HARVARD | BUSINESS | SCHOOL

The "IKEA Effect": When Labor Leads to Love

Michael I. Norton
Daniel Mochon
Dan Ariely

Working Paper

11-091

The "IKEA Effect": When Labor Leads to Love

MICHAEL I. NORTON

DANIEL MOCHON

DAN ARIELY*

*Michael I. Norton (mnorton@hbs.edu) is an Associate Professor of Business Administration in the Marketing Unit at the Harvard Business School, Soldiers Field Road, Boston, MA, 02163. Daniel Mochon (dmochon@ucsd.edu) is a Post-Doctoral Fellow in Marketing at the Rady School of Management, University of California, San Diego, Otterson Hall, 9500 Gilman Drive, MC 0553, La Jolla, CA, 92093. Dan Ariely (dandan@duke.edu) is the James B. Duke Professor of Behavioral Economics at Duke University, 1 Towerview Drive, Durham, NC, 27708. We thank Mika Chance, Christina Huang, Amy Shelton, Lisa Shu, Carrie Sun, Stephanie Wu, and TianLun Yu for their assistance running the experiments and Lalin Anik, Ryan Buell, Zoe Chance, John Gourville, Anat Keinan, Mary Carol Mazza, and Lisa Shu for their comments.

Abstract

In a series of studies in which consumers assembled IKEA boxes, folded origami, and built sets of Legos, we demonstrate and investigate the boundary conditions for what we term the "IKEA effect" – the increase in valuation of self-made products. Participants saw their amateurish creations – of both utilitarian and hedonic products – as similar in value to the creations of experts, and expected others to share their opinions. Our account suggests that labor leads to increased valuation only when labor results in successful completion of tasks; thus when participants built and then destroyed their creations, or failed to complete them, the IKEA effect dissipated. Finally, we show that labor increases valuation of completed products not just for consumers who profess an interest in "do-it-yourself" projects, but even for those who are relatively uninterested. We discuss the implications of the IKEA effect for marketing managers and organizations more generally.

The "IKEA Effect": When Labor Leads to Love

When instant cake mixes were introduced in the 1950's as part of a broader trend to simplify the life of the American housewife by minimizing manual labor, housewives were initially resistant: The mixes made cooking *too* easy, making their labor and skill seem undervalued. As a result, manufacturers changed the recipe to require adding an egg; while there are likely several reasons why this change led to greater subsequent adoption, infusing the task with labor appeared to be a crucial ingredient (Shapiro 2004). Similarly, Build-a-Bear offers people the "opportunity" to construct their own teddy bears, charging customers a premium even as they foist assembly costs onto them, while farmers offer "haycations," in which consumers must harvest the food they eat during their stay on a farm.

One view of the impact of labor on valuation suggests that asking customers to assume production costs should result in reduced willingness to pay once customers subtract the value of their labor from the overall cost of the product; the above examples instead suggest that when people imbue products with their own labor, their effort can increase their valuation. And while some labor is enjoyable (building a bear with one's nephew) and some labor allows for product customization (making a bear with one's alma mater's logo) – both of which might increase valuation – we suggest that labor alone can be sufficient to induce greater liking for the fruits of one's labor: Even constructing a standardized bureau, an arduous, solitary task, can lead people to overvalue their (often poorly constructed) creations. We call this phenomenon the "IKEA effect", named in honor of the Swedish manufacturer whose products typically arrive with some assembly required.

In the studies presented below, we have three primary aims. First, we document and explore the magnitude of the IKEA effect: The increased valuation that people have for self-

assembled products compared to objectively similar products which they did not assemble. Second, we differentiate the IKEA effect from other effects shown to increase valuation, such as the endowment effect. Third, we explore boundary conditions for the IKEA effect, examining whether completion of a project is necessary for the effect to emerge, as well as whether the IKEA effect holds only for consumers who see themselves as "do-it-yourselfers," or for all consumers.

Labor and Love

A large body of research has pointed to the centrality of labor to people's well-being (Blustein 2008), with the feeling of productivity serving as an important goal for many people (Hsee, Yang, and Wang 2010; Keinan and Kivetz 2011). For example, being deprived of labor – in the form of unemployment – has clear financial repercussions, but also lasting psychological consequences; even when people obtain future employment, the adverse impact of job loss on well-being remains (Clark and Oswald 1994; Feather 1990; Lucas et al. 2004).

But this link between labor and well-being does not explain why people might come to *overvalue* the things on which they have labored. One hint as to this relationship comes from research which demonstrates that, although people rate their jobs as among their least pleasurable activities, they also rate them as among their most rewarding (White and Dolan 2009). This ironic link – between the arduous, unpleasant nature of tasks and their simultaneously rewarding properties – has received extensive attention by researchers exploring "effort justification." This research has demonstrated that the more effort people put into some pursuit, the more they come to value it (Festinger 1957), in domains as varied as psychotherapy (Axsom 1989; Axsom and Cooper 1985) to brainwashing (Schein 1956) to becoming a nicer person (Labroo and Kim 2009). The link exists for non-humans as well, with rats and starlings preferring sources of food

which require effort to obtain (Aiken 1957; Kacelnik and Marsh 2002; Lawrence and Festinger 1962). Labor leading to value thus appears to be a very basic process, and an effort justification account predicts that effort and valuation increase in lockstep.

We suggest, however, that the psychological process by which labor leads to love requires consideration of an additional crucial factor: The extent to which one's labor is successful. Indeed, in Aronson and Mills' (1959) classic experiment on effort justification – in which women were forced to undergo either no initiation, a mild initiation, or a severe initiation (reading aloud provocative words) before joining a discussion group – all participants were allowed to successfully join the group, such that the study compared how much those who had undergone different levels of effort subsequently liked the group they had been allowed to join. Thus the factor that we suggest is crucial for the emergence of the IKEA effect – successful completion of labor – is not varied in this classic experiment, nor in the subsequent experiments addressing limitations of this original experiment (e.g., Gerard and Mathewson 1966).

We base our prediction that the success of one's labor is crucial for the IKEA effect to emerge on a large body of literature which demonstrates a fundamental human need for effectance – an ability to successfully produce desired outcomes in one's environment – and one means by which people accomplish this goal is by affecting and controlling objects and possessions (Belk 1988; Dittmar 1992; Furby 1991). Indeed, in his seminal research on self-efficacy, Bandura (1977) specifically pointed to successful completion of tasks as one means by which people can meet their goal to feel competent and in control (see also White 1959). Just as completing tasks has a positive psychological impact, failure to complete tasks has corresponding negative psychological consequences: People ruminate more on tasks that they

failed to complete than on those that they successfully completed, leading to negative affect and regret (Savitsky, Medvec, and Gilovich 1997; Zeigarnik 1935).

Thus our account suggests that only when people successfully complete a labor-intensive task do they come to value the fruits of that labor – the products they have created. We manipulate the success of labor in several ways to test our model – of theoretical interest to our understanding of the link between effort and liking, but also of practical interest to marketers considering engaging consumers in co-production – exploring when and why labor leads to love.

Overview of the Experiments

In the studies that follow, we demonstrate the IKEA effect by encouraging consumers to exert effort in the production of three different products: building IKEA boxes, folding origami, and constructing sets of Legos. Experiment 1A demonstrates the basic effect, showing that participants who assemble utilitarian products value them more highly than identical pre-assembled products. In Experiment 1B, we replicate this effect with more hedonic products, and compare participants' estimates of the value of their origami creations to other's estimates of their value, to benchmark the increased value consumers lend to their self-made creations. In Experiment 2, we differentiate the IKEA effect from other phenomena known to increase valuation of products, including the endowment effect and the impact of mere touch on valuation. In both Experiments 2 and 3, we show that unsuccessful labor – either by assembling and then disassembling a product, or failing to complete the assembly process – does not increase valuation. Finally, Experiment 3 demonstrates that value from assembling products oneself accrues equally to both consumers who profess to be "do-it-yourselfers" and those who

do not, suggesting that the link between successful labor and valuation occurs regardless of one's intrinsic inclination to engage in labor.

Experiment 1A

In this first experiment, we establish the IKEA effect – consumers' increased valuation for goods they have assembled when compared to objectively similar goods not produced by the self – by comparing participants' willingness-to-pay and liking for utilitarian products they had assembled themselves to identical pre-assembled products.

We used a standardized, utilitarian product in Experiment 1A – IKEA boxes – in order to differentiate our findings from two related literatures. First, firms' increasing tendency to allow consumers to customize their products, particularly through internet channels (Gilmore and Pine 1997; Pine 1993; Wind and Mahajan 1997), is effective in part because consumers are willing to pay a premium for products that they have customized to their idiosyncratic preferences (Franke and Piller 2004; Schreier 2006); with standardized IKEA boxes, however, no opportunity for customization exists, suggesting that any increase in valuation due to labor we observe is likely not due to customization. Second, some research suggests that consumers value their self-designed products more than those designed by others over and above the value derived from matching their preferences (Franke, Schreier, and Kaiser 2010); these studies, however, use products that are hedonic and intended for public display such as t-shirts, wristwatches, and cell-phone covers – such that the value likely derives in part from the opportunity to show off one's products to others. We use mundane, utilitarian products that are intended for private consumption to demonstrate that labor can lead to valuation even in the absence of additional sources of value.

Method

Participants (N = 52; 20 male, M_{age} = 19.9, SD = 1.4) at a university in the southeastern United States were paid $5 to participate in the experiment. We randomly assigned some participants – our builders – to assemble a plain black IKEA 'Kassett' storage box. These participants were given an unassembled box with the assembly instructions included with the product. Other participants – our non-builders – were given a fully assembled box and were given the opportunity to inspect it.

After the initial stage – either building or inspecting the box – we solicited participants' reservation price by asking them to make a bid on the box. We told them that at the end of the experiment, we would draw a random price (from an unknown distribution); if their WTP was equal to or above that price, they would pay us that amount and take the box, while if their bid was below the price, they would not purchase the box. This technique, a variant of the Becker-DeGroot-Marschak (1964) procedure, is an incentive compatible value elicitation method. After stating their willingness to pay, participants rated how much they liked the box on a 7-point scale (1: *not at all* to 7: *very much*), and the extent to which they thought the product was hedonic or utilitarian on a 9-point scale (1: *completely utilitarian* to 9: *completely hedonic*; see Dhar and Wertenbroch 2000).

Results and Discussion

As we expected, participants saw the IKEA boxes as more utilitarian than hedonic, rating them (M = 3.13, SD = 1.83) significantly lower than the midpoint of the scale, $t(51) = 7.36$, $p < .001$.

We found that builders bid significantly more for their boxes (M = $0.78, SD = 0.63) than non-builders (M = $0.48, SD = 0.40), $t(50) = 2.12$, $p < .05$. Thus, while both groups were given

the chance to buy the same product, those who assembled their own box valued it more than those who were given the chance to buy an identical pre-assembled box. We observed similar effects for subjective ratings of liking for the IKEA box, with builders reporting greater liking (M = 3.81, SD = 1.56) than non-builders (M = 2.50, SD = 1.03), t(50) = 3.58, $p < .001$.

Experiment 1B: Magnitude

Having demonstrated that the IKEA effect occurs even for mundane, utilitarian products, in Experiment 1B we switched to a new product category to begin to generalize our results. We asked some participants to create either an origami frog or crane, and offered them a chance to buy these creations with their own money. Most importantly, Experiment 1B was designed to benchmark the magnitude of the IKEA effect by comparing participants' willingness-to-pay for their own creations to two different standards. First, we asked a different set of participants to bid on our builder's origami, examining how far above the market price our builders priced their own creations. Second, we asked experts to make origami and solicited bids for these creations, allowing us to see how closely in value our novice participants placed their amateurish creations to those made by experts.

Method

Participants (N = 106; 71 male, M_{age} = 23.4, SD = 7.6) at a university in the northeastern United States volunteered to complete the experiment after being approached in a student center, and were told they would have a chance to buy an origami creation if they participated.

We randomly assigned one set of participants – our builders – to make either an origami crane or an origami frog. We gave participants an instruction sheet (see Figure 1) and a piece of high-quality origami paper, and participants were given as much time as they wished to complete

their creation. After they finished, we solicited their reservation price with a variant of the Becker-DeGroot-Marschak (1964) procedure, asking them to make a bid on their product between 0 and 100 cents (pretesting revealed that no participant bid more than $1.00). We told them we would draw a random number between 0 and 100; if their number was equal to or above that number, they would pay us that amount and take their creation home, while if their bid was below the number we would keep their origami.

Before we drew these random numbers, builders then completed an unrelated experiment in another part of the student center while we asked a different set of participants – non-builders, who were blind to both builders' identity and bids – how much they would pay for our builders' origami, soliciting their reservation prices using the same BDM procedure. After placing their bids, these non-builders were told that the origami they bid on was actually going to be given to the builder, and they were given origami paper and an instruction sheet as compensation.

Finally, we asked two research assistants with a great deal of experience with origami to make several high quality frogs and cranes, and asked an additional set of non-builders to bid on these expert creations. We used the same BDM procedure such that these non-builders' bids were again incentive compatible.

Results and Discussion

We conducted a 2 (product type: frog or crane) X 3 (bid type: participants' bids for their own creations, others' bids for participants' creations, others' bids for experts' creations) ANOVA. There was no main effect of product type and no interaction with bid type, Fs < .21, ps > .79.

We did, however, observe the predicted main effect of bid type, $F(2, 100) = 5.34$, $p < .01$. We expected our builders to value their origami more than others did, and this was the case: Builders' valuation of their origami (M = \$0.23, SD = 0.25) was higher than non-builders were willing to pay for these creations (M = \$0.05, SD = 0.07). Thus, while the non-builders saw the amateurish creations as nearly worthless crumpled paper, our builders imbued their origami with value. Indeed, builders valued their origami so highly they were willing to pay nearly as much for their own creations as the additional set of non-builders were willing to pay for the well-crafted origami made by our experts (M = \$0.27, SD = 0.26). Non-builders' bids for builders' origami were significantly lower than both builders' bids for that origami and non-builders' bids for expert origami, $ts > 2.91$, $ps < .01$, while the latter two bids did not differ, $t < 1$, $p > .45$ (Figure 2).

*** Figure 2 ***

It is possible, however, that these results do not indicate that our participants truly believed that the market price of their creation was \$0.23, but merely that they were willing to overbid for their creation to avoid losing it. However, we asked an additional set of students (N = 14) to fold origami cranes and collected their bids, and also asked them to estimate what the average student at their university would bid for their creation. The bids were strikingly similar, (M_{self} = \$0.19; M_{others} = \$0.21), $t(13) = .45$, $p > .65$, offering some evidence that participants truly believed in the value of their creations.

Experiment 2: Differentiating the IKEA Effect

Experiment 1B suggests that the IKEA effect is large enough to cause people to value their creations as highly as the creations of experts, offering support for the considerable magnitude of the effect. In Experiment 2, we further explore the magnitude of the valuation that participants place on their self-made products compared to other products by using a different standard. While Experiment 1B showed that participants' WTP for their own creations was higher than that of dispassionate outside bidders, in Experiment 2 we examine how participants' bids for their own products compare to their bids for objectively similar products created by others. Our account holds that participants imbue products they have created with value, and thus we predict that participants' bids for products they successfully complete themselves will be higher than their bids for the products that others have successfully completed. In Experiment 2, therefore, participants bid for their creations not using the BDM procedure, but against another participant using a sealed first price auction in which each bidder submitted a bid for each product, where the bidder with the highest bid for each product would receive that product and pay the price they offered.

In addition, Experiment 2 also differentiates the IKEA effect from two other plausible explanations for the impact of labor on valuation. First, previous research demonstrates that people prefer goods with which they have been endowed (Kahneman, Knetsch, and Thaler 1990; Langer 1975), and thus some of the overvaluation we observed in the previous studies may have been due merely to perceived ownership of the product rather than effort expended in creating it. We therefore included a condition in Experiment 2 that replicates standard endowment effect manipulations, predicting that successful completion would create value over and above mere possession. Second, research suggests that time spent touching objects can increase feelings of ownership and value (Peck and Childers 2003; Peck and Shu 2009); we therefore included a

condition in which participants both built and then "unbuilt" their creations, increasing their length of ownership and physical contact with the product, but undoing their successful completion of the task.

This "build and unbuild" condition also allows us to begin to document the important role of task completion in the emergence of the IKEA effect. Ariely, Kamenica and Prelec (2008) demonstrated the demotivating effects of seeing one's labor undone by others; in Experiment 2 we examine the value-destroying effects of undoing one's labor oneself. We predicted that the builders would value their creations more than individuals simply endowed with pre-built products – but that building and then unbuilding products, thereby "undoing" one's successful completion of a task, would lead to lower valuations.

Method

Participants (N = 118; 49 male, M_{age}= 19.7, SD = 1.7) were undergraduates and graduate students at a university in the northeastern United States who were approached in the student center and dorms. In this experiment, we used sets of Legos of 10 to 12 pieces. When completed, the sets resembled the shape of a helicopter, a bird, a dog, or a duck.

Participants were run in pairs, and were randomly assigned one of the four Lego sets (members of each pair were always assigned different sets) and to one of three conditions. In the endowment condition, participants were provided with a pre-assembled set; in the build condition, participants assembled a set themselves; in the unbuild condition, participants built a set and then took that set apart.

All participants were then told to place bids on both their and their partner's set, and were told that the highest bidder for each would pay their own bid amount and take the set home. Thus, the bidding procedure used in Experiment 2 required participants to take into account their own willingness to pay and their partner's bids – a kind of market price.

Results and Discussion

We conducted a 4 (product type: helicopter, bird, dog, or duck) X 3 (condition: endowment, build, or unbuild) X 2 (bid type: own Legos or other's Legos) ANOVA, with repeated measures on the final factor. We observed a main effect of set, $F(3, 106) = 6.61$, $p < .001$, such that participants preferred helicopters and birds to dogs and ducks; this variable did not interact with our manipulations, however, $Fs < 1.49$, $ps > .22$, and so we do not discuss it further.

We observed a main effect of bid type, such that people were willing to pay more for the sets that they had been assigned ($M = \$0.54$, $SD = 0.69$) than those assigned to their partners ($M = \$0.33$, $SD = 0.53$), $F(1, 106) = 11.07$, $p < .01$; replicating the general pattern of the endowment effect, participants valued a set they had been randomly assigned more than a set assigned to another person. In addition, we observed a main effect of condition, $F(2, 106) = 7.68$, $p < .01$, such that bids overall were highest in the build condition than in the unbuild and endowment conditions.

Importantly, however, these two main effects were qualified by the predicted interaction between bid type and condition, $F(2, 106) = 3.20$, $p < .05$, indicating that the magnitude of the difference in bids was impacted by our manipulations (Table 1). Only in the build condition, as predicted, were participants' bids for their own creation significantly higher than their bids for

their partners' creations, $t(39) = 3.08$, $p < .01$; building and then "unbuilding" sets, however, caused this difference to become non-significant, $t(39) = 1.20$, $p = .23$. This effect of destroying one's labor is particularly notable given that Lego sets are designed to be assembled and taken apart, and participants could have quickly and easily reassembled their set had they bid enough to own it. Finally, while directionally consistent with the endowment effect, bids for the two sets in the endowment condition were not significantly different, $t(37) = 1.30$, $p = .20$, offering evidence for the magnitude of the IKEA effect being over and above that due to endowment.

*** Table 1 ***

Experiment 3: Who Shows the IKEA Effect?

Thus far, we have randomly assigned participants to build – and in Experiment 2, unbuild – their creations. In the real world, of course, consumers frequently self-select into either building products themselves or choosing to have others build those products for them. From both a theoretical and managerial perspective, understanding whether the IKEA effect occurs regardless of a consumer's intrinsic interest in building products is essential. Our account is that there is a basic and fundamental relationship between the completion of tasks and valuation of the products of that labor – such that whenever marketers can facilitate consumers' building their own products, their willingness-to-pay should increase. To test this account, in Experiment 3, we allowed some participants to build an IKEA box, while others were allowed to complete only half of the steps to complete the box. We expected, consistent with the results from Experiment 2, that failing to finish a product would lead to lower valuations than completing it. Most importantly, we measured participants' general interest in building things themselves – asking

them to rate the extent to which they were "do-it-yourself" people – in order to examine whether the boost in valuation from completing the box occurred only for those interested in building, or for all consumers regardless of their stated interest.

Method

Participants (N = 39; 16 male, M_{age} = 21.5, SD = 2.4) at a university in the southeastern United States were paid $5 for completing the experiment. We randomly assigned some participants – our builders – to assemble an IKEA 'Kassett' box. These participants were given an unassembled box with the assembly instructions that come with the product. Other participants – our incomplete builders – were given the same unassembled box with the same instructions, but were asked to stop before completing the last two steps. Thus these participants also worked on their box, but were not able to complete their creation; note that participants in this condition had all of the pieces needed to complete the box, and little effort would be required on their part to complete the box if they chose to purchase it.

After the initial stage, we solicited participants' willingness-to-pay price by using the same incentive-compatible method as in Experiment 1A. Finally, participants were asked to rate the extent to which they were a "do-it-yourself" person (DIYer), on a 7-point scale (1: *not at all a do-it-yourself person* to 7: *very much a do-it-yourself person*).

Results and Discussion

As predicted, builders bid significantly more for their boxes (M = $1.46, SD = 1.46) than incomplete builders (M = $0.59, SD = 0.70), t(37) = 2.35, $p < .05$. Thus, while both groups were

given the chance to buy the identical product, those who were given the chance to complete their creation imbued it with significantly more value – and were willing to pay more to keep it.

Most importantly, this increase in valuation was not limited to only participants who considered themselves DIYers. We conducted a regression predicting willingness-to-pay with condition, self-rating on the DIY scale, and the interaction between these two variables as predictors. Reflective of the above analyses, there was a significant effect of build condition, $\beta = .44$, $p < .05$, such that participants who completed the project valued it more than those who were not allowed to finish. Not surprisingly, there was a marginally significant effect of participants' DIY rating, $\beta = .35$, $p = .06$; consumers who reported liking to build products rated the boxes higher than those who were relatively less interested in building products. Most importantly, there was no evidence of an interaction between condition and DIY rating, $\beta = .09$, $p > .60$, suggesting that both people who did not see themselves as DIYers showed the same increase in valuation when completing their products as those who did identify as DIYers (Figure 3).

*** Figure 3 ***

General Discussion

In four experiments, we demonstrated the existence and magnitude of the IKEA effect, which occurs for both utilitarian and hedonic products, and is sufficient in magnitude that consumers believe that their self-made products rival those of experts. Adding to previous literature on effort justification, we also show that successful completion is an essential component for the link between labor and liking to emerge; participants who built and then unbuilt their creations, or were not permitted to finish those creations, did not show an increase in willingness-to-pay. In addition, our experiments addressed several possible alternative

explanations for the increased valuation that people hold for their own creations. We show that successful assembly of products leads to value over and above the value that arises from merely being endowed with a product, or merely handling that product; in addition, by using simple IKEA boxes and Lego sets that did not permit customization, we demonstrated that the IKEA effect does not arise solely as a result of participants' idiosyncratic tailoring of their creations to their preferences.

What psychological mechanisms underlie the increase in valuation when participants self-assemble their products? In the introduction, we suggested that the increase in liking that occurs due to effort (Aronson and Mills 1959) coupled with the positive feelings of effectance that accompany successful completion of tasks (Dittmar 1992; Furby 1991) is an important driver of the increase in willingness to pay that we observe. Of course, effectance itself has multiple psychological components: actual control over outcomes and mere *perceived* control over outcomes (Bandura, 1977). Given that our participants are in "control" by building their own products yet assembling them according to preset instructions (i.e., "not in control"), further exploration of perceived and actual control is likely to lend insight into the IKEA effect. In addition, there are likely additional underlying mechanisms that vary by the type of product being assembled. For instance, the assembly of more hedonic products often results in the opportunity to display one's creation to others (Franke et al. 2010). Indeed, many of our participants who built Legos and origami in Experiments 1B and 2 mentioned a desire to show them to their friends, suggesting that the increase in willingness-to-pay for hedonic products may arise in part due to the social utility offered by assembling these products. We suggest, however, that social utility is likely to play a more minor role in increased liking for self-assembled utilitarian products like the storage boxes used in Experiments 1A and 3, given that the social

utility gained from displaying products decreases as product complexity decreases (Thompson and Norton, in press). It is also possible that the enjoyment of the assembly task itself is a contributor to the IKEA effect – building Lego frogs is more fun than building storage boxes – such that task enjoyment is another contributor to valuation that varies by product type. Future research is needed to unpack what are likely to be multiple drivers of the IKEA effect.

We note that we used generally small ticket items, and the question of whether the IKEA effect occurs for more expensive items is important both practically and theoretically. While future research should empirically examine the magnitude of overvaluation as a function of price, we suggest that, even for very costly items, people may continue to see the products of their labor as more valuable than others do. For instance, people may see the improvements they have made to their homes – such as the brick walkways they laid by hand – as increasing the value of the house far more than buyers, who see only a shoddily-built walkway. Indeed, to the extent that labor one puts into one's home reflects one's own idiosyncratic tastes, such as kitchen tiling behind the sink that quotes bible verses, labor might actually lead to lower valuation by buyers, who see only bible verses that must be expunged – even as that labor leads the owner to raise the selling price.

Managerial Implications

Our exploration of the value that participants attach to their own labor is part of a broader trend in research exploring the psychology underlying consumer involvement, as companies have shifted in recent years from viewing customers as recipients of value to viewing them as co-creators of value (Firat, Dholakia, and Venkatesh 1995; Holbrook and Hirschman 1982; Prahalad and Ramaswamy 2000, 2002; Vargo and Lusch 2004). Companies now actively involve

consumers in the design, marketing and testing of products (Bateson 1985; Fitzsimmons 1985; Lengnick-Hall 1996; Lovelock and Young 1979; Mills and Morris 1986). While our results demonstrate how involving consumers in creation can lead to higher willingness-to-pay, it is important to note that the IKEA effect we documented here is a retrospective, and not a prospective phenomenon: Having successfully built IKEA boxes or Lego sets, participants then valued the product of their labor more highly. If participants are unaware of the impact of their labor on their subsequent satisfaction with their products, then the task for marketers is more complicated. Indeed, when we asked students ($N = 51$) drawn from the same pool as used the studies above: "In general, what would you be willing to pay more for, products that you buy already assembled, or products that you buy with some assembly required," a full 92% said they would pay more for preassembled products, $\chi^2(1) = 36.26$, $p < .001$. While our results suggest that consumers may pay a premium for "did it yourself" projects, they may still be unwilling to choose to engage prospectively in "do it yourself" projects.

These results have implications for firms seeking to maximize customer satisfaction. The challenge for marketers lies in convincing consumers to engage in the kinds of labor that will lead them to value products more highly, especially given this general aversion to such pursuits. The traditional means of encouraging consumers to assume production costs such as speed of service are clearly one avenue already in use. Another intriguing possibility comes from Gibbs and Drolet (2003), who show that elevating consumer energy levels (for example, by giving them caffeine) can induce consumers to choose consumption experiences that require more effort, such as watching movies with foreign subtitles. At the same time, however, companies should also be careful to create tasks that are not too difficult as to lead to an inability to complete the task: Again, our account suggests, and our results demonstrate, labor leads to love

only when that labor is successful. Meuter et al. (2005) emphasize the importance of consumers having a clear understanding of their role in the successful trial of self-service technologies, while many studies point to the motivational benefits of assigning employees to tasks they feel capable of completing (Grant and Parker 2009; Hackman and Lawler 1971; Hackman and Oldham 1976; Turner and Lawrence 1965). Shirky (2008), for example, offers the initial call for programmers to contribute their (unpaid) labor to creating the open-source Linux operating system as an example of a successful pitch for labor; programmers were encouraged to make small, manageable contributions, such that the intimidating scope of the total labor needed was deemphasized.

Finally, the overvaluation that occurs as a result of the IKEA effect has implications for organizations more broadly, as a contributor to two key organizational pitfalls: sunk cost effects (Arkes and Blumer 1985; Staw 1981), which can cause managers to continue to devote resources to failing projects in which they have previously invested (Biyalogorsky, Boulding, and Staelin 2006), and the "not invented here" syndrome, in which managers refuse to use perfectly good ideas developed elsewhere in favor of their – sometimes inferior – internally-developed ideas. Our results suggest that when managers persist in pursuing failed projects and concepts, they may do so because they truly come to believe their ideas are more valuable: Not pursuing them would be leaving money on the table, and using a competitor's ideas would simply be choosing an inferior option. Not surprisingly, highly innovative projects are especially likely to generate over-commitment from managers (Schmidt and Calantone 1998): Those ideas that managers conceive of and labor on from the very beginning are those most prone to the overvaluation that results from the IKEA effect, suggesting that our intervention that eliminated overvaluation due to labor – forcing participants to "un-complete" their creations – is exceedingly unlikely to be

one adopted by managers. While markets may sometimes correct these erroneous overvaluations, the IKEA effect may be resistant to any intervention, suggesting that the “not invented here” syndrome may be here to stay.

References

Aiken, Edwin G. (1957), "The Effort Variable in the Acquisition, Extinction, and Spontaneous Recovery of an Instrumental Response," *Journal of Experimental Psychology*, 53 (1), 47-51.

Ariely, Dan, Emir Kamenica and Drazen Prelec (2008), "Man's Search for Meaning: The Case of Legos," J*ournal of Economic Behavior and Organization*, 67, 671-677.

Arkes, Hal R. and Catherine Blumer (1985), "The Psychology of Sunk Cost," *Organizational Behavior and Human Decision Processes*, 35 (1), 124-40.

Aronson, Elliot and Judson Mills (1959), "The Effects of Severity of Initiation on Liking for a Group," *Journal of Abnormal and Social Psychology*, 59, 177-81.

Axsom, Danny (1989), "Cognitive Dissonance and Behavior Change in Psychotherapy," *Journal of Experimental Social Psychology*, 21, 234-52.

Axsom, Danny and Joel Cooper (1985), "Cognitive Dissonance and Psychotherapy: The Role of Effort Justification in Inducing Weight Loss," *Journal of Experimental Social Psychology*, 21, 149-60.

Bandura, Albert (1977), "Self-Efficacy: Toward a Unifying Theory of Behavioral Change," *Psychological Review*, 84 (2), 191-215.

Bateson, J.E.G. (1985), "Self-Service Consumer: An Exploratory Study," *Journal of Retailing*, 61 (3), 49-75.

Becker, Gordon M., Morris H. DeGroot, and Jacob Marschak (1964), "Measuring Utility by a Single-Response Sequential Method," *Behavioral Science*, IX, 226-32.

Belk, Russell W. (1988), "Possessions and the Extended Self," *Journal of Consumer Research*, 15 (September), 139-68.

Biyalogorsky, Eyal, William Boulding, and Richard Staelin (2006), "Stuck in the Past: Why Managers Persist with New Product Failures," *Journal of Marketing*, 70 (April), 108-21.

Blustein, David L. (2008), "The Role of Work in Psychological Health and Well-Being: A Conceptual, Historical, and Public Policy Perspective," *American Psychologist*, 63 (4), 228-40.

Clark, Andrew E. and Andrew J. Oswald (1994), "Unhappiness and Unemployment," *Economic Journal*, 104 (424), 648-59.

Dhar, Ravi and Klaus Wertenbroch (2000), "Consumer Choice between Hedonic and Utilitarian Goods," *Journal of Marketing Research*, 37 (1), 60-71.

Dittmar, Helga (1992), *The Social Psychology of Material Possessions: To Have Is to Be*, New York: St. Martin's Press.

Feather, Norman T. (1990), *The Psychological Impact of Unemployment*, New York: Springer-Verlag.

Festinger, Leon (1957), *A Theory of Cognitive Dissonance*, Stanford, CA: Stanford University Press.

Firat, A. Fuat, Nikhilesh Dholakia, and Alladi Venkatesh (1995), "Marketing in a Postmodern World," *European Journal of Marketing*, 29 (1), 40-56.

Fitzsimmons, James A. (1985), "Consumer Participation and Productivity in Service Operations," *Interfaces*, 15 (3), 60-67.

Franke, Nikolaus and Frank Piller (2004), "Value Creation by Toolkits for User Innovation and Design: The Case of the Watch Market," *The Journal of Product Innovation Management*, 21, 401-15.

Franke, Nikolaus, Martin Schreier, and Ulrike Kaiser (2010), "The "I Designed It Myself" Effect in Mass Customization," *Management Science*, 56 (1), 125-40.

Furby, Lita (1991), "Understanding the Psychology of Possession and Ownership: A Personal Memoir and an Appraisal of Our Progress," *Journal of Social Behavior & Personality*, 66, 457-63.

Gerard, Harold B. and Grover C. Mathewson (1966), "The Effects of Severity of Initiation on Liking for a Group: A Replication," *Journal of Experimental Social Psychology*, 2, 278-87.

Gibbs, Brian and Aimee Drolet (2003), "Consumption Effort: The Mental Cost of Generating Utility and the Role of Consumer Energy Level in Ambitious Consumption," *Journal of Consumer Psychology*, 13 (3), 93-107.

Gilmore, James H. and B. Joseph Pine (1997), "The Four Faces of Customization," *Harvard Business Review*, 75 (January-February), 91-101.

Grant, Adam M. and Sharon K. Parker (2009), "Redesigning Work Design Theories: The Rise of Relational and Proactive Perspectives," *Academy of Management Annals*, 3, 273-331.

Hackman, J. Richard and Edward E. Lawler (1971), "Employee Reactions to Job Characteristics," *Journal of Applied Psychology*, 55 (3), 259-86.

Hackman, J. Richard and Greg R. Oldham (1976), "Motivation through the Design of Work: Test of a Theory," *Organizational Behavior and Human Performance*, 16 (2), 250-79.

Holbrook, Morris B. and Elizabeth C. Hirschman (1982), "The Experiential Aspects of Consumption: Consumer Fantasies, Feelings, and Fun," *Journal of Consumer Research*, 9 (September), 132-40.

Hsee, Christopher K., Adelle X. Yang, and Liangyan Wang (2010), "Idleness Aversion and the Need for Justified Busyness," *Psychological Science*, 21, 926-30.

Kacelnik, Alex and Barnaby Marsh (2002), "Cost Can Increase Preference in Starlings," *Animal Behaviour*, 63 (2), 245-50.

Kahneman, Daniel, Jack L. Knetsch, and Richard Thaler (1990), "Experimental Tests of the Endowment Effect and the Coase Theorem," *Journal of Political Economy*, 98 (6), 1325-48.

Keinan, Anat and Ran Kivetz (forthcoming), "Productivity Orientation and the Consumption of Collectible Experiences," *Journal of Consumer Research*.

Labroo, Aparna A. and Sara Kim (2009), "The "Instrumentality" Heuristic: Why Metacognitive Difficulty Is Desirable During Goal Pursuit," *Psychological Science*, 20 (1), 127-34.

Langer, Ellen J. (1975), "The Illusion of Control," *Journal of Personality and Social Psychology*, 32 (2), 311-28.

Lawrence, Douglas H. and Leon Festinger (1962), *Deterrents and Reinforcement. The Psychology of Insufficient Reward*, Stanford, CA: Stanford University Press.

Lengnick-Hall, Cynthia (1996), "Customer Contributions to Quality: A Different View of the Customer-Oriented Firm," *Academy of Management Review*, 21 (3), 791-824.

Lovelock, Christopher H. and Robert F. Young (1979), "Look to Consumers to Increase Productivity," *Harvard Business Review*, 57, 168-78.

Lucas, Richard E., Andrew E. Clark, Yannis Georgellis, and Ed Diener (2004), "Unemployment Alters the Set Point for Life Satisfaction," *Psychological Science*, 15 (1), 8-13.

Meuter, Matthew L., Mary Jo Bitner, Amy L. Ostrom, and Stephen W. Brown (2005), "Choosing among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies," *Journal of Marketing*, 69 (2), 61-83.

Mills, Peter K. and James H. Morris (1986), "Clients As "Partial" Employees of Service Organizations: Role Development in Client Participation," *Academy of Management Review*, 11 (4), 726-35.

Peck, Joann and Terry L. Childers (2003), "To Have and to Hold: The Influence of Haptic Information on Product Judgments," *Journal of Marketing*, 67 (April), 35-48.

Peck, Joann and Suzanne B. Shu (2009), "The Effect of Mere Touch on Perceived Ownership," *Journal of Consumer Research*, 36 (Oct), 434-47.

Pine, B. Joseph (1993), *Mass Customization: The New Frontier in Business Competition*, Boston: Havard Business School Press.

Prahalad, C.K. and Venkatram Ramaswamy (2000), "Co-Opting Customer Competence," *Harvard Business Review*, 78 (January), 79-87.

--- (2002), "The Co-Creation Connection," *Strategy and Business*, 27 (2), 50-61.

Savitsky, Kenneth, Victoria Husted Medvec, and Thomas Gilovich (1997), "Remembering and Regretting: The Zeigarnik Effect and the Cognitive Availability of Regrettable Actions and Inactions," *Personality and Social Psychology Bulletin*, 23 (3), 248-57.

Schein, Edgar H. (1956), "The Chinese Indoctrination Program for Prisoners of War - a Study of Attempted Brainwashing," *Psychiatry*, 19 (2), 149-72.

Schmidt, Jeffrey B. and Roger J. Calantone (1998), "Are Really New Product Development Projects Harder to Shut Down?," *Journal of Product Innovation Management*, 15 (2), 111-23.

Schreier, Martin (2006), "The Value Increment of Mass-Customized Products: An Empirical Assessment," *Journal of Consumer Behaviour*, 5, 317-27.

Shapiro, Laura (2004), *Something from the Oven: Reinventing Dinner in 1950s America*, New York: Viking.

Shirky, Clay (2008), *Here Comes Everybody: The Power of Organizing without Organizations*, New York: Penguin Press.

Staw, Barry M. (1981), "The Escalation of Commitment to a Course of Action," *Academy of Management Review*, 6 (4), 577-87.

Thompson, Debora V. and Michael I. Norton (forthcoming), "The Social Utility of Feature Creep," *Journal of Marketing Research*.

Turner, Arthur N. and Paul R. Lawrence (1965), *Industrial Jobs and the Worker*, Boston: Harvard University.

Vargo, Stephen L. and Robert F. Lusch (2004), "Evolving a New Dominant Logic for Marketing," *Journal of Marketing*, 68 (January), 1-17.

White, Matthew P. and Paul Dolan (2009), "Accounting for the Richness of Daily Activities," *Psychological Science*, 20 (8), 1000-08.

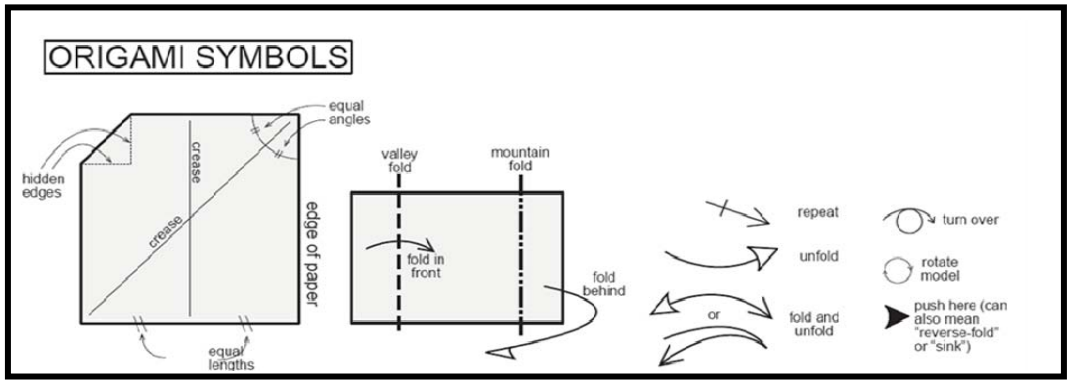
White, Robert W. (1959), "Motivation Reconsidered: The Concept of Competence," *Psychological Review*, 66 (5), 297-333.

Wind, Jerry and Vijay Mahajan (1997), "Issues and Opportunities in New Product Development: An Introduction to the Special Issue," *Journal of Marketing Research*, 34 (February), 1-12.

Zeigarnik, Bluma (1935), "On Finished and Unfinished Tasks," in *A Dynamic Theory of Personality*, ed. Kurt Lewin, New York: McGraw-Hill, 300-14.

FIGURE 1

INSTRUCTIONS FOR EXPERIMENT 1B



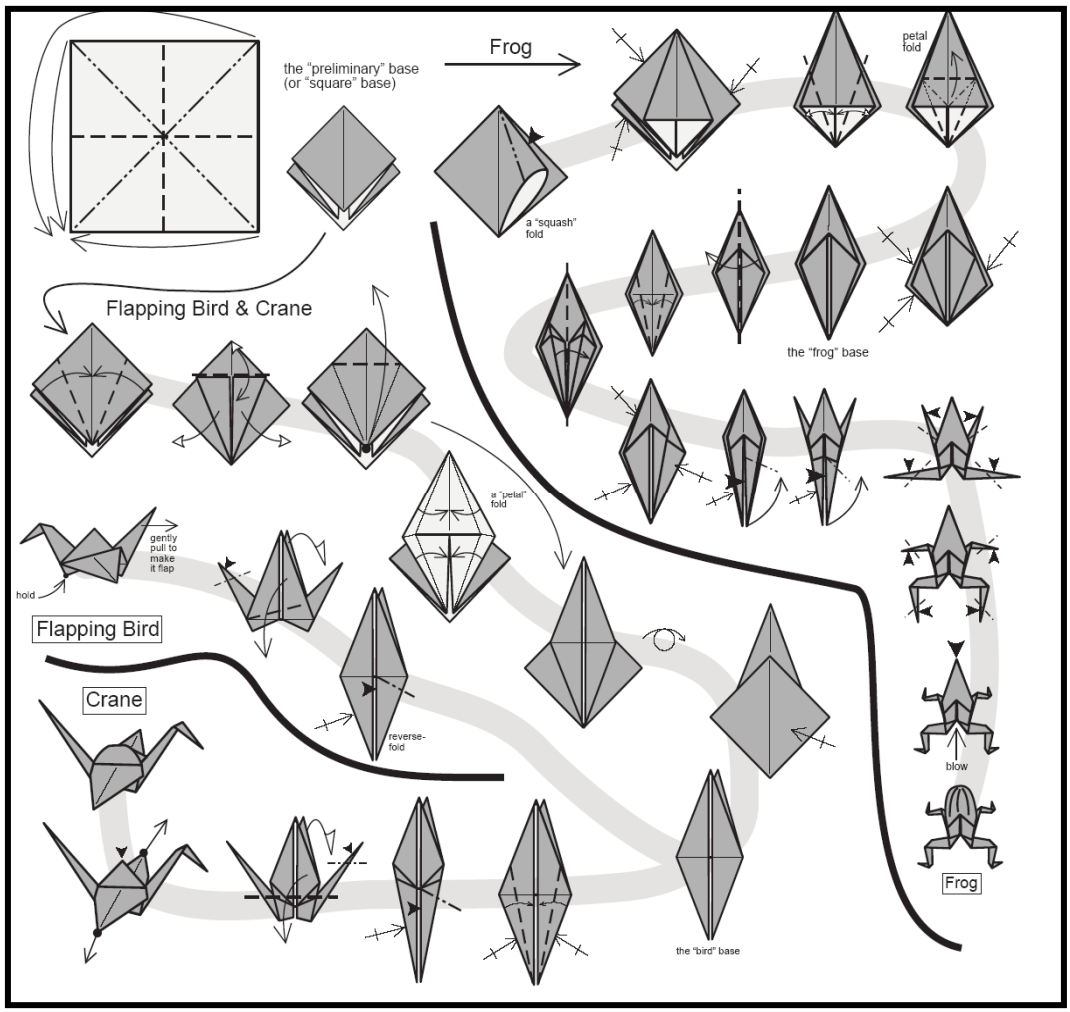


FIGURE 2

MEAN WTP FROM EXPERIMENT 1B

Builders bid more for their creations than did non-builders asked to bid on those creations, valuing them nearly as much as the market valued the creations of origami experts.

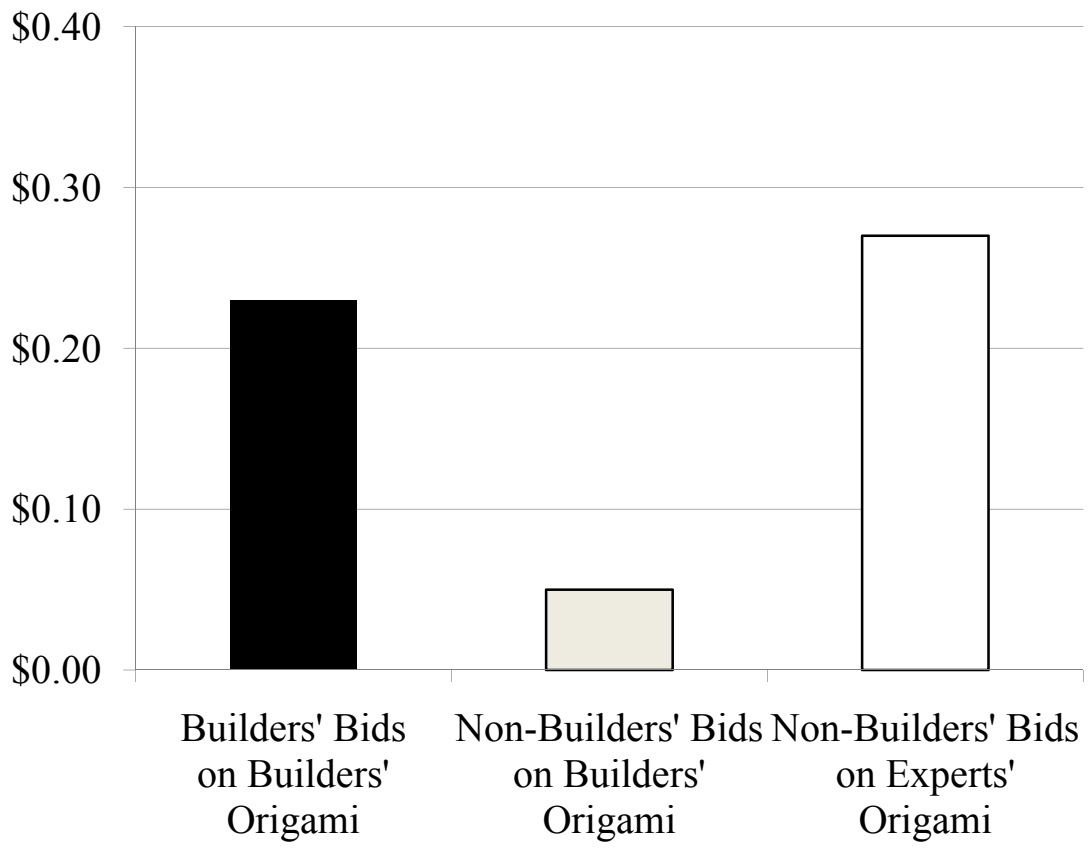


FIGURE 3

MEAN WTP FROM EXPERIMENT 3

Builders bid more for their creations than did incomplete-builders. People who rated themselves as high DIY (one standard deviation above the mean) bid more than those who rated themselves as low DIY (one standard deviation below the mean). There was no interaction between these two factors.

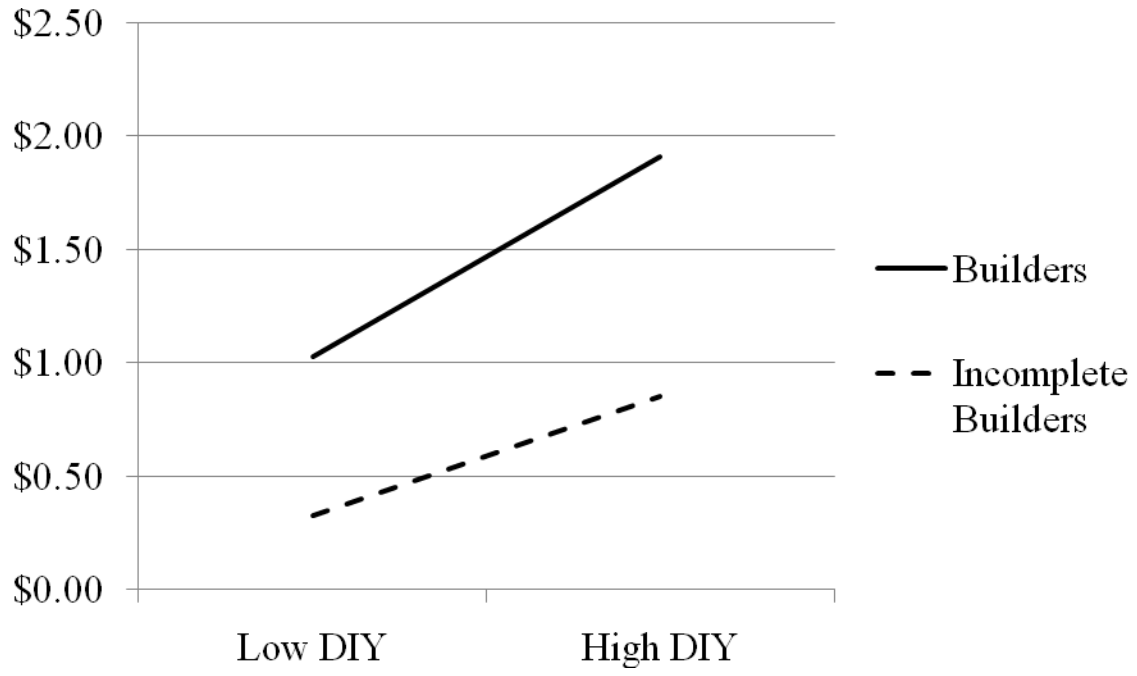


TABLE 1

MEAN WTP FROM EXPERIMENT 2

Participants valued their Lego sets more than their partners when they built them compared to when they were endowed with pre-assembled sets, and when they built and unbuilt their set.

Condition	Bid on Own	Bid on Other	Difference
Endowment	$.32	$.26	$.06
Build	$.84	$.42	$.42
Unbuild	$.43	$.29	$.14