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The Marketing Firm and Co-Creation: An Empirical Study of Marketer and Customers Co-creation Process

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The data that support the findings of this study are available from the corresponding author
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Abstract

This study empirically investigates the marketer and customer's co-creation process within the context of the marketing firm. Based on principles from bilateral contingencies, Findings from a conjoint study (n=98) indicate that utilitarian and informational reinforcing consequences from the marketer have a stronger impact on customers' co-creation behavior relative to informational reinforcing consequences from other customers. Consequently, analyzing the impact of important reinforcing contingencies through the lens of bilateral contingencies expands our understanding of how and why co-creation outcomes might occur. Also, a good co-creation process may increase the business companies' research and intelligence, and, as a consequence, strengthen their competitiveness.

Keywords: Co-creation process, The marketing firm, bilateral contingencies, conjoint experiment

1.0 Introduction

The concept of co-creation provides a change from a company-centric view to a more balanced view of a business organization and stakeholder interacting and co-creating experience with each other (Grönroos, 2008; Prahalad & Ramaswamy, 2004; Vargo & Lush, 2004; Vargo, Maglio, & Akaka, 2008). Co-creation is short for collaborative creation (Prahalad & Ramaswamy, 2000); it creates business value by employing the experience of people internally and externally. From this perspective, the marketplace is seen as an arena where customers play a much more active role in creating business value. The characteristic aspect of the new marketplace is that the business organization customers become an important source for marketer research and intelligence and, thus, also competitiveness.

The theory of the marketing firm (TMF) (Foxall, 1999, 2018) is an economic-psychological framework that enables the description and analysis of the interrelationships between the firm and its stakeholders (e.g., customers). The marketing firm has roots in the works of Coase (1937), who shifted the focus of economic theory toward management within the firm. He highlights that firms comprise systems of relationships dependent on the behavior of management. Coase's conception of the firm was based on the prevailing philosophies of the time, according to which firms were mainly production-oriented. In the modern customer-oriented economies of today, firms are predominantly customer- or marketing-oriented. These different strategic philosophies form the major distinction between the description of the firm conceived by Coase (1937) and of the marketing firm by Foxall (1999, 2018).

Marketing activity is characterized by the interlocking and reciprocally intersecting behaviors of business organizations and customers (Foxall, 2018). The marketing firm alludes to the central purpose of modern businesses, which is to create and retain customers by serving them profitably in a competitive market context (Foxall, 1999). The resulting

framework of conceptualization and analysis understands corporate institutions as organized patterns of behavior maintained by their consequences, namely the rewards and sanctions that follow them (Foxall, 2014). This operant perspective posits that the existence of firms is functionally and inevitably linked to the consequences of its behaviors, that is, selection by consequences (Skinner, 1981). These consequences link the firm to its customers in the form of reciprocally reinforcing relationships involving literal exchange (Foxall, 1999). Since the existence of firms rests heavily on networks of economic relationships (within contractual limitations, implied or otherwise) (Coase, 1937), these economic transactions, engrained in an operant behavioral account, can be analyzed as a pattern of bilateral contingencies (Foxall, 1999). Bilateral contingencies appear when the marketers' behavior in the business organization is reinforced by the customers' behavior (e.g., buy products), while the behavior of the customers' is reinforced by the marketers' actions (product, price, promotion, and place utilities).

To the best of our knowledge, no studies have yet empirically investigated the marketer and customers co-creation process in the context of the marketing firm. This paper addresses a call for papers that study the bilateral contingencies between the behavior of the firm and its customers (see Foxall, 2018) and thus contributes to knowledge by applying TMF to co-creation. Investigating the potential impact of customers' co-creational behavior through the lens of bilateral contingencies expands our understanding of how and why co-creation outcomes might occur. Thus, this study aims to identify the impact (i.e., high or low impact) of conditions in terms of different stimuli representing the marketer and other customers' behavior and under which conditions those stimuli may act as reinforcers to a marketer and customer's co-creation process. The rest of this paper is structured as follows: First, the link between bilateral contingencies and the marketer and customer's co-creation process is discussed. Next, a description of the conjoint methodology used in the study is presented.

Then the results are summarized. The discussion section includes implications for research and practice. The paper concludes with a summary of the study's contributions.

2.0 Bilateral Contingencies and Co-creation

The value generated from the co-creation process stems from collaborations between the business company's marketer and customers. The inputs from customers are not constrained to the early ideation or product development processes but extend toward the later stages such as commercialization and post-launch (Hoyer, Chandy, Dorotic, Krafft & Singh, 2010). Therefore, in the co-creational space, marketers have limited control over the experience environment and the networks they build to facilitate co-creation experiences (Prahalad & Ramaswamy, 2004). In these networks, collaborative contributions can be made through active participation by customers (individuals and/or groups). According to Zwass (2010), the contributors to a co-creational process can be classified as the world (completely open crowd), prequalified individuals (someone with previous episodic experiences), skilled contributors, and community members.

A systematic literature review by Galvagno & Dalli (2014) shows that most definitions of the co-creation concept involve (a) two or more participants, all of whom (b) must somehow be involved in a mutual interaction, and (c) the process results in beneficial outcomes (i.e., subjectively determined) for all participants. The bilateral contingencies can correspond to this by involving (a) the interaction of two actors (i.e., marketer and the customer or customer and other customers), whereas each actor might involve an infinite number of people, (b) behavior responses which are mutual by function as either an antecedent or consequence to the behavior of the other, and (c) reinforcement contingencies. Thus, by applying the bilateral contingencies approach to co-creation process, we can

examine the nature of marketer-customer relation and customer-other-customer relation, as shown in Figure 1.

- Figure 1 -

Figure 1. MO = Motivating operation, SD = discriminative stimulus, RM = response of the marketer, RC = response of the customer, ROC = response of other customers, SR = reinforcing stimulus.

Figure 1 is based on the marketing firm model by Foxall (1999, 2018). The marketing firm model is founded on functional analysis that describes the basic procedure as a three-term contingency involving pre-behavioral stimulus, response, and consequence. Within the three-term relationship; MO is motivating operations which have a motivating function, S^D is a discriminative stimulus or cue that signals the consequences as a result of performing a specific response, R is a response, and S^R is a reinforcing stimulus. The reinforcing consequences (S^R) are likely to increase the possibility of similar responses in the future. Utilitarian reinforcement comprises the tangible, functional, and economic benefits which stem from consequences of responses. Informational reinforcement is a consequence of responses that is more likely to involve a lifestyle statement by which the person is reinforced by social attention or appreciation.

As shown in Figure 1, a marketer's co-creational activities (R_m) function as MO/ S^D for the customers' co-creation activities (presents product ideas, vote for the best idea, etc.), which again may produce UR and/or IR. Customers' co-creation activities may function as UR and/or IR for the marketer. Figure 1 also illustrates customer and other customers interaction in the co-creation process. One customer's idea or vote for the best idea (R_C) function as MO/ S^D for other customers' co-creation behavior (likes, votes, ideas, etc.) (R_{OC}), which, again, may produce UR and/or IR.

3.0 Method

Conjoint analysis has been widely used by researchers (Green & Srinivasan, 1978, 1990) and practitioners (Wittink, Vriens & Burhenne, 1994) and has been used in an extensive range of marketing applications (Vriens, 1994). The method has also been used to investigate customer behavior from a behavior-analytic perspective (Fagerstrøm, 2010; Menon & Sigurdsson, 2016; Eriksson & Fagerstrøm, 2018; Sigurdsson, Vishnu Menon & Fagerstrøm, 2017).

Conjoint analysis is based on a decompositional approach in which the participant responds to a set of total profile descriptions. It then decomposes the participant's original evaluation into separate and compatible impact scales by which the original overall evaluation can be reconstituted (Green & Wind, 1975). According to Green and Srinivasan (1978), the use of conjoint analysis has generally emphasized predictive validity and regarded explanation as a desirable (but secondary) objective, while the opposite has generally been true for expectancy-value users. In the present study, conjoint analysis is used to investigate the impact of responses from actors in a customer's community on a group level in a co-creational situation. The conjoint analysis is similar to the classical design of experiments where a systematic combination of stimuli with two or more levels are formed (Bjerke, 2006); in this study, it will be termed "conjoint experiment."

3.1 Participants

Two hundred and forty-eight Norwegian subjects were invited to participate in the study. One hundred and nine completed the survey. Eleven cases were removed due to missing data. This resulted in a sample of ninety-eight participants who completed the conjoint experiment, a response rate of approximately 45%. The participants were self-selected, as they responded to a post published on different social media platforms (i.e., Facebook, Google+, Twitter, and

LinkedIn) which included the link to the survey. All participants were informed about their rights and completed the survey on a voluntary and anonymous basis. The average time to complete the survey was approximately six minutes.

3.2 Design

Scandinavian populations have one of the highest daily consumption levels of milk (Singh et al., 2015). Therefore, a dairy company was chosen as the foundation for the value co-creation scenario. The co-creation process is based on the idea that people's behaviors (such as feedback, comments, new ideas, suggestions, etc.) will have an impact on future strategies and activities of a business. For instance, ideas provided by customers can influence the assortment of dairy products provided by the company (thereby accounting for preferences like low-fat, fat-free, lactose-free, organic, and/or flavored milk). Thus, anyone can participate in co-creational activities to change the company's activities to align them better with their own agenda, and thus, decrease the transaction costs related to the company's product development (Coase, 1937).

When conducting a conjoint experiment, the choice of stimuli and corresponding levels are crucial for the relevance of the results (e.g., Green & Srinivasan, 1978; Kim, Bailey, Hardt & Allenby, 2017; Luce & Tukey, 1964; Vriens, 1994). The chosen stimuli in the present study represent reinforcing outcomes of the behaviors of the marketer and other customers, as described in Figure 1. Table 1 shows the chosen stimuli (independent variables) and corresponding levels.

Table 1:
Stimuli and Levels Considered in the Study.

Stimuli	Levels
Utilitarian reinforcers from the marketer	<ol style="list-style-type: none"> 1. 100 NOK¹ per approved idea 2. Participate in a draw of 500 NOK 3. No payment 4. 100 NOK per month sharing ideas
Informational reinforcers from the marketer	<ol style="list-style-type: none"> 1. Comments from dairy company 2. The idea is awarded the best 3. The idea is launched 4. No social response from dairy company
Informational reinforcers from other customers	<ol style="list-style-type: none"> 1. Comments from other customers 2. Other customers 'like' the idea 3. Other customers 'share' the idea in other social media platforms 4. No social response from other customers

¹ 100 Norwegian Kroner (NOK) is approximately 18 US Dollar.

Based on observations of co-creational activities of a real dairy company in Norway (www.q-meieriene.no), it was observed that dairy companies usually commented on all customer's ideas, selected and awarded some of the ideas, and it was described that some ideas were launched in grocery stores. Hence, the operationalization of informational reinforcement represents the responses of the marketer, which were categorized in the following levels: "Comments from dairy company," "The idea is awarded as the best," and "The idea is launched." Also, "No social response from dairy company" was added as a level. Responses from other customers were considered only as informational reinforcement since it is not realistic that other customers can facilitate consequences such as money, products, and so forth. The user interface was designed in such a way that the community of customers could like, comment, and share ideas. Hence, the informational reinforcements representing

the responses of other customers were operationalized as “Comments from other customers,” “Other customers ‘like’ the idea’,” “Other customers ‘share’ the idea further in other social media platforms.” Also, as a control variable, “No social response delivered by other customers” was included.

Further, empirical studies of customer co-creation behaviors have differentiated between different forms of motives and perceived benefits such as hedonic value and utilitarian value (e.g., Park & Ha, 2016) or intrinsic versus extrinsic motives or outcomes (like money) (e.g., Bendapudi & Leone, 2003; Chen & Wang, 2016; Füller, 2010; Verleye, 2015). Moreover, it was observed that, in general, companies orchestrate potential utilitarian reinforcers (such as money) in social web platforms. Hence, the stimuli levels that represented the attribute of utilitarian reinforcement provided by the marketer were fictive and based on reasonable suggestions. The utilitarian reinforcement was represented by the behavior of the marketer with the corresponding levels defined as “100 NOK per approved idea,” “participate in a draw of 500 NOK,” “no payment,” and “100 NOK per month sharing ideas”.

The dependent variable was formulated as the “likelihood of sharing an idea” in the context of a dairy company’s web platform. This measure was coded on a 7-point Likert scale (Ringdal, 2013) ranging from 1 (very unlikely) to 7 (very likely).

The design encompassed three attributes, with four levels each, which would give a total number of 64 (i.e., $4 \times 4 \times 4$) possible stimulus cards. To minimize respondent fatigue, a fractional factorial design was created as a data collection method. The stimuli levels were organized in an experimental orthogonal array design, implying that each attribute has the same number of levels, and the levels appear in the fraction of the generated stimulus cards according to the proportionality rule (Rao, 2014). Using IBM SPSS version 22, a minimum number of alternative combinations of potential reinforcers resulted in 20 stimulus cards. Four of the cards were holdout cards, and 16 cards were used in the estimation of the results (see

Table 2). Factor levels were categorical (i.e., nonmetric) (Hair, 2014), ranked linearly related to the factor.

Table 2

Factorial Design Used to Synthesize Stimulus Cards (values for stimuli and levels correspond to Table 1).

Stimuli and levels for the 20 stimulus cards			
Stimulus Card	Utilitarian reinforcers from the marketer	Informational reinforcers from the marketer	Informational reinforcers from other customers
1	1	1	1
2	3	1	3
3	2	4	1
4	4	2	2
5	1	2	3
6	1	3	4
7	3	4	4
8	3	3	2
9	2	3	3
10	2	2	4
11	4	4	3
12	4	1	4
13	2	1	2
14	1	4	2
15	4	3	1
16	3	2	1
17	2	1	1
18	1	1	3
19	2	3	4
20	3	2	3

3.3 Materials and Procedure

An Internet-based conjoint experiment was utilized in this study to collect data. The scenario and stimulus cards were administered by using the survey provider Typeform (www.typeform.com). First, the participants were presented with an explanation of the background of the study. A brief description of the co-creational concept as it appears in the natural setting of the fictional dairy company was provided. They were told that a dairy company invites customers to suggest, improve, or share new ideas on their website.

Additionally, they were further informed that all ideas are published on the website and that both the dairy company and other customers can respond to any ideas uploaded. They were also told that the study will describe the different ways the dairy company and other customers may respond to ideas shared at the webpage. Next, the scenario was presented and was described as follows:

Suppose you have shared an idea on the webpage of the dairy company. The dairy company and other customers might respond to your participation in form of monetary or social consequences. What you receive is a “package” of responses. For each idea shared, you will receive a combination of three responses: a) payment, b) a social response from the dairy company, and c) a social response from other customers.

To continue, the participants should click on the text function “continue” with either mouse, keyboard (enter) or touch screen. The next page was an example. Due to the complexity of conjoint analysis, an example of a stimulus card was presented before the evaluation started. The participants were presented a total of 20 stimulus cards consisting of a description of a question, a bundle of three responses, and a rating scale. See the Appendix for an illustration of how the stimulus card appeared. The question was identical to the question presented in the example and identical in every stimulus card. The following question was given: “How likely is it that you would share an idea if you achieve this combination of responses?” In the bundle of responses, a response from each of the consequential stimuli attributes was represented. The combinations of responses were different at each stimulus card according to the proposition rule of orthogonal design (Rao, 2014). After ten stimulus cards had been evaluated, they were informed that they had progressed through half of the stimulus cards. At the end of the study, a text box with “submit” appeared. By pressing or

clicking on “submit,” or when enter was pressed on a keyboard, the results were registered, and the participants moved forward to the last page and were thanked for their participation.

3.4 Analysis

For the rating-based conjoint analysis, an ordinary least-square regression model was used to analyze data (Verhoef, Kooge & Walk, 2016). The levels tested were interpreted as a type of dummy coding called effect coding, where the numbers represented categories (qualitative data) (Ringdal, 2013). SPSS software was used to save individual parameters and to estimate aggregate results. The goal was to determine partial utilities, part-worth, β for the impact of all stimulus levels upon the ranked data. Following the customary conjoint analytic approach (Orme, 2010), each participant was computed separately, then the fit of the model was examined for each participant and finally summarized in average utility estimates of the stimulus levels and average importance scores of the stimuli. The participant’s overall likelihood of participating in the co-creation process (sharing ideas) was decomposed into separate and compatible utility estimates.

4.0 Results

After analyzing the data, we found that the correlations between the observed and estimated preferences are significant (Pearson’s $r = 0.994$, $p = 0.000$). The constant value was 3.172, and the stimuli utility estimate values vary both negatively and positively with this value. Analysis of the average importance score (in percentages) shows that utilitarian reinforcers from the marketer had the strongest impact, with an impact score of 43.6%, followed by informational reinforcers from the marketer, with an impact score of 33.4%. Informational reinforcers from other customers had the weakest impact of the three stimuli investigated, with an impact score of 23%. Table 3 presents the estimated partial values for each stimulus

level. The first column shows the stimuli, the second column shows the stimulus levels, the third column shows the utility estimates (part-worth) of each stimulus level, and the fourth column shows the standard error for each stimulus level.

Table 3

Utility Estimates for Stimulus Levels and Their Respective Standard Error.

Stimuli	Stimuli level	Utility estimate	Standard error
Utilitarian reinforcers from the marketer	100 NOK per approved idea	0.338	0.048
	Participate in a draw of 500 NOK	0.165	0.048
	No payment	-0.846	0.048
	100 NOK per month sharing ideas	0.343	0.048
Informational reinforcers from the marketer	Comments from dairy company	0.080	0.048
	The idea is awarded the best	0.284	0.048
	The idea is launched	0.231	0.048
	No social response from dairy company	0.596	0.048
Informational reinforcers from other customers	Comments from other customers	0.078	0.048
	Other customers "like" the idea	0.024	0.048
	Other customers "share" the idea in other social media platforms	0.124	0.048
	No social response from other customers	-0.226	0.048
(Constant)		3,172	0.028

The two stimulus levels with the most positive impact are "NOK 100 per month sharing ideas" and "100 NOK per approved idea" had utility estimates of 0.343 and 0.338, respectively. They are followed by the stimulus level "The idea is awarded the best," which had a utility estimate of 0.284. "No payment," "No social response from dairy company," and "No social response from other customers" had a negative impact with respective utility estimates of -0.846, -0.596, and -0.226. The impact of the stimulus levels "The idea is launched" and "Comments from dairy company" had respective utility estimates of 0.231 and 0.080. The impact of the stimulus levels "Other customers 'share' the idea further in other social media platforms," "Comments from other customers," and "Other customers 'like' the idea" had a utility estimate on 0.124, 0.078, and 0.024, respectively.

5.0 Discussion

The main purpose of the study was to investigate the bilateral contingencies of the marketer, customers, and other customer's behavior in a co-creational process. The relative impact of the marketer and other customer's behaviors on the participant's likelihood of sharing an idea in a co-creational situation was significant. A conjoint experiment was executed to answer the research aim of the study. The participants were asked to report their likelihood of sharing ideas with a Norwegian dairy company when presented with different hypothetical combinations of reinforcers.

One of the main findings of this study is that the stimulus levels "No payment," "No social response from dairy company," and "No social response from other customers" had a substantial negative effect on the respondent's reported likelihood of sharing an idea. Based on how utilitarian reinforcement and informational reinforcement were operationalized in this study, the results indicate that any level representing a response is preferable over no response. This is consistent with the findings of Verleye (2015), which demonstrate that appreciation from co-creational partners has a positive impact on the customer's co-creational experiences. This research has investigated several forms of responses that may be executed by a customer's co-creational community. This study indicates that various potential responses by the marketer and other customers have different impacts on the likelihood of sharing ideas.

It is surprising that the stimuli utilitarian reinforcers from the marketer had the highest impact. This is a stark contrast to the literature on co-creation, which emphasizes the importance of non-monetary benefits (e.g., Chen & Wang, 2016; Füller, 2010; Roberts, Hughes & Kertbo, 2014). Contrary to the findings in this study, the findings by Füller (2010) indicate that monetary incentives, in general, are perceived as a less important motive

compared to intangible motives (e.g., recognition) in a co-creational situation. The stimulus levels “100 NOK per approved idea” and “100 NOK per month sharing ideas” has relatively more effect on the likelihood of sharing an idea than “Participate in a draw of 500 NOK.” This corresponds with experiments of choice behavior which have typically found that people tend to prefer certain outcomes over uncertain outcomes (Mazur, 2004).

The stimuli levels in this research describe different arrangements of reinforcement (i.e., reinforcement schedules). For instance, the stimulus level “100 NOK per approved idea” indicates delivery on a fixed-ratio schedule, implying that money is delivered for every approved idea. The stimulus level “100 NOK per month sharing ideas” represent fixed-interval schedules (FI) and is more probable than “100 NOK per approved idea.” In these cases, the participants do not need to get their ideas approved to receive money; they just need to share an idea once a month. However, the stimulus level “100 NOK per approved idea” indicates that the participants might collect a lot of money within a month. The stimulus levels “100 NOK per month sharing ideas” and “100 NOK per approved idea” got almost the same impact score correlated with utilitarian reinforcers from the marketer. These reinforcement patterns may be described as a type of compound schedule of reinforcement called conjoint schedules. This implies that two or more schedules of reinforcement are available simultaneously, and independent of each other, for a single response (e.g., sharing an idea). People tend to choose an immediate reinforcer over a delayed one (Daniels & Bailey, 2014), which favors the stimulus levels “100 NOK per approved idea” over “Participate in a draw of 500 NOK,” and people tend to choose a certain reinforcer over an uncertain one (Daniels & Bailey, 2014), which favors the stimulus level “100 NOK per month sharing ideas” over “Participate in a draw of 500 NOK.”

Table 3 shows a clear distinction between the impact of the stimuli representing the behavior of the dairy company (i.e., utilitarian reinforcers from the marketer and

informational reinforcers from the marketer) and the stimulus representing the behavior of other customers (i.e., informational reinforcers from other customers). This supports the findings of Roberts et al. (2014); which indicate that the customer's motivation for participating in co-creation differs toward the firm and other customers in the community.

The results from this study indicate that the stimulus levels "100 NOK per approved idea," "100 NOK per month sharing ideas," and "The idea is awarded the best" have the most impact on the "likelihood of sharing ideas." Studies on stimulus preferences have found that stimuli that are reported to be most preferred function as effective reinforcers when tested contingent on behavior (Lee, Yu, Martin & Martin, 2010; Wine, Reis & Hantula, 2014). The stimulus levels "Comments from dairy company," "Comments from other customers," "other customers 'shares' the idea in other social media platforms," and "Other customers 'like' the idea" showed positive impact, but the scores were very close to zero. Earlier studies have shown contradictory results regarding low-preference stimuli (Lee et al., 2010). Based on their findings, Roscoe, Iwata, and Kahng (1999) suggest that low-preference stimuli might function as effective reinforcers under some conditions.

5.1 Limitations and follow up studies

Large amounts of money are reinforcing for many people, but impractical from the marketer's perspective. Daniels and Daniels (2006) state that "it is not always available, nor controllable, and it can be inefficient for the company" (p. 208). In this case, marketers should consider the stimulus level "The idea is awarded the best" might be a cost-effective potential reinforcer level. It is proposed that high levels of both utilitarian reinforcement and informational reinforcement are important to change customer behavior effectively (Foxall, 2015). Baum (2005) states that "monetary reinforcers work best if backed up by social reinforcers" (p. 209). Current research cannot explain conceptually or empirically whether this applies to the

concept of co-creation value. An interesting observation was that the stimulus level “Participate in a draw of 500 NOK” had the lowest impact of the levels representing the utilitarian reinforcement. Whereas, the stimulus level “The idea is awarded the best” had the highest impact of the levels representing informational reinforcement by the marketer. Given that the same number of people participate in a draw and in an awarding challenge, the statistical chance of getting their ideas awarded the best is the same as winning 500 NOK.

The reader should note that the functional approach clarifies the distinction between discriminative and motivational operations-(Laraway, Snyckerski, Michael & Poling, 2003). The knowledge of what serve as potential reinforcers to customers (ideally effective reinforcers), may help the marketer to arrange the antecedent conditions that will set the occasion for and signal that, when customers do certain things, potential reinforcers will be available for them. In that regard, the functional approach aligns with Laud and Karpen (2017) who argue that both antecedents and consequences are important to understand customer co-creational behaviors and should ideally be investigated concurrently.

A major advantage of a conjoint experiment is that it can explore the potential impact of stimuli before they are implemented in the real world (Horst, Huirne & Dijkhuizen, 1996). Also, a conjoint analysis might be able to identify hidden potential reinforcers that are not obvious to the customers themselves (Menon & Sigurdsson, 2016). Thus, conjoint analysis can be used as a first step to gain knowledge about what might function as actual reinforcers (Wine et al., 2014). Another advantage of a conjoint experimental method, is the measurement of the relative impact of multiple factors and items, hence, coping with some of the complexities found in the natural environment. This might capture and simulate some of the complexities in natural environments (Bjerke, 2006).

A strength of this study is the combining of methods from two scientific fields. The behavior analytic approach has been criticized for being reductionist and unable to capture the

complexity outside laboratory experiments (e.g., Machan, 1974). In the interpretations of the conjoint results, the study exemplifies how principles of reinforcement might contribute to understanding the pattern of customer's co-creational behaviors. This research can contribute to spreading the potential application of a functional approach to the research field of co-creation value. When presuming important determinants for co-creation value behaviors, the functional approach focusses on environmental stimuli and can contribute with the specification of concrete, observable, and measurable stimulus levels. This study illustrates how the interpretation of the conjoint analysis might be discussed from a functional approach and how two methods can be merged.

Several limitations are noted. A major drawback is that the participants are not representative of the target population (Ringdal, 2013). In self-selection, the respondents decide whether they want to participate in the research (Ringdal, 2013). This could have resulted in self-selection bias (Jacobs, Hartog & Vijverberg, 2009). There are several considerations to account for when interpreting results from conjoint analysis. The choice of conjoint design, model, attributes, and levels might have had an impact on the interpretation of the results (Bjerke, 2006). For example, a main-effect-only model was used in the percent study. This ignores the possible interaction effects among the stimuli and levels for utilitarian- and informational reinforcers from the marketer and informational reinforcers from other customers. One risk of a conjoint experiment is that some chosen stimuli get artificially high importance, while stimuli not included in the study might have real effects on the customer's sharing of ideas (Bjerke, 2006). Further, the certain order of presentation of stimuli in the stimulus card might not be representative of how customers are presented for the stimuli in the real world (Chrzan, 1994). Due to the unsolicited comments the researcher received, it could have been useful to ask a debriefing question at the end of the survey.

The stimulus levels “Comments from dairy company,” “Comments from other customers,” “Other customers ‘like’ the idea” and “Other customers ‘share’ the idea in other social media platforms” were forms of verbal behavior. Verbal behavior represented in a comment can involve many stimuli functions (e.g., Alvero, Bucklin & Austin, 2001; Roscoe, Fisher, Glover & Volkert, 2006). A comment may function as an antecedent and/or consequence, changing the probability of future participation in co-creating activities. The undetermined content of a potential comment might have had an impact on the participant’s responses in this study. Not all feedback will increase the likelihood of behaving again under similar conditions (Alvero et al., 2001).

The study is based on the principles of a functional analysis but must not be confused with an actual functional analysis which might predict, influence, and change the behavior of interest (Cooper, Heron & Heward, 2007). However, investigating potential reinforcers in combination with conjoint experimental methods might be a cost-effective and quick procedure for the marketer (e.g., dairy company) (Menon & Sigurdsson, 2016). Future studies might use the results of conjoint analysis and further test a selected group of people. For instance, by using A/B testing and multivariate analysis, it is possible to test the actual effect of the potential reinforcers. This will test the external validity of the model (Green & Srinivasan, 1978).

Future research could replicate this study and address the abovementioned limitations. A follow-up study could use a more representative sample and/or include other attributes and/or stimulus levels. Further, stimulus levels might be reflected from different and various dimensions of reinforcement (e.g., rate, quality, magnitude, delay). The study incorporates only payments as utilitarian reinforcers from the marketer; other studies might consider other stimulus levels which correspond to this attribute. For instance, in the context of a social technological platform, the concept of tokens could be interesting to apply. Co-creation is

suggested to be an ongoing process, including socially significant behavior. Accordingly, the concept of verbal behavior could be interesting to apply in future studies. Longitudinal studies could also be applied to observe whether the reports of the likelihood of sharing an idea changes over time when exposed to the same stimulus levels. Finally, the findings that utilitarian reinforcements from the marketer were different to informational reinforcement contradicts the literature on co-creation which emphasizes the importance of non-monetary benefits (e.g., Chen & Wang, 2016; Füller, 2010; Roberts, Hughes & Kertbo, 2014). After all, for some participants, the opportunity to spread their ideas (informational reinforcement) might have been more important in some contexts than financial rewards (utilitarian reinforcement). For example, co-creation activities related to charity might be more influenced by social attention than financial rewards (e.g., Bennett, Mousley, Kitchin & Ali-Choudhury, 2007), and some customer segments might be more influenced by social attention than others. Thus, a follow-up study could examine the impact of utilitarian and informational reinforcement from the marketer and informational reinforcement from other customers on customers' co-creation behavior in different contexts and for different segments.

6.0 Conclusion

To the best of our knowledge, this study was the first to explore the impact of potential reinforcers in the context of a customer co-creational situation at a social web platform. The definitions of stimuli and interpretations of the results were conducted from a functional, behavior analytic approach. The results indicate that the two stimuli with relatively the most impact on the participant's likelihood of sharing an idea were the stimuli representing marketer behavior. Marketer behaviors represented by utilitarian reinforcement had the most relative impact on the participant's likelihood of sharing an idea, followed by the marketer behaviors represented in terms of informational reinforcement. The stimulus which

represented other customers' behaviors in terms of informational reinforcement had a considerably lower impact.

References

- Alvero, A. M., Bucklin, B. R., & Austin, J. (2001). An Objective Review of the Effectiveness and Essential Characteristics of Performance Feedback in Organizational Settings (1985-1998). *Journal of Organizational Behavior Management*, 21(1), 3-29.
doi:10.1300/J075v21n01_02
- Baum, W. M. (2005). *Understanding behaviorism : behavior, culture and evolution* (2nd ed. ed.). Oxford: Blackwell.
- Bendapudi, N., & Leone, R. P. (2003). Psychological implications of customer participation in co-production. *Journal of Marketing*, 67(1), 14-28.
- Bennett, R., Mousley, W., Kitchin, P., & Ali-Choudhury, R. (2007). Motivations for participating in charity-affiliated sporting events. *Journal of Customer Behaviour*, 6(2), 155-178.
- Bjerke, F. (2006). Hva er nytten av conjoint-analyse i forbruker-undersøkelser? I. Retrieved from <https://www.magma.no/hva-er-nytt-en-av-conjoint-analyse-i-forbruker-undersokelser>
- Chen, C.-F., & Wang, J.-P. (2016). Customer participation, value co-creation and customer loyalty – A case of airline online check-in system. *Computers in Human Behavior*, 62, 346-352. doi:<http://dx.doi.org/10.1016/j.chb.2016.04.010>
- Chrzan, K. (1994). Three kinds of order effects in choice-based conjoint analysis. *Marketing Letters*, 5(2), 165-172. doi:10.1007/BF00994106
- Coase, R. H. (1937). The nature of the firm. *economica*, 4(16), 386-405.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2 ed.). Upper Saddle River, NJ: Pearson.
- Daniels, A., C., & J. E. Daniels, J., E. (2006). *Performance management : changing behavior that drives organizational effectiveness* (4th ed., rev. ed.). Atlanta, GA: Performance

Management Publications.

Daniels, A. C., & Bailey, J. S. (2014). *Performance management : changing behavior that drives organizational effectiveness* (5th ed., rev. ed.). Atlanta, Ga: Performance Management Publications.

Eriksson, N., & Fagerström, A. (2018). The Relative Impact of Wi-Fi Service on Young Consumers' Hotel Booking Online. *Journal of Hospitality & Tourism Research*, 42(7), 1152-1169. doi:10.1177/1096348017696844

Fagerström, A. (2010). The motivating effect of antecedent stimuli on the web shop: A conjoint analysis of the impact of antecedent stimuli at the point of online purchase. *Journal of Organizational Behavior Management*, 30(2), 199–220. doi:10.1080/01608061003756562

Foxall, G. R. (1999). The marketing firm. *Journal of Economic Psychology*, 20(2), 207-234. doi:[https://doi.org/10.1016/S0167-4870\(99\)00005-7](https://doi.org/10.1016/S0167-4870(99)00005-7)

Foxall, G. R. (2014). The marketing firm and consumer choice: implications of bilateral contingency for levels of analysis in organizational neuroscience. *Frontiers in Human Neuroscience*, 8(472). doi:10.3389/fnhum.2014.00472

Foxall, G. R. (2015). Consumer behavior analysis and the marketing firm: bilateral contingency in the context of environmental concern. *Journal of Organizational Behavior Management*, 35(1-2), 44-69.

Foxall, G. R. (2018). An economic psychology of the marketing firm. In A. Lewis (Ed.), *The Cambridge Handbook of Psychology and Economic Behaviour* (pp. 365-402). Cambridge: Cambridge University Press.

Füller, J. (2010). Refining Virtual Co-Creation from a Consumer Perspective. *California Management Review*, 52(2), 98-122. doi:10.1525/cm.2010.52.2.98

Füller, J., Matzler, K., & Hoppe, M. (2008). Brand community members as a source of

- innovation. *Journal of Product Innovation Management*, 25(6), 608-619.
- Galvagno, M., & Dalli, D. (2014). Theory of value co-creation: a systematic literature review. *Managing Service Quality: An International Journal*, 24(6), 643-683.
doi:doi:10.1108/MSQ-09-2013-0187
- Green, P. E., & Srinivasan, V. (1990). Conjoint analysis in marketing: New developments with implications for research and practice. *Journal of Marketing*, 54(4), 3–19.
doi:10.2307/1251756
- Green, P. E., & Srinivasan, V. (1978). Conjoint Analysis in Consumer Research: Issues and Outlook. *Journal of Consumer Research*, 5(2), 103-123.
- Grönroos, C. (2008). Service logic revisited: who creates value? And who co-creates? *European Business Review*, 20(4), 298 - 314. doi:10.1108/09555340810886585
- Hair, J. F. (2014). *Multivariate data analysis* (7th ed., Pearson new international ed. ed.). Harlow: Pearson.
- Horst, H. S., Huirne, R. B. M., & Dijkhuizen, A. A. (1996). Eliciting the relative importance of risk factors concerning contagious animal diseases using conjoint analysis: a preliminary survey report. *Preventive Veterinary Medicine*, 27(3), 183-195.
doi:[http://dx.doi.org/10.1016/0167-5877\(95\)01003-3](http://dx.doi.org/10.1016/0167-5877(95)01003-3)
- Hoyer, W. D., Chandy, R., Dorotic, M., Krafft, M., & Singh, S. S. (2010). Consumer cocreation in new product development. *Journal of service research*, 13(3), 283-296.
- Jacobs, B., Hartog, J., & Vijverberg, W. (2009). Self-selection bias in estimated wage premiums for earnings risk. *Empirical Economics*, 37(2), 271-286.
doi:10.1007/s00181-008-0231-0
- Kim, D. S., Bailey, R. A., Hardt, N., & Allenby, G. M. (2017). Benefit-Based Conjoint Analysis. *Marketing Science*, 36(1), 54-69. doi:10.1287/mksc.2016.1003
- Laraway, S., Snyckerski, S., Michael, J., & Poling, A. (2003). Motivating operations and terms

- to describe them: Some further refinements. *Journal of Applied Behavior Analysis*, 36(6), 407–414. doi:10.1901/jaba.2003.36-407
- Laud, G., & Karpen, I. O. (2017). Value co-creation behaviour–role of embeddedness and outcome considerations. *Journal of Service Theory and Practice*, 27(4), 778-807.
- Lee, M. S. H., Yu, C. T., Martin, T. L., & Martin, G. L. (2010). ON THE RELATION BETWEEN REINFORCER EFFICACY AND PREFERENCE. *Journal of Applied behavior analysis*, 43(1), 95-100. doi:10.1901/jaba.2010.43-95
- Luce, R. D., & Tukey, J. W. (1964). Simultaneous conjoint measurement: A new type of fundamental measurement. *Journal of Mathematical Psychology*, 1(1), 1-27.
doi:[http://dx.doi.org/10.1016/0022-2496\(64\)90015-X](http://dx.doi.org/10.1016/0022-2496(64)90015-X)
- Machan, T. (1974). *The Pseudoscience of B.F. Skinner*. New Rochelle, N. Y.: Arlington House Publishers.
- Mazur, J. E. (2004). Risky Choice: Selecting Between Certain and Uncertain Outcomes. *The Behavior Analyst Today*, 5(2), 190-203. doi:10.1037/h0100031
- Menon, R. G. V., & Sigurdsson, V. (2016). Conjoint Analysis for Social Media Marketing Experimentation: Choice, Utility Estimates and Preference Ranking. *Managerial and Decision Economics*, 37(4-5), 345-359. doi:10.1002/mde.2721
- Orme, B. (2010). *Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research* (2 ed.). Madison, Wis.: Research Publishers LLC.
- Park, J., & Ha, S. (2016). Co-creation of service recovery: Utilitarian and hedonic value and post-recovery responses. *Journal of Retailing and Consumer Services*, 28, 310-316.
- Prahalad, C. K., & Ramaswamy, V. (2000). Co-opting Customer Competence. *Harvard Business Review*, 78, 79–87.
- Prahalad, C. K., & Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing*, 18(3), 5-14.

- Rao, V. R. (2014). *Applied Conjoint Analysis* doi:<https://doi-org.ezproxy.hioa.no/10.1007/978-3-540-87753-0>
- Ringdal, K. (2013). *Enhet og Mangfold: Samfunnsvitenskapelig forskning og kvantitativ metode* (3 ed.). Bergen: Fagbokforlaget Vigmostad & Bjørke AS.
- Roberts, D., Hughes, M., & Kertbo, K. (2014). Exploring consumers' motivations to engage in innovation through co-creation activities. *European Journal of Marketing*, 48(1/2), 147-169. doi:doi:10.1108/EJM-12-2010-0637
- Roscoe, E. M., Fisher, W. W., Glover, A. C., & Volkert, V. M. (2006). Evaluating the Relative Effects of Feedback and Contingent Money for Staff Training of Stimulus Preference Assessments. *Journal of Applied behavior analysis*, 39(1), 63-77. doi:10.1901/jaba.2006.7-05
- Roscoe, E. M., Iwata, B. A., & Kahng, S. (1999). Relative versus absolute reinforcement effects: implications for preference assessments. *Journal of Applied behavior analysis*, 32(4), 479-493. doi:10.1901/jaba.1999.32-479
- Sigurdsson, V., Vishnu Menon, R. G., & Fagerstrøm, A. (2017). Online Healthy Food Experiments: Capturing Complexity by Using Choice-Based Conjoint Analysis. *The Behavior Analyst*, 40(2), 373-391. doi:10.1007/s40614-017-0114-9
- Singh, G. M., Micha, R., Khatibzadeh, S., Shi, P., Lim, S., Andrews, K. G., . . . Group, C. D. E. (2015). Global, regional, and national consumption of sugar-sweetened beverages, fruit juices, and milk: a systematic assessment of beverage intake in 187 countries. *PloS one*, 10(8), e0124845.
- Skinner, B. F. (1981). Selection by consequences. *Science*, 213(4507), 501-504.
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. *Journal of Marketing*, 68(1), 1-17. doi:10.1509/jmkg.68.1.1.24036

- Vargo, S. L., Maglio, P., & Akaka, M. (2008). On value and value co-creation: A service systems and service logic perspective. *European Management Journal*, 26(3), 145–152. doi:10.1016/j.emj.2008.04.003
- Verhoef, P. C., Kooge, E., & Walk, N. (2016). *Creating value with big data analytics making smarter marketing decisions*. London: Routledge.
- Verleye, K. (2015). The co-creation experience from the customer perspective: its measurement and determinants. *JOURNAL OF SERVICE MANAGEMENT*. doi:10.1108/JOSM-09-2014-0254
- Vriens, M. (1994). Solving marketing problems with conjoint analysis. *Journal of Marketing Management*, 10(1-3), 37-55. doi:10.1080/0267257X.1994.9964259
- Wine, B., Reis, M., & Hantula, D. A. (2014). An Evaluation of Stimulus Preference Assessment Methodology in Organizational Behavior Management. *Journal of Organizational Behavior Management*, 34(1), 7-15. doi:10.1080/01608061.2013.873379
- Wittink, D. R., Vriens, M., & Burhenne, W. (1994). Commercial use of conjoint analysis in Europe: Results and critical reflections. *International Journal of Research in Marketing*, 11(1), 41–52. doi:10.1016/0167-8116(94)90033-7
- Zwass, V. (2010). Co-creation: Toward a taxonomy and an integrated research perspective. *International Journal of Electronic Commerce*, 15(1), 11-48.

Appendix

Stimulus card 1

- Appendix -