A Community of Me:
The Role of Participation Allocation in Determining the Effectiveness of Consumer Empowerment Strategies

Zachary M. Friedman*, Rebecca Naylor
Department of Marketing, The Ohio State University Fisher College of Business

Past research has shown that consumers who are empowered to select what products a firm offers show a stronger demand for the selected product than non-empowered consumers due to an increase in psychological ownership of the product. However, this research has not systematically examined what influence the amount of participation an individual perceives themselves as having in a collaborative design process has on their degree of psychological ownership. This article investigates the effect that consumers' perceived amount of participation has on psychological ownership of a product and whether reference group dynamics impact this effect. Two studies demonstrate that any perceived amount of participation, whether large, small, or ambiguous, equally increases consumers' psychological ownership of a product, future loyalty intentions toward the company, and underlying demand for the product, compared to attributing full influence to a single "winner", which is equal to allocating no participation to consumers. In cases of non-empowering participation allocation strategies, psychological ownership increases when in-group members are perceived to have a significant influence on the product while future loyalty intentions toward the company decrease when dissociative out-group members are perceived to have a large influence. This effect is moderated by consumer's degree of association with their in-group.

Introduction

The Internet is creating a shift in the way firms engage their customers. Consumers today are highly connected and networked, wanting to share their experiences, ideas, and opinions of the products and services they use. Many consumers demand engagement from the firms from which they buy and are constantly seeking new ways to influence the products or services they consume. Instead of merely soliciting feedback from customers once a product is made, many firms are co-creating and collaboratively designing products with a community of users (Prahalad and Ramaswamy, 2000). Consumers no longer have a passive role in the new product development (NPD) process. Firm behavior is demonstrating that value is being increasingly jointly created by the firm and the customer, rather than created entirely inside the firm (Prahalad and Ramaswamy, 2004).

Previous research investigating customer co-creation has largely focused on the utilitari-

Zachary M. Friedman is a fifth year student at The Ohio State University who is studying to receive his Bachelors of Science in Business Administration with a specialization in creativity, innovation, and consumer insights and research distinction in marketing. Upon graduation in December, Zachary will be working as a Management Consultant in Innovation at Kalypso.

an value of developing products at lower costs and risks (Dahan and Hauser, 2002; Kalaignanam and Varadarajan, 2006; Ogawa and Piller, 2006). However some studies have proposed that the increased value is not exclusively utilitarian and that consumer co-creation strategies have strong psychological implications (Fuchs, Prandelli, and Schreier, 2010). Previous research has shown an "empowerment-product demand" effect where empowered consumers (i.e., consumers who are empowered to select what products a firm will offer) show a stronger demand for the underlying product than non-empowered consumers due to an increase in psychological ownership in the product (Fuchs et al., 2010). However, past research has not systematically examined what effect the way in which firms attribute influence to participants in a co-design process has on the participants' degree of psychological ownership. I propose that this "empowerment-product demand" effect is determined by the influence a consumer perceives themselves as having on the final product. Consumers' perceived influence on the final product is determined in large part by the way in which a firm tells them their input was taken into account (i.e., participation allocation). Because empowerment strategies inherently involve some sort of participation allocation (i.e., an indication of how a given participant influenced the final design of a product), either intentional or unintentional, further research is needed to understand the psychological implications of this allocation and its effects on the consumer.

In this article, I seek to understand the role of participation allocation in determining the effectiveness of consumer empowerment strategies. Using real participation allocation strategies found in practice by various co-creation platforms and combining previous academic theory pertaining to the psychological effects of consumer empowerment, I am able to demonstrate which strategies elicit the "empowerment-product demand" effect. Doing so makes a significant and unique contribution to the theoretical understanding of consumer psychology in co-creation platforms and provides practitioners relevant and actionable guidelines on how to design their co-creation initiatives. I provide a step by step guide on the best participation allocation strategies a firm can use to harness the psychological benefits of consumer empowerment based on the functional approach of the platform and the makeup of the online community. This research is the first to explore the effects of participation allocation in the co-creation process, and by doing so it meaningfully builds on previous academic research and industry practice.

Participation Allocation

Historically firms have perceived a consumer's role as choosing between a selection of pre-determined products and picking the one that best meets their needs. This traditional view of consumption had power concentrated on the suppliers' side, where firms themselves were typically entirely responsible for deciding the designs and types of products they would market (Samli, 2001). Although firms have listened to the voice of the customer in order to gain a better understanding of consumers' needs, they have essentially always had the final word on what products should be produced, centralizing power and control within the organization and away from consumers (Pitt et al., 2006).

However, in recent years, the proliferation of the Internet and social media technologies has enabled firms to experiment with new models of new product development. In particular, firms are now able to incorporate consumers' ideas and opinions within their NPD process due to the ability to build strong communities that allow thousands of customers from all over the world to participate and collaborate with the firm (Ogawa and Piller, 2006). Leveraging communities of consumers to participate and influence a firm's NPD process is a relatively new practice. As such, best practices for consumer co-creation and collaborative design have not yet been established, resulting in multiple types of strategies currently being used in the marketplace. These strategies incorporate consumer ideas and opinions into the design process and final product in different ways. Naturally, they also differ in the approach by which they inform participants of their contribution to the final product being produced by the firm.

In industry there are three predominant participation allocation strategies which firms use to inform participants of their influence in the co-creation process. These strategies often stem from the functional process that firms use to manage and incorporate consumers' ideas and opinions. They include the "winner model" where the firm solicits idea submissions from consumers, picks the winning idea(s), and then showcases the winner(s) to the community (see Redesignme Connect); the "ambiguous model" where consumers submit, rank, or vote on ideas within the platform, but are not directly told whether their input was taken into account (see Threadless.com); and the "percent allocation model" where individual customers are allocated a specific influence percentage based on how much impact their contribution had on the final product (see Quirky.com).

Most firms choose their participation allocation strate-

gies based on the functional needs of the platform rather than the psychological effects on the consumer. This research encourages firms to think beyond the functional rationale behind participation allocation strategies and instead use them as a tool to elicit psychological ownership in the product. Doing so can have many positive benefits for the firm. Previous research has shown that psychological ownership fully mediates the incremental demand observed in the "empowerment-product demand" effect; therefore increasing psychological ownership in the product should lead to increased purchase intentions, willingness to pay, and overall opinion of the final product (Fuchs et al., 2010). Firms should work to choose a participation allocation strategy that meets the functional needs of the platform while simultaneously increasing consumers' psychological ownership in the product.

Consumer Empowerment and the "Empowerment-Product Demand" Effect

Consumers increasingly expect firms to customize their products and services to meet their demands. In order to capitalize on these expectations, firms who have an interaction orientation (i.e., the ability to interact with and take advantage of information obtained from individual customers and profit from that ability) might use consumer empowerment as a strategy to allow customers to shape the products or services the firm offers (Ramani and Kumar, 2008). The Internet is considered to be a consumer empowering technology due to the increased information base, greater choice, and more control it provides consumers (Shankar, Cherreir, and Canniford, 2006). Companies are increasingly using the Internet and social media technologies to enable consumer empowerment through the use of co-creation (Füller, Mühlbacher, Matzler, and Jawecki, 2009).

Psychological empowerment in a managerial context is defined as an "increased intrinsic task motivation manifested in a set of four cognitions reflecting an individual's orientation to his or her work role: meaning, competence (i.e., an individual's belief in his or her capability to perform activities with skill), self-determination, and impact" (Thomas and Velthouse, 1990). Together, these four cognitions reflect an active (an orientation which an individual wishes and feels able to shape his or her work role and context), rather than a passive, orientation to a work role (Spreitzer, 1995). Because consumers who participate in co-creation strategies are performing tasks similar to those traditionally reserved for employees, this construct of psychological empower-

ment is applicable within a consumer context. Empowered consumers will have an active orientation toward their role as consumers and co-creators such that they will feel able to impact and shape the eventual offerings of the firm. This perceived impact (the degree to which a consumer perceives his or her own ability to influence certain outcomes) can serve as a measure of consumer empowerment (Spreitzer, 1995).

I propose that a consumer's perceived impact within a co-creation platform is constructed by (1) participation in the co-creation process and (2) the way in which a consumer is told their input was taken into account in the final product or service. In this research we examine the second construct, focusing on how various different participation allocation strategies affect consumers' perceived impact. Participation allocation should cause a change in perceived impact by informing consumers how their input was taken into account, thus changing their initial perceptions.

H1a: Consumers who are told another consumer had full influence on a product's final design (winner model) and those who are told they had no influence on the final design (control [no allocation]) will have a negative change in perceived impact (time 1 to time 2). H1b: Consumers given an ambiguous indication of their influence on a product's final design (ambiguous model) and those who are given a specific percent influence on the final design (percent allocation model) will have a positive change in perceived impact (time 1 to time 2).

Consumers who have perceived empowerment in the co-creation process have been found to have increased trust in the empowering organization and increased intentions to participate in future NPD tasks (Füller et al., 2009). As trust has been found to increase future loyalty intentions toward an e-retailer (Chen, 2007), we can assume the increased trust consumers gain from empowerment (measured by perceived impact) in co-creation processes leads to positive future loyalty intentions toward the empowering firm. This is validated by Fuchs et al. who have found that empowered consumers have higher future loyalty intentions toward a firm than non-empowered consumers (2010). Because future loyalty intentions stem from feelings of empowerment, participation allocation strategies that give consumers perceived empowerment should increase consumers' future loyalty intentions toward that company.

H2a: Consumers who are told another consumer had full influence on a product's final design (winner model) and those who are told they had no influence on the final design (control [no allocation]) will show a negative change in future

loyalty intentions toward the company (time 1 to time 2).

H2b: Consumers who are allocated ambiguous participation, allocated ambiguous contribution, given a high percent influence, or given a low percent influence will show a positive change in future loyalty intentions toward the company (time 1 to time 2).

The management literature has shown that when people are empowered to participate in decision making and have a perception that they can influence the outcome, they take ownership of the final decision (Agarwal and Ramaswami, 1993; Hunton, 1996). Since participation allocation strategies help consumers construct their perceptions of influence and control, it is suggested that strategies which increase consumers' perceived impact will cause higher feelings of psychological ownership and positive word of mouth about the final product. Participation allocation strategies which attribute total influence to another consumer or attribute no influence to the individual will elicit a state of 'powerlessness' and thus decrease psychological ownership compared to those which attribute participation to the individual (Pierce, Kostova, and Dirks, 2003).

H3a: Consumers who are allocated ambiguous participation, allocated ambiguous contribution, given a high percent influence, or given a low percent influence will have higher psychological ownership of the final product and positive word of mouth than those who are told another consumer had full influence (winner model) and those who are told they had no influence (control [no allocation]).

H3b: Consumers who are allocated ambiguous participation, allocated ambiguous contribution, given a high percent influence, or given a low percent influence will have equal psychological ownership of the final product and positive word of mouth. H3c: Consumers who are told another consumer had full influence on the final design ('winner model') and those told they had no influence (control [no allocation]) will have equal psychological ownership of the final product and positive word of mouth. Since empowerment has been shown to increase psychological ownership and perceived impact, particular participation allocation strategies which lead consumers to have higher psychological ownership of a product and higher perceived impact compared to other strategies can be said to be empowering strategies, while the latter strategies that have the opposite effect can be said to be non-empowering. Fuchs et al. have shown an "empowerment-product demand" effect where consumers who are empowered to select prod-

ucts a firm offers show stronger demand for the underlying products than consumers who are not empowered to do so (2010). It has also been shown that consumers who feel a strong sense of psychological ownership of products exhibit stronger demand for them (Peck and Shu, 2009).

H4: Consumers who are attributed an empowering participation allocation will show a higher demand for the underlying product (operationalized by WTP and purchase intentions) and a more favorable overall opinion of the final product compared to consumers who are attributed a non-empowering participation allocation.

Study 1: The Effect of Participation Allocation

The purpose of study 1 was to provide an initial understanding of the effect of participation allocation on consumer empowerment within a co-creation platform. The study was meant to test (1) what effect participation allocation has on consumers' change in perceived impact (2) if positive (negative) changes in perceived impact lead to increased (decreased) psychological ownership, positive word of mouth, and changes in future loyalty intentions (3) if consumers who are attributed an empowering participation allocation have an increased demand for (operationalized by WTP and purchase intentions) and more favorable opinion of the underlying product. To accomplish these goals participants went through a mock collaborative design process in creating a travel coffee thermos for a fictional company called "We-Design".

Method

335 undergraduate students from The Ohio State University participated in this study (168 males; M age = 21.39). 74 participants were dropped from the experiment due to failure in understanding their participation allocation and failing a manipulation check, leaving a total of 261 participants. This experiment was done online in a laboratory setting. Participants were told that they would be collaboratively designing products for a fictional company called "We-Design" which mimicked real world collaborative design platforms (e.g., Quirky). The product chosen was a travel coffee thermos due to the ease in which different product attributes (handle, base, and lid) can be differentiated, designed, and combined. This mock collaborative design process had participants view and rate nine different "user submitted" designs

for a travel coffee thermos (3 handle, 3 base, and 3 lid designs) based on their usability, marketability, aesthetics, and coolness. Participants were then directed to pick one of the user-submitted options from each product attribute (handle, base, and lid) to be incorporated into the final design of the thermos. Afterward they were asked a series of questions (time 1) pertaining to perceived impact on the process and future loyalty intentions toward "We-Design". Participants then completed a neutral questionnaire as a filler task.

After the filler task, participants were told "what effect (their) participation and input had on the collaborative design process and final design of the travel coffee thermos". They were randomly assigned to one of six participation allocation conditions: (1) Control (No Allocation): told they had no influence on the final design, (2) Winner Model: told that a single "winner's" design was chosen (not their own), (3) Ambiguous Allocation: given no information about their contribution, (4) Ambiguous Contribution: told their contribution was taken into account, but not to what extent (5) 5% Percent Allocation: told they had a 5% influence on the final design, (6) 20% Percent Allocation: told they had a 20% influence. Actual stimuli can be seen in Figure 1.

Participants were then shown a final travel coffee ther-

FIGURE 1
Study 1: Participation Allocation Stimuli

Control (No Allocation)
Your individual input **was not taken into account**. The final design chosen came from the community of customers, freelance designers, and other participants who **were not involved with this study**. We-Design still used community collaboration and feedback to choose their final design for the travel coffee thermos, however **your particular input was not considered in the process.**

Winner Model
We-Design chose to take only **one participant's input into account**. Your individual input was noted; however **participant 42 had total influence on the final product**. The final design chosen came from participant 42's input, who was a part of the community of customers, freelance designers, and other participants who were involved with this study. We-Design used community collaboration and feedback to choose their final design for the travel coffee thermos, and **participant 42's particular input was the only one** considered in the process.

Ambiguous Allocation
The final design chosen came from the community of customers, freelance designers, and other participants who were involved with this study. We-Design used **community collaboration and feedback** to choose their final design for the travel coffee thermos.

Ambiguous Contribution
Your individual input **was taken into account**. The final design chosen came from the community of customers, freelance designers, and other participants who were involved with this study. We-Design used community collaboration and feedback to choose their final design for the travel coffee thermos, and your **particular input was considered** in the process.

5% Percent Allocation
Your individual input **was taken into account**, and you had a **5% influence on the process**. The final design chosen came from the community of customers, freelance designers, and other participants who were involved with this study. We-Design used community collaboration and feedback to choose their final design for the travel coffee thermos, and **your particular input was considered** in the process, and **contributed a total of 5%** in the decision making process.

20% Percent Allocation
Your individual input **was taken into account**, and you had a **20% influence on the process**. The final design chosen came from the community of customers, freelance designers, and other participants who were involved with this study. We-Design used community collaboration and feedback to choose their final design for the travel coffee thermos, and **your particular input was considered** in the process, and **contributed a total of 20%** in the decision making process.

mos which incorporated the handle and lid designs they chose earlier in the process, but used a neutral base that was not part of the original 3 base designs shown. They were told that "after receiving feedback from the community, We-Design has finalized the design for the travel coffee thermos" and that the thermos "will be manufactured and sold in both retail and online stores". Participants then proceeded to answer a series of questions (time 2) on perceived impact on the process and future loyalty intentions toward "We-Design". Afterward they were asked about the final travel coffee thermos design, specifically their psychological ownership of the thermos, positive word of mouth about the product, WTP, purchase intentions, and overall opinion of the thermos. Finally to confirm that participants understood their given participation allocation, they answered a reading comprehension question which asked participants how their participation in the We-Design collaborative design process was allocated.

In order for participants to have perceived empowerment in the mock collaborative design process, they must feel like they were actually participating. The illusion of participation was created by using three tactics: (1) participants were prompted with directions that this was in fact a real platform, and that all designs were "used submitted"; (2) participants went through a realistic rating and voting scheme for the coffee thermos designs which mimicked real collaborative design platforms; (3) a filler task was used to make it seem like other participants' input was being collected. This created the impression that all participant input was potentially being considered in the process, thus simulating a collaborative design platform.

Fuchs et al. have found a 'top or flop' effect where the effects of empowerment on product demand diminish if the outcome of the joint decisions-making process does not reflect a participant's ideas and preferences (2010). In study 1, this effect was prevented by creating multiple final designs for the travel coffee thermoses. If all participants were to see the same final thermos design (naturally many would not have their preferences accounted for), there would be several who would develop less psychological ownership of the product because their feelings of responsibility would be lower (Pierce, Kostova, and Dirks, 2003). Nine different final travel coffee thermos designs were created using the lid and handle design sketches participants ranked earlier in the process. The designs included a neutral base design which was not previously shown to participants during the ranking and voting phase in order to create a sense of collaborative influence (i.e., if all the attributes the participant chose

were incorporated in the final design, it would be difficult for them to believe that the final product was collaboratively designed). The study showed participants the travel coffee thermos design which incorporated their lid and handle preferences they voted on previously. See figure 2 for an example.
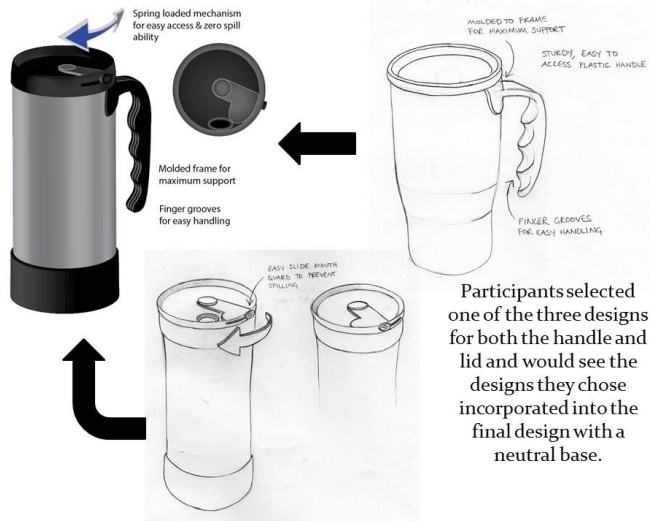

Participants selected one of the three designs for both the handle and lid and would see the designs they chose incorporated into the final design with a neutral base.

Figure 2

Measures

Perceived impact on the design process and future loyalty intentions toward the company were measured in both time 1 (before participation allocation and showing the final design) and time 2 (after participation allocation and showing the final design) using a 7 point scale (1 = strong disagree; 7 = strongly agree). Perceived impact was measured using four items adapted from Spreitzer (1995) and Fuchs et al. (2010): "I have some influence in determining what the products sold by this company will look like," "My opinion counts in the product design of the new We-Design coffee thermos," "I see that I have some control in determining which attributes will be used in the design of this product" and "My ability to effect the design of this product is extremely limited" (reversed) (α time 1 = .84; α time 2 = .92). Future loyalty intentions were measured using three items adapted from Reynolds and Beatty (1999) and Fuchs et al. (2010): "I like this company," "I would be more likely to buy products from We-Design than another consumer products firm," and "In the future, I would prefer to buy products from We-Design" (α time 1 = .84; α time 2 = .90).

Next, psychological ownership of the final thermos and positive word of mouth (WOM) were measured using a 7 point scale (1 = strong disagree; 7 = strongly agree). Psychological ownership was measured using 7 items adapted from Fuchs et al. (2010) and Van Dyne and Peirce (2004):

"Although I do not legally own this coffee thermos yet, I have the feeling that it is 'my' thermos," "The selected thermos design incorporates a part of myself," "I feel that this product belongs to me," "I feel connected to this product," "I feel a strong sense of closeness with this product," "If I owned one of these coffee thermoses, I would try to take better care of it than I normally would for similar products," and "If someone said something bad about this coffee thermos, I would be more likely to defend it verbally than other products" (α = .93). Positive WOM was measured using 3 items taken from Caroll and Ahuvia (2006): "I would try to spread the word about this product," "I would 'talk this coffee thermos up' to others," and "I would recommend this product to my friends" (α = .92).
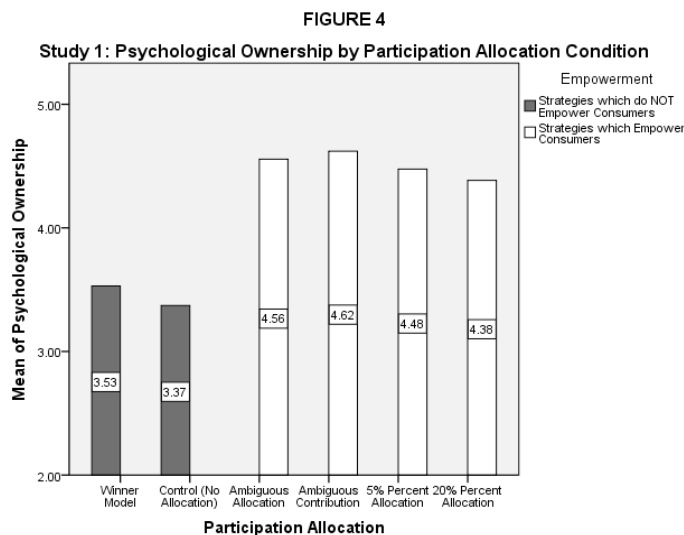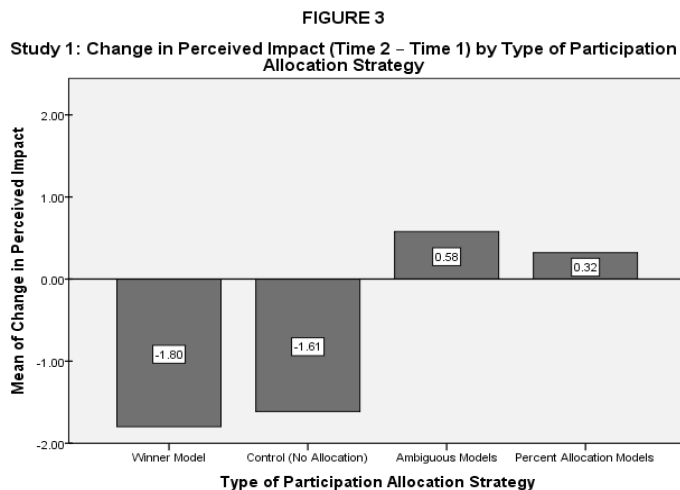
Underlying demand for the final product was measured using direct WTP, purchase intentions using the hypothetical method, and purchase intentions using the Juster scale. To measure direct WTP participants were asked "How much would you be willing to pay for this coffee thermos?" and then filed in a numerical value (Jones, 1975). Hypothetical purchase intentions were measured using a 7 point scale (1 = unlikely; 7 = likely) asking participants "Imagine you could purchase this coffee thermos right now. Would you be interested in buying one?" (Kirmani, Sood, and Bridges, 1999). Purchase intentions were also measured using the Juster scale with a 100 point sliding scale (1 = Very slight possibility [1 in 100]; 100 = Certain, practically certain [99 in 100]): "How likely is it that you would buy this coffee thermos?" (Juster, 1966). Overall opinion of the final product was measured using a 7 point scale (1 = unfavorable; 7 = favorable): "My overall opinion of this product is".

Results and Discussion

To test hypothesis 1a and 1b single t-tests (test value = 0) were run to see if the changes in perceived impact (time 1 to time 2) for both the winner model and control (no allocation) conditions were negative and if the changes in perceived impact for the ambiguous model conditions (ambiguous contribution, ambiguous allocation) and percent allocation conditions (5% percent allocation, 20% percent allocation) were positive. Such a finding would suggest that the control and winner model participation allocation strategies have a non-empowering effect, while the ambiguous and percent allocation models have an empowering effect. It was found that both the winner model ($M_{time\ 2-\ time\ 1}$ = -1.80, t(1, 30) = 5.89, p < .001) and the control (no allocation) ($M_{time\ 2-\ time\ 1}$ = -1.61, t(1, 34) = 4.84, p < .001) conditions had a negative

change in perceived impact, while the ambiguous model conditions ($M_{time\ 2-\ time\ 1}$ = .58, t(1,91) = 5.07, p < .001) and percent allocation model conditions ($M_{time\ 2-\ time\ 1}$ = .32, t(1,102) = 2.66, p < .01) had a positive change (see figure 3). These results also suggest that consumers' perceived impact is constructed by both their participation in co-creation and the way in which they are told their input is taken into account.

ambiguous contribution (M = 4.62, $p_{vs.\ winner\ model}$ < .01, $p_{vs.\ control}$ < .001), 5% percent allocation (M = 4.48, $p_{vs.\ winner\ model}$ < .05, $p_{vs.\ control}$ < .01), and 20% percent allocation (M = 4.38, $p_{vs.\ winner\ model}$ < .05, $p_{vs.\ control}$ < .01) conditions show significantly more psychological ownership of the final product than participants in the winner model (M = 3.53) or control (no allocation) (M = 3.37) conditions (see figure 4).

FIGURE 3

Study 1: Change in Perceived Impact (Time 2 – Time 1) by Type of Participation Allocation Strategy

FIGURE 4

Study 1: Psychological Ownership by Participation Allocation Condition

To test hypothesis 2a and 2b single t-tests (test value = 0) were run to see if the winner model and control (no allocation) conditions caused a negative change in future loyalty intentions (from time 1 to time 2) and if the ambiguous allocation, ambiguous contribution, 5% percent allocation, and 20% percent allocation conditions caused a positive change. It was found that both the winner model ($M_{time\ 2-\ time\ 1}$ = -1.04, t(1, 30) = 4.95, p < .001) and the control (no allocation) ($M_{time\ 2-\ time1}$ = -.76, t(1, 34) = 5.02, p < .001) conditions had a negative change in future loyalty intentions while the ambiguous allocation ($M_{time\ 2-\ time\ 1}$ = .38, t(1,44) = 3.79, p < .001), ambiguous contribution ($M_{time\ 2-\ time\ 1}$ = .28, t(1,46) = 2.62, p < .05), 5% percent allocation ($M_{time\ 2-\ time\ 1}$ = .20, t(1,50) = 2.16, p < .05), and 20% percent allocation ($M_{time\ 2-\ time\ 1}$ = .28, t(1,51) = 2.53, p < .05) conditions caused a positive change. These results suggest that empowering (non-empowering) participation allocations can cause a positive (negative) change in consumers' future loyalty intentions.

Next multiple one way ANOVAs with Tukey post hoc analysis were run to test hypothesis 3a. Results show a significant difference in psychological ownership between conditions (F(5, 255) = 6.95, p < .001). Further post hoc analysis reveals that the participants in the ambiguous allocation (M = 4.56, $p_{vs.\ winner\ model}$ < .01, $p_{vs.\ control}$ < .001),

Similar results were found for positive WOM, where results show a significant difference between conditions (F(5, 255) = 7.63, p < .001). Further post hoc analysis reveals that the participants in the ambiguous allocation (M = 5.24, $p_{vs.\ winner\ model}$ < .01, $p_{vs.\ control}$ < .01), ambiguous contribution (M = 5.04, p vs. winner model < .01, $p_{vs.\ control}$ < .001), 5% percent allocation (M = 5.05, $p_{vs.\ winner\ model}$ < .05, $p_{vs.\ control}$ < .01), and 20% percent allocation (M = 4.99, $p_{vs.\ winner\ model}$ < .05, $p_{vs.\ control}$ < .01) conditions show significantly higher positive WOM than participants in the winner model (M = 4.11) or control (no allocation) (M = 3.97) conditions. These findings further validate the results shown in H1 where the ambiguous contribution, ambiguous allocation, 5% percent allocation, and 20% percent allocation participation allocation strategies have an empowering effect on consumers (thus increased psychological ownership and positive WOM shown in Fuchs et al. 2010) compared to the winner model and control (no allocation) strategies which have a non-empowering effect.

To test hypothesis 3b and 3c, multiple one way ANOVAs were run. It was found that consumers in the ambiguous allocation, ambiguous contribution, 5% percent allocation, and 20% percent allocation conditions showed equal psychological ownership of the final product (F(3, 191) < 1, p = .77) and positive WOM (F(3, 191) < 1, p = .77). Fur-

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ther, participants who were in the winner model and control (no allocation) conditions showed equal psychological ownership of the final product (F(1, 64) < 1, p = .69) and positive WOM (F(1, 64) < 1, p = .66). These results show that the ambiguous allocation, ambiguous contribution, 5% percent allocation, and 20% percent allocation conditions equally empower participants compared to the winner and control (no allocation) conditions which equally cause lower empowerment. Therefore to compare empowering versus non-empowering participation allocation strategies, the ambiguous allocation, ambiguous contribution, 5% percent allocation, and 20% percent allocation conditions will be combined (n = 195) while the winner model and control (no allocation) conditions will be combined (n = 66).

To test hypothesis 4, multiple independent t-tests were run comparing empowering versus non-empowering participation allocation strategies. Empowering participation allocation strategies lead to: a 22.49% increase in direct WTP (M = 13.67) compared with non-empowering strategies (M = 11.16; t(1,157.39) = 3.15, p < .01); a 26.4% increase in hypothetical purchase intentions (M = 4.50) compared with non-empowering strategies (M = 3.56; t(1,100.98) = 3.74, p < .001); a 33.11% increase in purchase intentions (M = 52.56) compared with non-empowering strategies (M = 39.48; t(1,259) = 3.53, p < .001) using the Juster scale (see figure 5); and a 10.76% increase in overall opinion about the final design (M = 5.66) compared with non-empowering strategies (M = 5.11; t(1,259) = 3.12, p <.01). These results show participation allocation's ability to create or diminish the "empowerment-product demand" effect and further validate the findings of Fuchs et al. (2010). However they go further in establishing that consumer em-

FIGURE 5

Study 1: Purchase Intentions by Empowering vs. Non-Empowering Participation Allocation Strategies

Empowering vs. Non-Empowering Participation Allocation Strategies

powerment can also lead to a more favorable opinion of the underlying product. They also suggest that consumer empowerment and the marginal increase in demand it creates are a function of both participation in co-creation platforms and participation allocation attributed to participants.

Reference Groups

The Internet today allows consumers from all walks of life to collaborate on an unprecedented scale. Unlike traditional forms of collaboration, online communities are characteristically easy to enter and leave, non-exclusive, and have heterogeneous membership (Andrews, 2002). The heterogeneity of these platforms creates opportunities for the exchange of diverse ideas and the potential to increase innovative capacity. Research has shown that having a heterogonous group of individuals working together can increase creativity and problem solving, (Cox and Blake, 1991) and diverse teams can increase the rate of creativity and innovation (Gassmann, 2001) within organizations. The same can hold true for consumer co-creation platforms, particularly if the diversity of the consumers represent the firm's target market.

Although a heterogeneous user base within a co-creation platform can increase the platform's functional ability to create more innovative products or services, there are some potential psychological consequences of increased diversity amongst a user community. Particularly, advocates of social identity theory suggest that diversity within a given community produces in-groups and out-groups within the community (Ely and Thomas, 2001; Ibaarra, 1993; Tajfel, 1982). Reference group dynamics have been shown to play a large role in determining consumers' attitudes and behaviors, particularly in product evaluations, product choices, and creating self-brand connections. Escalas and Bettman have shown that brands used by in-groups enhance consumers' self-branded connections while brands used by out-groups detract from such connections (2005). White and Dahl build upon this research by showing that products associated with dissociative reference groups (i.e., a group with which an individual wishes to avoid being associated with and feels a sense of disidentification) have a greater impact on consumers' negative self-brand connections than products associated with out-groups in general, and that this impact extends to both consumers' product evaluations and product choices (2007).

Understanding the effect reference group dynamics have on consumers' attitude formations in co-creation platforms is extremely important for those firms trying to evoke the
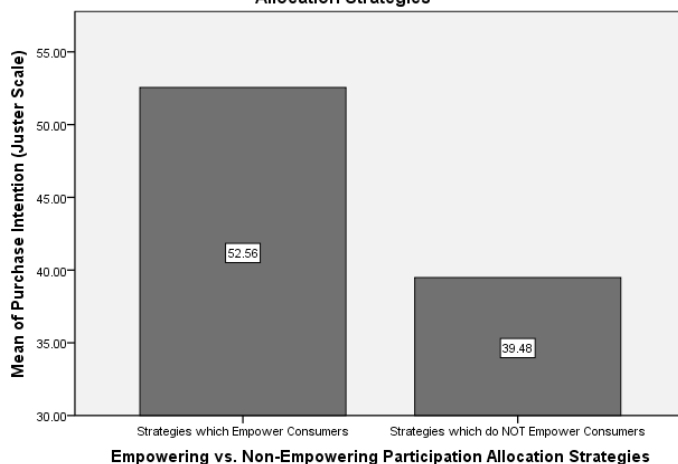
psychological benefits of consumer empowerment. As shown in study 1, consumers construct their perceptions of empowerment largely through their assigned participation allocation. Study 2 examines consumers' response to in-group versus dissociative out-group influence in both empowering versus non-empowering participation allocation strategies.

Social identity theory (Tajfel and Turner, 1979) and social categorization theory (Turner, 1985) propose that an individual's self-concept is constructed by both their personal identity (i.e., the identity derived from an individual's sense of self) and social identity (i.e., the identity related to the social groups to which one belongs or with which one is affiliated). This construction of the self has important implications when determining what effect reference groups have on consumers' perceived impact in the co-creation process. Because self-identity is constructed by both individual identity and social identity, if one sees that members of a group they perceive as an in-group have influenced the final product, they should feel as though they themselves have had an influence on the final product, even when they are attributed a non-empowering participation allocation. However, if consumers see that members of an out-group they perceive as dissociative have influenced the final product, their perceived impact would be equal to that of a typical non-empowering participation allocation strategy since they do not associate with that reference group and thus do not include it in the construction of their self-concept. Reference groups should have no effect on consumers who are attributed an empowering participation allocation, because their personal identity has been directly allocated influence, allowing them to perceive their self-concept as having impact regardless of reference group influence.

H5a: Consumers who are told that an in-group member had total influence on the final design of a product will have an equal change in perceived impact (time 1 to time 2) compared to consumers both who are told that they had 20% influence while their in-group had 80% influence, and consumers who are told that they had 20% influence and a dissociative out-group had 80% influence.

H5b: Consumers who are told that a dissociative out-group member had total influence on the final design of a product will have an equal change in perceived impact (time 1 to time 2) to those who are told they had no influence (control [no allocation]). The change in perceived impact for these two conditions will be significantly less than that for consumers who are told that an in-group member had total influence.

H5c: Consumers who are told that they had

20% influence and their in-group had 80% influence on the final product will have an equal change in perceived impact (time1 to time 2) as those told they had 20% influence and their dissociative out-group had 80% influence.

Social identity theory should also help predict what effect reference groups will have on psychological ownership. Because the construct of self-identity is created by both individual identity and social identity, and psychological ownership arises when an individual perceives that the self can exert control over an object (Pierce, Kostova, Dirks, 2002), it is reasonable to assume that the differences in perceived impact caused by reference groups would show similar effects on psychological ownership. Additionally, individuals who feel a stronger sense of association with their in-group should incorporate the actions of that group into their self-concept to a greater extent, thus increasing the effect of reference groups on psychological ownership.

H6a: Consumers who are told that an in-group member had total influence on the final design of a product will have equal psychological ownership of the final product compared to both consumers who are told that they had 20% influence and their in-group had 80% influence and consumers who are told they had 20% influence and a dissociative out-group had 80% influence.

H6b: Consumers who are told that a dissociative out-group member had total influence on the final design of a product will have equal psychological ownership of the final product compared to those who are told they had no influence (control [no allocation]). The psychological ownership experienced by consumers in these two conditions will be significantly less than experienced by consumers who are told that an in-group member had total influence.

H6c: Consumers who are told that they had 20% influence and their in-group had 80% influence on the final product will have equal psychological ownership of the final product as those told they had 20% influence and a dissociative out-group had 80% influence.

H7: The effects on psychological ownership seen in H6b will be moderated by the degree to which an individual feels associated with their in-group, such that those who have high (low) feelings of associations and are told an in-group member had total influence on the final product will have higher (lower) psychological ownership of the final product, while those who are told a dissociative out-group member had total influence on the final product will have lower (higher) psychological ownership.

Previous research has found that consumers are often motivated to avoid a negative social identity and will decrease affiliation with groups that do not confer positive associations (Jackson et al., 1996) and will avoid products associated with negatively viewed social identities in order to do so (Tepper, 1994; White and Argo, 2007; White and Dahl, 2006). These negative associations will cause consumers who see that a dissociative out-group member has influenced the final product to have lower future loyalty intentions than consumers who see that an in-group member has influenced the product. However in-group associations should not increase consumers' future loyalty intentions compared to a neutral non-empowering strategy, suggesting that the proposed increase in psychological ownership and perceived impact derived from in-group association does not translate into future loyalty intentions.

H8a: Consumers who are told that an in-group member had total influence on the final design of a product will show equal future loyalty intentions toward the company as those who are told they had no influence (control [no allocation]). Consumers in both conditions will have higher future loyalty intentions than those who are told that a dissociative out-group member had total influence.

However consumers who are given empowering participation allocation strategies should have equal future loyalty intentions toward the company. Reference groups should play no role in determining consumers' future loyalty intentions when consumers are empowered. This finding would suggest that consumer empowerment has a stronger effect on consumers' future loyalty intentions than dissociative out-group influence.

H8b: Consumers who are told that they had 20% influence and their in-group had 80% influence on the final product will show equal future loyalty intentions toward the company as those told they had 20% influence and a dissociative out-group had 80% influence. If the empowering strategies have been shown to be equal, they can then be combined in order to compare to non-empowering strategies to see whether they provide a combined increase in consumers' future loyalty intentions over the non-empowering strategies.

H8c: Consumers who are told they had 20% influence on the final product will show higher future loyalty intentions toward the company than those who are told that an in-group member had total influence on the final design of a product, told that a dissociative out-group member had total influence, or told that they had no influence (control [no allocation]).

As previously discussed, consumer empowerment strategies increase consumers' demand for the underlying product in co-creation platforms, and certain participation allocation strategies enable empowerment while others do not. It is proposed that reference group associations have no impact on consumers' demand for the underlying product in cases of both empowering and non-empowering participation allocation strategies. In-group reference group associations may have the potential to increase consumers' psychological ownership and perceived impact, however it is proposed that they will not be able to increase consumers' demand (operationalized by purchase intentions) for the underlying product when compared to empowering participation allocation strategies. Further, demand for the underlying product should be equal amongst all non-empowering strategies and equal amongst all empowering strategies, showcasing that reference groups have no effect on demand.

H9a: Consumers who are told that an in-group member had total influence on the final design of a product, those who are told they had no influence (control [no allocation]), and those who are told that a dissociative out-group member had total influence will all show equal demand for the underlying product (operationalized by purchase intentions).

H9b: Consumers who are told that they had 20% influence and their in-group had 80% influence on the final product will show equal demand for the underlying product (operationalized by purchase intentions) as those told they had 20% influence and their dissociative out-group had 80% influence. If the empowering strategies have been shown to be equal, they can then be combined in order to compare to non-empowering strategies to see whether they provide a combined increase in demand compared to non-empowering strategies.

H9c: Consumers who are told they had 20% influence on the final product will show higher demand for the underlying product (operationalized by purchase intentions) than those who are told that an in-group member had total influence on the final design of a product, told that a dissociative out-group member had total influence, or told that they had no influence (control [no allocation]).

Study 2: Reference Group Dynamics in Co-Creation

The purpose of study 2 was to see what effect in-group and dissociative out-groups had on consumer empowerment in both empowering and non-empowering participation allocation strategies. Study 2 used the same ex-
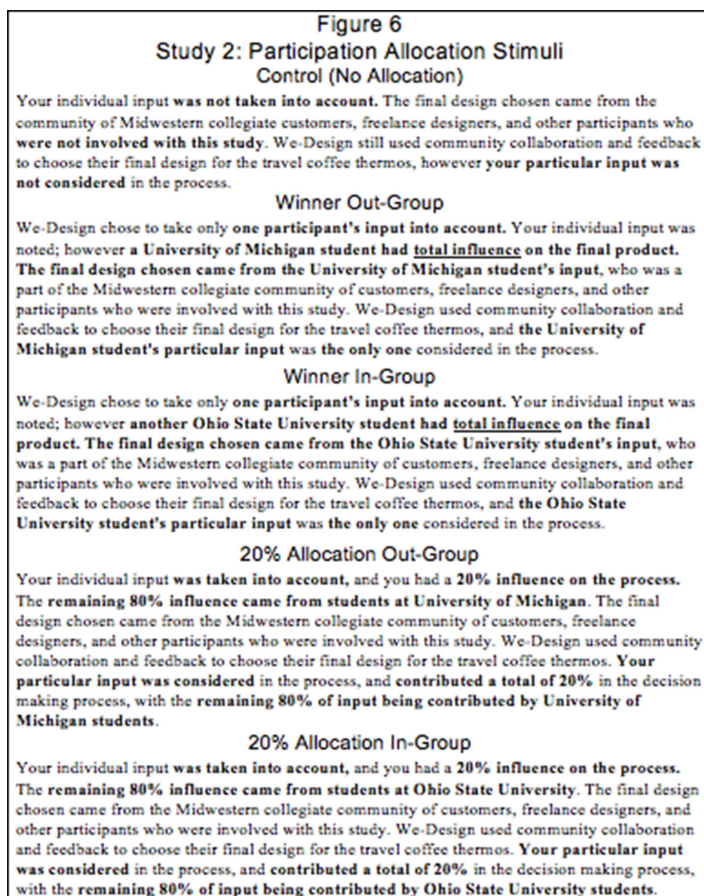
periment design and dependent measures as study 1.

Methods

221 undergraduate students from The Ohio State University participated in this study (99 males; Mage = 21.02). 67 participants were dropped from the experiment due to failure in understanding their participation allocation and failing a manipulation check, leaving a total of 154 participants.

The study follows the same design, layout, and flow as study 1, with a few exceptions. Participants were prompted that they would be collaboratively designing with community members from other Midwestern universities. In order to elicit in-group and dissociative out-group associations, students were prompted that Ohio State University students had influence on the final product (in-group) or University of Michigan students had influence on the final product (dissociative out-group). The Ohio State University and University of Michigan are longtime rivals and believed to be the greatest sports rivalry of all time ("The 10 greatest rivalries", 2007). The rivalry goes far beyond sport as both universities compete on many academic and philanthropic fronts (e.g., the yearly "blood battle" in which both school compete to see who can donate more blood). The nature of this rivalry makes it very useful for creating in-group and dissociative out-group associations.

Participants were randomly assigned to one of five conditions dealing with reference groups in empowering versus non-empowering allocations: (1) Control (No Allocation): told they had no influence, (2) Winner Out-Group: told a dissociative out-group member's (a student from University of Michigan) design was chosen, (3) Winner In-Group: told that an in-group member's (a student from Ohio State University) design was chosen, (4) 20% Allocation Out-Group: told they had 20% influence and students from University of Michigan 80% influence, and (5) 20% Allocation In-Group: told they had a 20% influence and students from Ohio State University had 80% influence. Actual stimuli can be seen in figure 6. After the entire process participants were asked the extent to which they felt associated with Ohio State University and the extent to which they wished to be disassociated with University of Michigan.

Figure 6
Study 2: Participation Allocation Stimuli
Control (No Allocation)

Your individual input **was not taken into account.** The final design chosen came from the community of Midwestern collegiate customers, freelance designers, and other participants who **were not involved with this study.** We-Design still used community collaboration and feedback to choose their final design for the travel coffee thermos, however **your particular input was not considered** in the process.

Winner Out-Group

We-Design chose to take only **one participant's input into account.** Your individual input was noted; however **a University of Michigan student had** __total influence__ **on the final product. The final design chosen came from the University of Michigan student's input**, who was a part of the Midwestern collegiate community of customers, freelance designers, and other participants who were involved with this study. We-Design used community collaboration and feedback to choose their final design for the travel coffee thermos, and **the University of Michigan student's particular input** was the only one considered in the process.

Winner In-Group

We-Design chose to take only **one participant's input into account.** Your individual input was noted; however **another Ohio State University student had** __total influence__ **on the final product. The final design chosen came from the Ohio State University student's input**, who was a part of the Midwestern collegiate community of customers, freelance designers, and other participants who were involved with this study. We-Design used community collaboration and feedback to choose their final design for the travel coffee thermos, and **the Ohio State University student's particular input** was the only one considered in the process.

20% Allocation Out-Group

Your individual input **was taken into account**, and you had a **20% influence on the process. The remaining 80% influence came from students at University of Michigan.** The final design chosen came from the Midwestern collegiate community of customers, freelance designers, and other participants who were involved with this study. We-Design used community collaboration and feedback to choose their final design for the travel coffee thermos. **Your particular input was considered** in the process, and **contributed a total of 20%** in the decision making process, with the **remaining 80% of input being contributed by University of Michigan students.**

20% Allocation In-Group

Your individual input **was taken into account**, and you had a **20% influence on the process. The remaining 80% influence came from students at Ohio State University.** The final design chosen came from the Midwestern collegiate community of customers, freelance designers, and other participants who were involved with this study. We-Design used community collaboration and feedback to choose their final design for the travel coffee thermos. **Your particular input was considered** in the process, and **contributed a total of 20%** in the decision making process, with the **remaining 80% of input being contributed by Ohio State University students.**

Measures

Measures were the same from study 1. Specifically perceived impact (α time 1 = .81; α time 2 = .93), future loyalty intentions (α time 2 = .93), psychological ownership (α = .95), and purchase intentions (using the Juster scale) were measured. In-group and out-group associations were measured using 7 point scale (1 = strong disagree; 7 = strongly agree). Association with the in-group (Ohio State) was measured using 3 questions adapted from White and Dahl (2007) and Escalas and Bettman (2005): "Being an Ohio State University Student has a great deal to do with how I feel about myself," "Being an Ohio State University Student is an important part of my self-image," and "I strongly identify with being an Ohio State University Student" (α = .91). Disassociation with an out-group (University of Michigan) was measured using 3 questions adapted from White and Dhal (2007): "I wish to avoid being associated with the University of Michigan," "I feel like I am not associated with students

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from the University of Michigan," and "Being associated with the University of Michigan would be unfavorable" (α = .86).

Results and Discussion

In order to test the use of The Ohio State University students as a valid in-group and University of Michigan students as a valid dissociative out-group two single t-tests were run. Results show that participants' feelings of association with Ohio State University was above the midpoint (M = 5.37, t(1,153) = 17.62, p < .001) and participants' feelings of dissociation with University of Michigan was above the midpoint (M = 4.34, t(1,153) = 6.36, p < .001). This suggests that these social groups represent a realistic in-group and dissociative out-group for the participants in the study. To test hypothesis 5a, 5b, and 5c, a one way ANOVA with a Tukey post hoc analysis was run to explore the difference in changes in perceived impact across the conditions. It was found that the there was a statistical difference across conditions (F(4, 149) = 19.72, p < .001) and that the winner in-group (M$_{time\ 2-\ time\ 1}$ = -.41) was statistically equal to both the 20% allocation in-group (M$_{time\ 2-\ time\ 1}$ = .32; p = .31) and 20% allocation out-group (M$_{time\ 2-\ time\ 1}$ = .13; p = .64). The winner out-group condition (M$_{time\ 2-\ time\ 1}$ = -2.71) is equal to the control (no allocation) condition (M$_{time\ 2-\ time\ 1}$ = -1.69; p = .16), while the winner in-group condition is higher than both the winner out-group (p < .001) and the control (no allocation) (p < .05) conditions. This shows that although attributed a non-empowering participation allocation, participants in the winner in-group condition had equal perceived impact to those who were allocated an empowering participation allocation, and higher perceived impact as those in a neutral non-empowering participation allocation. These findings validate hypothesis 5a and 5b and show that association with an in-group caused participants in the winner in-group condition to feel as though they had an impact on the final design. The 20% allocation in-group and 20% allocation out-group conditions are equal in terms of changes in perceived impact (p = .99). This shows that reference group associations do not affect participants' perceived impact when presented with an empowering strategy.

Similarly, to test hypothesis 6a, 6b, and 6c, a one way ANOVA with a Tukey post hoc analysis was run to explore the differences in psychological ownership across the conditions (see figure 7). It was found that the there was a statistical difference across conditions (F(4, 149) = 10.05, p < .001) and that the winner in-group condition (M = 4.01) was statisti-

cally equal to both the 20% allocation in-group (M = 4.37; p = .82) and 20% allocation out-group (M = 4.37; p = .84) conditions. The winner out-group condition (M = 2.57) is equal to the control (no allocation) condition (M = 3.08; p = .70), while the winner in-group condition is higher than the winner out-group condition (p < .01) and marginally higher the control (no allocation) condition (p < .11). Because the control (no allocation) condition is a neutral non-empowering participation allocation strategy and it is equal to the winner out-group, we can assume that the difference in psychological ownership between the winner in-group and the winner out-group conditions is caused by participants' increased psychological ownership due to an association with the in-group as opposed to decreased ownership due to wanting to disassociate from the out-group. The results also show that 20% allocation in-group and 20% allocation out-group conditions are equal (p = 1.00), again implying that there is no reference group effect on empowering strategies.

FIGURE 7
Study 2: Psycological Ownership by Participation Allocation Condition
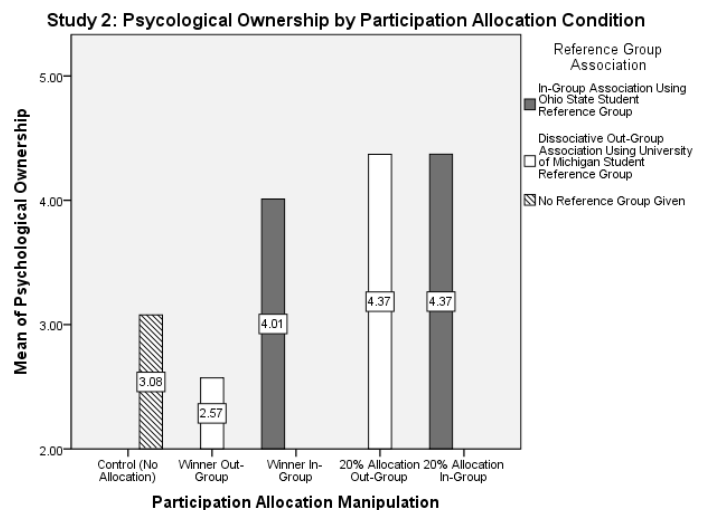
To test hypothesis 7a, a moderation analysis was done by constructing a linear model with a dichotomous variable (winner in-group =1; winner out-group = -1), association with the in-group (Ohio State) as a continuous measure, and their interaction. The continuous variable was mean centered. The regression analysis revealed a significant main effect of winner in-group versus winner out-group (β = .72, t = 4.06, p < .001) and a significant interaction between in-group versus out-group condition and level of in-group association (β = .31, t = 2.39, p < .05). The main effect of in-group versus out-group indicates that participants felt a greater degree of psychological ownership when the winner was from an in-group than from an out-group, and the interaction term indicates that

this effect is significantly stronger for participants who feel a higher level of association with their in-group (see figure 8).

FIGURE 8
Study 2: Psycological Ownership Moderation by Level of In-Group Association
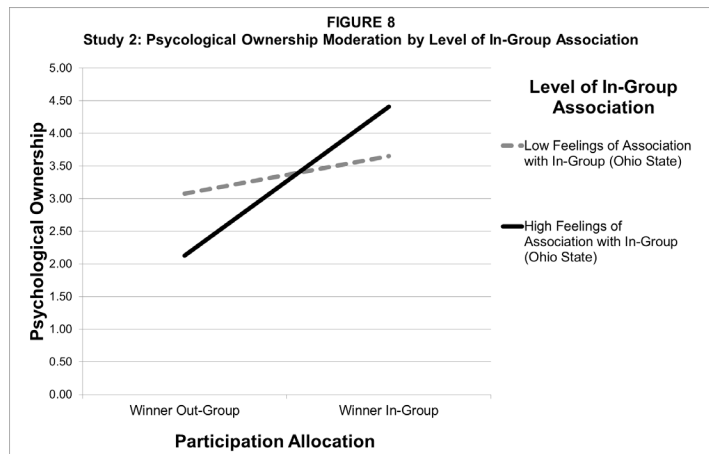
To test hypothesis 8a and 8b, a one way ANOVA with a Tukey post hoc analysis was run to explore the differences in future loyalty intentions (time 2) between conditions. It was found that there was a statistical difference across conditions ($F(4, 149) = 11.25$, $p < .001$). The control (no allocation) ($M = 4.11$) and the winner in-group ($M = 4.17$) conditions were equal ($p = 1.00$) and higher than the winner out-group condition ($M = 3.00$; $p_{vs. control} < .05$; $p_{vs. winner in-group} < .05$). Because the control (no allocation) is a neutral non-empowering condition, and is equal to the winner in-group condition, we can assume that the difference in future loyalty intentions between the winner in-group and winner out-group conditions is caused not by increased future loyalty intentions due to associations with the in-group, but decreased future loyalty intentions due to wanting to dissociate from the out-group. The 20% allocation in-group condition ($M = 4.92$) was equal to the 20% allocation out-group condition ($M = 4.67$; $p = .88$) showing that the effect of decreased future loyalty intentions due to associations with a dissociative out-group disappears when consumers are empowered, which suggests that consumer empowerment is a stronger psychological construct than reference group association. Because both the 20% allocation conditions were equal across every measure thus far, they can be combined in order to see if they provide a combined increase in consumers' future loyalty intentions compared to the non-empowering strategies. A one way ANOVA ($F(3, 150) = 14.71$, $p < .001$) was run with the 20% allocation in-group and 20% allocation out-group conditions combined (see figure 9). Results show that the combined 20% condition ($M = 4.8$) was marginally higher than the winner in-group condition ($M = 4.17$; $p < .08$), higher than the winner out-group condition ($M = 3.00$; $p < .001$),

and marginally higher than the control (no allocation) condition ($M = 4.11$; $p < .07$). It seems that the increase in psychological ownership of the final product caused by in-group association in non-empowering strategies does not translate into increased future loyalty intentions toward the company.

FIGURE 9
**Study 2: Future Loyalty Intentions by Participation Allocation Condition**
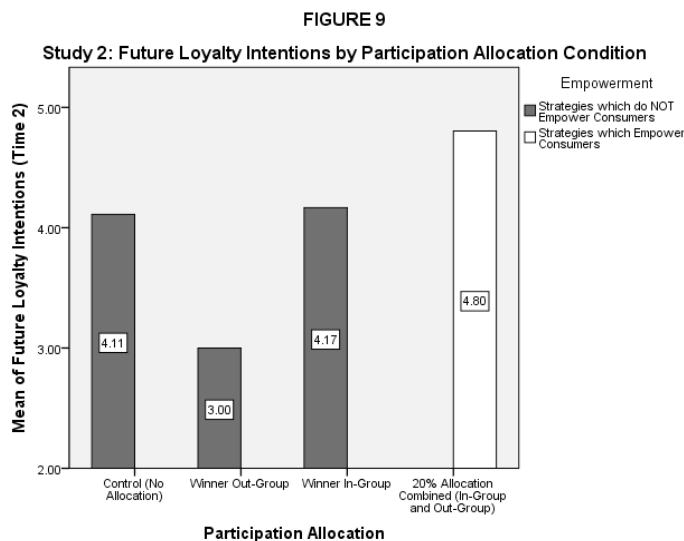
To test hypothesis 9a and 9b, a one way ANOVA with a Tukey post hoc analysis was run, exploring the differences in underlying demand for the product (operationalized by purchase intentions) between empowering versus non-empowering participation allocation strategies and whether reference groups have any effect. Using the Juster scale to measure purchase intentions, it was found that there was a statistical difference across conditions ($F(4, 149) = 4.36$, $p < .01$). All non-empowering participation allocation strategies were equal, such that the winner in-group condition ($M = 36.57$), winner out-group condition ($M = 28.38$, $p_{vs. winner in-group} = .80$, $p_{vs. control} = .98$), and control (no allocation) condition ($M = 32.67$, $p_{vs. winner in-group} = .98$) were equal. This suggests that reference group dynamics did not impact consumers' underlying demand for the product in non-empowering strategies and that the increases in perceived impact and psychological ownership which stemmed from associations with one's in-group did not translate into increased demand for the underlying product. The 20% allocation in-group condition ($M = 49.05$) was equal to the 20% allocation out-group condition ($M = 51.03$; $p = 1.00$). Reference group associations seem to have no effect on consumers who are attributed an empowering participation allocation. Because they are equal, both the 20% conditions can be combined in order to compare empowering strategies with each non-empowering strategy. An additional one way ANOVA ($F(3, 150) = 5.82$, p

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< .01) was run combining the 20% allocation in-group and 20% allocation out-group conditions (see figure 10). It was found that the combined 20% condition (M = 49.96) was marginally higher than the winner in-group condition (M = 36.57; p < .11), higher than the winner out-group condition (M = 28.38; p < .01), and higher than the control (no allocation) condition (M = 32.67; p < .05). This validates the findings in study 1 and suggests that the differences in demand for the underlying product seen in empowering versus non-empowering participation allocation strategies is not affected by reference group association, and that reference group association has no effect on participants' demand.

FIGURE 10

Study 2: Purchase Intentions (Juster Scale) by Participation Allocation Condition
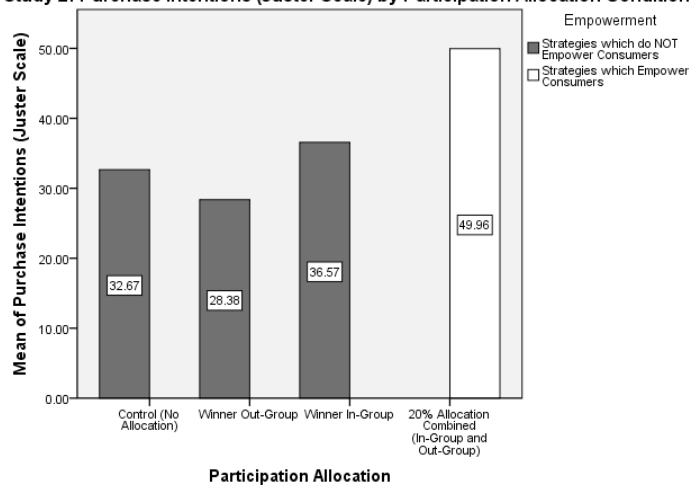
General Discussion

In this research I examined the psychological effects of participation allocation on consumer empowerment strategies in co-creation platforms. Study 1 found that participation allocation strategies can either have an empowering or non-empowering effect on consumers. That is to say that leaving everything else constant, simply changing the way in which a firm attributes influence to participants in a co-creation process either enables or prohibits the "empowerment-product demand" effect. Empowering participation allocation strategies lead to higher perceived impact, increased psychological ownership of the final product, increased positive word of mouth, higher future loyalty intentions toward the company, a more favorable opinion of the final product, and increased demand for the underlying product (operationalized by WTP and purchase intentions) compared with non-empowering participation allocation strategies. This finding adds to the theoretical development of consumer empowerment

strategies in co-creation platforms, suggesting that consumer empowerment is constructed by both participation in a co-creation platform and the way in which organizations attribute influence to participants. Therefore firms should be more intentional about how they attribute influence to individuals within co-creation processes and should be sure to use an empowering participation allocation strategy that can be matched to the functional aspects of their platform in order to gain the psychological benefits of consumer empowerment.

Results show that allocating an ambiguous participation allocation is equally empowering as allocating a specific percentage contribution to participants. Therefore it is not necessary to track and give specific percentage influence to each participant in the co-creation process to gain the psychological benefits of consumer empowerment. Firms can be ambiguous about consumers' participation allocation as long as they either directly tell consumers that their participation was taken into account or remind members that the firm's co-creation process takes community members input into account. For firms who need to track specific percentage influence because the functionality of their platform demands it (e.g., Quirky), they need not worry about attributing low or high percent influences to participants. Results from study 1 show that there is no difference between a relatively high or relatively low percent influence participation allocation strategy. Firms should work to track and remind participants of their specific influence, knowing that even a small percentage influence attributed to consumers can create positive psychological effects for the firm.

Several firms today have co-creation platforms which use a competition based co-creation strategy. Many using this approach will attribute influence to consumers using the "winner model" participation allocation strategy, where they choose a winning idea or concept from those submitted by users, then showcase the winning user as having complete influence on the final product or service. Results from study 1 show that this strategy is non-empowering and equal to attributing no influence to users. It creates a negative change in perceived impact and does not create positive psychological benefits for the firm. This is unfortunately a missed opportunity for the firm to create increased demand for the product or service being created and positive future loyalty intentions toward the company. Firms using the competition based strategy should try to leverage an ambiguous participation allocation strategy. They can do this by allowing users to vote on which ideas or concepts submitted by the community should win and by celebrating the community's combined effort in creating a solution

instead of celebrating the individual user's winning contribution. It should be clear to users that they are shaping the offerings of the company, even if it is not their particular individual idea or concept that gets adopted by the firm. Each member who submits an idea or concept to the platform should be prompted afterward about how the community helps shape the products or services the firm offers. This would make those consumers feel empowered even if their idea was not chosen.

Study 2 dealt with reference group dynamics and explored the effects of in-group and dissociative out-group associations in both empowering and non-empowering participation allocation strategies. Results show that in non-empowering participation allocation strategies, association with an in-group increases perceived impact and psychological ownership compared to associations with a dissociative out-group. This difference between the in-group and dissociative out-group seemed to be caused by an increase in perceived impact and psychological ownership due to in-group association. In particular, association with the in-group was found to moderate the increase in psychological ownership between in-group and dissociative out-group associations in non-empowering strategies, such that the effect is significantly stronger for consumers who feel a higher level of association with their in-group. The increase in psychological ownership and perceived impact is such that the in-group association causes the non-empowering strategy to be equal to that of an empowering strategy, showing that in-group reference group association can mimic the effects of empowerment in non-empowering strategies. However, this increase in perceived impact and psychological ownership did not translate into increased future loyalty intentions or increased demand for the underlying product when compared to a neutral non-empowering participation allocation strategy. It was also found that associations with a dissociative out-group decreased consumers' future loyalty intentions compared to both neutral and in-group association in non-empowering strategies. For firms using the "winner model" participation allocation strategy, showcasing a winning idea or concept from a user that some consumers' feel is a dissociative out-group member can not only have a non-empowering effect, but can cause further decreases in future loyalty intentions due to a desire to dissociate from that out-group. Study 2 found there to be no effect between in-group and dissociative out-group in empowering participation allocation strategies across all measures. The empowering strategies were also found to be higher than all non-empowering strategies in future loyalty intentions and purchase intentions.

This suggests that the "empowerment-product demand" effect proposed by Fuchs et al. (2010) is greater than the reference group self-brand connections found by both White and Dahl (2007) and Escalas and Bettman (2005). While the potential for reference groups to play a negative role in co-creation platforms is high due to their heterogeneous nature, firms can offset that risk by using an empowering participation allocation strategy. Because social identity and reference group influence has been shown to have no effect in empowering participation allocation strategies, firms using these strategies can avoid the potential negative consequences of dissociation by enabling psychological empowerment amongst their consumers. See figure 11 for a detailed flow chart which will help firms choose a participation allocation strategy which meets the functional requirements of their platform.

Figure 11
Strategy Flow Chart to Help Firms Choose a Participation Allocation Strategy
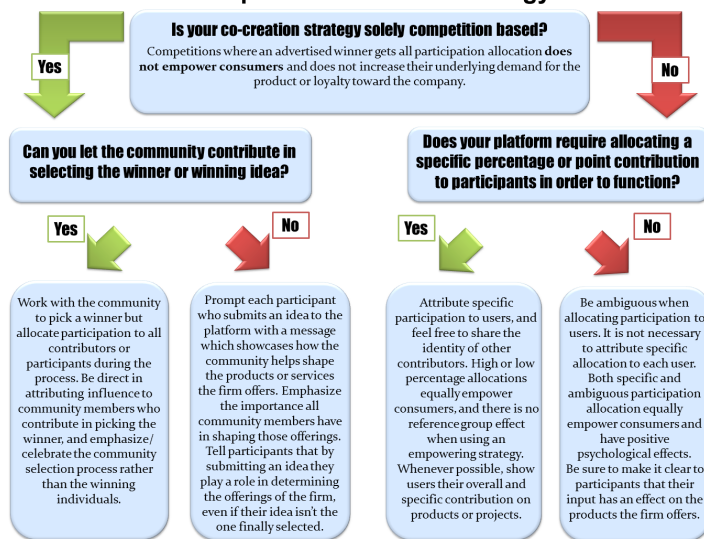
Strategically using consumer empowerment through co-creation as a means of creating consumer engagement, positive word of mouth, and future loyalty intentions is something many firms should consider incorporating into their overall marketing plans. Today's consumer is overwhelmed with marketing messages. Some marketing agencies estimate that consumers in cities today see over 5,000 ads per day. It is getting increasingly difficult for firms to break through the clutter and meaningfully engage with consumers (Story, 2007). Consumers are also more connected today than ever

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before through the use of social media. A report by Nielsen found that 92% of consumers around the world say they trust earned media (i.e., word-of-mouth and recommendations from friends and family) above all other forms of advertising (Nielsen, 2012). This is an increase of over eighteen percent since 2007. Consumers are increasingly relying on word of mouth recommendations from peers, largely aided by the use of social media, to inform them of valuable information regarding products and services. Using consumer empowerment as a marketing strategy can help firms cut through the clutter and create meaningful engagement and positive word of mouth. Firms should leverage social media plug-ins that sites like Facebook and Twitter provide to help encourage empowered consumers to share their influence, ideas, and the products they helped co-create to their respective social networks. Since consumer empowerment makes consumers more likely to speak positively about the product, prompting them to share directly after attributing them an empowering participation allocation would increase their likelihood of sharing and speaking positively about the product being created. Firms should also leverage the increased future loyalty intentions consumer empowerment elicits by prompting users with an opt-in communication outlet (e.g., a 'like' on Facebook, 'follow' on Twitter, or email subscription) directly after attributing an empowering participation allocation strategy.

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