Special Session Summary  New Approaches For Measuring Consumer Preferences For Really New Products

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SPECIAL SESSION SUMMARY
New Approaches for Measuring Consumer Preferences for Really New Products
Donna Hoffman, Vanderbilt University

SESSION OVERVIEW
Consumer behavior researchers have long explored consumer preference for radical product innovations. One reason the topic remains key is that while new product development is a major activity for firms, most of the 25,000 products introduced in the United States each year fail (Goldenberg, Lehmann, and Mazursky 2001), perhaps due to their incremental nature. The product development process remains challenging for many firms because mainstream consumers have difficulty estimating the usefulness of a radical innovation relative to incremental innovations (Hoeffler 2003). What is needed, then, are new constructs that tap a consumer’s propensity to adopt innovations, and methodologies for using consumer preferences of really new products to improve adoption rates. Considering the high failure rate of new product introductions, and the broader issue that innovation drives economic growth at the same time that it improves consumer welfare, consumer behavior constructs and methodologies that can aid in the product development process for really new consumer products is timely and appropriate.

The three papers in this special session utilize rich theoretical frameworks, and psychometric and experimental perspectives, to present new approaches for measuring consumer preference for innovations and examine the impact of these preferences for innovations on adoption.

Tellis, Yin and Bell take a global approach and develop a new consumer innovativeness scale using pre-tests in four countries and then test the scale across 16 leading economies of the world. Results show that a profile of the global innovator can be constructed and that countries differ systematically in the proportion of innovators. Their new measure of innovativeness bears a strong correlation to self-reported adoption of new products. Surprisingly, they find that some major world economies are not as strong on innovativeness as would be expected.

The paper by Hoeffler, Moreau and Kubowicz argues that companies that develop technological innovations have a tendency to position based on the newest attributes and benefits, but that these may be precisely the types of benefits for which consumers have the highest level of uncertainty. They conduct two studies to test these assumptions. The study partitions sources of uncertainty and confirms that subjects have more uncertainty for really new products relative to incremental products. In their second study, they show that different uncertainty positionings have a differential impact on purchase intention. This research fine tunes our understanding of consumer preference uncertainty for really new products and can help marketers better position really new products for consumers and improve ultimate adoption rates.

Hoffman, Kopalle and Novak conclude the session with a paper that introduces a new methodology to identify “emergent consumers” and proposes that identifying and using such consumers for concept development can: 1) aid in the successful development of radical new product concepts, 2) improve the chances of success in the marketplace for such innovations, and 3) help predict their acceptance by mainstream consumers. Drawing on information processing theory and the theory of self-organizing systems from biology, the authors develop a new scale to measure this construct and perform several laboratory studies to test their theories that emergent consumers are more effective in developing innovations that will ultimately be more desired by mainstream consumers. Pilot studies, completed, demonstrate preliminary support for their framework. The remaining studies will be completed by the summer.

Donald Lehmann will serve as the session discussion leader. Professor Lehmann is an expert in the behavioral dimensions of innovativeness and his extensive knowledge of the subject matter guarantees a lively and exciting discussion period. The session has been organized so that there will be enough time for both summary comments from the discussion leader and questions and comments from the audience (managed by the discussion leader).

Taken together, these papers can extend consumer behavior researchers’ growing knowledge base regarding consumer innovativeness and related constructs and their impact on adoption. We anticipate that the special session is likely to be of interest to a wide variety of consumer behavior researchers interested in the relationship among innovation and product preference explored from both psychometric and experimental perspectives.


Gerard J. Tellis, University of Southern California
Eden Yin, Cambridge University
Simon Bell, Cambridge University

Innovation—the use of new technology to create new products and services—is crucial to the growth of firms and economies. Technological innovation creates entirely new markets and improves the quality of products while also reducing prices. Thus, innovation simultaneously drives economic growth while improving consumer welfare. Firms at the leading edge of innovation also tend to dominate world markets and promote the international competitiveness of their home economy. Innovation also enables the creation of rent generating patents that can help corporations and entire countries. Thus, Governments throughout the world have realized the importance of innovation.

We posit that the innovativeness of consumers is a primary driver of the adoption and diffusion of new product in a country and thus of the economic vitality of that country in the global market place. Indeed, our past research indicates that the takeoff of new products varies dramatically by country (Tellis, Stremersch and Yin 2003). However, current measures of economics and culture do not explain all of these differences. In particular, Hofstede’s four measures of culture, which are the most commonly used in cross-cultural research, are at best weak predictors of inter-country differences in takeoff of new products.

We hypothesize that the real differences in the takeoff and penetration of new products across countries is consumer innovativeness-consumers’ propensity to adopt new products. Ironically, despite decades of research, this construct has not been studied in a systematic manner across the major economies of the world, especially those of America, Europe, and Asia.

Based on past studies, this study first develops a list of about 12 constructs and 60 items to measure innovativeness. With the help of four sequential pre-tests in four different countries, the authors then pared down this bank of items to an 11-item scale for consumer innovativeness. The authors took care to account for acquiescence, dis-acquiescence, extreme responses, midpoint responses, and social-desirability bias (Steenkamp and Baumgartner...
The scale was translated and back-translated into eight different languages. The authors then used the scale to assess the innovativeness of about 400 respondents in each of 16 leading economies of the world.

Covariates included 6 demographic variables (income, age, education, gender, children and mobility), 4 cultural variables (country, language, ethnicity, and region of residence) 10 covariate to measure differences in innovativeness across categories, and 11 items to measure adoption of new products, and 2 items to measure social desirability bias. Social desirability bias was clearly present in about 10 percent of the sample. This was factored out using methods factors in some analyses. In other analyses, these observations were dropped.

We used regression analysis to determine the effect of demographics and country or origin on innovativeness. We used factor analysis to probe underlying factors and a basis for summarizing the data. We used the adoption of new products by panelists and the penetration of new products in various countries, to validate the innovativeness scale. We added the scores on the 11 items of innovativeness to form a composite measure of individual-level consumer innovativeness.

There are systematic differences in innovativeness across countries. These differences account for 12 percent of the variation in innovativeness. There are five strong and highly significant demographic predictors of individual level innovativeness: gender, age, education, income, and mobility. These factors explain about 13 percent of the difference in innovativeness. These characteristics combine to provide a profile of the global innovator. Even after controlling for these factors in a multivariate regression, countries differ systematically in the proportion of individual level innovativeness. The measure of innovativeness bears a strong correlation to self-reported adoption of new products, after controlling for social desirability bias.

We used the proportion of highly innovative consumers, on this individual-level innovativeness scale, to develop an index of country-level innovativeness. We weighted the sample to make it representative of the population in each country, on the age, income and education variables. There are systematic differences in proportion of innovators across countries. Surprisingly, some major world economies are not that strong on innovativeness. The country level measure of innovativeness bears strong correlation to market reports of the penetration of new products in countries today.

“The Role of Positioning in Building Evolutionary Bridges for Revolutionary Products”

Steve Hoeffler, University of North Carolina at Chapel Hill
Page Moreau, University of Colorado at Boulder
Claudia Kubowicz, University of North Carolina at Chapel Hill

The goal of our research is to study how marketers can better position really new products for consumers. There are two key theoretical ideas examined in this research program. The first is the idea that what makes products “really new” for consumers is consumers’ difficulty or uncertainty in predicting the future utility of a new product (Hoeffler 2003). Since consumers are not familiar with the product, they are unable to predict how they will use the product and the benefits they will derive from using the product (Lehmann 1997). Therefore, our first goal is to gain a better understanding of how consumers predict the future utility of really new products (RNP). The second theoretical idea is that information obtained during preference measurement can be used to reposition or redesign products so that the benefits on which they are positioned are associated with less consumer uncertainty. It is our belief that positioning based on less uncertain, and more familiar features will lead to faster adoption in the marketplace. Specifically, information obtained during preference measurement can be used to reposition or redesign products so that the benefits on which they are positioned are associated with less consumer uncertainty (Gatignon and Robertson 1991). The information about uncertainties in predicting utility is used to position the RNP so that the target market can readily understand and estimate the core benefit provided by the product (Moreau, Markman, Lehmann 2001).

The inherent newness of RNPs gives companies greater latitude in terms of the number of different positioning strategies that could be used to communicate the core benefits of the RNP. If companies don’t understand consumers’ uncertainty about the benefits of a RNP, then they may be positioning their product based on attributes and benefits consumers don’t understand or fully appreciate. In fact, we would argue that companies that develop technologically sophisticated products have a tendency to position based on the newest attributes and benefits. These may be precisely the types of benefits for which consumers have the highest level of uncertainty. Two completed studies are briefly described below.

Study 1: Partitioning Sources of Uncertainty: The goal of our first study was to explore the types of uncertainty that appear to drive the difficulty of measuring preferences for RNPs. In this study, we measured the types of uncertainty for some of the major sources of uncertainty identified during pilot studies and prior literature on new product adoption. We included scale measures associated with the following subcomponents of uncertainty: usage uncertainty, performance uncertainty, network externality uncertainty, switching cost uncertainty, learning curve uncertainty, price change uncertainty, symbolic uncertainty, and affective reaction uncertainty. Our hypothesis was that there will be higher uncertainty for each component tested for RNPs than INPs.

Ninety participants evaluated one member of 4 product categories, which was either incrementally new (INP) or really new (as identified in a pretest). The following products were used: TV (INP: Progressive Scan TV, RNP: 3D TV); Computer Display (INP: GLV Flat Screen, RNP: Roll-Up Display); Car (INP: Fuel Cell, RNP: Automatic Car); Camera (INP: Digital Camera, RNP: 3D Camera).

The results of this study confirmed our hypothesis that participants had greater levels of uncertainty for RNPs than INPs. In addition, this study included a more refined look at the types of uncertainty that consumers have when estimating their utility for a RNP. Five of the eight types of uncertainty tested had higher levels of uncertainty for RNPs than INPs (performance uncertainty, network externality uncertainty, switching cost uncertainty, symbolic uncertainty, and affective reaction uncertainty).

Study 2: Evolutionary versus Revolutionary Positioning for Really New Products: While the focus of our first study was on understanding uncertainty and how consumers behave during the potential adoption of RNPs, the goal of our second study was to shift the focus from understanding uncertainty to incorporating that understanding into positioning. The aim of study 2 was to incorporate knowledge learned during measurement about the sources of uncertainty in predicting utility into the task of improving the positioning and communication strategies for RNPs. Study 1 showed that when consumers had a low level of uncertainty associated with the anticipated benefits of a product they also tended to have higher benefit importance levels and higher purchase intentions. In this study we predict a main effect of positioning on purchase intention. Thus when a digital camera is positioned on the lower uncertainty attribute/benefit combination (costless preview) subjects will have higher levels of purchase intention.

Eighty-two participants saw a print advertisement for a digital camera, either positioned with low or high levels of uncertainty.
Each ad presented the title “Pentax Presents the System 3000 Digital Camera” with a corresponding picture of a Pentax digital camera and a list of benefits. Each ad listed the same five benefits. The positioning manipulation was performed by listing a benefit first and in a larger font size. For the high uncertainty positioning, the phrase “Store and manipulate images like a pro with the new System 3000 Digital Camera” was listed first. For the low uncertainty positioning, the phrase “Costlessly preview pictures before having them professionally printed with the new System 3000 Digital Camera” was listed first. In both ads, three common attributes/benefits were listed. The last attribute/benefit listed was the corresponding attribute not used in the positioning. The key to the design was that the total amount of information was held constant and the positioning was manipulated only by salience.

The key result predicted was a main effect of positioning on purchase intention. Indeed, we found that subjects who viewed the ad with the low uncertainty positioning had higher levels of purchase intention that subjects who viewed the ad with the high uncertainty positioning.

“Identifying and Using Emergent Consumers in Developing Radical Innovations”

Donna L. Hoffman, Vanderbilt University
Praveen Kopalle, Dartmouth University
Thomas P. Novak, Vanderbilt University

The challenge for the many consumer goods firms looking to develop and market radical innovations is to learn which consumers might be the “right” ones they should be talking to and how they might use them to further develop their concepts and improve their chances for success in the marketplace. Little research has focused on which consumers to use in the new product development process, particularly in the consumer goods industry. This is important because consumer packaged goods industry is the least radical in nature (Govindarajan and Kopalle’s 2003). Thus, the goal of this project is to develop a methodology to identify these “right” consumers. We call them “emergent consumers” and propose that identifying and using them for concept development in the consumer goods and services industries can: 1) aid in the successful development of radical new product concepts, 2) improve the chances of success in the marketplace for such innovations, and 3) help predict their acceptance by mainstream consumers. Identification of emergent consumers complements current concept testing methods and provides an “early warning system” for radical innovations targeted at typical consumers.

Two theoretical streams are relevant to our problem. A considerable body of research has differentiated two types of information processing thinking styles: experiential and rational styles (e.g. Epstein 1994; Pacini & Epstein 1999; Sloman 1996; Smith and DeCoster 2000). Research has also revealed individual differences in these two thinking styles (Epstein, Pancini, Danes-Raj, and Heier 1996; Pancini and Epstein 1999; Norris and Epstein 2003a, 2003b) and has shown that experiential thinking correlates with a number of measures of creativity, while rational thinking does not (Norris and Epstein 2003b). This suggests that experiential consumers are also more creative and have more imagination, in addition to being more holistic, associative processors compared to average consumers.

Self-organization among certain individuals, say experiential consumers, is a process by which, under a particular set of conditions, global patterns emerge based on numerous local interactions among the individuals, and the rules specifying interactions among the individuals are executed using only information from the local interactions (Camazine, et. al. 2001). Emergence refers to a process by which a system of such interacting individuals acquires qualitatively new properties that cannot be understood as the simple addition of their individual contributions. The sum is more than the parts.

We propose that “emergent consumers” develop an intuitive, almost “instinctive” understanding of a radical innovation through a sequence of small scale, affective, and associative interactions. They are able to create this “global pattern” because they possess a high degree of experiential processing ability. Emergent consumers need not be the most innovative, nor possess the most expertise. Given their experiential nature, the holistic interplay among emergent consumers in a new product development context produces a radical innovation that will, in general, be more attractive to mainstream consumers relative to one that is produced by average, mainstream consumers themselves or consumers are high on innovativeness.

In a pilot study of 93 consumers, we measured several constructs of consumer innovativeness and information processing style. An exploratory principal component analysis showed that innovativeness, rational processing style, and experiential processing style are independent constructs. Thus, experiential processing style, which we theorize is a characteristic of a consumer’s emergent nature, is a separate dimension from innovativeness. We also provided respondents with a concept description and series of five questions about the SmartBox (a radical innovation for the home delivery of goods) and asked them to rate their interest. Results of regression models predicting responses to each of these five questions from factor scores for the three principal components showed that for all five questions, experientiality was a significant predictor of the extent to which consumers state they want the new product. Innovativeness, on the other hand, was only significant for one of the five questions (“use” conditional upon adoption), and rationality was not significant for any of the five. These results support our theoretical framework.

We are now conducting a calibration and validation study using standard psychometric procedures (Novak, Hoffman and Yung 2000) in which we are: 1) measuring structural relationships among a broad range of theoretical constructs related to innovation and thinking style, well as optimum stimulation level, susceptibility to normative influence, introspection, lead user status, creativity, product category involvement, and expertise; 2) fitting a series of confirmatory factor analysis models on calibration and validation subsamples to further refine the measurement of the emergent nature, lead user and innovativeness constructs; and 3) predicting response to both the SmartBox concept and an incremental innovation concept from emergent nature, lead user status, and innovativeness. A sample of 1000 respondents from the eLab Online Panel will be randomly split into equal calibration and validation subsamples. We hypothesize that scores on scales for experientiality, introspection, creativity, and imagination will load together on a factor that defines a consumer’s “emergent nature” and that orthogonal factors for rationality and innovativeness will again emerge. A second study will demonstrate how emergent consumers can be used in the concept development stage. Four groups of consumers (each high in one construct and average on the other two, plus one control group average on all) will be asked to further develop the SmartBox radical new product concept in a moderated electronic chat room/discussion board for four sessions of about 45-60 minutes over a four week period. Activities will include basic brainstorming, idea generation and “information pump” exercises (Dahan and Hauser 2002). Modified new product concepts will be prepared from each group and given to a sample of 250 mainstream consumers drawn from the Study One sample.
Respondents will rate the likelihood of adoption of each of the four new product concepts and we will test the main hypothesis that new product concept developed by emergent consumers for the radical innovation is significantly different from and evaluated more favorably relative to concepts developed by the other groups.

REFERENCES


