

Toward an understanding of meaning creation via the collective co-production process

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ABSTRACT

Co-production has been traditionally studied in the context of industrial and service markets. This study investigates the consumer's search for meaning and fulfillment via one type of co-production, collective co-production. The case study method was utilized to examine knife making from kits. The findings unpack a three-part co-production process (design, production, and consumption) that results in significant identity ramifications for consumers. During the design stage of knife making, the informants shaped their self-concept through social inspiration, creative self-expression, and identification with the primal sense of self. The production stage provided internal validation of the self-concept through a pseudochallenge that was achieved through learning activities. The consumption stage provided external validation of the self-concept as the informants shared their co-production experience with others. Theoretical implications are discussed. Copyright © 2012 John Wiley & Sons, Ltd.

INTRODUCTION

"We know very little about what the nature of co-producing is like; what goes on during co-producing and what would compel customers to engage in this activity" (Woodruff and Flint, 2006, p. 190).

Co-production has become an important topic of discussion in the marketing literature. Some researchers have even gone so far as to call co-production "a new paradigm" for marketing practitioners and scholars (Zwick *et al.*, 2008, p. 163). Accordingly, research has begun to flourish in the domain of co-production, yet, as argued by Woodruff and Flint (2006) above, marketers still have a lot to learn about how and why consumers engage in co-production. The purpose of the present study is to examine the consumer's search for meaning and fulfillment via one type of co-production, collective co-production.

Literature in marketing suggests that consumers utilize the consumption of products and services to create a sense of self and find meaning. For example, studies show that individuals consciously consume products to alter their identity symbolically (Solomon, 1983; Belk, 1988; Mehta and Belk, 1991; Schouten, 1991; Holt, 1995) and utilize retail settings to experience play, entertainment, imagination, and fantasy (Holt, 1995; Kozinets *et al.*, 2002; Kozinets *et al.*, 2004). Furthermore, consumers participate in consumption-oriented social collectives (i.e., brand communities) and collective consumption rituals to gain a sense of purpose and meaning in their lives (Wallendorf and Arnould, 1991; Arnould and Price, 1993; Muñiz and O'Guinn, 2001; Muñiz and Schau, 2005).

The authors of the present study propose that when a consumer partially contributes to creating a product, as opposed to outright purchasing a finished product, it gives him/her a sense of challenge, feelings of accomplishment, connections to the self, and social recognition. Thus, co-production experiences serve as a means to connect to the self and create meaning and fulfillment in the life of the consumer. However, this assertion has yet to be examined in the literature. To that end, this paper proceeds with a literature review on co-production in marketing; an introduction to the method used for collecting, analyzing, and interpreting the data; and a discussion of the key findings and study implications.

THE THEORETICAL FOUNDATION OF CO-PRODUCTION

The idea of co-production was first studied in the context of industrial and service markets. Because of its roots, co-production was originally discussed in terms of the economic efficiency gained from cooperating with a customer in a business-to-business context that can result in a competitive advantage (Fitzsimmons, 1985). In the 1990s, researchers began to examine co-production in the consumer context. For example, Firat and his colleagues wrote a series of articles discussing that in postmodern times, marketers have witnessed the emergence of the "customizing consumer" who takes an active role in production as she defines her identity (i.e., Firat, 1991; Firat and Venkatesh, 1993, 1995; Firat *et al.*, 1995; Firat and Shultz, 1997). Additionally, Solveig (1996) proposed that consumer co-production spanned three stages: design (e.g., customization of the product based on individual needs), production (e.g., finishing the goods to get a better fit or reduce costs), and consumption (e.g., after-sales support, customer service, and assisting the consumer in getting more value in use). These early articles appeared to spark the growth in the literature on co-production.

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More recently, the terms “value co-creation” and “service-dominant logic of marketing” were coined as a new school of thought for marketers that drives co-production (Prahalad and Ramaswamy, 2000, 2002, 2004a, 2004b; Vargo and Lusch, 2004, 2006). These authors argue that value no longer resides solely in the finished product, but value is defined by and created in co-production with the consumer (Vargo and Lusch, 2006: p. 10). While a plethora of articles has emerged related to value co-creation, the service-dominant logic of marketing, and co-production, only a few researchers to date have begun to hypothesize about how and why consumers engage in co-production. Furthermore, those researchers talking about the issue have not done so with any depth, and there are no studies to date that empirically validate their assertions. For example, in talking about the co-production of technological products, Anderson (2006: p. 74) states that consumers co-create because of “expression, fun, experimentation, and reputation.” Similarly, Von Hippel (2005: pp. 5 and 7) argues that consumers participate in co-production of technological products because they “want something that is not available in the market” and they value “the enjoyment or learning that it brings.” It should be noted that neither author elaborates on these themes.

Extending beyond technological products, there are several articles written on co-production in the wider marketing literature (e.g., Bendapudi and Leone, 2003; Etgar, 2008; Zwick *et al.*, 2008), none of which significantly elaborates on how or why consumers engage in co-production processes. Thus, Woodruff and Flint’s (2006) assertion that marketers do not know much about how and why consumers engage in co-production still stands. The purpose of the present study is to examine the consumer’s search for meaning and fulfillment via co-production processes.

Collective Co-Production and the Case Context

Co-production is defined as a perspective in which “the customer becomes primarily an operant resource (co-producer) rather than an operand resource (target) and can be involved in the entire value and service chain” (Vargo and Lusch, 2004: p. 11). Co-production can take two forms: collaborative co-production and collective co-production (Humphries, 2008). Collaborative co-production consists of “a partnership of consumers with the company to create a service, brand identity, or product,” whereas collective co-production is “the interaction between consumers to produce a brand community, a narrative, or product alterations independent of company input and stewardship” (Humphries, 2008: p. 63).

Given the various co-production opportunities in the marketplace and the fact that these two types of co-production are not mutually exclusive, the different types of co-production may be better understood via a continuum of examples. Collaborative co-production implies an interactive partnership where the company and the customer work in conjunction through various stages of the value chain (i.e., work together on conceptualization, design, production, and possibly postpurchase service). For example, if a software development firm consulted its customers to contribute design ideas for new product development and then help beta test those products, the process would be collaborative co-production. Another

(albeit less extreme) example of collaborative co-production is when a consumer works with a web-based shirt company to choose her own fabric and create the design/cut of the shirt, which is then constructed by the manufacturer.

In contrast, collective co-production is at the other end of the continuum. It exists when the consumer works independently from the manufacturer and may rely on the knowledge and advice of other consumers (i.e., brand community) to assist with the completion of the project. An extreme example of collective co-production is demonstrated in previous research by Muñiz and Schau (2007; 2005). These authors found that consumers continued to utilize the Apple Netwon, long after the company had abandoned the product. Consumers built upon the system (even creating their own ads for the product) via a community of like-minded others that was completely independent of the manufacturer of the product. Model airplane kits are another example of collective co-production in which the consumer purchases the product in pieces and does the work of constructing the item and adding design elements, independent of the manufacturer.

Manufacturers have long recognized that platform kits with design tools can facilitate the co-production process (Von Hippel, 2005; Prugl and Schreier, 2006). In fact, Prugl and Schreier (2006) found that cutting-edge users of tool kits “employ user-created tools to push design possibilities further” than the manufacturer (Prugl and Schreier, 2006: p. 237). These user-created designs are then shared with larger sectors of the community (i.e., the collective), facilitating consumer learning and knowledge, independent of the manufacturer (Prugl and Schreier, 2006).

The context for the present study is the making of knives from kits, which, like model airplanes, is a form of collective co-production. Today, the knife hobby is one of the fastest growing hobbies in the United States. There are well over 100,000 knife enthusiasts in the USA alone (Ricklefs, 1997). Ninety-eight per cent of knife collectors and makers are men, and over 74 per cent of knife enthusiasts have some education beyond high school. The average age of a knife enthusiast is 53 years, and the average income among collectors is \$77,000. Most are employed in professional positions, blue-collar jobs, or as owners of their own business (Blade Magazine Press Kit, 2008).

Classic Knife Kits was started by Darrel Ralph (Ralph, 2008), a custom knife maker who had the idea of producing knife-making kits targeted toward beginning knife makers. The kits are sold via a website; the site also features a monthly newsletter, a discussion forum, and a photo “galley.” The knife kits forum is moderated by Darrel Ralph with help from his staff, although most of the posts are from consumer knife enthusiasts, which is consistent with collective co-production.

It should be noted that knife kits are akin to model airplane kits but a bit more complex. An individual knife enthusiast purchases a partially manufactured knife that arrives in pieces (i.e., it has a loose blade, a loose back spring, two bolsters, screws, etc.). The enthusiast faces the challenge of piecing the components together; designing, cutting, and creating handles; and polishing the unfinished metal and handles on the completed knife. The knife that results from the co-production process is a personally

customized product—one that the enthusiast feels he “made” rather than purchased outright.

THE CASE STUDY METHOD

This research employed the case study method (Burawoy, 1998; Yin, 2003). According to Burawoy (1998), the case study method remains grounded in theory and enables researchers to thematize participation in the world under study. This approach is appropriate because the case study method provides “an intensive, holistic description and analysis of a single instance, phenomenon, or social unit” (Merriam, 1998: p. 21).

The sampling procedure for the study was based on the purposive protocol of the typical case (Miles and Huberman, 1994). After obtaining permission from the owner of Classic Knife Kits, the authors posted to the firm’s discussion forum inviting knife makers to participate in an in-depth interview for purposes of an academic study. The post also noted that each participant would be entered into a drawing for a \$200 cash prize. Twenty-five knife makers responded to the post, volunteering for the study.

Table 1 summarizes the demographic information of the respondents. (To ensure confidentiality, all names are reported as pseudonyms.) The informants appeared to match the typical profile of a knife maker (i.e., middle aged, Caucasian male). However, the sample represented diversity with respect to knife-making experience (i.e., one informant had just finished his first knife kit while another had completed more than 150 knife kits), geographical location, and income. It should be noted that the all-male sample was consistent with the authors’ background research on knife makers and collectors; recall that 98 per cent of knife enthusiasts are males (Blade Magazine Press Kit, 2008). The implications for the all-male sample will be highlighted in the discussion of the study implications.

Interviews consisted of 25 semistructured, in-depth conversations that took place in person and over the telephone. Those informants that were within a reasonable driving distance of the authors’ home (i.e., located within the southeastern part of the United States) were interviewed in person, while the other 20 interviews took place over the phone because of the geographical dispersion of the informants. Interviews lasted between 30 and 90 minutes. They were semistructured in that the authors had prepared an interview protocol in advance; however, the interviews were conversational in nature. The interview protocol served as a guide to the conversation and to make sure that the author covered all points of interest in the interview. Table 2 presents a copy of the interview protocol that guided the data collection.

Data analysis and interpretation followed protocol for case study research (Stake, 1995; Burawoy, 1998). First, the authors identified theoretical propositions premised upon the extant literature. The authors took advantage of the richness of prior studies that conceptualized and investigated co-production and used this theoretical foundation to guide analysis and interpretation. Next, the authors aggregated the

data and condensed participants’ experiences, using the constant comparative method to interpret common patterns and identify relevant meaning-related themes. After aggregation, the authors looked at individual instances from the data to examine the emergent meanings as they related to a holistic view of the larger patterns in the data. Finally, the authors compared emergent themes with theoretical propositions, fleshing out a thick description of the case context with the definitive goal of extending theory.

Two methods of validation were used to ensure accurate representation and reliability of the data: respondent validation and comprehensive data treatment. To achieve respondent validation, shortly after completing the data analysis, one author went back to two subjects with tentative results to refine and confirm the findings. Later in the process, the authors shared the results with three more informants, who provided feedback on the final manuscript. Additionally, the investigators achieved comprehensive data treatment by ensuring that the findings of the study applied to every category. In other words, every code fit into a category and every category fit into a theme (i.e., no part of the data was left unaccounted).

FINDINGS

Few studies to date have examined how consumers create meaning from co-production processes and why consumers want to participate in co-production activities. Furthermore, no study to date has examined the collective co-production process itself. The data collected for this study address these issues. Solveig (1996) argues that consumer-oriented co-production occurs in three stages: design, production, and consumption. Thus, the authors categorized the themes that emerged from the data with respect to Solveig’s (1996) three stages of co-production (see Figure 1).

Design stage

The data were consistent with Solveig’s (1996) three stages of co-production, and thus, the making of knives via kits begins with the design stage. During the design stage, the knife maker was inspired to action (i.e., inspired to purchase the kit so that he can start the project). For some informants, the design stage represented the opportunity to emulate and connect with important figures from one’s social networks. While for others, inspiration was driven by a need for individual self-development. Furthermore, the design stage served as methods for expressing creativity as well as identifying with the self. Thus, consumers who initiated knife kit projects were driven by social inspiration, creative self-expression, and connection to the primal-self, as discussed below.

Social inspiration

During the design stage of co-production, the respondents were often driven by socioemotional connections to their past, and in the process, new social networks were developed. For example, the following quote was drawn from an interview with Daryl (a 47-year-old correctional supervisor)

Table 1. Informant demographics

Pseudonym	Residence	Employment	Age (years)	Race	Education	Income (USD)	Kits made
Timothy	Saskatchewan, Canada	Law enforcement	25	Caucasian	High school diploma	80,000–100,000	3
Jason	Norwalk, Connecticut	Equipment manager	51	Caucasian	High school diploma	70,000–79,999	30
Jack	Brooklyn, New York	Unemployed	28	Caucasian	Some high school	12,000–19,999	15
Jamal	Sugar Hill, Georgia	Systems engineer	29	Caucasian	College degree	60,000–69,999	2
Rudy	Carriere, Mississippi	Laboratory scientist	37	Caucasian	Some college	80,000–100,000	12
Wallace	Punxsutawney, Pennsylvania	Grocery stocker	46	Caucasian	Technical college diploma	12,000–19,999	1
Dan	Dover, Delaware	Environmental scientist	45	Caucasian	Some graduate	80,000–100,000	3
Tucker	Ft. Collins, Colorado	Utility operator	58	Caucasian	High school diploma	40,000–49,999	>150
Ken	Warwick, Rhode Island	IT manager	34	Caucasian	Some college	60,000–69,999	12
George	Woodlawn, Tennessee	Small business owner	44	Caucasian	High school diploma	12,000–19,999	3
Bill	Anchor Point, Alaska	Housing director	48	American Indian	Some college	40,000–49,999	3
Riley	The Woodlands, Texas	Environmental specialist	49	Caucasian	BS in chemistry	70,000–79,999	12
Wayne	Cary, North Carolina	Analytical chemist	43	Caucasian	College degree	> 100,000	5
Bruce	Victoria, B.C. Canada	Commissionaire	59	Caucasian	High school diploma	50,000–59,999	50
David	Lindstrom, Minnesota	Silversmith	54	Caucasian	Some college	30,000–39,999	10
Seth	Wister, Ohio	Freelance writer	37	Caucasian	Some college	50,000–59,999	5
Jake	South Elgin, Illinois	Unemployed	38	Caucasian	High school diploma	12,000–19,999	12
Doug	Tumwater, Washington	Physical therapist	31	Caucasian	Graduate degree	60,000–69,999	25
Bob	Methuen, Massachusetts	Product manager	49	Caucasian	Some college	80,000–100,000	16
Tony	Fresno, California	Systems manager	39	Caucasian	Some college	30,000–39,999	5
Shaun	Watkinsville, Georgia	IT manager	38	Caucasian	Graduate degree	80,000–100,000	3
Craig	Portland, Oregon	Sales associate	32	Caucasian	High school diploma	40,000–49,999	30
Daryl	Battlement Mesa, Colorado	Correctional supervisor	47	Caucasian	High school diploma	170,000–79,999	>100
Josh	Houston, Texas	Software developer	38	Caucasian	Graduate degree	> 100,000	2
Drew	Baltimore, Maryland	Graphic designer	53	Caucasian	Some college	> 100,000	20

Table 2. Semistructured interview protocol

Do you consider yourself to be a knife enthusiast? If so, how long?
 Do you collect knives? Do you make them?
 Have you ever built a knife from a kit? If so, how many times?
 Is knife making a hobby for you? What (other) hobbies do you have?
 How did you get into knives? How did you get into making knives?
 How did you find out about knife kits?
 For this section of the interview, I'd like to ask you some questions about your most recent knife kit. Where did you purchase it? What model did you purchase? Why did you select this model? Where did you work on it (e.g., in the garage, tool shed, outside, kitchen table, at work, etc.)? How long did it take you to complete? Did anyone else work on it with you? Who? Have they worked on other projects with you?
 Do you enjoy making knife kits? Why?
 Is being able to make your own knife important to you? Why do you think guys like to make these things?
 How do you feel while making a kit? How do you feel after finishing a kit?
 What do you do with the completed knife?
 What does your family think about your knife kits? What do your friends think about it? How about your co-workers?
 Do you use the knife kits discussion forum? How and why?
 Do you have other resources that help you make kits?

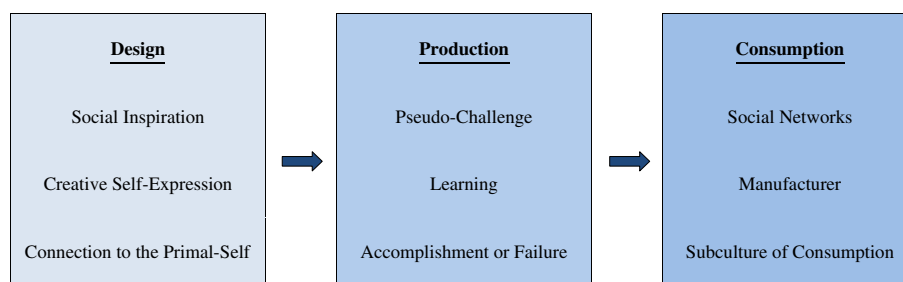


Figure 1. Meaning creation via the collective co-production process.

in which he discussed the deep emotional connections that he felt to his father as he pursued knife making. Daryl, who had completed more than 100 knife kits at the time of his interview, discussed how he was initially and continues to be inspired by the imagery of his deceased father's knife and the process by which it was made.

My father served in the military in the Pacific during World War II. He had a knife that was handmade for him by a knife maker in Delaware. The knife was made from a machinist's file. As a kid, that knife and how it was made fascinated me. I tried to make my first knife at the age of about 12 from an old file and a shed deer antler. I inherited my dad's knife when he passed away, and I still have the first knife I tried to make like his. Both remain inspirations to me.

In this passage, Daryl reflects on a time of war where he recognized the life of his father (and thus Daryl's socioemotional connection to his parent) was at risk. Daryl treasured both his father's knife as well as the one he made in an effort to emulate it, as these knives symbolize the image of his father, father-son love, and the socioemotional connection that Daryl wanted to maintain with his father who was deceased. Through his story, Daryl described how his present-day knife-making activities were imbued with social inspiration that concretized the deep, socioemotional connection that Daryl had to his father.

Other respondents had similar experiences to Daryl, where affectionate relationships became an inspiration for co-production. For example, Josh (a 38-year-old software developer) stated that it was his grandfather who made

knives and inspired his knife making. Interestingly, Josh argued that the kit itself made emulating his grandfather's behavior "possible" and "a realistic ambition." Like Daryl and Josh, Jason, a 51-year-old equipment manager, suggested that social inspiration opened up a "new world" for him.

My first [knife kit] was a gift from my brother-in-law, who happened to make one and thought it was pretty cool. It [Jason's first knife kit] really peaked my interest, and then I ended up going to a local knife show with another friend. When that friend found out I was a knife collector, he said, "Hey, if you like that, let's go see a show." When I saw a full-fledged knife show with all the factory and custom knives that were available, and then talked with people about how all these things were made, it was a new world to me.

Epp and Price (2008) argue that people use consumption to reinforce familial connections. For example, research shows that families shop together to reinforce existing social bonds (Baker, 2006; Epp and Price, 2008). The findings on social inspiration show that while the motivation to consume the knife kit was social in intent (i.e., used to connect to a loved one, as described by Epp and Price, 2008), usually the devotion was not to reinforce existing social bonds (i.e., bond with a living relative) but to reify an image of a deceased family member (i.e., in memory of my father or grandfather). Thus, co-production and the consumption of knife kits were used to mark images and thoughts of familial connections that an individual wanted desperately to hold onto within his psyche.

Creative self-expression

Creativity and self-expression during the design process allowed the co-producer to instill a part of the self into the finished product. Many of the informants stated that the need for creativity was the central driver to knife making. Among the informants, creativity appeared to embody two components: aesthetics (defined as an appreciation of an experience or object for its own sake such as admiring the beauty of artwork; Bloch *et al.*, 2003; Joy and Sherry, 2003) and play (seeking an enjoyable experience for its own sake; Holt, 1995; Kozinets *et al.*, 2004). For example, Jason (a 51-year-old equipment manager) used the words a “different license” and “artistic freedom” when describing his knife-making activities.

When I am working on these kits I feel engaged, [paused] focused. It gives me a sense of gratification because I am able to make it all by myself. And it also gives me gratification because I designed the knife all by myself. I feel like I have been given artistic freedom when I make knives. What kind of scales do I want to put on? What modifications do I want to put on? It is not only working with my hands but you get a different license. You get a license to put in your own interpretation of material selection and modification. And the knife gets interpreted as a piece of art.

Ken (a 34-year-old information technology manager) also argued that knife making is enjoyable because it is a process infused with individual creativity.

Inside I am a very creative person, and I need to express myself creatively on a regular basis. Making knives is an avenue for me to do that. Not only is it a creative process, but you are designing and putting together something that can be used in several different situations. So not only have you created something, but you've created something very useful.

Both Jason and Ken inferred that the design stage of knife making is a deeper emotional process that extends beyond functionality. Both informants discussed how knife making allows them to express their individual sense of selves. Through making a knife, the informants sought to express themselves in a way similar to that of an artist expressing him/herself through a sculpture.

Jamal (a 29-year-old systems engineer) similarly defined his knife as having “form” and “function.”

I think that within most men lies the desire to create something. And, when you consider the fascination that most men have with tools, and the fact that the knife was one of the first tools, it seems like a natural fit. Speaking for myself, the sense of accomplishment at making something that is usable for its intended purpose and good-looking at the same time is motivation enough. I also have a desire to better my work, to try to bring it up to the level of some of the work I've seen posted on the knife kit forums. Really, I want to create a better knife with each kit that I make. Each kit that I make challenges me to do better and be more creative.

Interestingly, Jamal invoked the idea that man has an innate nature to be creative, and the knife kit forums provided him a frame of reference to assess his creativity as a knife maker. However, in his interview, Jamal put forth that creativity is possible because he does not have to make the ingredients from scratch (i.e., pour his own steel). He can take the elements of the kit and successfully produce an end product that is representative of an original piece of “art.” Thus, the manufacturer-provided kit furnished a platform for Jamal to participate in the production process in a deeper, more meaningful way, a finding consistent with previous research on consumer usage of tool kits (Prugl and Schreier, 2006).

Connection to primal-self

In his interview, Jamal suggested that knife making is how a “man” is meant to be creative and that the desire to create exists within most men. Like Jamal, many of the informants emphasized the masculine nature of knife making. The heightened emphasis on gender and masculinity suggested that the informants sought a deeper connection to their primal selves during the knife-making experience. In essence, the informants emphasized that knife making was a manifestation of their manhood, thus capturing their inner nature.

For example, Drew (a 53-year-old graphic designer) stated that “there is some deep rooted hunter-gatherer feelings associated with knife making, I have no doubt about it. Men are supposed to dig knives.” The primal self is used to anchor man's virility and clearly delineates the masculine from the feminine. Like Drew, Dan (a 45-year-old environmental scientist) and Jack (a 28-year-old who is unemployed) both said that knife making is a “guy thing.” In the following quote, Ken spoke extensively about the relationship between men and knives, which also illustrates a desire to connect to his deeper “manhood.”

If I had to guess why men make knives I'd have to say it has something to do with genetic memory. You know, going back thousands of years ago in history, if you didn't make it, you didn't have it. So I think for a lot of men, especially those who are into outdoor sports or something, making their own knife is really rewarding. I think that's why a lot of men do it. It represents thousands of years of the history of man.

When he used the words “genetic memory,” Ken was trying to convince others (and himself) that knife making represents an exclusively masculine activity that epitomizes manhood. This belief was common to many of the informants, as reiterated by Timothy when he stated that “it's not like knitting or something. It's a hobby that is easy for people to accept that a man does. Knife making is just something that men do.” While this rationale for why men make knives seems extreme, it was common to the informants and is consistent with previous research on masculinity and consumption.

Several researchers argue that as society has undergone sociodemographic changes (i.e., an increasing number of women entering the workforce, becoming more independent, and providing a significant portion of the overall family

income), the masculinity of men is threatened (Otnes and McGrath, 2001; Holt and Thompson, 2004; Tuncay and Otnes, 2008). According to Holt and Thompson (2004), "Men who have suffered pangs of emasculation in this new environment have sought to symbolically reaffirm their status as real men through compensatory consumption" (p. 425). Clearly, this study's findings show that the co-production of knives from kits provides one way for the informants to use consumption to reinforce and bolster their masculine identities.

Production stage

The production stage occurs in the co-production process when consumers seek to finish the goods themselves (Solveig, 1996). The findings suggest that the design stage, in which a knife maker is inspired to act (because of social influence, the need for creativity, or to identify with the masculine sense of self), transitions into the production stage as the knife maker works toward completion of the kit. The data revealed that production encapsulates a self-test that is built from a simulated challenge, requires learning, and results in accomplishment or failure. As described below, the various aspects of the production stage create meaning for the knife maker's sense of self.

Pseudochallenge

The actual production stage of knife making involves setting up a personal goal for achievement and then testing the self with respect to achieving that goal. In fact, the informants described the production stage of co-production as a simulated challenge that is both physical and psychological in nature. In the words of David (a 54-year-old silversmith), "Making knives is something that I just wanted to try. I guess it was a challenge." Like David, Josh (a 38-year-old software developer) described knife making as a self-imposed challenge.

While making the kit, I feel challenged and absorbed. It is something like working on a 3D puzzle. While it is frustrating and absorbing, I am being constantly challenged to solve the problems with putting the kit together and making it open and close correctly. On top of that, I want it to look good. In the end, I want it to be the knife that I imagined.

The informants stated that achieving success in knife making is contingent upon the amount of energy devoted to the task. Furthermore, an individual can heighten the challenge by incorporating more customization when making the knife. In his interview, Josh continued by stating that virtually anyone can make a knife from a kit.

With a kit, you get a decent knife with as much effort as you want to put into it, and of a quality that roughly corresponds to the effort you put into it. Also, if you have no experience, tools, shop, or anything else, you can still make a knife from a kit, which also makes it ideal for a project with your child or scout troop. Kits can be customized as much as you like, and you can learn some serious skills by customizing them. Also, knife making

in general, and this includes kits, can involve an incredibly wide range of technologies, techniques, and arts, so there is no need to get bored, and a good reason to delve into these as much or as little as you like. But at the end of the day, the most important reason is probably that you can point to the knife and say, "I made that. I met the challenge."

The knife kit pseudochallenge could be interpreted as a form of play (i.e., seeking an enjoyable experience for its own sake; Holt, 1995; Kozinets *et al.*, 2004). However, the pseudochallenge is more goal- and achievement-oriented than play. Unlike the definition of play, the pseudochallenge found in the co-production process is based on setting up a self-imposed goal of completing the knife kit and acknowledging that there is potential for failure. Achieving the self-imposed goal of completing the kit is important to the kit maker, and thus he utilizes learning activities to help him achieve the goal.

Learning

As part of the production stage, the knife maker vigorously pursues learning activities in an effort to pass the pseudochallenge that he has constructed for himself. In the interviews, the informants frequently discussed that during the production stage, they sought to extensively educate themselves so they can pass the self-imposed test of completing the knife kit. Respondents' suggested several methods of educating themselves to complete their knives that the authors categorized into personal and nonpersonal sources. Informants identified personal sources for learning about knife making, such as consulting family members, friends, expert custom knife makers, and other members of the of knife community for information. Often information was exchanged via the trading of stories related to the making of knives (which is consistent with previous research on community; Schau and Muñoz, 2006). For example, Daryl "gets input from other friends who use knives and listens to what they say." In the following passage, Josh discusses how he has learned about knife production from several personal sources:

I learned about knives in Boy Scouts. My grandfather, a cabinet maker, made his own knives. He taught me to carve wood with knives, how to care for them, and how to sharpen them. Recently, I have discovered a community of knife kit enthusiasts from a knife maker who became a very good friend of mine. Today I tend to do more interacting with other knife makers by email, phone, and in person.

Informants also discussed learning from others via online chat rooms. As Jason suggests, personal dialogues with other knife makers is a key component for completing the pseudochallenge.

I maintain constant dialogue with knife makers and knife people. My main resource is the Internet. Anything you want to learn is on the Internet and I kind of explore. Knife kits forums are definitely my biggest tool in learning procedures and best methods with the knife kits.

Nonpersonal sources of information were as important to the informant's learning. The informants frequently discussed gathering information from websites, catalogs, magazines and books. In the following passage, Ken (a 34-year-old information technology manager) discusses how he educated himself via websites and books.

I've always been interested in how stuff works, and reading a website is where I got interested in the very first beginnings of making knives. Then I went and bought a couple of books. There was one in particular that was really useful. I forget the name, Step by Step Knife Making or something. I read that book cover to cover. I discovered that knife making is just not as complicated as it seems to be on the surface. So I read that book, got myself some scrap steel, and made my first knife. Honestly, it wasn't very good looking, but it spurred me on. That got me interested in refining those skills and really taking those steps further. So I continued to work on making good-looking, functional, useful knives.

Like other informants, Ken, in pursuing the pseudochallenge of completing the knife kit, learned that the actual production of the knife was rather easy. This type of story was common in the data, leading the authors to believe that the informants sought learning activities to ensure achievement of the self-test.

The literature on co-production and community does show that learning and education is important to consumers. For example, Hemetsberger and Reinhardt (2006) and Von Hippel (2005) found that consumers who participate in co-production develop "innovation communities" in which they share, combine, and leverage information. Although they were examining manufacturer-run virtual communities (as opposed to consumer-generated communities), Dholakia *et al.* (2009) also found that virtual communities are an effective method for educating consumers in the context of complex, frequently evolving products. In addition to the social benefits derived from the community, consumers garner functional, educational benefits from the larger collective (Dholakia *et al.*, 2009). Thus, the various types of learning communities (manufacturer-run, innovation communities, open-source communities, etc.) serve as resources for co-producers, expanding on collective knowledge and facilitating learning.

Accomplishment or Failure

At the end of the production stage, the informants often expressed a sense of achievement related to conquering the pseudochallenge of completing the knife kit. However, in certain circumstances, a few informants had the opposite reaction, expressing frustration. The knife kit process appeared to be akin to a class in school where the challenge is set before the student. The student reads and studies to learn the material, and then attempts to pass the final exam. The informants similarly discussed the pseudochallenge, learning process, and then passing or failing the "test." The authors interpreted the pass/fail nature of the pseudochallenge as either accomplishment or failure to meet the goal.

After completion of their knife kits, many of the informants reported that they felt an overwhelming sense of

satisfaction and pride. For example, Dan (45, environmental scientist) and Bruce (59, commissioner) reported that they experienced a great sense of "accomplishment" because they were able to make the knife with their "own hands." These feelings were common to the majority of informants. Jake (38, unemployed) and Daryl (47, correctional supervisor) talked about a "sense of pride" they experienced with each knife kit that they completed. Similarly, Jamal (29, systems engineer) in his interview conveyed his feelings of accomplishment with respect to his knife making.

I enjoy making knives because it is an educational experience. I love being educated about unusual things. Working on knife kits helps you determine the relationships that need to exist between the different parts to have a well functioning knife. Speaking for myself, the sense of accomplishment at making something that is usable for its intended purpose, well functioning, and good looking at the same time is a strong motivation. In addition, I prefer to make sole-authorship knives because the sense of accomplishment is amazing. After I complete the knife all by myself, I feel a sense of accomplishment at the creation that I have made.

Despite the feelings of accomplishment that were common to many of the informants, these feelings were not shared by everyone in the sample. While a sense of accomplishment and pride were often affiliated with the production stage, there was individual variation in the accomplishment of the pseudochallenge and a much different reaction among those informants who were not as successful in achieving self-tests. Some informants were discouraged because the design stage and production stage were perceived as having disparate outcomes. These individuals were typically frustrated by the knife kit co-production experience. Like the previous research of Bendapudi and Leone (2003), those informants who had difficulty completing the knife kit in the way they imagined often externalized the conflict. For example, in the following passage, Josh (38, software developer) discusses his failure to successfully complete the self-test of the knife kit.

The button lock's assembly instructions left out important steps, and the widths of the bolsters, standoffs, blade, pivot assembly, and spring did not match up, leading to an off-center blade and poor action. Following the instructions to center the blade led to the standoffs stripping the threads out of the tapped liner holes, which really was a disaster. It was impossible to tighten the pivot enough to take out the blade play while leaving it loose enough for the spring to open the knife. I wound up just epoxying it all to heck and back, and liberally applying miltec-1 to the pivot. So it works, but it is not the knife I imagined. It is fun to open and close, though! [laughs] I found out later that the SS back spacer they supply for the kit is too wide for the knife, making it necessary to sand it down. After that experience, I thought you might as well make your own knife from scratch at that rate. I related my experiences to a knife maker friend who suggested I return the kit to the maker personally, in a way that is medically dangerous, illegal, and humiliating but easy to describe in coarse language.

In his interview, Josh implied that he had adequately educated himself but qualified his failure by stating that the company lied to him. Unlike the accomplishment of the pseudochallenge where the knife maker attributed success to his own efforts, failure is often attributed to the product and manufacturer of that product (Bendapudi and Leone, 2003).

Within the early literature on co-production (Solveig, 1996), it is argued that co-production exists because it creates efficiencies for consumers, such as increasing convenience, saving time, and producing higher-quality, better-customized products. In fact, these ideas permeate the foundation of co-production itself. However, the data for this study show that, while inherent in the kit itself, saving time, increasing convenience, and improving product quality were not discussed as important to the knife kit makers that participated in the study. In fact, none of the informants stated that they found that the knife kits were convenient or saved them time, even though by definition a kit created by a manufacturer does provide the maker with a half completed knife (i.e., he doesn't have to pour his own steel to make the blade). The informants actually conveyed the opposite impression; the kit was seen less as a time-saving device and more of a method for "making knives possible." Similarly, the informants did not see the co-production of knife kits as a way to get a better-performing or higher-quality knife. Most of the informants acknowledged that knives made from kits would not be as high quality as professionally made knives (i.e., from a custom knife maker who pours his own steel and makes knives for a living—like a professional artist). However, the kit provided a method for the layman to experience the process of making a knife, akin to the professional custom knife maker.

Consumption stage

The consumption stage of co-production occurs upon completion of the product itself. At this point, consumers have customized the design and experienced the production of the kit, and the consumption stage is what occurs with respect to after-sales service via the manufacturer as well as the activities the consumer undertakes to get more value out of the consumption experience itself (Solveig, 1996). The data indicate that the ability to derive meaning from the consumption stage is directly related to the accomplishment of the pseudochallenge. The social recognition that the informants sought after completing the kit was critical to deriving meaning from the co-production experience. When the knife kit was complete, the majority of the informants reported seeking social recognition related to the successful completion of the knife kit. The informants sought recognition via the manufacturer and the larger knife collector community as well as through more personal social networks of family and friends.

Social Networks

Consumers find meaning via the co-production process not only by achieving a sense of accomplishment but from the positive reinforcement provided by friends and family members. The consumption stage shifts co-production from

an individual, self-centered process to a more social, collective process that involves social recognition and interpersonal exchange. As Bruce (59, commissionaire) stated, "my family shares my sense of pride, and they are glad for me to have something that gives me great pleasure." In the following passage, Drew (a 53-year-old graphic designer) discusses how his family's reaction to his co-production created a sense of meaning.

My family thinks it's great. I've been married for 20 years. About two years ago, one night just out of the blue, my wife turned to me out of nowhere after my latest knife and turned to me and said, "I've never been more proud of you." That was awesome and really rewarding. I mean I've had some very substantial accomplishments in life, and my knife is what she was talking about. And then all these accolades poured into the knife kits forums from all over the world. All these people were recognizing my work. And I'll never forget the moment she just turned to me and said "I've never been more proud of you."

It appears that Drew and the other informants are deriving pleasure from the reactions of family and friends in an effort to bolster their self-esteem (Holbrook, 2006; Dunning, 2007). Ken (34, information technology manager) also derived meaning from the validation he received via his social network of family members and friends.

My wife is happy because there is something out there that I can do and enjoy. But past that, she doesn't care about the knife or anything. She uses kitchen knives obviously, but I mean she doesn't carry a pocket knife or anything. My Dad, on the other hand, really enjoys the knife that I made for him. He thinks it's just great. I also have a couple of friends who have knife kits that I've put together and given them. They both really enjoy them. They use them a lot from what I understand. One works for a theater and uses his extensively to cut rigging and stuff like that. You know, there is one guy [a friend] that I've told who had a similar childhood to mine and he thinks it's very cool that I make knives.

In the interview, Ken implies that this is a deep emotional process as he connects the dots between his childhood, his knife production, and the solace he found in his father's recognition of his activities.

The Manufacturer and Larger Community

In addition to social networks providing a way for the informants seeking meaning in the consumption stage of production, informants also sought social recognition through online discussion forums. Online forums allow informants to interact and commune with others in the subculture of consumption. Through sharing pictures and stories, knife kit makers publicly acknowledge the quality of each other's work.

The discussion forum on the Classic Knife Kits website is manufacturer constructed and run, but it is fully supported by members of the knife making subculture. Thus, it serves as a way for the manufacturer to provide after-sales service and facilitate its community, both of which assist the consumer in getting more value out of the knife-making consumption

experience. In the following passages drawn from the interviews, Jason (51, equipment manager) and Drew (53, graphic designer) each discuss how they garner social recognition from the discussion forum on the Classic Knife Kits website that gives meaning to their co-production experiences.

I started a contest on the knife kits forum called Pimp my Knife. It was like the car show, Pimp my Ride. There were 12 of us that bought the exact same model knife kit, and we each created our own design and produced the knife. In the end, there were 12 different variations. We talked about our creations and posted pictures to be judged by the members of the forum. Those guys voted who made the best knife after we all did our different modifications.

Like Jason, Drew also garnered social recognition from the knife kits website.

Making knives is absolutely one of the single most satisfactory things that I've ever done in my life. I have many varied interests. And I excel at a lot of things, but nothing has brought me overall as much satisfaction as my knife making. I am proud as all get out. After making a kit, I can't wait to photograph it, post photos, and hear the accolades [in the knife kits forum]. My favorite part of the whole thing is showing off.

In these passages, Jason and Drew indicate they receive greater value from the consumption stage of the co-production process when it becomes a public experience.

The manufacturer constructing and participating in a virtual community to help co-producers garner social benefits and facilitate postsales service is consistent with previous research. Dholakia *et al.* (2009) argue that firm-created online communities can efficiently and effectively provide both social and functional benefits for consumers at a low cost to the firm. The data for this study show that while the knife kits' manufacturer utilized the online discussion forum to provide customer service and assist learning, the forum also served as a place where consumers could get public recognition and social support from other members of the knife-making community. The public recognition that knife kit makers received from the community became a way for the informants to garner social status (Holt, 1995; Rucker and Galinsky, 2008).

DISCUSSION

As argued by Woodruff and Flint (2006), marketers have yet to fully understand how and why consumers engage in co-production. Moreover, it is only recently that marketers have begun to examine how value is created through the co-production process (Vargo and Lusch, 2006: p. 10). The findings of this study suggest that co-production is complex and multilayered. As defined by Humphries (2008), co-production can be either collaborative or collective. While collaborative co-production focuses on a consumer-company partnership, collective co-production focuses on communal relationships. Therefore, co-production may be

better understood as a continuum, given the variety of co-production opportunities in the marketplace.

With respect to the process of collective co-production, during the design stage of knife making, the findings show that respondents shaped their self-concept through reflection that occurred from social inspiration, creative self-expression, and identification with the primal sense of self. An interesting implication of the study is related to gender and co-production. Informants utilized knife kit making as a means to identify with their "inner manhood," during a time when men's sense of masculinity is in flux (Holt and Thompson, 2004). Clearly, future research should examine whether co-production similarly enhances a woman's feminine sense of self. One could argue that for centuries, women have participated in co-production through crafts and hobbies, such as quilting and scrapbooking (i.e., the Martha Stewart phenomenon). In fact, one study by Cooper and Allen (1999) found that "quilts are an artistic expression of their [women's] selves and their whole experience" (p. 15).

Following the design stage, the authenticity of the reconstructed self-concept was validated in the production and consumption stages of co-production. The production stage of the co-production process provides internal validation of the individual self-concept through a pseudochallenge that is designed for positive reinforcement. During the production stage, the consumer can accept or reject the meaning assigned during the design stage. This study identified a pseudochallenge, learning, and accomplishment as the key components of internal validation. While the meanings of the consumption object reflect those identified in the design stage, it is the accomplishment or failure of the pseudochallenge that reifies internal validation of the product-meaning relationship.

The consumption stage of the co-production process provides the consumer with external validation of the self as respondents shared the positive outcomes of their co-production experience with others. The transformation of the self appears to be measured by the accomplishment of the pseudochallenge but appears to be ensured through learning and reified via social recognition. The collective co-production process rewards respondents with a sense of belonging, acceptance, and in some instances notoriety. Through this process, respondents receive validation not only for meaning associated with the product but perhaps more importantly for meaning in their lives. For example, one informant expressed his sense of fulfillment when his wife stated, "I've never been more proud of you."

The constructs identified in the design, production, and consumption stages of the co-production process are not exhaustive. By definition, co-production can be perceived as a continuum of consumer interactions between a company and a community. Thus, the constructs identified in the current study of the co-production process may be influenced by consumers, manufacturers, and communities. For example, the respondent population for the current study was knife kit makers who have an inherent bias toward male consumers. As suggested earlier, other collective co-production marketplace opportunities such as quilting may be inherently biased toward female consumers. Therefore, it is the unique

blending of consumer, manufacturer, and community interrelationships that illuminates our understanding of meaning creation in the co-production process.

The three-part co-production process results in meaning creation that has significant identity ramifications for consumers. To the informants, the finished knife became a symbolic representation of the co-production process that encompassed the consumer's emotional commitment to their self-concept as well as others' recognition of that identity. Thus, the collective co-production process became imbued with deeper identity-related meanings for the informants.

In conclusion, the findings of this study unpack the deeper meanings that consumers draw from the co-production process described in previous research (Solveig, 1996) and extend previous research (Bendapudi and Leone, 2003; Etgar, 2008; Humphries, 2008; Zwick *et al.*, 2008) by examining the collective co-production process of knife kit makers. The data demonstrate that consumers are participating in co-production experiences that contribute in various ways to the construction of their self-identity (Firat and Shultz, 1997). As consumers pursue the stages of the collective co-production process, they transform their individual and social sense of selves, thus using value gained throughout the process to create meaning in their lives.

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