

Use and social value in peer-to-peer prosumption communities

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Title

Use and Social Value in Peer-to-Peer Prosumption Communities

Structured Abstract

Purpose. This paper examines how prosumption manifests in an online community, Instructables.com, and its value for those who engage with it. The paper emphasizes its distinctiveness compared to similar phenomena, particularly co-creation.

Design/methodology/approach. This work uses a netnography-informed research approach, involving Instructables community observations, participation and fifteen online interviews with members of the community.

Findings. Prosumption provides personal benefits including hedonic elements of enjoyment and fun, functional elements of monetary saving and self-sufficiency, and cognitive benefits like problem solving and learning. Further, extra-personal benefits include community, environment, market, family and friends oriented benefits.

Research limitations/implications. Personal and extra-personal prosumption benefits generate use and social value, progressing understanding of value through a type of prosumption that we term peer-to-peer.

Practical Implications. An understanding of the differences among concepts can set expectations, responsibilities and opportunities for both firms and prosumers in an increasingly collaborative marketplace.

Originality/value. By critically analyzing the nature of value through a particular kind of prosumption, the paper makes three theoretical contributions. First, it transforms and broadens the scope of empirical research by clarifying critical distinctions between co-creation and prosumption and establishing them as higher order concepts. Second, the paper determines the benefits, use and social value participants derive from particular forms of participation in the marketplace. Finally, the paper establishes a new concept, namely peer-to-peer prosumption, which we define as a type of prosumption that prioritizes collective, peer-to-peer use and social value over exchange value. The paper contributes to marketing literature on the ongoing evolution of consumer roles and participation in the marketplace, by furthering theorization in this field.

Keywords

Prosumption; use value; social value; online community; netnography; qualitative research.

Article Classification

Research paper.

USE AND SOCIAL VALUE IN PEER-TO-PEER PROSUMPTION COMMUNITIES

1. Introduction

The role of the consumer as a participant in the production of goods and services has been acknowledged in many works using concepts such as prosumption (Toffler, 1981; Andrews and Ritzer, 2018; Eden, 2017), co-production (Vargo and Lusch, 2004; Lusch and Vargo, 2014) and co-creation (Prahalad and Ramaswamy, 2004; Grönroos, 2012). Yet, often these terms are used interchangeably (Roberts *et al.*, 2014), to describe new types of consumer participation in collaborative production of value through goods and services (Humphreys and Grayson, 2008; Belk, 2014; Berger *et al.*, 2005). Consumers' practices in online communities, however, may create value primarily with and for other consumers rather than companies (Hartmann *et al.*, 2011; Harwood and Garry, 2010). Consequently, to advance theorization of consumer-led value creation in the marketplace, it is important to further understanding of where and how different forms of value creation take place.

We argue that existing debates on such types of consumer collaboration and value creation have not always considered the nuanced and flexible differences among these kinds of market-based participation. As consumers are key players in collaborative value production, their perspectives on such activities matter and require additional research attention. Given that value creation is a key topic in marketing (Wassmer and Dussauge, 2011; Sanchez and Ricart, 2010), understanding the value experienced and created among prosumers will deepen and broaden knowledge in this area.

Therefore, this paper aims to examine the nature of prosumption and how it manifests in an online community, namely Instructables.com. Instructables.com is an

exemplar community vis-à-vis other user-generated content communities. Communities such as this are currently under-examined but can further clarify the nuanced distinctions between prosumption and company-consumer co-creation. In doing so, we focus on the social and use value that is prioritized and created through prosumption in this community, allowing us to unpack and determine a distinction between prosumption as a higher order concept and a type of prosumption that we term peer-to-peer. Thus, we establish the novel concept of peer-to-peer prosumption, which we define as a particular type of prosumption that primarily produces social and use value for prosumers. The significance of recognizing this type of prosumption conceptually lies in its collaborative nature and its foregrounding of use and social value over exchange value. As a result, the paper furthers the debate on how prosumption may present itself in the marketplace, including the benefits and reasons prosumers have for engaging in this particularly collaborative version of it.

By critically analyzing the nature of value through a particular kind of prosumption, the paper makes three theoretical contributions. First, it transforms and broadens the scope of empirical research by clarifying critical but flexible distinctions between co-creation and prosumption, and establishing these as higher order concepts. Second, the paper determines the benefits and value participants derive from particular forms of participation in the marketplace, illuminating the relevance of use and social value over exchange value. Finally, the paper establishes a new concept, namely peer-to-peer prosumption, which we define as a type of prosumption that foregrounds collective, peer-to-peer use and social value over exchange value.

The paper is structured as follows. First, the paper begins with distinguishing prosumption from related concepts and then discusses the relevance and nature of value in a prosumption context. Second, it addresses the importance of use and social

value in conceptualizing a particular type of prosumption, namely peer-to-peer prosumption, to identify critical differences between prosumption and similar terms, particularly co-creation. The methodology section that follows addresses the netnography-informed approach to data collection, while the findings section illustrates how peer-to-peer prosumption and value creation manifest in Instructables.com. The paper then discusses the findings' originality in relation to existing literature, and ends with a conclusion section highlighting the contributions of the research.

2. Overview of relevant literature

2.1 Prosumption and related concepts

Prosumption, co-production and co-creation are terms used in existing literature to convey types of consumer participation in the production of goods and services, involving consumer collaboration with companies or other consumers to produce value (Humphreys and Grayson, 2008). We argue these are higher-order concepts requiring further research attention and here we focus on prosumption.

Historically, Toffler (1981) coined the term prosumption nearly four decades ago, denoting the convergence of consumption and production and describing people who act as producers of their own goods and services rather than customers of commercial suppliers. Toffler (1980) suggested that consumers would start investing much of their efforts away from traditional commercial exchange, towards becoming more involved in the marketplace as prosumers. Subsequently, Kotler (1986) acknowledged the rise of prosumption as a significant phenomenon for marketers, given the challenges it would pose to existing debates on producer and consumer roles.

More recently, Hartmann (2016, p.3) theorizes the interplay between consumption and production “as alternate moments within practices of everyday living”, while Ritzer (2014) rejects the old duality between production and consumption altogether, in favor of a prosumption continuum where there is no pure consumption or production. Ritzer (2014) suggests that every act of production involves some consumption and vice-versa; while Ritzer’s (2014) definition of prosumption holds in terms of a consumption-production continuum, his emphasis remains on how consumers are increasingly involved in the production process of companies.

Relatedly, many marketing scholars use the term co-creation (e.g., Fyrberg Yngfalk, 2013; Grönroos, 2012; Hilton *et al.*, 2012), which is part of Vargo and Lusch’s (2004) theory of service-dominant logic and Prahalad and Ramaswamy’s (2004) theory of value co-creation, to emphasize the consumer’s role in creating value through production. Additionally, several studies use the terms consumer co-creation and co-production interchangeably (Dong *et al.*, 2008; Payne *et al.*, 2007; Pini, 2009), often equating both of these terms with prosumption (Comor, 2011; Ritzer and Jurgenson, 2010; Zwick *et al.*, 2008), but without acknowledging that this is what is being done. As a result, relevant literature elides key differences between prosumption and co-production or co-creation, failing to clarify important distinctions between prosumption and the other two terms through terminology. This lack of clarity then leads to ambiguities regarding expectations, responsibilities and opportunities for both firms and prosumers in ever-evolving, collaborative markets.

For clarity, our position aligns with scholars who use co-creation and co-production as synonyms, applying both terms to refer to the producer-consumer collaboration in the marketplace. This is because co-creation or co-production both denote the same types of exchange-based producer-consumer collaborations,

following existing literature. However, we distinguish prosumption from these two terms (Humphreys and Grayson, 2008; Wolf and McQuitty, 2011; Xie *et al.*, 2008). We do so because “involving individuals in the production of what they consume” themselves is essential to prosumption (Fox, 2018, p.170), where the priority is in making one’s own products and services rather than collaborating with companies intentionally. In using the definition proposed by Xie *et al.* (2008, p.110), we describe prosumption as “value creation activities undertaken by the consumer that result in the creation of their own products and services rather than the use of final or customized propositions from the marketplace.” Therefore, in contrast with co-creation or co-production, prosumption requires a consumer to become a producer of his or her own consumption benefits and experiences, rather than collaborating as a co-creator with a firm. Primarily, a prosumer is, therefore, a creator of his or her own value through new products and/or services rather than a reproducer of existing ones.

2.2 Unpacking the distinctions between prosumer and co-creator or co-producer roles

Possibly the most important distinction to make is between prosumers and co-creators, as many researchers focus on consumers as partners and co-creators of value with firms (Bettencourt, 1997; Bendapudi and Leone, 2003; Vargo and Lusch, 2004; Prahalad and Ramaswamy, 2004). By reorienting consumers as co-creators of value, firms integrate consumers as competitive resources into their services and marketing systems (Prahalad and Ramaswamy, 2000). This field of research is focused on the advantages of involving consumers as value co-creators and resources for benefits including competitiveness (Claycomb *et al.*, 2001), better

service quality (Dong *et al.*, 2008; Lengnick-Hall, 1996), and help with new product development (O'Hern and Rindfleisch, 2009; Pini, 2009; Sawhney *et al.*, 2005).

Consequently, according to these perspectives it is largely companies, not consumers, who continue to plan and manage their joint activities in the process of value co-creation or co-production, whereby companies mobilize free resources for their benefit (Arvidsson *et al.*, 2008). Humphreys and Grayson (2008) argue that a form of use of consumers as sources of human and capital labor is likely, whereby the business taps into what Arvidsson *et al.* (2008) refer to as the ethical economy to create exchange value. This emphasis inevitably implies that a degree of exploitation of consumers as sources of human and capital labor is likely in situations of value co-creation in marketing.

Prosumption is also a value creation activity, sometimes requiring the integration of professional services into prosumers' experiences (Xie *et al.*, 2008). However, the role of the prosumer is less likely to be exploited by firms. Prosumers replace the role of companies in that primarily they co-create their own value rather than work to co-create value with and for firms. Prosumption often involves creative acts such as crafting (Campbell, 2005; Watson and Shove, 2008), car modifying (Crawford, 2009), and DIY (Wolf and McQuitty, 2011). Therefore, distinguishing the role of the prosumer from roles such as consumer co-creator or co-producer may help to resolve the growing debate that mistakenly positions the practice of prosumption as a synonym for consumer co-creation or co-production and, thus, consumer exploitation (Comor, 2011; Cova *et al.*, 2011; Ritzer and Jurgenson, 2010; Terranova, 2000; Zwick *et al.*, 2008).

Prosumers invest time, money, effort, and skills in order to integrate a variety of physical and mental activities into their consumption experiences (Xie *et al.*, 2008).

Prosumption requires more involvement from consumers than co-creation or co-production (Wolf and McQuitty, 2011). A critical difference then is that co-creation or co-production expects consumers to take partial responsibility for some tasks typically undertaken by the company, while prosumption assumes that consumers take full responsibility for the conception and production of their own products and services.

The discussion above highlights that although collaboration with commercial firms is critical in consumers' experiences of co-production or co-creation, prosumption does not require such an engagement. Unlike co-creators or co-producers, prosumers primarily reconstruct the symbolic meanings and offerings of commercial products and services in their own way and for their own purposes, rather than for furthering the aims of companies. Consequently, prosumers' focus is not on their relationship with the firm, but rather on addressing their own needs.

As the term prosumer is more relevant to consumers who create their own value by using their making skills and consumption competencies, collaboration is not essential but is more likely among peers than with firms, when it occurs (i.e., consumer-to-consumer). The expressions value co-creator or co-producer are more relevant to consumers who collaborate with firms, usually at the request or nudging of the firm. Here the possibility of collaboration is more likely among unequal rather than peer partners (i.e., firm-to-consumer). Figure 1 summarizes these propositions.

[Figure 1 about Here]

Figure 1 illustrates the differences between prosumption and co-creation or co-production, providing insights into the potential collaborations, roles and responsibilities between consumers and firms. Here, each dimension, illustrated as an arrow, represents a continuum from prosumption through to co-creation. While we

highlight the differences between these two concepts, we also recognize their value-creating interlinkages in conceptual terms.

2.3 Framing terminological distinctions through theories of value

2.3.1 The relevance of exchange and use value

Much of the preceding discussion regarding differences in terminology between the higher order concepts of prosumption and co-creation revolves around types of value. Here we acknowledge seminal theories of value, to frame the distinction across relevant terminology.

In his original theory of value, Marx (1867 [2001]) argued that exchange value is the worth of the commodity in relation to another commodity, usually money, while use value is the utility of the good to the person consuming it. In citing Marx's (1867[2001]) work, Ritzer (2014, p.5) argues that Marx had been well aware that to create use value some consumption must take place: "to be produced, a commodity must have a use value; a commodity will be consumed only if it is useful." Similarly, many researchers (e.g., Humphreys and Grayson, 2008; Ritzer *et al.*, 2012; Ritzer and Jurgenson, 2010) remind us that the idea of the consumer as a producer is explicit in Marx's work on capitalism. This is because, historically, consumers were a limited population, with most ordinary people being involved in production through creating their own food, clothing, or collaborating with others to do so. Yet Ritzer (2014) also reiterates that, in Marx's theory of value, it is the production (i.e., the work or labor) that gives commodities both their use and exchange value. Whether value creation is done with a commercial organization or not, the fact that a person is helping to create value through labor is essential to understanding both prosumption (including its nuances) and co-creation or co-production of value.

Yet, recent theories on use and exchange value tend to give more prominence to consumption. For example, in their seminal work on service-dominant logic, Vargo and Lusch (2004) argue that originally marketing inherited its focus on exchange value from economics, involving a dominant logic reliant on transactions, tangible goods and materially embedded worth. Over time, however, marketing shifted its focus to a service-dominant logic; a logic of intangible resources, relationships and value co-creation, where services become paramount to the economy (Vargo and Lusch, 2004). Critical to service-dominant logic is the idea that consumers use goods as provisions of services, rather than as ends in their own right. Under this perspective, customers are co-creators and collaborators with commercial suppliers, valuing goods as mechanisms for service and/or benefit provision. Similarly, Prahalad and Ramaswamy (2004) view consumers as active producers of value, co-creating their unique experiences with commercial suppliers. Together, these arguments suggest the interdependence between exchange and use value, reflecting a shift in perspective towards producing value in use.

As Ritzer (2014) notes, generally, people receive no payment from commercial organizations that profit from unpaid work such as, for example, putting furniture together. However, Ritzer (2014) suggests that few would consider such companies to have exploited them. Researchers in this field tend to consider consumers as partners and co-creators of value with firms. This means that “value creation refers to customers’ creation of value-in-use” and co-creation or co-production is a function of that interaction (Grönroos and Voima, 2013, p.133). This focuses on the advantages of involving consumers as value co-creators and resources for firms.

By implicitly positioning consumers as co-creators or co-producers of value, firms integrate consumers as competitive resources into their services and marketing

systems (Prahalad and Ramaswamy, 2000). While use value is explicit in all of these discussions, there is also an implicit acknowledgement that exchange value is paramount: companies capture economic benefits from consumers' work, albeit indirectly (Comor, 2015). Increasingly, companies organize the productive networks of the information economy for their own economic benefit (Arvidsson *et al.*, 2008; Jordi, 2010), thus indicating primarily an exchange value orientation over use value.

2.3.2 Conceptualizing peer-to-peer prosumption through social and use value

From the consumer-participant perspective, Humphreys and Grayson (2008) suggest an original distinction that has led us to present the idea of social value as important to what we conceptualize as a particular type of prosumption, namely peer-to-peer prosumption. In line with Figure 1, Humphreys and Grayson (2008) suggest that consumers who collaborate with companies, whether or not the company remunerates them, are involved in company-consumer production; primarily this involvement produces exchange value, as there is a commercial output. In contrast, as a higher order concept prosumption is mainly about producing use value by and for people. This is an important distinction as, firstly, it places use value at the forefront of prosumption generally. Secondly, and in a more nuanced way, it is possible that prosumers engage in production practices with the primary intent of benefitting themselves as well as other prosumers, by producing use value for peers; a type of peer-to-peer prosumption from which participants gain social in addition to use value. Therefore, prosumption can be seen as a higher-order concept, with peer-to-peer prosumption being a particular type of prosumption. Further, our proposition aligns with Lusch and Vargo's (2014) idea of value in context, as value is context-specific, depending on the people experiencing and determining it, and on other resources

including social circumstances and space, whereby different contexts can lead to nuanced types of value being created.

Thus, we extend the higher-order concept of prosumption to include peer-to-peer prosumption, a type of prosumption that we define as a collective, contextual and consumer-led production activity that prioritizes use and social value among peers, eschewing concerns about exchange value but with social value being evident in exchanges that take place among prosumers. This conceptualization of peer-to-peer prosumption also supports our higher-order concept of prosumption being distinct from co-creation or co-production.

We argue that one cannot negate the importance of exchange value in the co-creation or co-production context and how value is increasingly, but indirectly, translated into monetary value (Arvidsson *et al.*, 2008). While it is useful for marketing-oriented companies to highlight value-in-use as a shift from a production orientation, we see use value as having a more central role in prosumption generally, and use and social value as having a particularly significant role in the type of prosumption that we term peer-to-peer. Thus, we suggest the prosumer and particularly the peer-to-peer type must be distinguished from the co-creator or co-producer consumer. This is because commercial use of people's labor is most likely to occur with co-creator or co-producer consumers, whose value companies seek to capture for ideation, research and advertising purposes, for example (Comor, 2015; Cova *et al.*, 2011; Ritzer and Jurgenson, 2010; Zwick *et al.*, 2008). The sharing of use value is more of a priority among peer-to-peer prosumers and less likely to be captured by companies. However, we do recognize that a sort of 'leakage' of peer-to-peer use and social value into the domain of exchange value can occur in certain contexts, where exchange value, if

present, conforms to an ethical economy scenario that combines sharing passions with a need for monetary income (Arvidsson *et al.*, 2008; Woermann, 2012).

As a type of prosumption, what peer-to-peer prosumption adds is collective engagement with products at the level of conception and production of the object for personal consumption, in a way that is social and context-dependent (Lusch and Vargo, 2014). Further, the distinctions between prosumer and co-creator or co-producer roles are likely to remain uneasily fluid, shifting, polymorphous and, as Lusch and Vargo (2014) would suggest, context-based, as social actors navigate multiple, multifaceted, creative and productive social relations through contemporary digital culture. Our aim here is not to construe yet another binary distinction between peer-to-peer prosumption and co-creation, but rather to conceptualize more nuance in prosumption, in order to speak to the multiple ways in which prosumption manifests. It is precisely because of the fuzziness and fluidity of such phenomena that further examination and theorization of the nature of prosumption is needed, including peer-to-peer prosumption, in order to advance understanding of its social practices and emic meanings from the perspective of prosumers, and the possibility of collaboration among peers (i.e., prosumer-to-prosumer) rather than just between unequal partners (i.e., firm-to-prosumer).

2.4 Online communities as peer-to-peer prosumption enabling contexts

Marketing recognizes the importance of creativity in generating value for organizations and consumers (Slavich and Svejenova, 2016). While social media sites benefit from consumer creativity and their content-generating work (Rey, 2012), increasingly online communities facilitate consumer learning and collective wisdom (Dholakia *et al.*, 2009; Kozinets *et al.*, 2008). Such groups involve people “whose

online interactions are based upon shared enthusiasm for, and knowledge of, a specific consumption activity or related group of activities” (Kozinets, 1999, p.254).

Prosumers in online communities are able to share resources and ideas in different ways to what is possible in offline contexts. Social forums and social networking sites aid prosumer organization from anywhere in the world, at any time, and enable collaboration through a collective mind. Beyond use value, rewards for prosumers include sharing the results of their labor through selecting the best ideas in the community and getting various symbolic, social, hedonic and even material rewards (Schau *et al.*, 2009; Denegri-Knott and Zwick, 2012). Bagozzi and Dholakia (2002) examine the social role of virtual communities in shaping and influencing members’ preferences. Through social action and collective participation, online communities can influence an individual’s social identity (Bagozzi and Dholakia, 2002). Increasingly online communities are important sites for identity development (Schau *et al.*, 2009), or “the prosumption of identity,” involving the production of identity categories within online communities (Davis, 2012, p.597).

Prior research also examines the different types of online communities that are held together predominantly by a collective pursuit of use value, whether through affinities among members or between members and brands (Kozinets *et al.*, 2008). However, while Kozinets *et al.* (2008, p.345) show “the many particular aspects, linkages, overlaps, and boundary conditions of this dynamic real-world phenomenon of collective innovation”, they do not seek to unpack differences between types of co-creation, between co-creation and prosumption, or between types of prosumption, which is what we address in this paper.

Thus, the preceding literature review enables us to identify key differences between the higher-order concepts of prosumption and co-creation or co-production,

and online community contexts can enable further understanding of how value shapes prosumption, including how different types of prosumption can emerge. Yet, to date, only limited attention has been given to distinguishing prosumption from other, closely related concepts, from a marketing and consumer research perspective. This is a significant knowledge gap, which the present study seeks to address. It merits further attention due to the ever-evolving and growing consumer involvement in production processes which digital technologies afford (Bruns, 2016). An enhanced understanding of the differences among such concepts is important and needed, so that we can set expectations, responsibilities and opportunities for both firms and prosumers in an increasingly collaborative marketplace. Consequently, the focus of our research is the following research question:

How does prosumption manifest in an online community and what is the nature of its value for those who engage with it?

3. Methodology

An interpretivist approach (Spiggle, 1994; Denzin, 1997), with a netnography (Kozinets, 2002a; 2015; Pentina and Amos, 2011; O'Leary and Murphy, 2019; Hamilton and Alexander, 2017) or virtual ethnography (Hine, 2000; Kozinets, 2002a; 2015) informed methodology enabled the nuanced understanding of prosumption required in this study. Netnography uses ethnographic research methods "to study the cultures and communities that are emerging through computer-mediated communications" (Kozinets, 2002a, p.62; 2006). Netnography includes participation in, and observation of, online discourses enabling insights into the attitudes, meanings, and prosumption discourses of online groups (Hamilton and Hewer, 2010;

Kozinets, 2002a; 2006; 2015). This makes it appropriate for the exploration of prosumption in an online community.

We apply the netnographic approach beyond the observation of textual discourse, to encompass prosumer-generated visual representations of prosumption online. These representations are important in that they afford original understanding of prosumer-generated content, allowing for new emic meanings and knowledge to develop (Michaelidou *et al.*, 2013). Following a similar process to that of Healy and Beverland (2013), the lead author spent some time using online search engines to find communities that fit the purpose of the study. Shortlisting criteria included online communities that entailed prosumption and knowhow-sharing among members. We selected Instructables.com due to its regular, diverse and sufficient participation, as well as for having relevant and specific data for understanding prosumers.

Instructables.com is an online community where members share projects online. Instructables.com shows the markers of an online community in that it provides a platform for a group of people to come together online and discuss topics of common interest, consumption practices or related activities with sufficient engagement, involvement and enthusiasm. This involvement allows them to develop webs of online relationships (Kozinets, 2015; Kozinets, 1999; Rheingold, 1993). From an empirical perspective, Instructables.com offers a site in which to explore the nature of prosumption through varied prosumer experiences and do-it-yourself (DIY) projects (see figure 2). Prosumption includes many practices, and DIY is one of the many ways in which people get involved in producing what they consume, as documented in relevant literature (e.g., Fox, 2018; Wolf and McQuitty, 2011; Nagel *et al.*, 2018). DIY is a valuable type of prosumption and an area that enables creative and active consumer integration and transformation of products (Watson and Shove, 2008).

[Figure 2 about Here]

This research follows Kozinets's (2015) and Healy and Beverland's (2013) approach to netnographic enquiry, including observing community interactions and archiving downloaded data. Such data encompass community conversations, researcher participation and online interviews, as one of the researchers became a community member. In the first stage of the research, the lead researcher collected, systematically archived and observed a purposive sample of popular Instructables projects. A 'project' is a term used in the community to refer to the description of the steps community members use to make products (i.e., goods and/or services), whereas 'popular' refers to projects that generate many conversations among members.

We archived and analyzed sixty-six projects, including relevant members' profiles and related comments. As Healy and Beverland (2013, p.230) suggest, we sought interpretive depth by going beyond "the immediate transcription of single posts" and by analyzing members' "posted communications," which helped in the analysis of the "plausibility of informant discussion." We downloaded, saved and organized the dataset into such an archive using NVivo. This process generated approximately 850 PDF pages including texts and photographs.

Additionally, we identified potential interview participants for this study by assessing the relevance and regularity of members' involvement with the community, and members with fewer than five published projects were not sent invitations to participate. In adopting this purposive sampling approach, additional recruitment criteria included people with whom the lead researcher had interacted during

participant observation, participants who were 18 or older and people who could communicate well in English. Such recruitment criteria resulted in 15 online interview participants. Semi-structured interview questions were based on insights gained through relevant literature and preliminary netnographic data analysis, yielding topic-relevant stories (Piore, 2006). For example, participants were asked broadly about: the usefulness of Instructables to their projects; how they benefit from their involvement in the community; whether they could give examples, from experience, of having faced difficulties with one of their projects and how other members responded to these challenges; and what the outcome(s) of their projects were.

Data analysis focused on the meanings and experiences of participants (Spiggle, 1994), combining both archived and interview data. Initially, we coded the data thematically, following a template analysis approach (King, 2005). Here a coding template is developed from a subset of the data and then applied and refined as further data are collected and analyzed (King and Brooks, 2018). Template analysis is appropriate for interpretive approaches requiring contextual sensitivity and flexibility (Brookes et al., 2015), as coding reflexivity by the researchers is key (King, 2005). We then carried out a second stage of inductive coding and recoding, including analyses of visual data notes according to the same pre-defined, but flexible, template. An illustrative summary of the template reflecting our core data themes is shown in Figure 3.

[Figure 3 about Here]

Trustworthy, rigorous, credible, coherent and accurate interpretation of research data ensured interpretive quality (Denzin, 1997; Healy and Beverland, 2013;

Kozinets, 2015). To enable this interpretation, we followed a two-step process in each iteration of the analysis. Each coding undertaken by one of the researchers was scrutinized by the other researchers and final interpretations were then re-assessed by all researchers across the data used for that interpretation. Finally, individual researchers reviewed the analysis for coherence of argument and one researcher returned to the original data to compare analysis and data used with their original context. In addition, we ensured respect for participants' views by providing emic evidence through quotes to support etic interpretations, and by highlighting the contributions of this research to relevant theory (Pratt, 2009). Further, we used exemplars from the visual data to illustrate the netnographic findings, similar to the use of written quotations. All of the figures and many quotes shown in our findings section represent the data we collected and archived to use in our analysis.

4. Findings

We build a situated and emic representation of peer-to-peer prosumption, comparing it to the higher-order concept of prosumption and its distinctions vis-à-vis co-creation or co-production. In line with our template illustrated in Figure 3, we build our findings narrative by discussing five overlapping types of benefits, including four extra-personal benefits that interact with personal benefits, which participants achieve through their engagement with Instructables.

In particular, personal benefits are central to understanding peer-to-peer prosumption as a type of prosumption. While personal benefits include the hedonic elements of enjoyment and fun, other benefits emanate from the functional aspects of prosumption, which have a personal impact. These include monetary saving and self-sufficiency, cognitive benefits including problem-solving and learning, and deeper

personal implications around identity development and management. Overlapping with these personal benefits are links to four areas, including other-oriented benefits that align with participants' perceptions of the collaborative, peer-to-peer ethos of prosumption. These collaborative aspects of our findings are original compared to previous works in the field.

4.1 Personal benefits: Use and social value in peer-to-peer prosumption

Self-expression drives members of Instructables, who use their knowledge, making skills and passion to design and make products for their own consumption, in line with the higher order concept of prosumption:

“I Love creating stuff from scratch, even if there are a million others out there, this one's different, It's Mine” (Scott/male/observation).

“I like the process of having that sort of ownership over something that you made it yourself” (Dennis/male/interview).

Scott contrasts products he has made himself against products produced by others or bought in the marketplace, distinguishing the personal ownership nature of his self-made products. Similarly, Dennis emphasizes the importance of making and explicitly comments on the ownership aspect of his creations. Members of Instructables construct personal projects from electronic gadgets to family recipes. However, critical to their engagement is the online sharing, with the Instructables community, of instructions and 'how-to' explanations in a range of technology, household, gardening, workshop, food and recreation projects. This sharing suggests a peer-to-peer ethos to their type of prosumption, highlighting a dimension to prosumption that remains under-examined.

There is an important social aspect to their work, where use value can be created primarily for collective benefit. This, too, reinforces the peer-to-peer ethos of their type of prosumption. Most members follow the site's guidelines and post project tutorials following a 'step-by-step' format including photos, videos, animations and drawings. This community sharing of visual materials and text often emerges from individual stories, suggesting aspects of members' life projects, identity enhancement and management in a way that is context-specific to Instructables.com, as Phil's quote illustrates:

"I miss the days when magazines like Popular Mechanics had all sorts of DIY projects for making and repairing just about everything. I am enjoying posting things I have learned and done since I got my first tools. I (...) recently retired after 40 years as a Lutheran pastor. I like to dabble with some electronics projects. I have a lathe, a radial arm saw, a router, and both a 220-volt stick welder and a flux core wire feed welder. I appreciate Instructables from others that are practical and address real problems with useful solutions. These are the type of Instructables I try to write and publish" (Phil/male/observation).

Additionally, analysis of members' profiles and project objectives shows a range of rational and hedonic benefits for engaging in prosumption activities through this community. These benefits involve unremunerated labor as a means to generate use and social value to members, echoing the unique peer-to-peer type of prosumption that manifests in this platform. As such, this labor cannot be considered exploitative from a theoretical perspective, which contrasts with existing relevant literature (Comor, 2015; Rey, 2012; Slavich and Svejenova, 2016). However, were the locus of analysis to shift from prosumers to Instructables as a social media platform, it would be important to acknowledge that the platform is monetized and, thus, draws

on, and benefits from, the indirect exchange value prosumer creativity and content generates, in line with such existing literature.

Further, the personal benefits Instructables' members experience are often central to their involvement and uniquely tend to have a peer-to-peer character. For example, below Aesz combines personal hedonic benefits, such as self-enjoyment, with other outcomes for the community. Aesz describes the pleasure of a project and functional attributes such as cost, and how it can be used for further collaborative purposes:

"This is a lot of fun and can be built for next to nothing. It's also really great to show younger children and students to explain how speakers work. It would be ideal for a science class as there are very few components that can be found around the home" (Aesz/observation).

Thus, rather than focusing only on the benefits of using their making skills to address their own personal needs, which tends to occur in prosumption generally, in this peer-to-peer kind of prosumption such benefits encompass developing products for family and friends. These benefits also entail contributing to the Instructables community itself and other communities, by developing cheaper, better or more environmentally sound items, as Howard's quote illustrates:

"I like to make things better so other people can make... Most people do not have a lot of money to spend and when you make things better and of interest to other people... So when you do that, if you make something that costs, like, a thousand dollars, no one is going to make it, right? If you make something that is really cool, which costs 5 dollars then you have a lot of other people interested" (Howard/male/interview).

In accruing these benefits, Instructables' members invest their time in developing products and services, representing and sharing them on the website. Our data suggests that such prosumer practices are about sharing and empowering peers, rather than trying to build their following.

4.2 Community benefits: Peer-to-peer prosumers as collaborative use and social value producers

The type of prosumption that occurs on Instructables is an iterative and often educational process, where learning itself is a collective social practice producing use value for peer-to-peer prosumers. A member completes a project only once they share it with the community. Members' evaluations and reviews support collaborative production and recognize make or buy decisions. Online comments include propositions for project development and suggestions to peers about which alternative materials to use, as Jmr's quote suggests:

"This is a very clever design and I have to say, I'm very impressed. A few recommendations which may improve the quality of the speaker: Try using finer, insulated wire. This does admittedly defeat the purpose of scrounging materials, but it can be bought online relatively cheaply... Try securing the magnet directly within the coil. The field will be strongest within the coil, which will provide a greater impulse to the magnet" (Jmr/male/observation).

While the higher order concept of prosumption as theorized in existing literature does not necessarily require collective cooperation, collaboration is integral to the nature of peer-to-peer prosumption in this community. Those with knowledge to add, those who have completed similar projects and those who build the projects create use and social value within the community. Instructables' members often write

evaluations to other members about elements of involvement such as time, cost, effort and skills, highlighting the nature of the process, as Nfl illustrates:

“This Instructable will introduce Reginald as a whole and then go into a breakdown of every component in detail. Performing all the necessary networking to accomplish this can be very complex and involved, however this method of communication is clarified and explored through this Instructable. I saturated approximately a solid month of research and troubleshooting into a simple guide” (Nfl/male/observation).

Members perceive their involvement with projects as a process, which requires planning and management of resources. They reflect on their experiences in ways that ensure others recognize the degree of difficulty involved. However, importantly, they are freely passing on their investment to others in the community, reflecting their experience-sharing orientation. This is often very precise, with members preparing and illustrating lists of project materials and tools, and detailed descriptions of their experiences to set expectations about the level of complexity of a project (figure 4).

[Figure 4 about Here]

Photographs are intrinsic parts of peer-to-peer prosumers' knowledge sharing, publishing experiences, records of the process of prosumption and social learning aides. Most members use photographs that focus on the functional aspects of their projects (e.g., how to use tools to display materials). For example, in a sequence of photographs, Ope shows the tools, materials and steps required to make a simple clip from tubing, which he concludes by showing a photo of the final product in use.

The photographic documentation of projects is an important part of the collaborative production process in terms of the use value for others. Members' photographs can help others to understand projects, set out expectations and create similar projects. The physical effort of some projects matches the mental requirements of others, as Ran's quote exemplifies:

"Before we can build Simple Bots, it is important to have a rudimentary understanding of how electricity works... In the Simple Bots eBook, all of the electricity for bots will be coming from batteries. So, I will only be explaining DC (direct current) electricity in this Instructable" (Ran/male/observation).

Members also refer to knowledge sources such as tutorials, e-books and peer-to-peer reviews, and how these sources are used to understand and make projects. This is part of the learning value chain of collaborative presumption, with Instructables members frequently sharing online sources, providing information on other specialized sites for their projects and supporting each other generally, as Bryant suggests:

"There are two types of supporters. 1- Admirers and commenters that boost one's morale and encourage to make more projects. 2. Experts that can provide problem solving and suggestions about designs. Both are important" (Bryant/male/interview).

Members continually instruct others in the community on how to make items. In doing so, they share a contributory peer-to-peer collaboration that incrementally builds knowledge resources and community, which in turn 'spill over' offline:

"The community is really an open database, there is a communal goal which is growth, expanding the collective knowledge of the community... Any project, idea or design that is contributed to the community is a growth. For example, one incredible project is the Parabolic Solar Hot-Water Heater by the member Basil...The project

boils water for free, using solar energy, and would be incredibly useful in hot areas that do not have access to clean water. The Nicaragua Solar Panel is another great example of benefitting the community...The platforms that the community hosts act as further platforms to benefit others, the cycle continues” (Noel/male/interview).

Noel explains the benefit of individual projects in terms of their contribution to free collective knowledge. Thus, Instructables is viewed as a platform to present and manage prosumers' projects. In Berger *et al.*'s (2005) words, it is perceived as a collaborative and creative community contributing benefits to other members in the online community itself and to members' local communities. Thus, members develop use value across the Instructables community, representing peer-to-peer prosumption as a community project with knowledge and skills that add use and social value to those directly or indirectly involved.

4.3 Peer-to-peer use and social value through family and friends' benefits

Participants often refer to personal and family benefits as their reasons for engaging in prosumption, which links both to their personal enjoyment of such production and the functional benefits that may accrue for others:

“I make things for other people... if I am going to give a gift to someone...more often I will make something for someone” (Max/male/interview).

“I'm a stay at home mum of 3 young kids and I love baking, decorating cookies, making cake pops and pretty much making any type of fun food that my kids will enjoy” (Bubb/female/observation).

In the exemplar quotes above, the work involved in producing goods for family and friends becomes the object of further collaborations when presented online. This is because peer-to-peer prosumers share an enthusiasm for communally relevant

activities, which benefit their families. Such family benefits are particularly relevant when members make and share projects of another community member. In the example below, Riku describes how she is about to prepare a mushroom burger for her husband and friends, as per Mol's instructions:

"I've looked at this several times and now I'm finally going to make them! Hooray! It's my husband's d and d night tonight, so I'm hoping they'll be nerdy enough to appreciate them" (Riku/female/observation).

Here a straightforward recipe takes on greater personal meaning for Riku, who uses the project for a special occasion. Indeed, many individuals on Instructables refer to their projects' contributions in terms of functional benefits to their families and friends:

"I'm always building things for those around me. From irrigation to lighting controls, and security devices" (Solomon/male/Interview).

"My sister asked me to make a set of lamps for her market stand in the night" (Angus/male/Interview).

The excerpts above show that participants create a variety of products offering functional benefits to family and friends. Nevertheless, as they share their experiences with the community, projects take on wider social and hedonic significance.

4.4 Environmental benefits of peer-to-peer prosumption

Peer-to-peer prosumers in Instructables contribute projects that are perceived as environmentally friendly (e.g., projects leading to waste reduction, wildlife sustainability, and conservation of resources). Their projects afford the emergence of functional benefits through products that are cheaper, better and/or environmentally sound. Sleem, for example, comments on how their projects are environment-friendly:

“I have been making fire starters for years now... The way I make them is the most economic and environmentally friendly way out there” (Sleem/male/observation).

Sleem refers to the extent of his experience as a prosumer, enabling him to devise more environmentally friendly products. Wyatt also addresses his projects through the lens of environment-friendliness, but he does this by highlighting his use of recycled parts:

“Almost all of my work contains recycled components, which benefits the environment. The materials come from a small geographic radius, reducing transportation energy” (Wyatt/male/interview).

In considering the environmental impact of his projects, Wyatt refers to relevant principles of ethical consumption, including choices that go beyond economic considerations to incorporate attributes that resonate with moral beliefs regarding animal, people and environmental welfare. Some members associate dependence upon the market with negative environmental or societal consequences. Repairing, improving and recycling items are frequent themes of Instructables posts. Nev explicitly refers to the negative side of overdependence upon the market in terms of environmental consequences that go beyond concerns with the self, reflecting the distinctive peer-to-peer nature of the community:

We all should be more conscious and responsible by repairing whatever can be repaired. Perhaps many would say they will die before that time comes, but..... what about the future generations? what are we leaving to them? PLEASE, think about it!” (Nev/female/observation).

We identify this environmental concern as an essential element of peer-to-peer prosumption in the case of Instructables, where participants often recognize in their posts how a short-term consciousness or selfishness can dominate consumption,

ignoring the long-term consequences for future generations. In this way, peer-to-peer prosumers derive use and social value through a type of project sharing that fosters the emergence of social relations and forms of organizing that make it possible to produce, share and collaborate to create knowledge flexibly, coherently and ethically among peers.

4.5 Market benefits: The use and social value of peer-to-peer prosumption vis-à-vis the marketplace

Critical to further defining peer-to-peer as a type of prosumption is unpacking its inevitable connection with the marketplace. While members use existing product parts or leftover materials as inputs for new projects, in some cases such projects require purchasing commercially available parts and components. In the case below, decisions about sourcing and cost reduction become key elements of the prosumption project. The questioning of what the marketplace offers is a frequent preamble to the presentation of projects. As an example, Ker makes a direct comparison to the commercial version of a table, which he shares with peers:

“Frustrated at the £249 price tag of the Legion Pallet Table offered by Made.com and think you can do an equally decent job yourself? Enthusiastic to start your own project but don't know what you'll be facing? I hope this instructable will give you an opinion on the scope of the work to make your own pallet coffee table” (Ker/male/observation).

By communicating and sharing how to make the pallet coffee table, Ker is offering use value as an alternative to the exchange value in the marketplace. However, peer-to-peer prosumers do not reject the marketplace and will use it to enable them to create products – and the existing commercial affiliate links to

ingredients, tools and other resources needed for projects attest to this point. For example, Mkah was only able to build his brain wave interface because of the recent availability of appropriate low cost parts, and Zane highlights some prosumers' tendency to challenge firms' restrictions in relation to the management of their products:

"Recently we can get parts, micro controller more low cost, small size and more easy to do custom programing. So I made 3 different prototype first. then make actual low cost interface" (Mkah/male/observation).

"Makers, as a lot, tend to be warranty breakers. They open, fiddle, break, modify and rejoice at their Frankenstein monsters. Corporations are not all that fond of that type of consumer" (Zane/male/Interview).

The practices illustrated in the quotes above imbue marketplace products with new meanings and use value, as intended by peer-to-peer prosumers.

Instructables' participants share their expertise and wider perceived benefits through peer-to-peer prosumption, generating social value. However, some members see the commercial potential of their projects, suggesting an engagement and desire for more than just use and social value in some instances:

"If I were to win the laser cutter I would expand my business. The laser cutter would allow me to remove the middle man and reduce the cost to my customers. The laser cutter is a crucial component in the advancement and continuation of my business; the business which is the face of my inner-self" (Par/male/observation).

Here Par's ambitions for his laser cutter take him into the domain of exchange value. That Instructables offers a platform for those wishing to obtain economic benefit from their prosumption activities could be seen as negating the core nature of peer-to-peer prosumption as described in this paper. However, community members accept

and encourage this, further reinforcing the multifaceted, fluid and fuzzy nature of techno-social practices and value in context. This, in turn, affects peer-to-peer prosumption, leading to nuanced types of value being created. In some cases, members will even show willingness to purchase a peer-produced product, suggesting a type of leakage of use value into the realm of exchange value. This also suggests a fluid, hybrid, flexible and participatory prosumer role in their relationships with commercial culture; one that signals what Jordi (2010) calls the power of the capitalist economy in framing prosumption contexts:

“Best I've ever seen!! Would you consider making me one [dress] or selling me yours after you use it? I would love to wear it next year! My offer is serious and I'm willing to pay for it” (Tai/female/observation).

An important point here is that the exchange among people is not dominated by some commercial monetary control, but rather a desire to support others through the ethos of craft. Like prosumption, its peer-to-peer version does not have to be valorized by companies or the owners of the platform for its bottom-up collaborative practices to exist. In fact, what companies valorize and monetize are the technological affordances of the social medium platform due to its potential for advertising and direct-to-consumer sales. In the case of how Instructables is perceived empirically, it is the collaborative, community nature of the platform that is the most important aspect for peer-to-peer prosumers, which is what they prioritize over exchange value but without having to bracket out exchange value completely. This represents a significant distinction between prosumption, particularly its peer-to-peer kind, and co-creation or co-production, as the latter requires collaboration with companies primarily for exchange value. Nevertheless, most projects are very simple and purely of use and social value, such as using cardboard boxes to store plastic bags, as in ‘Tame those

shopping bags' (<http://www.instructables.com/id/Tame-those-shopping-bags/>). They, in turn, lead others to develop the idea and provide alternative use scenarios through shared learning.

5. Discussion

The analytical themes developed in the findings demonstrate the nature and practices of peer-to-peer prosumption through online explanations, how-to photos and descriptions of community projects. The nature and process of peer-to-peer prosumption emphasizes collaborative consumer-to-consumer practices and learning, involving the social media practices of writing, visualizing and commenting that are possible in this online community. The type of prosumption on Instructables is an iterative and often educational process, where a shared passion for learning and knowledge is a collective social process.

Peer-to-peer prosumption illustrates the collaborative but unremunerated labor of Instructables' members. Findings provide evidence that Instructables' members build on peers' versions of specific projects by producing and further developing their own projects. Echoing Xie et al. (2008), Instructables' members often write evaluations to other members about elements of involvement such as time, cost, effort and skills, highlighting the nature of the process. We suggest it is through peer-to-peer knowledge sharing (Erden *et al.*, 2012), and collaboration via project feedback and posted discussions, that members co-generate, and benefit from, use and social value. Thus, research findings add to existing prosumption literature, by illuminating how use and social value emerges and benefits this peer-to-peer community.

Further, as figure 3 and the findings illustrate, peer-to-peer prosumption benefits interlink through prosumers' individual labor and the use and social value they

derive. Instructables members bring skills and knowledge to their projects. In their roles as peer-to-peer prosumers, members often gain personal benefits, including rational and hedonic enjoyment. This is similar to the enjoyment and fun benefits Cochoy (2015) highlights, critiquing the view of prosumption as laborious. However, building on existing literature (Schau *et al.*, 2009; Davis, 2012; Shankar *et al.*, 2006; Woermann, 2012), we suggest that these benefits enable prosumers' collective identity projects to emerge. Overlapping with these personal benefits are other-oriented benefits that align with participants' perceptions of the collaborative, peer-to-peer ethos of prosumption. Together, these findings are also original compared to previous works in the field (Humphreys and Grayson, 2008; Ritzer, 2014).

The essence of peer-to-peer prosumption is prioritizing collaborative use value through peer-to-peer knowledge sharing and its resultant products and services, rather than through ready-made alternatives from the marketplace (Kotler, 1986). Thus, peer-to-peer prosumption entails the creation of new products because of the use value emanating from prosumers' own peer-to-peer, collaborative production. It also involves contributing original use value to other prosumers. This contribution to the community is an essential part of peer-to-peer prosumption, as it builds and supports social relations (Arvidsson *et al.*, 2008); what we have termed social value. Thus, our research speaks to existing value theories (Vargo and Lusch, 2004; Lusch and Vargo, 2014), contributing the original idea of social value.

The paper acknowledges existing debates and theories of value (Comor, 2015; Fuchs, 2014; Arvidsson and Colleoni, 2012; Roberts, 2016; Vargo and Lusch, 2004; Lusch and Vargo, 2014), also taking the perspective that prosumption, including its peer-to-peer type, is characterized by an intricate range of actors, practices, mechanisms, effects and values (Dusi, 2016). The research eschews an either-or

approach to theorizing value in relation to prosumption, and focuses instead on clarifying existing terminology and illuminating peer-to-peer prosumption practices and relevant meanings from the perspectives of prosumers. Therefore, this paper follows a non-polarizing (Knights and Mueller, 2004), flexible, pragmatic and situated perspective on peer-to-peer prosumption, considering the individuals who engage in it and how its practices manifest in a specific community context.

The findings reveal a hybrid, flexible and participatory prosumer relationship with the market. Peer-to-peer prosumers still routinely connect with the marketplace, and the authors do not suggest that members can or necessarily want to escape the market (Kozinets, 2002b). Indeed, all value-producing activities are at some level mediated by market relations. It is important to acknowledge that peer-to-peer prosumption takes place in the context of commercially oriented online platforms. Currently, most existing online social media are monetized through various forms of online advertising (Comor, 2015). Therefore, it is not possible to bracket out exchange value completely, even if this is not the primary focus of the prosumers using such social media platforms. The Instructables.com site is no exception, as it includes advertising and links to commercial businesses. One could argue that prosumption still entails some degree of exchange value creation even if indirectly (Comor, 2015), and projects sometimes contain affiliate links, for example. This is because all prosumers depend on the consumption of technology, tools and materials to be able to use such community platforms and create peer-to-peer use value.

Therefore, peer-to-peer prosumption takes place in the context of monetized, commercially oriented online platforms. While Instructables is a monetized platform, it is considerably less so than Facebook, for example. Where exchange value is present in Instructables, however, it usually conforms to an ethical economy scenario, which

combines a sharing and crafts-based ethos (Campbell, 2005), with an inescapable need for monetary income (Arvidsson *et al.*, 2008). Further, many of the products produced by members of Instructables use commercially available components such as the Raspberry-Pi and Arduino boards (Figure 4). These products, and the brands which sell them, have long embraced the approaches of do-it-yourself. However, often the continued success of such commercial companies relies on supporting peer-to-peer prosumers, as opposed to seeking to convert such consumers into co-creators. In fact, the findings demonstrate that peer-to-peer prosumption can contribute to a reduced emphasis on exchange value through the creation of use and social value among community members. Thus, the community presents a space where prosumers seek to build diverse alternative economic and social practices (Bazin and Naccache, 2016), as they build alternative products. The focus of peer-to-peer prosumer practices is primarily in foregrounding use and social rather than exchange value. As a result, peer-to-peer prosumption emerges as valorization of prosumer labor based on collective use and social value production by and for prosumers.

A pure type of prosumption remains elusive and difficult to ascertain in any market economy. Nevertheless, a conceptual distinction between prosumption, its peer-to-peer type and consumer co-creation is useful, as such a distinction enables a clarification of different types of prosumer labor performed (Comor, 2015; Cova *et al.*, 2011; Ritzer and Jurgenson, 2010; Zwick *et al.*, 2008), and to what end. An enhanced understanding of the differences among such concepts is also important because it deepens and broadens knowledge of how peer-to-peer prosumption prioritizes prosumer expectations and empowerment opportunities through increasingly collaborative marketplaces.

We suggest that prosumption is a higher-order concept that tends to focus mainly on the benefits of making skills to address prosumers' own personal needs. It need not be collaborative and can be carried out offline and individually, as an example. In contrast, the peer-to-peer kind of prosumption focuses on use as well as social value generated through peer-to-peer collaboration. Thus, while the higher order concept of prosumption as reported in existing literature does not necessarily require collaboration in a peer-to-peer sense, collaboration is integral to the nature of peer-to-peer prosumption in the Instructables community. Peer-to-peer prosumption requires prosumers to re-construct the symbolic meanings and use value of commercial offerings for their own purposes, in their own collaborative terms and for their own functional and hedonic benefits. Peer-to-peer prosumption is a different type of prosumption to those of recent theorizations, such as Ritzer's (2014), where engagement with firms is still assumed and where exchange value remains predominant.

Different from both of these concepts is the higher order concept of co-creation or co-production, where the priority is mainly exchange value generated with firms. Thus, both the higher order concept of prosumption and its peer-to-peer type are unlike co-creation, as co-creation depends on firms to engage with consumers and uses consumers' skills to help firms develop offerings for exchange value. Further, compared with co-creators, peer-to-peer prosumers have more responsibility for the labor involved in the creation of their own products, including their use and social value and overall consumption experiences.

In unpacking these conceptual differences, this research addresses a knowledge gap regarding the limited attention given to distinguishing prosumption from other, closely related concepts. This is a significant theoretical pursuit, given the

ever-evolving consumer involvement in the value generating processes that digital technologies afford.

6. Conclusion

This research establishes how prosumption, particularly its peer-to-peer kind, manifests in the online community Instructables.com. By using a netnography-informed approach to data collection, the research shows the flexible nature of the value of prosumption for those who engage in it. As a result, this work illuminates the nature of the concept of prosumption and its distinctiveness compared to similar phenomena, such as co-creation or co-production. In doing so, we also establish the original concept of peer-to-peer prosumption, which we define as a specific type of prosumption that creates both use and social value by and for collaborative prosumers.

Consequently, this paper furthers theorization in the area of value creation through collaboration among consumers, and between consumers and producers. It develops prosumption theory further by offering nuanced, comparative conceptualizations of prosumption vis-à-vis co-creation as higher order concepts, while also illuminating peer-to-peer prosumption as a type of prosumption. Hence, this paper establishes a conceptualization of peer-to-peer prosumption that minimizes companies' role and emphasizes the social and use value of prosumption. This original concept highlights the role of the individual and indeed of the online community in creating use value primarily for collective benefit. These arguments do not detract from previous works on prosumption. Nor do they suggest that companies' roles in co-creation are diminished or that labor exploitation does not exist in the case of peer-to-peer prosumption. What we determine is that peer-to-peer prosumption represents a

particular type of prosumption performed by and for a group of consumers who share its ethos.

The significance of recognizing peer-to-peer as a type of prosumption lies in its collaborative nature and its foregrounding of use and social value over exchange value. Thus, this work furthers the debate on how prosumption presents itself in the marketplace, establishing a nuanced, peer-to-peer version of it and the benefits and reasons prosumers have for engaging in this particularly collaborative type of prosumption.

By critically analyzing the nature of value through a particular kind of prosumption, the paper makes three theoretical contributions. First, it transforms the scope of empirical research, by clarifying and unpacking critical but flexible distinctions between relevant terminology in the field, namely prosumption and co-creation or co-production, and by determining prosumption as a higher order concept. This contribution, thus, enables marketing scholars to apply relevant terminology about types of value creation in the marketplace more appropriately going forward.

Second, the paper determines the benefits and value participants derive from a particularly collaborative type of participation in the marketplace. It shows that the kind of prosumption at Instructables involves dimensions that have a collaborative nature and that enable use and social value to emerge. Its significance lies in illuminating the relevance of use and social value over exchange value for this type of prosumption.

Third, and building on the second contribution, the paper establishes the concept of peer-to-peer prosumption. This contribution is significant not only for its originality, but also because it broadens the scope for future research, highlighting the potential for researchers to investigate additional types of prosumption that may

manifest in distinct value contexts and enabling different types of benefits and value to emerge for prosumers.

6.1. Future Research

Future research can build on the study presented here, as all research has its limitations. For example, while we examine prosumption as a higher order concept and its particular peer-to-peer manifestation, there is scope for future research to examine prosumption further, distinguishing its nuanced manifestations in the marketplace and, thus, broadening the latitude of empirical research in the field. Given that this paper draws on qualitative data collected within a single online community, making it a specific study, there are opportunities for building on our findings both in breadth and depth. In particular, there is scope for further understanding the motivations and benefits for prosumers either in terms of the types of value peer-to-peer prosumption enables beyond those identified here or through investigation of the benefits identified in this research in other communities.

Future research can seek to examine a broader range of online and offline communities where peer-to-peer prosumption might manifest, using a wider range of projects and/or a larger number of observations and interviews than we use in this study. For example, future research can examine online or offline communities dedicated to particular interests such as sewing, cooking or car maintenance. Similarly, local communities that support geographical areas, nature conservation or particular health concerns offer different ranges of interest and potential for comparisons to be made between offline and online communities.

Additionally, this research draws on qualitative methods, so a limitation is that our findings are generalizable only within our theoretical propositions rather than to a

particular population (Jamali *et al.*, 2009). Consequently, future research can utilize mixed or quantitative methods in order to test the theoretical propositions developed here. A next step might be to address the benefits identified in our empirical research and apply them to a sample of similar communities. The conceptualization of peer-to-peer prosumption could be analyzed further, and key features identified to create a questionnaire design that could be applied across a range of different communities.

Finally, different prosumption contexts can open up new opportunities for future research seeking to examine or compare additional types of prosumption. While Instructables lends itself to collaborative use and social value creation through peer-to-peer prosumption, other types of prosumption might emerge in different online or offline contexts, highlighting less collaborative prosumption types and/or types that are focused on generating value through specific prosumption benefits. For example, environmental benefits might be stronger in other contexts, enabling a type of prosumption that is primarily responsible and focused on creating environmental value, where use value emerges through environmentally friendly prosumer practices. Similarly, a focus on generating value through enjoyment, fun and pleasure might yield a type of hedonic prosumption, and so on. Therefore, future research can focus on uncovering and examining different types of prosumption further, including the types of value they generate and what they may mean for the ongoing evolution of marketing and consumer culture.

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Figures

Figure 1: Consumer roles and value creation

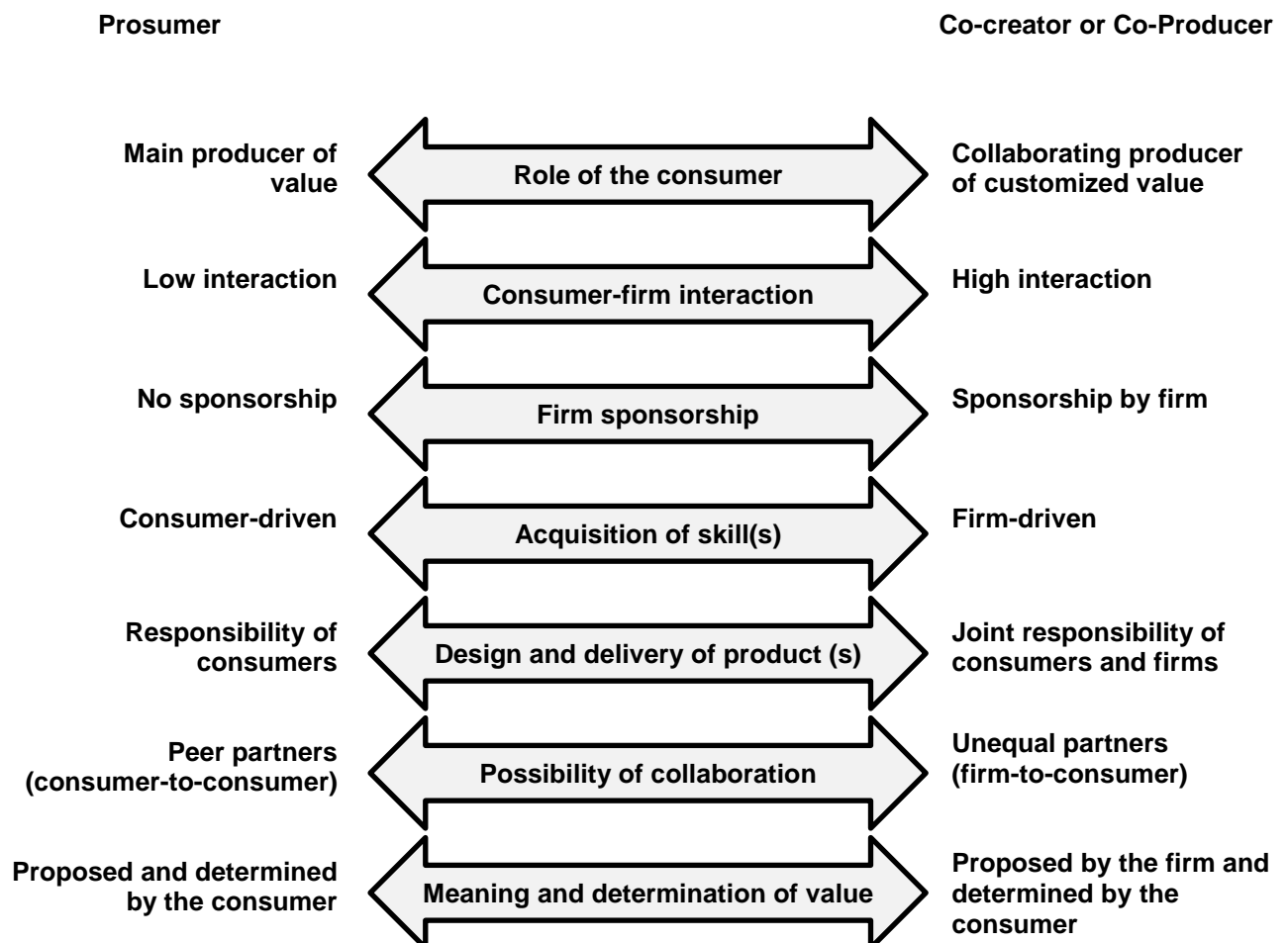


Figure 2: Community profile

Instructables.com is an online community primarily focused on shared content about DIY projects, rather than relationships or brands. Some members participate in the community and reveal no demographic information. But all members contribute useful projects and gain respect from other members. The majority of members are located in Western countries, mainly in the United States, Europe, Australia and Canada. Instructables is a diverse community with members of different genders, jobs and educational backgrounds.

Figure 3: Analytical template - Benefits of prosumption

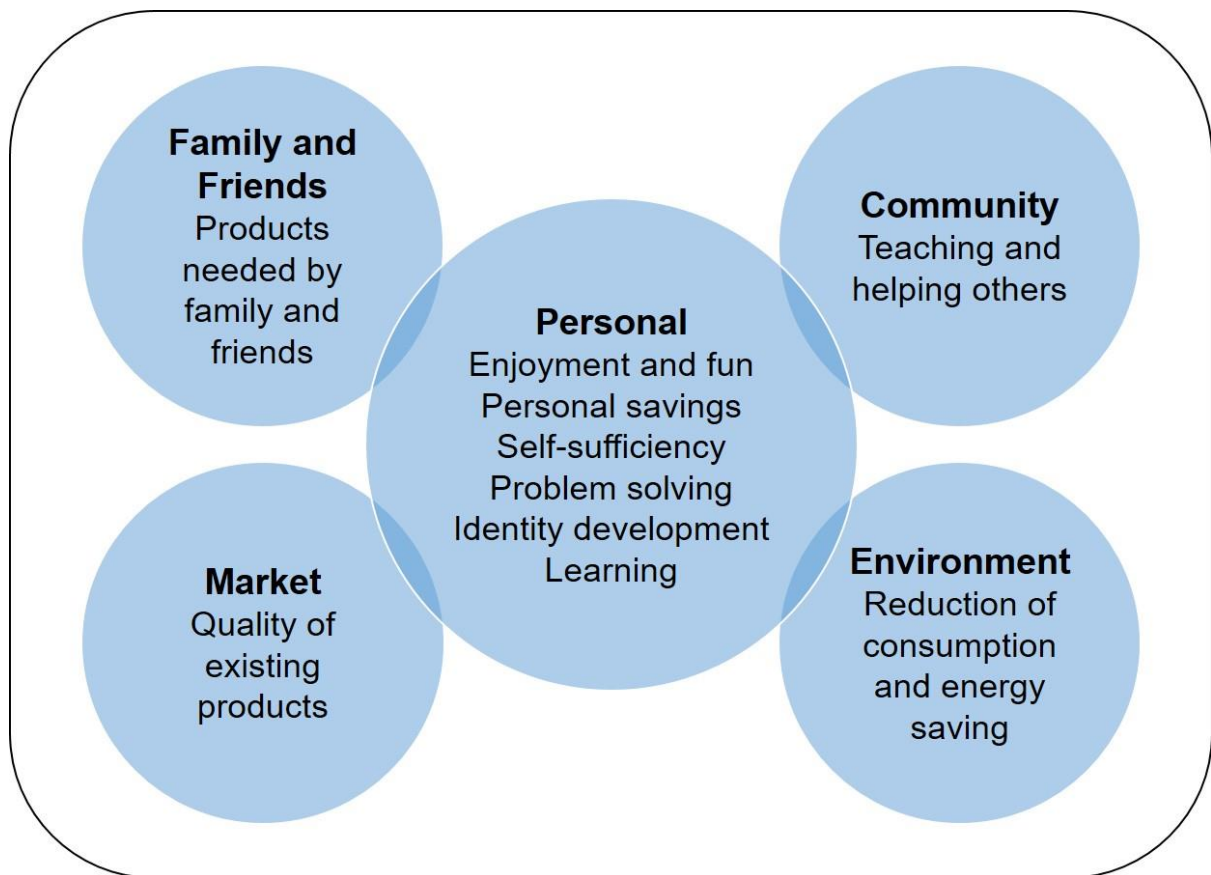


Figure 4: A project by Ama, female

Project title	Arduino vocal effects box
Tools	<ul style="list-style-type: none"> - 22 Gauge Wire - Solder - Sand paper - Plywood - Wood glue - Hot glue - Screws
Parts/ materials	<ul style="list-style-type: none"> - (1x) Arduino Uno REV 3 - (7x) 10K Ohm 1/4-Watt Carbon Film Resistor (2 packages) - (9x) 20K Ohm 1/4-Watt Carbon Film Resistor (2 packages) - (1x) 1K Ohm 1/4-Watt Carbon Film Resistor. - (1x) 50K-Ohm Linear-Taper Potentiometer. - (1x) 10KOhm Audio Control Potentiometer with SPST Switch (to control volume and turn the device on/off) - (5x) 0.25" Knurled Knob - (2x) 9V Alkaline Battery - (2x) Heavy-Duty 9V Snap Connectors - (1x) PC Board with Copper - (1x) SPST PC-Mountable Submini Toggle Switch - (2x) Male Header Pins - (3x) 8 pin socket - (1x) TL082 Wide Dual JFET Input Op Amp - (3x) 100K Ohm 1/4-Watt Carbon Film Resistor (1 package) - (1x) 10uF electrolytic capacitor - (1x) 47nF capacitor - (3x) 0.1 uf capacitor - (2x) 1M-Ohm Linear Taper Potentiometer - (1x) 1M Ohm logarithmic potentiometer - (1x) male header pins - (1x) 10K-Ohm Linear-Taper Potentiometer - (1x) DPDT Flatted Metal Lever Toggle Switch - (2x) 1/4" stereo jack - (2x) 5mm High-Brightness White LED (1 package) - (2x) 100 ohm 1/4W 5% Carbon Film Resistor - (2x) TS922IN Dual Op Amp