

CIRCUMVENTING TRADITIONAL MARKETS: AN EMPIRICAL STUDY OF THE MARKETPLACE MOTIVATIONS AND OUTCOMES OF CONSUMERS' DO-IT-YOURSELF BEHAVIORS

Marco Wolf and Shaun McQuitty

Do-it-yourself (DIY) behaviors encompass a broad spectrum of activities such as home remodeling, automobile repair, gardening, and consumption-directed projects such as handcrafting furniture. DIYers who produce their own goods and services extend the traditional view of consumers as the buyers and users of products. The DIY market has grown considerably, yet little is known about the motivations underlying consumers' DIY behaviors and the outcome values derived. Results from an empirical study show that DIYers are motivated not only by economic benefits but also by the lack of product availability. The study finds that consumers derive several outcome values from DIY activities that are mediated by their perceptions of project success. Implications deriving from these findings are discussed along with directions for future research.

In *The Third Wave*, Toffler (1980) introduced the notion of “prosumers” who would emerge from postindustrial societies. Prosumers are people who produce and consume their own goods and services, and the consumption of these self-produced products is termed “prosumption.” Kotler forecast that consumers increasingly would be drawn toward prosumption; thus, “[m]arketers must find methods to facilitate prosumption activity” (1986, p. 511). However, marketing largely has ignored the idea of prosumers and prosumption, while a related market—the do-it-yourself (DIY) market—has grown tremendously.

The term “do-it-yourself” has been associated with consumers since at least 1912 (Gelber 1997), primarily in the domain of home improvement and maintenance activities (Williams 2004). DIY definitions have commonalities; for example, Wikipedia defines DIY as “building, modifying, or repairing of something without the aid of experts or professionals.”¹ *Merriam-Webster's* online dictionary defines it as an “activity of doing or making something without professional training or assistance.”² Wolf and McQuitty define it as behaviors where “individuals engage raw and semi-raw materials and component parts to produce, transform, or reconstruct material possessions, including those drawn from the natural environment (e.g., landscaping)” (2011,

p. 154). Thus, DIY behaviors typically concern the repair and maintenance of homes and automobiles but may also include projects where the goal is to construct possessions such as furniture. Such projects customarily are undertaken without the help of paid professionals but may include managing subcontracting arrangements.

Retailers such as Home Depot, Lowe's, Menards, and Stock Building Supply have contributed to the growth of the home improvement industry in North America, which depends heavily on the housing market. The home improvement industry has grown considerably, with U.S.-based sales of \$22.5 billion in 1978 (Hornik and Feldman 1982), \$38.6 billion in 1987 (Bush, Menon, and Smart 1987), \$135 billion in 1996, and \$300 billion in 2006 (Tratensek and Jensen 2006). These figures indicate a seemingly unstoppable trend, and the home improvement industry has been described as nearly recession proof (Tratensek and Jensen 2006). However, with a sluggish economy and a soft housing market, retail home improvement sales in the United States have weakened since 2006, but the long-term outlook for the industry remains strong with sales expected to be \$284.8 billion in 2013 and an annual average industry growth rate forecast of 5.9 percent from 2014 to 2015 (Home Improvement Research Institute 2013).

The shift from a “goods-centered” to “service-centered” logic (Vargo and Lusch 2004) provides a solid foundation from which research on prosumption can progress. Others have contributed to understanding the coproduction of values (e.g., Ballantyne and Varey 2008; Bendapudi and Leone 2003; Lusch and Vargo 2006; Solveig 1996; Vargo and Lusch 2008), yet empirical support for insights into prosumption

Marco Wolf (Ph.D., New Mexico State University), Assistant Professor of Marketing, College of Business, University of Southern Mississippi, Long Beach, MS, marco.wolf@usm.edu.

Shaun McQuitty (Ph.D., University of Alberta), Professor of Marketing, Faculty of Business, Athabasca University, Athabasca, AB, Canada, shaunm@athabascau.ca.

still is needed (Wicks, Reardon, and McCorkle 2005; Xie, Bagozzi, and Troye 2008). We address this concern by calling attention to the DIY market and illuminating a neglected form of consumer behavior through which individuals' prosumption activities can be motivated by certain marketplace conditions and result in the coproduction of values.

In this paper we focus on consumers' motivations for engaging in DIY behaviors and the benefits they derive from such activities. We describe a model derived from Wolf and McQuitty (2011) and develop hypotheses of the relationships between marketplace motivations for DIY behaviors and the outcomes of such behaviors. A structural equation modeling approach is used to test the model and the hypotheses. We discuss the results and their implications and offer suggestions for future research.

DO-IT-YOURSELF LITERATURE AND A CONCEPTUAL FRAMEWORK

What is DIY and how does it compare with other activities where consumers produce their own goods and services? The literature describes a few activities that are similar to DIY, such as self-servicing, arts and crafts, and voluntary simplicity. Like DIY, each of these activities focuses on consumers producing goods and services. We compare these alternative activities with DIY behaviors.

Self-servicing has been described as a DIY behavior (Bateson 1985; Dabholkar 1996), but DIY can be differentiated from self-servicing by the greater involvement typically associated with DIY behaviors. Self-servicing reduces wait times and customizes a customer's service (e.g., gas stations and ATMs); this benefits both the service firms that encourage customers to serve themselves—thus relieving the firm from those duties—as well as the customers who can obtain service more quickly and cheaply by serving themselves. However, DIY behaviors typically require much more labor and expertise from consumers than self-servicing, and are not necessarily motivated by cost. Similarly, DIY behaviors can be compared with arts and crafts activities, but DIY projects typically consume greater resources and require more labor, and different retailers serve each market (e.g., Michaels for arts and crafts and Lowe's or Home Depot for home improvement).

Another consumer behavior that overlaps DIY is voluntary simplicity, because both are ways of circumventing traditional marketplaces and improving well-being (Etzioni 1998). Motivated by product quality, ethical and environmental concerns, and self-sufficiency (Ballantine and Creery 2010), voluntary simplifiers seek to increase control over their daily lives and reduce their dependence on institu-

tions (Leonard-Barton 1981) as well as reduce consumption (Shaw and Moraes 2009). DIY behaviors reflect many of the same characteristics as voluntary simplicity. Making one's own products allows consumers to avoid markets and market offerings, and to redistribute the household budget. Although DIY does not necessarily focus on reducing consumption, voluntary simplicity suggests another motivation to DIY in addition to motivations such as saving money or poor product quality from mass market alternatives.

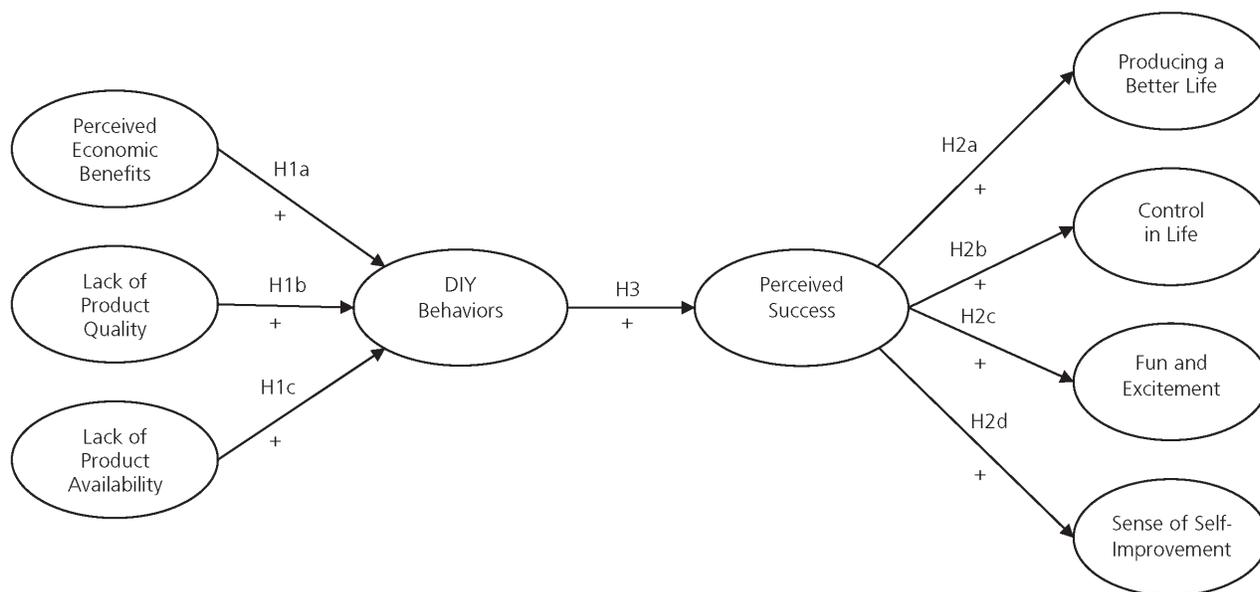
Despite the phenomenal growth of the DIY market and its connections to prosumption, self-servicing, arts and crafts, and voluntary simplicity, there are few academic studies of DIY behaviors. Early studies tend to be descriptive and demographically profile the DIY segment relative to a non-DIY segment (e.g., Bush, Menon, and Smart 1987; Hornik and Feldman 1982; Schwartzlander 1984). In more recent studies, Watson and Shove (2008) view DIY behavior as a transformational process whereby skills and competency alter the identities of people engaging in DIY behaviors, and Williams (2004) finds that the acquisition of DIY products is not due to lifestyle choice or economic constraints. Wicks, Reardon, and McCorkle (2005) study the antecedents of consumers' decisions to make or buy home cleaning services, child care, and vegetables (grow or purchase), and find that enjoyment, avoiding shopping, saving money, and quality are significant predictors of such decisions.

Wolf and McQuitty (2011) propose a model of DIY behavior that includes some motivations for and outcomes of DIY behavior. Their model also considers the preconditions for DIY (time and experience), identity enhancement, project planning with visits to home improvement retailers, DIY product purchases, and project satisfaction. We use this model as a basis for an empirical study of DIY behavior that focuses on its antecedents and consequences. More specifically, we study the marketplace conditions that are predicted to motivate individuals' participation in DIY activities and the benefits or outcomes that result from DIY behavior. We also use evaluations of project success to mediate the relationships between DIY behaviors and the resulting outcomes (Wolf and McQuitty 2011). These ideas are summarized in Figure 1, which depicts our conceptual model of the marketplace motivations for and the outcomes of DIY behavior. The following sections elaborate on these constructs and their interrelationships, and formal hypotheses are developed for empirical testing.

Marketplace Motivations for DIY Behavior

There are a variety of reasons to engage in DIY behaviors, such as for leisure and recreation, the satisfaction from com-

Figure 1
Consumers' Marketplace Motivations and Value Outcomes for DIY Behaviors



pleting a project well, or to enhance one's identity. However, we focus on marketplace conditions here and discuss alternative motivations to engage in DIY activities in the Limitations and Future Research section. We begin by suggesting that individuals who might engage in DIY behaviors evaluate the market to determine whether goods and services should be created by themselves or purchased from others. Such consumers may need to produce their own goods and services when market options for products are seen as expensive, in short supply, or inadequate. More specifically, and based on a review of the literature and informal discussions with DIYers, the marketplace conditions that can motivate DIY behaviors include (1) the economic benefits of DIY, (2) a perceived lack of goods and service quality, and (3) the limited availability of desired goods and services.

Perceived Economic Benefits

The first and most obvious marketplace motivation to DIY is that consumers can compare the expected economic benefits of DIY behaviors with the purchase of comparable goods and services. In effect, DIY offers consumers the same make-or-buy decision as manufacturers that produce their own products when doing so is less expensive than buying goods or services from other producers (Wicks, Reardon, and McCorkle 2005). Prior literature suggests that DIY behavior is driven by a need for economic gain, thus individuals with lower incomes should be more likely to engage in DIY activities than individuals with higher incomes. Illustrative of this

perspective, single-income households engage significantly more frequently in DIY activities than dual-income households (Schwartzlander 1984; Williams 2004). However, the research findings are inconclusive: some studies have found a negative relationship between income and DIY activities (Pollakowski 1988; Schwartzlander 1984), whereas others have found a positive relationship (Bogdon 1996; Bush, Menon, and Smart 1987).

The conflicting results suggest that income is probably not the only predictor of the decision to DIY. Individuals across different economic backgrounds can be frugal (Lastovicka et al. 1999), which suggests that DIY's perceived economic benefits can motivate individuals from any income category. Further support for this idea is found among voluntary simplifiers. It might be assumed that simplifying life by reducing consumption applies primarily to those with lower incomes, but research suggests that people with moderate and high incomes are just as likely to simplify (Huneke 2005). This may be because simplifiers have greater access to wealth, education, and unique skills that can be used to redistribute household income (Craig-Lee and Hill 2002). DIY activities can contribute to a higher standard of living by redistributing resources within the household, that is, income does not have to be spent on professional help and is available for other purchases (Hornik and Feldman 1982):

Hypothesis 1a: The perceived economic benefits are positively related to participation in DIY behaviors.

Perceived Lack of Product Quality

Marketplace motivations for DIY behavior other than the economic benefits are little explored in the literature, but two additional motivations have been studied indirectly. The first is a perceived lack of product quality in the marketplace. The service literature views a number of consumer responses, such as consumer boycotts (Sen, Gürhan-Canli, and Morwitz 2001) and negative word of mouth (Brown and Beltramini 1989), as reflecting frustration and anger when product quality is lacking and consumers seek to reclaim control (Lusch, Brown, and Brunswick 1992; Zeelenberg and Pieters 2004). DIY behaviors that are motivated by poor product quality should be viewed as a form of consumers' attempts to gain control by doing it themselves. A study of German DIYers found that 60 percent of the respondents perceived their own production quality as superior to professionally produced goods and services (DIY in Europe 2000). Such individuals may be more likely to do it themselves as a response to perceptions that goods and services are substandard:

Hypothesis 1b: A perceived lack of product quality is positively related to participation in DIY behaviors.

Absence of Goods and Service Availability

A lack of goods or service availability is another marketplace condition that can motivate DIY behavior and has an effect similar to the lack of goods and service quality, that is, it encourages consumers to produce it themselves (Wolf and McQuitty 2011). For example, if home improvement goods and services are unavailable, or if service scheduling is inconvenient, then DIYers have the option of doing the work themselves. Consumers who cannot find an acceptable good or service may not engage in DIY activities to satisfy their needs, but DIY provides an option for such consumers:

Hypothesis 1c: A lack of product availability is positively related to participation in DIY behaviors.

DIY Outcomes

Other than Wolf and McQuitty (2011), who use in-depth interviews to study the outcomes of DIY behaviors, the existing DIY literature has not studied such outcomes. Wolf and McQuitty find that accomplishment, control, and enjoyment are the primary outcomes of DIY behaviors. Kotler (1986) and Xie, Bagozzi, and Troye (2008) describe

prosumers and their role in the production process, but do not explore prosumption's outcomes. An obvious outcome of DIY behaviors is the economic benefits, which can be viewed as both an antecedent (H1a) and an outcome of DIY behaviors. However, we focus on higher-order outcomes that, for DIY activities, are domain specific and beyond physical or monetary values (Holbrook 2006b). Domain-specific values are acquired through experiences in specific situations or domains (Vinson, Scott, and Lamont 1977).

The physical and cognitive skills required by typical DIY activities extend the notion of value creation from how to use, maintain, and repair a manufactured product to the consumer's direct participation in the process of planning, designing, and constructing a product through self-effort. Thus, the consumer is involved in the production of value, and this process does not end with the purchase of a tangible good (Vargo and Lusch 2004). Value can be created and determined only by the user in the process of consumption, which is implied by "value-in-use" (Lusch and Vargo 2006, p. 284). Value is created as the consumer learns "how to use, maintain, repair and adapt these goods to his or her unique needs, usage situation, and behavior" (Vargo and Lusch 2004, p. 11).

People engage in DIY because they perceive such activities as rewarding (Institut für Freizeitwirtschaft 1999). Moreover, people who design their own products can obtain enjoyment from the design act, which positively affects the outcome of the process (Schreier 2006). Learning how to make one's own products can add value when the learning process is perceived as rewarding, and activities may be enjoyed most when the reward is intrinsic rather than extrinsic (Holbrook 2006a). Intrinsically rewarding activities typically are associated with characteristics such as the satisfaction of curiosity, the opportunity to experience and master a particular skill, entertainment, and novelty (Holbrook 2006a; Kruglanski 1975). Some activities are particularly enjoyable when people perform the activities for themselves rather than for receiving an external reward such as money (Deci, Koestner, and Ryan 1999; Lepper and Henderlong 2000). Self-determination theory, for example, emphasizes the intrinsically enjoyable properties of actions that fulfill basic psychological needs such as autonomy and competence (Kruglanski 1975).

Because of the lack of research on DIY behavior and its value outcomes, we use existing value frameworks developed by Kahle (1983) and Rokeach (1973), and further refined by Herche (1994) and Xie, Bagozzi, and Troye (2008), that focus on people's values toward life and the self. We consider the specific properties that are served by

prosumption and propose four outcome values that occur as a result of DIY behavior: (1) producing a better life, (2) control in life, (3) fun and excitement, and (4) a sense of self-improvement. We recognize that other outcome values may exist, and note this issue in the Limitations and Future Research section.

Producing a Better Life

The concept of producing a better life is drawn from the idea that DIY activities can improve one's life, both directly and indirectly. By experiencing fulfillment and gratification as by-products of DIY behavior, individuals may develop a positive attitude toward life. As defined by Rokeach (1973), a value is a centrally held, enduring belief that guides action and judgment across specific situations and beyond immediate goals to an end-state. The ideal end-state for DIYers is a life-stimulating effect, and the intrinsically rewarding characteristics of DIY can be associated with accomplishing positive things in life. A sense of producing a better life also can derive from the psychic reward of completing a project (Kahle 1983; Lusch, Brown, and Brunswick 1992):

Hypothesis 2a: Participation in DIY behaviors is positively related to a sense of producing a better life.

Control in Life

Control in life suggests that one can meet personal goals and influence one's own situation (Lusch, Brown, and Brunswick 1992; Skinner 1996). A finished DIY project that is displayed to others may convey that its owner/creator/maker is a person who possesses distinctive or superior qualities and is able to control his or her environment to some degree (Csikszentmihalyi and Rochberg-Halton 1981):

Hypothesis 2b: Participation in DIY behaviors is positively related to a sense of control in life.

Fun and Excitement

Prosumption can be fun (Xie, Bagozzi, and Troye 2008), and we propose that DIYers can obtain hedonic values such as pleasure and entertainment from DIY behaviors. A sense of fun and excitement is created when an activity provides an experience that is enjoyed by oneself and actively pursued for that reason (Holbrook 2006a; Wicks, Reardon, and McCorkle 2005). Engaging in activities for pure enjoyment offers psychic benefits and often is the reason individuals undertake activities such as gardening,

gourmet cooking, and personal fitness training (Lusch, Vargo, and O'Brien 2007):

Hypothesis 2c: Participation in DIY behaviors is positively related to a sense of fun and excitement.

Self-Improvement

Another value derived from DIY behavior is a sense of self-improvement. DIY projects offer consumers the opportunity to test themselves and their DIY knowledge and skills, particularly when elements of the project are unfamiliar. The creative element of DIY behaviors embraces problem solving and self expression, and assumes that the conventional way to do a task is not necessarily the best way. By employing knowledge, skills, and creativity in DIY projects, DIYers can earn self-respect and gain confidence and a more positive self-image:

Hypothesis 2d: Participation in DIY behaviors is positively related to a sense of self-improvement.

Perceived Success

Individuals who engage in DIY behaviors create domain-specific values for themselves, but we do not propose a direct relationship from DIY to the outcome values. Instead, DIY behavior is followed by an evaluation of one's project that affects the subsequent DIY outcome values (Wolf and McQuitty 2011). The concept of customer perceptions has been examined in the consumer literature with concepts such as product quality, pricing, and customer satisfaction, but little research has examined how consumers' perceive and evaluate the success of their own production or DIY projects. DIYers evaluate the results of their projects by comparing their output with desired standards using both objective characteristics such as product features (Etgar 2008) and subjective aspects such as sociopsychological experiences (e.g., fun) acquired in the prosumption process (Xie, Bagozzi, and Troye 2008). Thus, the success of a DIY project is judged by the DIYer, and in turn affects his or her DIY outcome values. If perceptions of a DIY project are below the desired result, then perceived success is weak. Conversely, positive perceptions produce higher levels of project success and reflect positively on the creation of DIY outcome values:

Hypothesis 3: The relationship between DIY behaviors and the DIY outcome values is mediated by perceived success.

STUDY

We describe a study for which data were collected with the purpose of testing the hypotheses and conceptual model outlined above and summarized in Figure 1. Our sample was drawn from a panel developed by a data collection agency in the United States. Panel participants were selected on the basis of having undertaken DIY projects. The data collection process resulted in 245 usable questionnaires after eliminating 70 incomplete or invalid questionnaires. The sample was 52.7 percent males and 47.3 percent females; 64.5 percent of the respondents were married and 35.5 percent were single. All age groups were well represented, and the age categories of 30–39, 40–49, and older than 60 were the three largest groups (22 percent, 23 percent, and 24 percent, respectively), closely followed by 50–59 year olds (17 percent) and 18–29 year olds (14 percent). The largest income category (25 percent) earned \$50,000 to \$69,999 annually. Most people in the sample own their house (79 percent) or condominium (5 percent); individuals renting a house made up 7 percent of the sample, and individuals renting an apartment made up 9 percent. Just over half the respondents (52 percent) were full-time employees, 10 percent were part-time employees, 20 percent were retired, and 18 percent were not working.

Measures

We used eight scales to assess the marketplace motivations for DIY behaviors (economic benefits, lack of product quality, and lack of product availability), DIY success, and the values resulting from DIY behaviors (producing a better life, control in life, fun and excitement, and sense of self-improvement). The scales were developed following standard scale development procedures advocated by Churchill (1979), Gerbing and Anderson (1988), and Nunnally and Bernstein (1994). Our scale development used multiple rounds of pretesting with student samples and then a final pretest sample of 226 shoppers at a national DIY retail chain. Except for the DIY experience scale, all of the scale items used a seven-point Likert scale format (anchored by 1 = “strongly disagree” and 7 = “strongly agree”). We describe the development of the eight scales.

DIY Motivations

The three DIY motivations incorporated in the model are the perceived economic benefits, a lack of product quality, and a lack of product availability. An initial pool of 45 items was generated (15 items for each of the 3 motivations).

Initial pretesting used a sample of 101 undergraduate students, and resulted in a scale of 17 items across the three DIY motivations (six items each for perceived economic benefit and the lack of product quality, and five items for the lack of product availability). Item wording was refined slightly and pretested with the sample of 226 shoppers at a national hardware store, and the same factor solution was obtained.

DIY Behaviors

A 46-item multiple-act-criterion scale (see the Appendix) was used to measure respondents’ experience with DIY behaviors (Epstein 1980; Lastovicka and Joachimstaler 1988). The scale included items that cover the range of DIY behaviors (e.g., painting, repairing drywall, or auto repair) found on popular DIY Web sites such as DIY Network (www.diynetwork.com), the two largest home improvement retailers (Home Depot and Lowe’s), and prominent television shows (e.g., *This Old House*). The scale of DIY behaviors was pretested on a sample of 226 DIYers at a local home improvement store. The pretest included a space where respondents could add DIY activities that were not represented in the list, but no respondent suggested another activity. The 46 items create a summated index that measures the respondents’ experience with DIY behaviors.

DIY Outcome Values

The DIY outcome values address the higher-order benefits derived from engaging in DIY behaviors. We focused on the four outcome values we described earlier (producing a better life, control in life, fun and excitement, and sense of self-improvement), and selected items from existing values scales, including the list of values (Kahle 1983) and the multi-item measures of values (MILOV) scale (Herche 1994) to generate 50 items that were adapted to measure the four DIY outcome values. The content validity of the items was assessed in two stages (Bearden, Netemeyer, and Teel 1989; Tian, Bearden, and Hunter 2001). Five university professors who served as judges were given definitions and explanations for each outcome value and an example of a scale item. The judges were then asked to allocate the 50 items to one of the four outcome values, or to a “not applicable” category. After eliminating items that did not receive the appropriate categorization by at least four of the five judges, 44 items remained. Another panel of three different judges (professors) was asked to rate each remaining item as clearly representative, somewhat representative, or not

representative of the outcome value. The items that were evaluated as clearly representative by two judges and as no worse than somewhat representative by a third judge were retained. This eliminated four more items.

The remaining 40 items were pretested using three student samples with sizes of 101, 89, and 88. Successive refinements of the scale after each pretest left 20 items that loaded appropriately on the four outcome value factors. The scale with the remaining 20 items was administered to a fourth pretest sample that included 226 shoppers at a national hardware store. This sample's data produced the expected factor structure that validated the 20-item scale measuring four outcome values.

Perceived Success

The perceived success construct is predicted to mediate the relationship between DIY behavior and the DIY outcome values, and reflects the respondents' evaluations of the outcome of DIY projects. Using ideas from Zeithaml (1988), a six-item scale was developed to assess how DIYers perceive the quality and value of their own DIY behaviors. The factor analysis results from pretest samples of 101 students and 226 DIYers supported the one-factor solution.

RESULTS

The results described in this section are based on a final sample of 245 DIYers drawn from a panel in the United States. Before testing the full structural equation model, we first evaluate the psychometric properties of the multi-item scales (DIY motivations, DIY outcome values, and perceived success). We conduct confirmatory factor analyses (CFAs) to evaluate these scales and report the results. Then we use a structural equation model to evaluate the model and the hypotheses shown in Figure 1.

The CFA for the 17 DIY motivation items was expected to produce a three-factor solution. Maximum likelihood estimation with oblique rotation derived the expected three factors, and each item loaded highly on the appropriate factor with no meaningful cross-loadings (the largest was 0.156). Items, factor loadings, and reliability measures are provided in Table 1. Cronbach's alphas for the three factors range from 0.904 to 0.940, which indicates that the reliabilities for the DIY motivation scales are high.

A measurement model was estimated with LISREL 8.80 using the 17 items comprising the three DIY motivation scales. The average variance extracted (AVE) values for each scale exceeds 50 percent (Economic Benefit = 64.7 per-

cent, Lack of Product Availability = 75.6 percent, and Lack of Product Quality = 70.5 percent); these AVE values are greater than the squared correlations between each factor, and give evidence for discriminant validity among these factors (factor correlations and AVE values are in Table 2). This notion is confirmed by the lack of meaningful cross-loadings. Estimation of the measurement model produced the following goodness-of-fit statistics: $\chi^2(115) = 236.18$ ($p = 0.00$), CFI (comparative fit index) = 0.98, NNFI (non-normed fit index) = 0.98, and RMSEA (root mean square error of approximation) = 0.066 (with one parameter capturing significant error covariance between two items within the factor). These fit statistics provide evidence of good model fit and the measures of DIY motivations appear valid (Hair et al. 2006; Hu and Bentler 1999).

We continue the preliminary analysis by evaluating the factor structure for the outcome values scales. Factor analysis using maximum likelihood estimation and oblique rotation derived a four-factor solution with the 20 items. Three items were removed because of significant cross-loadings; we note that removing items in this fashion is not ideal and discuss the issue in the Limitations and Future Research section. The resulting 17-item, four-factor solution was both proper and interpretable, and each item loaded highly on the appropriate factor with no meaningful cross-loadings (the largest was 0.266). Items, factor loadings, and reliability measures are in Table 3. Cronbach's alphas range from 0.930 to 0.949, which indicates that the reliabilities for the four scales are high.

The AVE values for each outcome value scale exceeds 50 percent (Producing a Better Life = 64.4 percent, Control in Life = 83.5 percent, Fun and Excitement = 84.5 percent; and Sense of Self-Improvement = 79.5 percent). Although the factor correlations range from 0.38 to 0.74, the AVE values are greater than the squared correlations between each factor (factor correlations and AVE values are in Table 4) and offer evidence of discriminant validity for the four outcome value factors. A measurement model estimated with LISREL 8.80 produced the following goodness-of-fit statistics: $\chi^2(113) = 189.57$ ($p = 0.00$), CFI = 0.99, NNFI = 0.99, and RMSEA = 0.053. These fit statistics provide evidence of good model fit and the measures of the outcome values appear valid.

The perceived success construct is measured with a six-item scale. CFA obtained the expected single-factor solution for perceived success, although one item was removed from the scale because of its low correlation with other scale items. An additional parameter was used to capture significant error covariance between two items within

Table 1
Marketplace DIY Motivations: Scale Items, Factor Loadings, and Scale Reliabilities

Construct	Indicator	Factor Loading	Alpha	Alpha if Item Deleted
Economic Benefit	I do my own home improvement projects to save money	0.685	0.904	0.898
	Performing my own maintenance saves me money	0.855		0.887
	By fixing things myself in my house I can spend money on other things	0.782		0.885
	I find that I can save much money by doing things myself	0.873		0.880
	When I make things myself, the money I save is important	0.791		0.881
	When I begin a project I expect to save money by doing it myself	0.743		0.890
Lack of Product Availability	I make products myself so they match my home	0.764	0.940	0.939
	I design things myself because stores often do not have what I want	0.738		0.937
	To get the right size for things I need in my home I have to make it myself	0.921		0.920
	To get products that are compatible with my home I make them myself	0.959		0.916
	To get products that match the style of my home, I have to make things myself	0.941		0.917
Lack of Product Quality	DIY is good because home repair and maintenance professionals are unreliable	0.790	0.937	0.934
	DIY makes sense because professionals do a bad job when fixing things at my house	0.947		0.920
	DIY is good because I can do a better job than home improvement professionals	0.859		0.923
	DIY is my choice because it is more predictable than maintenance professionals	0.696		0.932
	Hiring home improvement/repair and maintenance professionals results in worse work than when I do it myself	0.878		0.922
	The work of people I can hire is not of good quality so I have to do it myself	0.850		0.923

Table 2
Correlations Between Marketplace DIY Motivations

	Economic Benefit	Lack of Product Availability	Lack of Product Quality
Economic Benefit	0.647		
Lack of Product Availability	0.200	0.756	
Lack of Product Quality	0.281	0.521	0.705

Note: AVE values are on the diagonal.

the perceived success scale. Items, factor loadings, and reliabilities are listed in Table 5. The Cronbach's alpha of 0.956 indicates a reliable scale and the AVE for the perceived success items is 68.2 percent.

A full measurement model including all the constructs was estimated with LISREL 8.80 and the items compris-

ing the DIY motivations, outcome values, DIY behaviors, and perceived success scales. Model estimation produced the following goodness-of-fit statistics: $\chi^2(703) = 1,204.47$ ($p = 0.00$), CFI = 0.98, NNFI = 0.98, and RMSEA = 0.054. Model fit is interpreted as good, and the measurement model supports the measurement theory and the assessment of construct validity (Hair et al. 2006). Note that the error variance for the single-item DIY behavior index was fixed to reflect a reliability of 0.85 (this figure does not affect the goodness of fit).

Motivations and Outcomes of DIY Behaviors: Testing the Model

Lastly, we evaluate the full DIY motivations and outcomes model depicted in Figure 1. LISREL 8.80, a covariance matrix, and maximum likelihood estimation were used to estimate model parameters. Model estimation produced the following goodness-of-fit statistics: $\chi^2(728) = 1,568.32$

Table 3
DIY Outcome Values

Construct	Indicator	Factor Loading	Alpha	Alpha if Item Deleted
Producing a Better Life	DIY Projects . . .			
	. . . make a person's life more gratifying	0.930	0.949	0.935
	. . . make a person's life more satisfying	0.923		0.937
	. . . make a person's life more rewarding	0.928		0.930
	. . . make a person's life more meaningful	0.657		0.947
. . . make a person's life better	0.719	0.940		
Control in Life	. . . help a person to manage life	0.842	0.934	0.921
	. . . help a person to stay on top of things	0.828		0.910
	. . . help a person be in charge of events in life	0.909		0.899
	. . . gives a person power in life	0.754		0.924
Fun and Excitement	. . . can offer excitement	0.562	0.939	0.940
	. . . can be entertaining	0.870		0.920
	. . . can be interesting	0.958		0.911
	. . . can be enjoyable	0.917		0.912
Sense of Self-Improvement	. . . can improve a person's self-image	0.633	0.930	0.916
	. . . help a person to earn respect	0.763		0.901
	. . . can give a person confidence	0.942		0.890
	. . . can help a person learn	0.845		0.920

Table 4
Correlations Between DIY Outcome Values

	Better Life	Control	Fun and Excitement	Self-Improvement
Producing a Better Life	0.644			
Control in Life	0.555	0.835		
Fun and Excitement	0.398	0.624	0.845	
Sense of Self-Improvement	0.462	0.742	0.419	0.795

Note: AVE values are on the diagonal.

($p = 0.00$), CFI = 0.97, NNFI = 0.97, and RMSEA = 0.069. Model fit is interpreted as good, and the model cannot be rejected based on these data (Hair et al. 2006; Hu and Bentler 1999). Moreover, this is a large structural equation model with 40 observed items, 9 latent variables, and 728 degrees of freedom. With $n = 245$, the statistical power associated with the RMSEA statistic approaches 1.0 (test of close fit; MacCallum, Browne, and Sugawara 1996) and the goodness-of-fit statistics are assumed to be conservative (Kaplan 1995; McQuitty 2004).

The model's structural coefficients are used to test the hypotheses outlined in Figure 1 (Table 6). With one exception, the path coefficients associated with the hypotheses are positive and significant ($p < 0.01$), which suggests that these hypotheses cannot be rejected. The sole hypothesis not supported by the data is the relationship between

the perceived lack of product quality and DIY experience (H1b: $t = 0.46$, $p > 0.05$). The coefficient is in the direction hypothesized, but, with this sample of DIYers, it appears that product quality concerns are insufficient to motivate DIY behaviors.

DISCUSSION

The primary goal of this study is to describe and test a model of the market-based motivations underlying DIY behavior and the resulting outcome values. The model is derived from a more comprehensive model proposed by Wolf and McQuitty (2011). Despite the importance of the DIY market to the economy, our study is the first empirical investigation of consumers' DIY motivations and outcomes. The study considers three marketplace

Table 5
Perceived Success

Construct	Indicator	Factor Loading	Alpha	Alpha if Item Deleted
Perceived Success	I usually am pleased with my DIY projects	0.896	0.956	0.950
	My DIY projects turn out the way I want	0.884		0.958
	My DIY projects are worth the effort	0.868		0.952
	My DIY projects usually do for me what I wanted them to do	0.942		0.940
	My DIY projects usually meet my expectations	0.922		0.943

Table 6
Hypothesis Tests

Hypothesis	Standardized Structural Coefficients	t-Statistic	p-Value
H1a: Perceived Economic Benefits → DIY Behaviors	0.32	4.54	< 0.01
H1b: Lack of Product Quality → DIY Behaviors	0.04	0.46	n.s.
H1c: Lack of Product Availability → DIY Behaviors	0.27	3.43	< 0.01
H2a: Perceived Success → Producing a Better Life	0.50	6.77	< 0.01
H2b: Perceived Success → Control in Life	0.78	11.55	< 0.01
H2c: Perceived Success → Fun and Excitement	0.65	9.40	< 0.01
H2d: Perceived Success → Sense of Self-Improvement	0.76	10.96	< 0.01
H3: DIY Behaviors → Perceived Success	0.36	5.10	< 0.01

Note: n.s. = not significant.

motivations for DIY behaviors: the perceived economic benefits, a lack of product quality, and a lack of product availability. In addition, we evaluate the idea that DIY consumers create benefits for themselves that go beyond a project's economic value. The higher-order outcome values we examine include producing a better life, a sense of control in life, fun and excitement, and a sense of self-improvement. We develop new measurement instruments and use a structural equation model to test the hypothesized relationships. The scales have strong psychometric properties and the structural equation model offers support for the conceptual model shown in Figure 1 and all but one of the hypotheses. The hypothesis tests suggest that our sample is motivated to DIY by the economic benefits and a lack of product availability, but not by a lack of product quality (this path was not statistically significant with $t = 0.46$, $p > 0.05$). Other structural paths support the hypotheses that perceived success is positively related to the four outcome values (producing a better life, control in life, fun and excitement, and a sense of self-improvement) and mediates the relationship between DIY behaviors and these outcome values.

Implications for Marketing Theory

As a result of the conceptual model and empirical results, this research contributes to the knowledge and understanding of the DIY consumer segment in several ways. First, we identify DIYers as an understudied market of considerable and increasing size, and conduct the initial empirical evaluation of marketplace motivations for and the outcomes of DIY behaviors. In doing so, we developed scales that measure the marketplace motivations, perceived success, and the outcome values associated with consumers' DIY behaviors. The formal testing of our model provides estimates of the relative importance of marketplace motivations for DIY behavior and its higher-order outcome values. The study necessarily is somewhat exploratory, but the results support the key portion of the model proposed by Wolf and McQuitty (2011) and should inform future research on DIY behavior.

Second, the study supports the idea that marketplace deficiencies can be significant motivations for DIY behaviors that give consumers the option of circumventing the traditional marketplace by undertaking DIY projects. In turn,

DIY behavior gives consumers the ability to control their own destinies through self-service to a greater degree than is possible through traditional markets. This observation has important implications for marketing theory because it suggests an alternative consumer response to certain market conditions; namely, DIY behavior. Consumer responses to stock-outs and perceived low quality are studied in the retailing, service, and operations literature, but this is the first empirical study of whether these marketplace conditions can encourage DIY behavior. In particular, our study finds that stock-outs or the temporary unavailability of goods and services can cause consumers to do it themselves. Although the relationship between a lack of quality and DIY behavior was not significant in this study, further research is needed to confirm this result. It is possible that DIYers with less experience may not possess the confidence that they can produce equal or better quality than market offerings. Moreover, as experience increases, the motivation to DIY could shift from concerns about the lack of product availability to concerns regarding product quality.

A third implication arises from the finding that DIY activities can create personal values that go beyond the practical value of the project. DIY behavior is a value-creating activity, but research into possible DIY outcome values is only in the early stages. By integrating prior research on values with service-dominant logic, we propose that prosumption behaviors such as DIY can offer higher-order values that go beyond the financial benefits. We extend the research of Vargo and Lusch (2004, 2008), Wolf and McQuitty (2011), and Xie, Bagozzi, and Troye (2008) with the idea that DIYers create value through both the creation and consumption of their self-produced goods and services, unlike typical consumption experiences. Therefore, value creation is not limited to consumers learning to use, maintain, and adapt goods (Vargo and Lusch 2004), but transfers to consumers learning how to produce their own goods. The effects of those experiences are reflected in the creation of values that impact DIYers' lives and personal development.

Managerial Implications

Our study has several implications for marketing managers, and particularly those associated with DIY service providers and retailers. First, people who "produce their own goods and services extend the traditional view of consumers as the buyers and users of products" (Wolf and McQuitty 2011, p. 167). This observation suggests that DIYers and prosumers deserve consideration as an important and unique form of consumer because the members of this large consumer

group are capable of creating their own competitive reaction to marketplace conditions such as high prices and inadequate product availability. It is also possible that if consumers are motivated to do things themselves and produce products for self-consumption, then successful projects may encourage future DIY behaviors (Wolf and McQuitty 2011).

Second, perceived success is predicted and found to mediate the relationships between consumers' DIY behaviors and their outcome values (perceptions of producing a better life, control in life, fun and excitement, and a sense of self-improvement). This finding suggests that managers in the DIY industry should attend carefully to strategies for managing the perceptions of success associated with customers' DIY projects because perceived success affects whether or not these customers view DIY as a value-creating activity. For example, if home improvement retailers' employees can positively influence the outcome of DIY projects, then the perceived success and outcome values associated with such projects should also benefit. In turn, retailers likely will enhance relationships between themselves and DIYers, with resulting benefits to the retailers such as customer loyalty and increased sales. Suggestions for retailers managing DIY project success include helping customers with project ideas (e.g., many retailers offer project ideas, plans, and completion tips online) and educating customers (e.g., Home Depot's in-store workshops). Store personnel should be knowledgeable about project ideas and suggestions for completing them successfully; such personnel should be trained on the potential of their advice to customers for influencing not only current sales but also future sales.

Third, the DIY industry probably should urge consumers to consider the overall economic benefit of DIY projects, and then use that desire to offer coproduction options. Money saved by undertaking DIY projects can be used to upgrade the projects or the quality of component parts, or can be used elsewhere in the household budget. However, the desire to save money through DIY projects also raises the possibility of sharing projects between DIY customers and service providers (Wolf and McQuitty 2011). For example, a professional home remodeling project may be too expensive for a consumer, but if the consumer can complete initial prep work and use professional services only for the finishing stages (or vice versa), then home remodeling could be more affordable. Such arrangements may require redefining customers' roles as potential contributors and coproducers rather than as buyers and users. Firms can benefit not only by gaining customers but also because integrating customers in the production

process can enhance an organization's ability to compete by meeting customers' desires (Lusch, Vargo, and O'Brien 2007) and increasing customers' competence and ability to judge product quality (Lengnick-Hall 1996). Managers who view customers as a resource have opportunities to understand customers' abilities, techniques and shortcuts, quality expectations, and customization ideas, even though customers often are unaware of their own preferences and expertise (Franke, Keinz, and Steger 2009). DIY gives consumers a variety of ways to control their purchase outcomes through coproduction, and provides opportunities for personal growth as a result.

Limitations and Future Research

There are limitations to the present study. A concern with our conceptual model is that we focus only on marketplace motivations for DIY behaviors, although other motivations may exist. For example, individuals also could be motivated to engage in DIY activities to obtain a customized product (Wolf and McQuitty 2011). The many combinations of materials and their application to a typical DIY project provide opportunities for consumers to create customized products without professional involvement. Firms that offer customization of their products typically give customers relatively few options or permit customers only limited involvement, which may result in compromised solutions (Valenzuela, Dhar, and Zettelmeyer 2009). However, customization requires that customers be aware of their preferences and expertise and have the ability to communicate their preferences (Franke, Keinz, and Steger 2009).

Other motivations to DIY could derive from the need to enhance or maintain one's self-identity, such as being a craftsman (Watson and Shove 2008) or expressing a need for uniqueness (Tian, Bearden, and Hunter 2001). For example, people can distinguish themselves from others through their behaviors (Lynn and Harris 1997) and through products that offer symbolic meaning beyond their functional benefits (Belk 1988; Ligas 2000). Consumers can achieve uniqueness not only by acquiring and displaying novelty and handcrafted goods but also by personalizing items through the personal design and alteration of common products (Tian, Bearden, and Hunter 2001). Studying DIY behaviors could produce new insights regarding consumers' innovative behavior, sustainable consumption, and even new product ideas and designs.

A similar limitation is that our understanding of the outcomes of DIY behaviors is in early stages. We focus on higher-order outcome values, but there likely are other

values and consequences of DIY behaviors. This limitation is further complicated by the notion that any benefits may be dependent on the standards and values people have prior to engaging in DIY behaviors.

There are some standard limitations to our study, including a sample that, although consisting of DIYers, may not be representative of all DIYers. Another limitation is removing items to improve the psychometric properties of the scales. We recognize that removing items in this fashion is atheoretical and may rely on sample-specific attributes; thus, further scale validation is needed.

There is little published research that studies DIY, but given the large and increasing size of the DIY market and the interesting and novel consumer behaviors associated with DIY, there are many opportunities for future research. Addressing the study's limitations is a good place to start, as the study provides insights for future theory and scale development. For example, because scales typically are intended for consumers and finished products, future research can establish to what degree such scales apply to DIYers who plan, design, and construct their own products. Future research also could establish the representativeness of our sample and the generalizability of our findings. Other ideas for future research relate to better understanding the motivations for and outcomes of DIY behavior as well as the relevance of different demographic and psychographic factors (e.g., for segmentation). The possibility that DIYers' motivations and values change over time as they gain experience with DIY projects also deserves study. Lastly, research exploring to what or to whom do DIYers attribute project success or failure (e.g., themselves [ideas, capabilities] or the retailers from which materials are purchased) could further our understanding of the growing DIY segment.

NOTES

1. See http://en.wikipedia.org/wiki/Do_it_yourself/.
2. See www.merriam-webster.com/dictionary/do-it-yourself/.

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APPENDIX
List of Do-It-Yourself Behaviors

Air conditioner/heater maintenance	Installing laminate/wooden floor
Air conditioner/heater repair	Insulating
Automobile maintenance	Interior design
Automobile repair	Interior lighting
Building in-ground pool	Interior painting
Building patio deck	Landscaping
Building shelves	Maintaining appliances
Building storage cabinets	Mechanical repair
Building tree houses	Patio remodeling
Electrical work	Plumbing
Exterior lighting	Products of my own design (toys)
Exterior painting	Regrouting shower/tub
Fencing	Repairing appliances
Furniture making	Replacing bathroom cabinetry
Furniture refinishing	Replacing bathroom fixtures (faucets)
Gardening	Replacing kitchen cabinetry
Installing alarm/security system	Roofing
Installing appliances	Tiling
Installing carpet	Wall repair
Installing ceiling fan	Window/door installation/replacement
Installing fireplace	Window/door treatment
Installing irrigation system	Window/door weather stripping
Installing kitchen fixtures (faucets)	Woodwork

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