and CCT will enrich the explanation of how value co-creation significantly impacts the innovation process.

The aims of this study are as follows:

1. Propose a research model combining SDL and CCT.
2. Determine the mechanism of value co-creation for the innovation process in the SME community.
3. Measure the effects of educating and enriching on multi-actor dynamic interaction and the influence of dynamic interaction in the community both on value co-creation and the innovation process.

Literature Review

Service dominant logic (SDL)

SDL has become a main stream of research in marketing through the evolution and redefinition of some of the fundamental premises (Vargo & Lusch, 2004, 2008, 2016). One of the latest fundamental premises regarding value co-creation states that “value co-creation is coordinated through actor-generated institutions and institutional arrangements” (Vargo & Lusch, 2016, p. 8). SDL’s view on value co-creation centers on the integration of many resources based on service exchange, from many actors that share norms, rules, beliefs, and meanings (institution) through the arrangement of process and role (institutional arrangement) to co-create value in the service ecosystem. In this context, institution does not represent organization, but the “rules of the game.” Institution directly relates to cognition, communication, and judgment as a result of interaction and inter-relation (Vargo & Lusch, 2016). Service in the SDL context represents knowledge, skill, and experience as the fundamental basis of exchange (Vargo & Lusch, 2008). SDL’s evolution has led to some fundamental premises: focusing on strategic benefit rather than competitive advantage; the value of actors in co-creating value rather than firms and consumers; the role of multi-actors participating to create and offer a value proposition; and beneficial relational orientation as the consequence of actor-to-actor dynamic networks. These concepts are an important link to the role of communities in forming the perception of customers through marketplace culture on market-mediated networks (Arnould & Thompson, 2007). This understanding reveals that communities can act as institutions rather than just organizations; therefore, communities can play a role as a platform for interaction to enable value co-creation. Institutions and institutional arrangements allow multi-actors to utilize limited sources to co-create value efficiently and effectively. Value is created after the experience of the consumers in the value-in-use context. It means that the value offered by the producers will become
the competitive advantage of the firm if their consumers have good experiences of the firm's offerings and confirm the value. Meanwhile, co-creation can happen if there is an interaction among consumers with other actors. To date, no study has explored the interaction that defines the role of service provider and other actors involved in this mechanism (Grönroos & Voima, 2013). Thus, the combination of SDL and CCT to interpret the effects of value co-creation on innovation will provide a robust and fluid means of modeling and reflecting the emerging innovation.

**Consumer culture theory (CCT)**

CCT explores the interaction between consumer micro-culture and market macro-culture in shaping consumption interpretation and patterns. It links four dimensions of theoretical structure: consumer identity; socio-cultural consumption patterns; marketplace cultures and mass-mediated marketplace ideologies; and consumers' interpretative strategies. These dimensions interact with one another through several processes: ideological shaping, structure-agency tension, globalization, and market-mediated networks (Arnould & Thompson, 2007). This research focuses on the market mediated network process. The interactions, relationships, and communication that happen in the marketplace produce the network among consumers and build the consumers' interpretation of the consumption. The process describes the movement or ideology transfer from the community, or consumer micro-culture, to the consumer as an individual. The two important arguments underlying this linkage are that culture is viewed from a dynamic network perspective and that the action is embedded in the institution's structure in the local context (Arnould & Thompson, 2007). Some articles have studied the important process of market-mediated networks exploring embedded consumption (Miller & Slater, 2000), the role of technological and market structure in the community (Muniz & Schau, 2005), the re-conceptualization of gift giving in the cyber era (Giesler, 2006), consumer adaptation to urban change and multicultural marketplaces (Broeckerhoff, Carrigan, Hardy & Kipnis, 2015), brand community in the car industry (Cova, Pace & Skålén, 2015), and factors influencing anti-brand communities (Dessart, Morgan-Thomas & Veloutsou, 2016).

Most CCT research has focused on the interaction of consumer power and various global or market cultures with the dyadic relationship. This paper explores the network relationship among many actors in the community in shaping the consumption pattern and how value co-creation affects the innovation process in the community. Consumption in this research refers to service (knowledge and skill) consumption through interaction in the community to leverage their interaction capacity.

**Value co-creation and innovation in SMEs**

Vargo and Lusch (2016) conceptualized value co-creation in the context of multi-actor interaction in the ecosystem. When this conceptualization is connected to Arnould and Thompson's (2007) supposition that community is an effective way to create movement in market-mediated networks, value co-creation in the community shows the potential to overcome the limitations of SME. If multi-actor interaction is the key to service exchange and resource integration, this could drive the innovation process as a sustainability strategy for SMEs.

Some scholars have defined the relationship between value co-creation and innovation process. Frow, Nenonen, Payne and Storbacka (2015) described value co-creation as the platform of innovation by giving the business actor the opportunity to integrate resources. They
conceptualized co-creation in the context of co-production and co-creative activities. Gustafsson, Kristensson and Witell (2012) defined co-creation as the resources derived from interaction with customers to leverage the product and market success rate that contribute to innovativeness and to understanding customers' future needs. Fidel, Schlesinger and Cervera (2015) showed customer collaboration in the innovation process as an influential antecedent for building knowledge leading to positive marketing results. Meanwhile, Romero and Molina (2011) conceptualized networking as a source of value co-creation and co-innovation as well as a means of accessing knowledge, skill, technology, and markets through sharing risk and integrating competencies. This situation gives encouragement for sustainable, user-driven, and collaborative innovation. Small enterprises need an innovation ecosystem to develop their business model; therefore, value co-creation becomes an essential requirement to grow their business. Value co-creation not only facilitates the achievement of common goal and benefits financial support, but also garners commitment from the involved actors (Radziwon, Bogers & Bilberg, 2017) to be part of the continuous innovation process. SMEs need an innovation process, since they have limited resources compared to large companies; they do, however, play an important role in economic growth, especially in the Asian emerging market (Hitchen, Nylund, Ferràs & Mussons, 2017).

Conceptual framework and hypothesis

There are five latent variables that are developed as a research model based on the concept of value co-creation from SDL, supported by the market-mediated-networks concept from CCT (see Figure 1). In this section, the dimensions of the latent variables will be defined and measurable indicators will be provided to allow the measurement of value co-creation and its output.

Figure 1. The Conceptual Framework
Educating and dynamic interaction

The findings of Pongsakornrungsilp (2010) showed that the actors in the brand community play the role of provider and beneficiary through the educating process in the community. The educating process is marked by sharing knowledge and skills and embodies the values of the community. Sharing knowledge and skills leverages the capacity to positively impact dynamic interaction (Pongsakornrungsilp, 2010) and increase the quality of the interaction by integrating potential chaos, which is associated with confused and unformed resources (Larsson & Dahlin, 2012). Sharing knowledge is firstly done in an asymmetric manner where the expert, leader, or owner of the knowledge educates the members of community before each member can engage a reciprocal mode of knowledge sharing based on their expertise (Kaewkitipong, Chen & Ractham, 2016; Boer, van Baalen, & Kumar, 2004). This educating process among members drives dynamic interaction and produces a transformative capacity in the community (Kaewkitipong et al., 2016). Embodiment of the community values performed by the key actors in the community leads them to reach consensus. It drives all actors to act in the same way to accommodate aspirations and achieve their vision together. Embodiment in SMEs reflects the way the educating act shapes the members' interpretation and constructs the mind set regarding the vision, mission, objective, values, and activities necessary to embody the whole community's identity (see, for example, Bonomi, Moggi & Ricciardi, 2016; Luca, Hibbert & McDonald, 2016) by providing a fertile ecosystem for dynamic interaction (Wolfgramm, Flynn-Coleman & Conroy, 2015).

Thus, the following hypothesis is proposed:

- H1: Educating community members positively influences dynamic interaction in SME communities.

Enriching and dynamic interaction

Enriching concerns the process behind the positive relationship between the key actors, who have superior knowledge or skill or are leaders in the community, and members of the community (Pongsakornrungsilp, 2010). Enriching is demonstrated by robust discussions and efforts to synthesize and extend the key actors' knowledge, skill, and experience and compromising regarding the best solution for all members of the community. Discussion is defined as a conversation or reciprocal communication between members within the community that provides benefits for leveraging the capacity of the community. It is demonstrated by the availability of a forum or a chance to discuss all efforts to overcome the challenges and problems, or leverage the capability of community (Santini et al., 2016; Pongsakornrungsilp, 2010). Compromise is defined as the effort or willingness to make sacrifices to achieve acceptable standards or dealing with critical issues through mutual concessions. It is demonstrated by the ability to put benefit for others above benefit for oneself to achieve the optimal solution for all members of the community (Santini et al., 2016; Pongsakornrungsilp, 2010). The enriching process tries to find a unified logic and togetherness in leveraging the capacity of the community (Pongsakornrungsilp, 2010). It expresses the willingness of the community members to talk, give, consider, and examine to certain issue in the community and come to an agreement that finally drives positive dynamic interaction among the actors in the community (Pongsakornrungsilp, 2010).

This literature review leads to the following hypothesis:
• H2: Enriching community members positively influences dynamic interaction in SME communities.

*Educating and value co-creation*

In the community, senior members educate others through sharing of knowledge, information, and experience to drive value co-creation (Yi & Gong, 2013; Pongsakornrunsilp, 2010). Sharing among actors creates access to knowledge, skills, and experience (Breidback & Maglio, 2016; Kipping & Engwall, 2002). Educating also embodies the spirit of sharing the traditions of the community with newcomers (Pongsakornrunsilp & Schroeder, 2011). The members of the community absorb principles, norms, beliefs, and cultural codes that provide the understanding for the co-creation process (Pongsakornrunsilp & Schroeder, 2011). The configuration of resources reveals the complex relationships of institutional arrangements as a pre-requisite of value co-creation (Vargo & Lusch, 2016; Breidback & Maglio, 2016).

This literature review leads to the following hypothesis:

• H3: Educating community members in SME communities positively influences value co-creation.

*Enriching and value co-creation*

The enriching interaction between senior actors and others in the community is demonstrated by discussing the relevant issue and compromising for the best solution. Discussion facilitates dialog among the actors in the community, provides access to more resources, and drives transparency. It is, therefore, an effective vehicle for reaching value co-creation (Pongsakornrunsilp & Schroeder, 2011). Open discussion and willingness to compromise also facilitates multi-actors to perform risk assessment that drives constructive value co-creation (Pongsakornrunsilp & Schroeder, 2011; Schau, Muñiz Jr & Arnould, 2009). The following hypothesis is, therefore, proposed:

• H4: Enriching community members in SME communities positively influences value co-creation.

*Dynamic interaction and value co-creation*

Dynamic interaction concerns the interaction among members of the community to create value. The interaction across various channels and mechanisms builds experience that creates value co-creation among many actors in the community (Ramaseswamy & Ozcan, 2016). Dynamic exchange of benefits and relevant information among actors increases the capacity of the community (Pan et al., 2015). Dynamic interaction refers to a vigorous, active, and enthusiastic relationship among the producers in the community through learning, negotiating, and co-developing processes (Ramaseswamy & Ozcan, 2016; Brodie, Hollebeck, Jurić & Ilić, 2011; Roncha & Radclyffe-Thomas, 2016; Geiger & Finch, 2016; Pongsakornrunsilp, 2010). Multi-actors' interaction is also expressed through negotiation to achieve agreement, acceptance or compromise on the knowledge, skills, experience, or information to leverage their capacity (Pongsakornrunsilp, 2010; Sjodin et al., 2016). Learning, negotiating, and co-developing enable the members of the community to face challenges regarding different expectations, set clear responsibilities and align the roles and benefits that provide positive initial value co-creation (Sjodin et al., 2016). Advocating refers to recommendations and support to other community members to promote institutions, brands, products, or ideas (Brodie et al., 2011) through story-telling
The literature review supports the following hypothesis:

- H5: Dynamic interaction among actors in the community positively influences value co-creation.

Dynamic interaction among the members of a developing organization or community enables them to identify which resources to pool. In this situation, the co-developing process demonstrated by dynamic interaction drives the construction of value co-creation (Plé, 2016).

The literature review supports the following hypothesis:

- Dynamic interaction and innovation process

Multi-actor interaction and collaboration in the community drives reformation of institutions and institutional arrangements that impact on change, disruption, sustainability, and the core of the innovation process (Vargo, Wieland & Akaka, 2015; Lawrence & Suddaby, 2006). Dynamic interaction provides an opportunity for service exchange and integrates all potential resources in the community to enhance the capabilities of its members. The accumulation of these activities provides key elements and power for the innovation process, which becomes a mechanism for the survival and development of the community as well as its members (Wehn & Montalvo, 2018; Vargo et al., 2015; Lawrence & Suddaby, 2006). Multi-actor interaction is not static and builds new norms, beliefs, and guidance that are gradually embedded in the community and how it discovers new capabilities in the innovation process (Vargo et al., 2015). Such dynamic interaction improves the innovation process within the community ecosystem through collective learning (Phillips et al., 2015; Neumeier, 2012). Dynamic interactions among actors play an important role in community learning and networking (Dawson & Daniel, 2010; McElroy, 2002). Learning from dynamic interaction disseminates, transferring knowledge and generating new experiences that help organizations gain collective resources as a driving force of the innovation process (Azagra-Caro, Barberá-Tomás, Edwards-Schachter & Tur, 2017; Phillips et al., 2015; Edwards-Schachter, Matti & Alcántara, 2012). It breaks down institutional and organizational boundariesto boost creative ideas and multi-actor innovativeness (Azagra-Caro et al., 2017; Herzog & Leker, 2010). Negotiation in dynamic interaction generates an agreement on the best solution and secures future potential value for the service innovation process (Sundström, Karlsson & Camén, 2017). Negotiation is the critical phase in dynamic interaction among actors to define and allocate important resources that make the innovation process effective (Salerno et al., 2015; Vargo et al., 2015). Another indicator of dynamic interaction is co-development among actors. Xu, Cui, Qualls and Zhang (2017) found that co-development drives the innovation process. Co-development draws out stakeholders’ different perspectives in positive way that supports their goals and generates and integrates resources that increase the efficiency of the innovation process (Oinonen & Jalkala, 2015). Co-development is achieved by balancing the various multi-actor perspectives, focusing on outcomes and managing various potential resources (Oinonen, Ritala, Jalkala, & Blomqvist, 2017).

Socializing among actors provides a space to have face-to-face networking, learn new skills, and build emotional bonding that can all drive the innovation process (Zukin & Papadantonakis, 2016).
Socializing and advocating also provide an opportunity engaging in knowledge sharing that drives idea generation and development in the innovation process (Stockstrom, Goduscheit, Lüthje & Jørgensen, 2016). The literature review supports the following hypothesis:

- H6: Dynamic interaction among actors in the community positively influences the innovation process.

Value co-creation and the innovation process

Value co-creation is defined as the interaction of multi-actors to exchange operant resources (knowledge and skills) and integrate, guided by institutional arrangements. This process will establish a nested and interlocking service ecosystem of value co-creation (Vargo & Lusch, 2016). Albinsson, Perera and Sautter (2016) developed the DART scale proposed by Prahalad and Ramaswamy (2004) by measuring the following co-creation dimensions: dialog, access, risk assessment and transparency. Dialog refers to conducing communication, interaction, or discussion among actors in the community to reach agreement or solutions to a problem (Albinsson et al., 2016). Access means stability for actors in the community to get relevant information for continuous improvement and participate in value co-creation (Albinsson et al., 2016). Risk assessment allows consumers to obtain comprehensive information about the potential risk to minimize the potentially damaging effect of the value co-creation process (Albinsson et al., 2016). Transparency refers to the openness and accountability in the information exchange that shows the integrity of the actors in the community by seeking feedback from others to co-create value (Albinsson et al., 2016). The innovation process is defined as a process to discover, define, and develop new ideas, methods, and process to be implemented in the business. The steps of the process include harvesting the data from internal and external sources, idea generation from the marketplace and within the community, and integrating the relevant information (Tsimiklis & Makatsoris, 2015; Prónay & Buzás, 2015; Holman et al., 2012). Harvesting is the process of gathering the data from internal and external sources to understand the market, its expectations, and possible future development (Tsimiklis & Makatsoris, 2015; Väyrynen & Smeds, 2009). Idea generation is the process of extracting the relevant data to find new ideas for new products or methods (Prónay & Buzás, 2015; Holman et al., 2012; Väyrynen & Smeds, 2009; Fontana, 2009). Integrating refers to the process of identifying the relevant idea and realizing it into a concrete form by gathering, adopting, and combining relevant resources (Tsimiklis & Makatsoris, 2015; Prónay & Buzás, 2015; Holman et al., 2012).

Beneficial dialog and meaningful involvement of multi-actors develop the capacity of the community and reveals co-creation that drives the innovation process (Romero & Molina, 2011). Sharing values, developing networks, and co-developing ideas combine to allow multi-actors to drive the innovation process (Lee et al., 2012; Füller, Hutter & Faullant, 2011). Accesses to the operant resources and reducing the risk of cognitive bias are both important in the innovation process (Romero & Molina, 2011; Liedtka, 2015). Value co-creation contributes to the process of innovation that is constructed through harvesting the market data, ideation, and integrating all the resources to create new products, mechanisms, processes, and policies (Tsimiklis & Makatsoris, 2015). The first step of the innovation process is harvesting the market data from consumers, suppliers, channels, or competitors and adds it to the internal information system (Tsimiklis & Makatsoris, 2015). The second step, called
The following hypothesis is, therefore, proposed:

- **H7**: Value co-creation in SME communities positively influences the innovation process.

### Methodology

Quantitative research was performed to confirm the relationship among variables in the model through a consumer survey because this is an appropriate method to measure consumers’ attitudes, activities, opinions, and beliefs (Christensen, Johnson & Turner, 2011). Recent studies on value co-creation have also used this method (Zhang, Jahromi & Kizildag, 2018; Jouney-Rivier, Reynoso & Edvardsson, 2017; Mainardes, Teixeira & Romano, 2017). Self-administered questionnaires were completed by respondents selected by non-probability judgmental sampling.

The collected data were bootstrapped to get 500 data set and processed by Lisrel 9.3. The respondents were the members of Indonesian Organic Community who play multi-actor roles and had demonstrated interaction in this ecosystem. Multi-actor roles were defined by becoming a consumer of at least one other product from another member in the community. Interaction was defined by actively participating in a local event performed at least three times in the community within a current year. The survey was undertaken during a community national event on October 2016 as it was a forum at which all active members from all chapters in Indonesia were present. The construct of variables was developed from the findings of Taghizadeh, Jayaraman, Ismail & Rahman, 2016) indicated that dialog, access, risk assessment, and transparency (DART), as an indicator of co-creation value, show a significant relationship with innovation strategy that leads to success in the market or in implementation.

The research findings of Christensen, Johnson & Turner, 2011) also showed that dialog, access, risk assessment, and transparency (DART), as an indicator of co-creation value, show a significant relationship with innovation strategy that leads to success in the market or in implementation.
their businesses were established before or at the same time as they joined the community. Exploratory factor analysis (EFA) was conducted at the first step to ensure that each item reflected the relevant dimension or latent variable, since most of the items were built from the conceptual and qualitative research. This technique helps the researcher to build structure from the underlying relationship (Fabrigar & Wegener, 2011; Cudeck, 2000) and it was performed using SPSS by using principal axis factoring on EFA. The items that did not group into one dimension and showed coefficient factors less than 0.5 were omitted. Next, the selected items underwent confirmatory factor analysis (CFA) for structural equation modeling (SEM) with Lisrel 9.3. The objective of this stage is to ensure that each selected item represents the dimension or latent variable to which they are grouped (Fabrigar & Wegener, 2011; Cudeck, 2000). CFA was performed using a two-step process. On the first run, the items with standardized factor loadings less than 0.5 were omitted, but this step was not performed for the dimension level. According to Hair et al. (2006), there are three steps necessary to evaluate the level of data fitness with the research model: overall model fit; measurement model fit; and structural model fit. Overall model fit can be grouped into absolute fit measures, incremental fit measures, and parsimonious fit measures. Measure model fit is indicated by good validity and reliability. Validity is shown by t-value ≥ 1.96 and standardized factor loading ≥ 0.5, while reliability is indicated by construct reliability (CR) ≥ 0.70 and variance extracted (VE) ≥ 0.50. Structural model fit is expressed by t-value absolute ≥ 1.96 and coefficient of standardized estimation that shows negative or positive influences to test the hypothesis.

Results

The results of the data processing of the selected items are shown on the Appendix A. Educating had two dimensions: sharing; and embodying. Enriching also had two dimensions: discussion and compromising. This is in-line with the findings of Pongsakornrungsilp (2010). Value co-creation showed four dimensions: dialog, access to information, risk assessment, and transparency. This is in-line with Prahalad and Ramaswamy (2004), Taghizadeh et al. (2016), and Albinsson et al. (2016). The innovation process was expressed in three dimensions: harvesting; idea generation; and integration of operant resources. This construct is similar to those of Tsimiklis and Makatsoris (2015) and Holman et al. (2012). The validity and reliability test showed that overall items and latent variables were of a good standard. The validity of each item, expressed on the standardized factor loading (SFL), was greater than 0.5 (see the Appendix A), with CR ≥ 0.7 and VE ≥ 0.5 (see Table 1). This is in line with Hair et al.’s (2006) expectations, which were also used by Albinsson et al. (2016) and Taghizadeh et al. (2016).

Table 1: Construct Reliability and Variance Extracted of Latent

<table>
<thead>
<tr>
<th>Variable</th>
<th>CR</th>
<th>VE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educating</td>
<td>0.71</td>
<td>0.55</td>
</tr>
<tr>
<td>Enriching</td>
<td>0.70</td>
<td>0.54</td>
</tr>
<tr>
<td>Dynamic Interaction</td>
<td>0.95</td>
<td>0.95</td>
</tr>
<tr>
<td>Value Co-Creation</td>
<td>0.80</td>
<td>0.52</td>
</tr>
<tr>
<td>Innovation Process</td>
<td>0.73</td>
<td>0.48</td>
</tr>
</tbody>
</table>

Notes: NFI=0.852, NNFI=0.844, CFI=0.864, IFI=0.864, RFI=0.831, GFI=0.886, AGFI=0.860
The results of data processing exhibited a quite good overall model fit (NFI, NNFI, CFI, IFI, RFI, GFI, and AGFI in the range of 0.80-0.90), revealing good incremental and parsimonious fit measures. The results indicated that all items and dimensions represented latent variable accordingly. The values for CR ≥ 0.70 and VE ≥ 0.50 proved that the constructs have convergent validity (Hair et al., 2006), exception for the VE value for innovation process slightly below 0.5. However, this condition can be considered acceptable (see Albinsson et al., 2016).

Table 2. Discriminate Validity of Latent Variables

<table>
<thead>
<tr>
<th></th>
<th>Educating</th>
<th>Enriching</th>
<th>Dynamic*</th>
<th>VCC**</th>
<th>Process***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educating</td>
<td>0.742</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enriching</td>
<td>0.852</td>
<td>0.735</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamic*</td>
<td>0.714</td>
<td>0.666</td>
<td>0.975</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VCC**</td>
<td>0.523</td>
<td>0.142</td>
<td>0.397</td>
<td>0.721</td>
<td></td>
</tr>
<tr>
<td>Process***</td>
<td>0.415</td>
<td>0.258</td>
<td>0.456</td>
<td>0.495</td>
<td>0.693</td>
</tr>
</tbody>
</table>

Notes: *) Dynamic Interaction; **) Value co-creation, ***) Innovation Process Diagonally italic scores indicate square root of VE, others represent the correlations

In general, the square root of VE was greater than the correlation co-efficient, which indicated good discriminant validity, except for the correlation of educating and enriching that showed a slightly higher co-efficient than the square root of VE (see Table 2).

The SEM analysis with Lisrel 9.3 was performed using the estimation method of diagonally weighted least squares and the results show six indicators within the acceptable range of overall structural model fit. The results revealed quite good overall model fit (NFI=0.852, NNFI=0.844, CFI=0.864, IFI=0.864, RFI=0.831, GFI=0.886, AGFI=0.860, all is in the range of 0.80-0.90), which demonstrate good incremental and parsimonious fit measures (Hair et al., 2006).

Determination co-efficient (R²) on reduced form equations indicated that both educating and enriching variables explain 52.2% of the variation on dynamic interaction and 61.2% of the variation on value co-creation. The causal effect of education and enriching on dynamic interaction is complementary, but enriching shows diminishes causal effect on value co-creation. However, the causal effect of enriching is less dominant than that of educating, both on dynamic interaction and value co-creation.
Based on the test of hypothesis (see Table 3), the co-efficient of the structural model shows significant results for $H1$, $H3$, $H4$, $H6$, and $H7$ (absolute t-value > 1.96) and insignificant results for $H2$ and $H5$ (absolute t-value < 1.96). All significantly positive t-values indicate that the positive relationship of the hypothesis is proven, while significantly negative t-value shows the opposite causal effect. The direct effects of educating on value co-creation and enriching on value co-creation are greater than the indirect effects through dynamic interaction. The direct effect of dynamic interaction the innovation process is greater than that of value co-creation (Table 3).

**Discussion**

Educating shows a positive influence of dynamic interaction. It indicates that, in SME communities, educating community members is the main factor driving dynamic interaction. Educating is demonstrated by sharing knowledge, relevant experience, and current information, as well as embodying community values, self-responsibility, and community tradition. Educating can happen when members of the community share cultural symbols among other members (Pongsakornrungsilp & Shroeder, 2011). Knowledge sharing can influence the performance of various activities (Boeret al., 2004), increase internal capabilities and absorb external resources to drive dynamic interaction (Chen, Chang & Tseng, 2012). The educating process happens at gatherings, exhibitions, bazaars, workshops, seminars, events, and via social media (e.g. WhatsApp chatting). Educating also drives value co-creation, since knowledge sharing and how actors in the community embody the cultural symbols of the community enables the exchange of knowledge and skills and the integration of collective resources in the small business ecosystem (Vargo & Lusch, 2016). Educating activities allow members of the community to perform multi-actor roles, such as co-constructing experience to conduct dialog, having access to information, reducing avoidable risk, and benefiting from information transparency (Prahalad & Ramaswamy, 2004). Enriching in SME communities does not have a positive impact on dynamic interaction. This may because, in some literature, discussion one of them reaching dimensions is equated with knowledge capture and similar to sharing knowledge (O’Hern & Rindfleisch, 2010). It is almost impossible to separate it from learning as a part of dynamic interaction, although they have different definitions in this study. Meanwhile, compromising relates to negotiation and arguing in dynamic interaction. In an Indonesian context, a compromise is sometimes made to avoid conflict. Surprisingly, enriching shows a negative impact on

<table>
<thead>
<tr>
<th>Hypothesis: Path</th>
<th>Estimation</th>
<th>t-value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Educating → Dynamic Interaction</td>
<td>0.54</td>
<td>4.13</td>
<td>Supported</td>
</tr>
<tr>
<td>H2: Enriching → Dynamic interaction</td>
<td>0.21</td>
<td>1.62</td>
<td>Rejected</td>
</tr>
<tr>
<td>H3: Educating → Value Co-creation</td>
<td>1.37</td>
<td>3.65</td>
<td>Supported</td>
</tr>
<tr>
<td>H4: Enriching → Value Co-creation</td>
<td>-1.15</td>
<td>-3.34</td>
<td>Supported</td>
</tr>
<tr>
<td>H5: Dynamic Interaction → Value Co-creation</td>
<td>0.18</td>
<td>1.79</td>
<td>Rejected</td>
</tr>
<tr>
<td>H6: Dynamic Interaction → Innovation Process</td>
<td>0.31</td>
<td>5.16</td>
<td>Supported</td>
</tr>
<tr>
<td>H7: Value Co-creation → Innovation Process</td>
<td>0.37</td>
<td>5.42</td>
<td>Supported</td>
</tr>
</tbody>
</table>
value co-creation. This may be because actors cannot clearly define their role in the community, causing a misunderstanding and creating a hidden conflict that can have a negative impact on value co-creation (Heidenreich, Wittkowski, Handrich & Falk, 2015). Discussion and compromising can also build tensions and lead to an imbalance in the efforts made by individuals to co-create value (Tóth, Peters, Pressey & Johnston, in press). This situation leads to ineffective dialog, poor access to information, poor risk assessment, a lack of transparency, and generates suspiciousness among members in the community. The influence of dynamic interaction on value co-creation is not significant. It seems that it does not capture the essence of the co-creation concept (Vargo & Lusch, 2016; Albinsson et al., 2016; Prahalad & Ramaswamy, 2004). The possible explanation for this relationship could be how actors in the community deal with tension and conflict in dynamic interaction, where negotiation and moderation should be well managed to create a healthy dialog and openness toward relevant information as indicators of value co-creation (Gebauer, Füller & Pezzei, 2013). The ambiguity regarding the role of multi-actors, the imbalance of power among actors, and opportunism in community can also lessen the positive effect of dynamic interaction in building value co-creation, since sharing responsibility can cause unclear expectations and misunderstandings among the actors (Chowdhury, Gruber & Zolkiewski, 2016). Dynamic interaction can show both beneficial and detrimental effects, and so can result in impaired resource integration in the community (Plé & Chumpitaz Cáceres, 2010). However, dynamic interaction shows a positive influence on the innovation process. This means that learning, co-developing, advocating, socializing, and negotiating among actors in SME community results in harvesting ideas from internal and external sources, generating promising ideas, and helping to integrate relevant ideas in the innovation process. Dynamic interaction performs the mechanism and modality of service exchange and resource integration to drive an innovative ecosystem (Vargo et al., 2015; Phillips et al., 2015; Neumeier, 2012). Dynamic interaction focusing on the collective goals drives the capability development and the integration of robust resources as a result of strong bonding among members in the community that benefits the innovation process (Herzog & Leker, 2010; Vargo et al., 2015; Oinonen & Jalkala, 2015; Xu et al., 2017; Zukin & Papadantonakis, 2017).

Value co-creation has a positive impact in the innovation process. Dialog, openness to information, and the ability to assess potential risk all drive the innovation process. The significant relationship between value co-creation and the innovation process will help firms formulate innovation strategies for their business development (Taghizadeh et al., 2016). Multi-actor value co-creation can be managed to obtain collectively unique resources that become a key to the innovation process by identifying relevant resources (Kazadi, Lievens & Mahr, 2016). Dialog allows multi-actors to give and receive relevant resources from other actors (Albinsson et al., 2016; Romero & Molina, 2011). Access to information increases the knowledge of community members allowing them to harvest and generate many ideas (Tsimiklis & Makatsoris, 2015). The opportunity to assess risks and benefits enables community members to match and integrate pertinent resources and ideas that, in turn, drive the innovation process and build an innovation ecosystem (Adner, 2006).

Conclusions

Combining SDL and CCT can generate a research model that has the potential to develop strategies for SMEs through their communities. SME communities enable each member to develop their
capacity through dynamic interaction to co-create value, which drives the innovation process. SME communities should focus on educating their members to drive dynamic interaction. When they absorb knowledge, skills, and values, they have enough resources to increase the quality of interaction among themselves and co-create value. Dynamic interaction and the ability to manage collective resources through dialog, to access information, to evaluate risks and benefits, and to be transparent all enable SMEs to strengthen the innovation process together as a survival and development strategy. The results of this research still leave room for further research on combining SDL and CCT. This present study offers a basic model based on combining many constructs from previous studies and, consequently, some constructs may overlap in terms of the respondents' understanding. This theory combination should be investigated through searching for unexplored factors and constructs to provide more robust model for value co-creation in SME communities. Further research should also involve a large number of respondents from various SME communities to allow generalization of the most favorable model fit for the theory combination. Another aspect that could be explored is the influence of asymmetric capability among actors and the development stage of the community to reveal how the enriching process influences dynamic interaction and value co-creation in SME communities.

References


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Neumeier, S. (2012). Why do social innovations in rural development matter and should they be considered more seriously in rural development research?–Proposal for a stronger focus on social innovations in rural development research. *Sociologia Ruralis, 52*(1), 48-69.


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service employees in interactional value co-creation. *Journal of Services Marketing, 30*(2), 152-164.


**Appendix A**

*Measured variables of each dimension*

<table>
<thead>
<tr>
<th>Dimension/Variables</th>
<th>Items</th>
<th>SFL</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sharing</strong></td>
<td>I share valuable knowledge with other community members</td>
<td>0.83</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>I share relevant experience with other community members</td>
<td>0.83</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>I share current information with other community members</td>
<td>0.98</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>Embodying</strong></td>
<td>I try to build community tradition</td>
<td>0.69</td>
<td>0.52</td>
</tr>
<tr>
<td></td>
<td>I try to increase community capability</td>
<td>0.66</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>I develop my responsibility as a community member</td>
<td>0.83</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>I try to implement the community value</td>
<td>0.97</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Discussion</strong></td>
<td>I have an opportunity to discuss valuable knowledge for the community</td>
<td>0.74</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>I can discuss for the best solution in the community</td>
<td>0.84</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>I can discuss the effort for community development</td>
<td>0.89</td>
<td>0.20</td>
</tr>
<tr>
<td>Dimension/Variables</td>
<td>Items</td>
<td>SFL</td>
<td>Error</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>Compromising</td>
<td>I can propose a change to contribute for community development</td>
<td>0.75</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>I can adapt to the changes in the community</td>
<td>0.88</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td>I try to understand the different interest of the others</td>
<td>0.66</td>
<td>0.57</td>
</tr>
<tr>
<td>Dynamic Interaction</td>
<td>A member in the community shares experience through interaction with other members</td>
<td>0.62</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>A member in the community gets a new skill through interaction with other members</td>
<td>0.71</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>A member in the community looks for agreement to face different interest among them</td>
<td>0.71</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>A member in the community shows reciprocal offering to reach agreement among others</td>
<td>0.83</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>A member in the community builds relationship by developing the understanding among them</td>
<td>0.75</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>A member in the community can accept different opinion from other members</td>
<td>0.71</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>A member can co-operate with others to get better business way</td>
<td>0.75</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>A member can help other member to develop better thinking</td>
<td>0.71</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>A member in the community can search the best solution for other members</td>
<td>0.73</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>A member in the community can get collective idea through the interaction with others</td>
<td>0.78</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td>A member in the community can give contribution for their business development through interaction with other members</td>
<td>0.69</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>A member in the community can give valuable opinion for other member in the community</td>
<td>0.71</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>A member in the community try to know each other</td>
<td>0.65</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>A member in the community try to co-operate with others</td>
<td>0.74</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>A member in the community try to communicate with others</td>
<td>0.76</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td>A member in the community try to strengthen their relationship with others</td>
<td>0.78</td>
<td>0.40</td>
</tr>
<tr>
<td>Dialog</td>
<td>Producers and consumers can communicate each other to increase consumer experience</td>
<td>0.80</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>Consumers have an opportunity to share their experience with producers to give added value in return</td>
<td>0.74</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td>Producers can ask consumers to know their response toward their experience</td>
<td>0.84</td>
<td>0.29</td>
</tr>
<tr>
<td>Access</td>
<td>Producers accommodate consumers’ opinion on how to improve goods/service quality</td>
<td>0.87</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>Producers use many devices/tools to communicate with consumers for idea/opinion exchange</td>
<td>0.73</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>Producers allow consumers to build their own experience</td>
<td>0.63</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>Consumers can get information from producers for their evaluation</td>
<td>0.74</td>
<td>0.45</td>
</tr>
<tr>
<td>Risk Assessment</td>
<td>Producers give information to consumers about the quality assurance for their offering</td>
<td>0.70</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>Producers give opportunity for consumers to assess strength and weaknesses of their offering</td>
<td>0.70</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>Consumers can easily give critic for goods/service quality improvement</td>
<td>0.79</td>
<td>0.38</td>
</tr>
<tr>
<td></td>
<td>Producers and consumers can accept new understanding through their interaction</td>
<td>0.96</td>
<td>0.08</td>
</tr>
<tr>
<td>Transparency</td>
<td>Consumers have abundant choices to fulfill their needs through producers’ offering</td>
<td>0.63</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>Producers are welcome for consumers’ feedback to improve consumers’ experience</td>
<td>0.98</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Producers and consumers show openness to share information</td>
<td>0.82</td>
<td>0.33</td>
</tr>
<tr>
<td>Harvesting</td>
<td>A member of community gets information to identify market need in the future</td>
<td>0.75</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>A member of community gets information to face the problem in the field</td>
<td>0.80</td>
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<tr>
<td></td>
<td>A member of community gets information to find new potential consumers</td>
<td>0.67</td>
<td>0.55</td>
</tr>
<tr>
<td></td>
<td>A member of community can recognize the marketable product specification</td>
<td>0.68</td>
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<tr>
<td>Idea Generation</td>
<td>A member of community can think about new idea to develop their offering</td>
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<td>A member of community can analyze ideas to develop new product</td>
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<td>0.57</td>
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<tr>
<td></td>
<td>A member of community finds a new way to produce product that matches to the market need</td>
<td>0.60</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td>A member of community initiates to make their business better perform</td>
<td>0.72</td>
<td>0.48</td>
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<tr>
<td>Integration</td>
<td>A member of community can combine the resources that are needed</td>
<td>0.69</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>A member of community is able to mix various ways to conduct their business</td>
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<td>0.04</td>
</tr>
<tr>
<td></td>
<td>A member of community can perform operational steps to implement new idea</td>
<td>0.96</td>
<td>0.08</td>
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