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Identifying and Using *Emergent Consumers* in Developing Radical Innovations*

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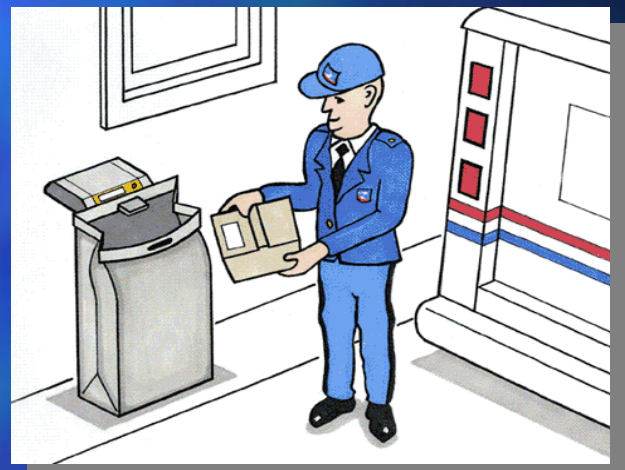
*Joint work with Professors Praveen Kopalle (Dartmouth) and Tom Novak (Vanderbilt) and Mr. David Porter (SmartBox)

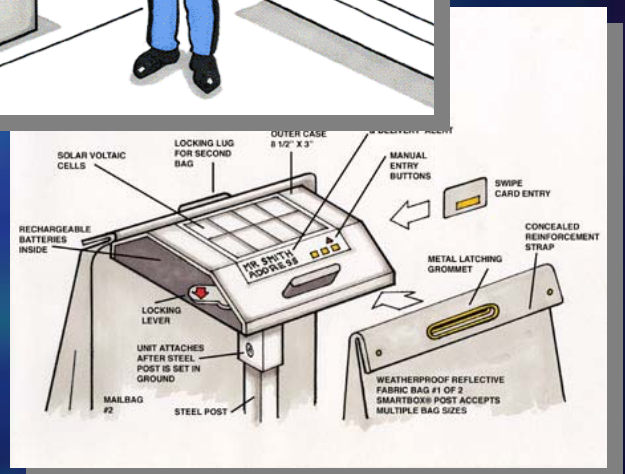
Overview

- The "Right" Consumers for Concept Development
- Some Theory
- Overview of our Methodology
- Pilot Results
- Design and Anticipated Effects of the Lab Studies
- Appendix: eLab

A Really New Product Concept

The "SmartBox" – a really new product (or radical innovation) relative to how consumers currently accept delivery of goods at home (Borrus 2000; Porter 2004; Tam 2002)





"Average" consumers may lead firms astray

- The problem is not unique to David Porter and his SmartBox.
- In general, mainstream consumers find it hard to estimate the usefulness of a radical innovation relative to incremental innovations (Hoeffler 2003).
- Firms focus on these typical consumers and then abandon innovations when those consumers exhibit preference uncertainty for the innovation (Christensen 1997).
  - ✓ AT&T and the cell phone! (Economist 1999)

Average consumers may not be "right" for development of radical innovations

- Researchers have long noted that the average, mainstream consumer is not that useful in developing really new products (Griffin 1996; Hoeffler 2003).
- Much research has emphasized improving current new product concept techniques, e.g., mental analogies (Dahl and Moreau 2002; Hoeffler 2003), visual depiction and animation (Dahan and Srinivasan 2000), Web based testing (Dahan and Hauser 2002), and conjoint analysis (Green, Krieger, and Vavra 1997),
- But very little research has focused on *which* consumers to use in the new product development process, particularly in the consumer goods industry.

Lead User Approach in B2B Settings

- Lead user approach for idea generation:
  - ✓ Use expert customers with an early awareness of their needs in the idea generation stage of new product development, has been applied in a business-to-business setting (von Hippel 1986);
- Using particular, as opposed to mainstream, consumer groups, for developing and testing radical new products in consumer settings has not received nearly as much attention.

Trends Suggest Room for Improvement

- Problem is pressing in consumer packaged goods – the least radical among six industries studied (Govindarajan and Kopalle 2003):
  - ✓ average consumers probably more suited for incremental innovations.
- Given the high new product failure rate (Goldenberg, Lehmann and Mazursky 2001) – because most are incremental? – it's worth asking:
  - ✓ Are some consumers better than others when it comes to developing concepts and improving their chances for marketplace success?

Who are the "right" consumers to help develop radical concepts?

- *"Emergent Consumers:"*
  - ✓ Consumers who exhibit the ability to process information in a dominantly experiential way and that the interactions among such individuals will, in a new product development context, produce a radical innovation that mainstream consumers will find more appealing and be more likely to adopt relative to one that is developed by mainstream or innovative consumers.
- Identifying and using such consumers in the concept development stage of developing radical innovations in the consumer goods and services industries can:
  - ✓ aid in the successful development of radical new product concepts,
  - ✓ improve the chances of success in the marketplace for such innovations,
  - ✓ help predict their ultimate acceptance by the mainstream customers.

Goals and Research Questions

- How can we identify emergent consumers?
  - ✓ This answers *who* firms should talk to first when testing new consumer products that represent really new ideas.
- How can emergent consumers be used at the concept testing stage to improve the subsequent new product development process with a firm's mainstream consumers?
  - ✓ This answers *how* firms can extract and incorporate key feedback from emergent consumers.
- Complements current concept testing methods mentioned earlier.
- May act as an "early warning system" since some radical innovations may be disruptive

Goals…

- Answers to our research questions are important because firms find it hard to develop radical innovations, particularly those that may actually disrupt the products being used by typical customers (Ahuja and Lampert 2001; Chandy and Tellis 2000).
- And while it's clear that firms should adopt a positive orientation toward emergent customer segments in order to develop innovations (Christensen 1997; Govindarajan and Kopalle 2003), it is not clear how firms can identify such customers.

Numerous Approaches Influence Concept Development and Testing

- Product-based templates that help specify the final pattern of an innovation and steer the pattern formation process (Goldenberg, Mazursky, and Solomon 1999).
- Disaggregate need-propagation models (e.g. Goldenberg and Efroni 2001) based on innovation diffusion categories (Rogers 2003).
- Trait-based constructs to evaluate the potential success of an innovation, e.g. innovativeness defined as a predisposition of consumers to *buy* new and different products (Midgley and Dowling 1978), within a population.
- Engineering approaches, e.g. lead users (von Hippel, Thomke, and Sonnack 1999; Thomke and von Hippel 2002; von Hippel and Katz 2002).

Consumer Innovativeness

- Important to distinguish between the operational definition of innovation adopter categories (Rogers 2003) - obtained ex-post product introduction - and the underlying disposition of consumer willingness to buy new and different products (Midgley and Dowling 1978 and Steenkamp, ter Hofstede, and Wedel 1999).
- Since consumer innovativeness correlates positively with personality traits such as extraversion, risk taking, and tolerance for ambiguity (Steenkamp et al. 1999), it makes sense to consider using consumers high on innovativeness in developing and evaluating new product concepts.

Lead Users

- Engineering-oriented approach suitable for industrial settings where the lead users are experts among the customer group of interest and able to articulate both needs and ideas for solutions (Lilien, et.al. 2002).
- Lead user definition (Lilien, et.al. 2002; Morrison, Roberts, and von Hippel 2000):
  - ✓ conscious awareness of their needs,
  - ✓ are motivated to innovate to satisfy those needs, and
  - ✓ experience those needs earlier than most in the market.
- The lack of studies of lead users in consumer settings suggests:
  - ✓ hard to identify lead users in a consumer market,
  - ✓ lead user status may not be trait-based.

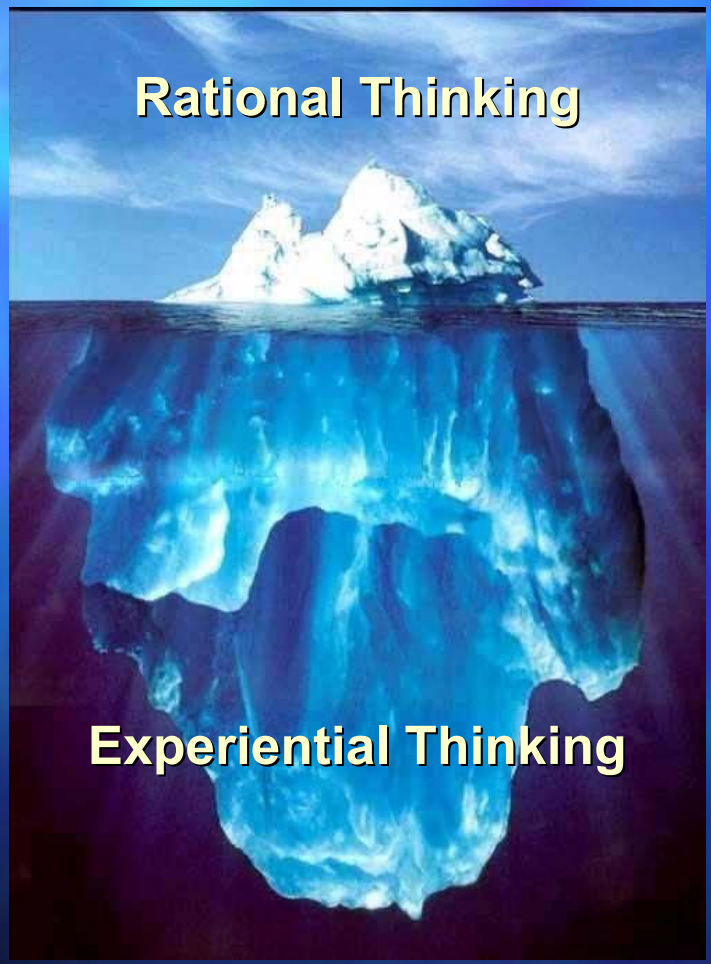
Some Theory

- Thinking Styles
- Self-Organizing Systems & Emergent Behavior
- Emergent Consumers

Thinking Styles

- **Dual processing theory** (Chaiken 1980; Epstein 1994; Sloman 1996) **can be used to understand consumer thinking styles.**
  - ✓ **People use two distinct, but interacting modes of thinking and evaluation:** experiential vs rational.
- **There are also individual differences in thinking styles, with consumers having a relative tendency to engage in rational versus experiential thinking** (Epstein, Pancini, Denes-Raj, and Heier 1996; Pancini and Epstein 1999; Norris and Epstein 2003a, 2003b).

Two Thinking Styles



Adapted from Epstein (2002, *ACR*)

Rational Thinking
High effort
Slower processing
Logical
Controlled
Analytic
Abstract symbols, words, numbers
Reason oriented

Experiential Thinking
Low effort
More rapid processing
Associative
Automatic
Holistic
Concrete images, metaphors, narratives
Affective

(Epstein 1994; Pacini & Epstein 1999; Sloman 1996; Smith and DeCoster 2000).

Thinking Styles and Creativity

- New research (Norris and Epstein 2003b) shows that experiential thinking style correlates with a number of measures of creativity, while rational thinking style does not.

- This suggests that experiential consumers are more creative, have more imagination, and are more holistic processors relative to average consumers.

Self-Organizing Systems

- *Self-organization*, say among experiential consumers, is a process by which patterns at an aggregate level emerge based on numerous interactions among the individuals:
  - ✓ rules specifying the interactions are executed using only local information, i.e., information from the interactions (Camazine, Deneubourg, Franks, Sneyd, Theraulaz, and Bonabeau 2001).
- Experiencing the process and outcome of interactions with others in the group guides further actions (Camazine, et.al. 2001).
- Self-organizing theory suggests that the members rely on local information because of the difficulty of obtaining complete global information in a reasonable amount of time (Camazine, et. al. 2001; Johnson 2001).

Emergent Behavior

- *Emergence* is the 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 (Camazine, et. al. 2001; Johnson 2001; Kelly 1994).
- The sum is more than the parts.

Emergent Consumers

- Camazine et al. (2001) – and many others - establish the scientific nature of the emergent property among individuals, where under a *particular set of conditions* a *global pattern emerges* over time.
- In the context of the new product development process, we propose that:
  - ✓ the resultant "global pattern" is a radical innovation that mainstream (or average) consumers will be likely to adopt.
  - ✓ The "particular set of conditions" under which the radical innovation develops is brought about through the various interactions among emergent consumers.

Emergent Consumers…Definitions

- We argue 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 do this because they possess a high degree of experiential processing ability.
- Emergent consumers need not be the most innovative, nor possess the most expertise:
  - ✓ However, they are the consumers best able to develop a "global pattern" of the radical innovation via experiential, holistic processing and interaction with other such consumers.
- The interactions among emergent consumers are based on simple rules of thumb requiring only limited access to global information, e.g. . the extent to which a radical innovation may eventually diffuse through the mainstream consumers.

Emergent Consumers…Theory

- Interactions consist of objective information regarding the innovation and also affective responses:
  - ✓ impressions of how it could be used, feelings about the innovation, or associative connections the innovation invokes in consumers' minds.
- Emergent consumers build the innovation based on their interplay.
- The required condition for pattern emergence (i.e. an innovation desired by the mainstream) is interaction among consumers who possess the ability to process information experientially, not typical, mainstream consumers.
- The pattern of the radical innovation developed by emergent consumers emerges or evolves in such a way that the innovation has a higher likelihood of success with the mainstream consumers.

Emergent Consumers Possess An Experiential Thinking Style

- The interplay among emergent consumers in a new product development context will produce a radical innovation that will be more attractive to mainstream customers relative to one that is produced either by:
  - ✓ average, mainstream consumers or
  - ✓ consumers who are high on innovativeness.
- The emergent consumers' self-guided, experiential nature is ideal for developing radical innovations (as opposed to incremental innovations), which might, over time, even replace the products that mainstream customers currently use.
- Pursuing innovations in conjunction with emergent consumers could help firms solve the puzzle of how to develop innovations that mainstream consumers might initially reject but will eventually find attractive (Christensen 1997).

Emergent Consumers Drive Innovation Toward Mainstream Acceptance

- Emergent consumers, due to their creativity, imagination, holistic and experiential thinking, can help drive an innovation in a direction that mainstream customers will value in the future:
  - ✓ As a corollary, radical innovations *may cause new behaviors to emerge*, such that the mainstream consumer then sees the corresponding benefits of the new emergent behavior, and adopts the behavior.
- So, firms need a way to identify emergent consumers, elicit their ideas, and develop the innovation accordingly.

Emergent Consumers are Not Lead Users

- Emergent consumers:
  - ✓ Experiential
  - ✓ Do not have to be experts in the product category,
  - ✓ Help develop the innovation via simple, local rules.
  - ✓ The emergent consumer approach is experiential in nature and highly suitable for consumer settings.
  - ✓ The corresponding interaction results in an innovation that mainstream consumers would like in the future - might even be harder to predict up front what the final "pattern" might look like.
- Lead user status:
  - ✓ Experts among the user group
  - ✓ Product-category specific, not trait-based,
  - ✓ Clearly goal-directed, as lead users are highly motivated to find solutions to their unmet needs (Lilien, et. al. 2002).
  - ✓ Do not differ significantly from non-lead users on the Myers Brigg's scales of "sensing/intuition," "thinking/feeling," or "judging/perceiving." (Lilien, et.al. 2001).
  - ✓ Do not appear to possess a unique thinking style that underlies their "lead user-ness."
  - ✓ Approach is engineering-oriented suitable for industrial settings (von Hippel and Katz 2002; von Hippel et al. 1999),

Methodology Overview

- Comprehensive calibration and validation phase to support our understanding of the emergent consumer and related constructs:
  - ✓ scale development, construct measurement, and structural equation modeling.
- Laboratory studies to assess:
  - ✓ reactions of emergent, lead user and innovative consumers to a set of radical and incremental innovation concepts; and
  - ✓ whether emergent consumers are more effective in developing radical innovations that are more desired by mainstream consumers.
- A pilot test demonstrates preliminary support for our theoretical framework.

Pilot Test

- N=93 consumers drawn from the eLab panel.
- Measured sets of constructs related to:
  - ✓ innovativeness (exploratory acquisition of products, exploratory information seeking, dispositional innovativeness, impulse buying, and market mavenism), and
  - ✓ information processing style (experientiality, rationality, and visual/verbal processing).
- Concept test to evaluate the relationship between the constructs and adoption.
- Research Questions:
  - ✓ Are constructs independent?
  - ✓ Does thinking style relate to adoption?

Innovativeness Scales

Scale:	Alpha:	Source:
Exploratory Acquisition of Products (EAP)	.877	Baumgartner and Steenkamp (1996)
Exploratory Information Seeking (EIS)	.825	
Dispositional Innovativeness (DI)	.852	Steenkamp and Gielens (2003)
Impulse Buying (IB)	.926	Rook and Fisher (1995)
Market Mavenism (MM)	.573	Steenkamp and Gielens (2003) Market mavenism was measured by four items, adapted from Feick and Price (1987). Original scale has 7 items.

Processing Scales

Scale:	Alpha:	Source:
Experiential Ability (EXPA)	.795	Norris and Epstein (2003a)
Experiential Favorability (EXPF)	.761	
Rational Ability (RATA)	.814	
Rational Favorability (RATF)	.804	
Verbal Processing (VERBAL)	.794	Childers, Houston, and Heckler (1985)

PCA for Innovativeness and Processing Style Scales

	Component: 1 Innova-tiveness	2 Rational-ity	3 Experien-tiality
DI Dispositional Innovativeness (DI)	.808	.126	.133
EAP Exploratory Acquisition of Products (EAP)	.800	.136	
EIS Exploratory Information Seeking (EIS)	.748		.177
MM Market Mavenism (MM)	.634	.254	
IB Impulse Buying (IB)	.591	-.310	.169
RATF Rational Favorability (RATF)	.111	.892	
RATA Rational Ability (RATA)		.844	.133
VERBAL Verbal Processing (VERBAL)	.428	.591	
VISUAL Visual Processing (VISUAL)	.315	-.382	.381
EXPF Experiential Favorability (EXPF)			.901
EXPA Experiential Ability (EXPA)	.150	.136	.887

Innovativeness and the Thinking Styles are Independent Constructs

- Previous research (Pancini and Epstein 1999) has demonstrated that rational and experiential processing represent orthogonal dimensions.
- As far as we know, this is the first empirical evidence that additionally shows that experiential and rational processing styles are both independent of innovativeness.
- Thus, experiential processing style, which we theorize is a strong correlate with the construct of a consumer's emergent nature, is a separate dimension from innovativeness as defined by the five innovativeness scales.
- Note that verbal and visual processing both correlate with innovativeness, and, consistent with prior theory, verbal processing correlates with a rational processing style and visual processing with an experiential processing style.

Pilot Concept Test

SmartBox Question:	Factor 1 (Innovative-ness)		Factor 2 (Rationality)		Factor 3 (Experien-tiality)	
	Beta	p-value	Beta	p-value	Beta	p-value
Product adoption:						
Assuming you would be provided with a free "smart" delivery box, and further assuming it could be located to the front, side, or back of your home or apartment (wherever you'd like), how likely is it that you would want one?	.125	.212	.181	.072	.264*	.010
Would you be willing to pay the cost of installation if it wasn't any more than, say, $100?	.118	.237	-.133	.185	.291*	.004
What if the cost of installation wasn't any more than $50?	.129	.207	-.127	.216	.210*	.042
What if the cost of installation wasn't any more than $25?	.172	.095	-.023	.820	.217*	.036
Use, conditional on product adoption:						
Assuming you had such a box, please estimate whether you would be more likely to order home-delivered goods (laundry, groceries, goods bought on the Internet, anything).	.263*	.008	.077	.430	.306*	.002

Pilot Concept Test Results

- For all five questions, experientiality has a significant effect on 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.
- The pilot study thus shows that the consumers most likely to adopt the new product concept are indeed experiential processors.
- In the context of developing radical innovations that have the potential to disrupt products that mainstream customers use, an emergent set of experiential consumers would initially like the concept more than average, mainstream users.

Study One: Calibration and Validation

- Measure the structural relationships among the theoretical constructs.
- Fit a series of confirmatory factor analysis models to further refine the measurement of the emergent nature, lead user and innovativeness constructs.
- Predict preference for radical and incremental innovations from emergent nature, lead user status and innovativeness.

Study One: Measures

- Broad set of measures related to innovation and processing style, including all of the thinking style, processing and innovativeness measures from the pilot, plus:
  - ✓ optimum stimulation level (Steenkamp and Baumgartner 1995),
  - ✓ susceptibility to normative influence (Steenkamp and Gielens 2003),
  - ✓ introspection (Fenigstein, Scheier & Buss, 1975),
  - ✓ lead user status (Morrison, Roberts, and von Hippel, 2000)
  - ✓ creativity (e.g. Christensen, Guilford, Merrifield, & Wilson, 1960; Christensen, Merrifield, & Guilford, 1958; Lawshe & Harris, 1957),
  - ✓ product category involvement, and
  - ✓ expertise (e.g. Kopalle and Lehmann 2001).

Study One: Measures…

- Three subscales of experientiality – intuition, affectivity, and imagination – will be measured (Norris and Epstein, 2003a).
- Consumers will be provided with descriptions of a radical innovation (the SmartBox will be used in this context) and an incremental innovation.
- Dependent variables include interest level and new product novelty (Moorman 1995).

Study One Measures…

- A lead user status scale specific to the SmartBox consumer context will be constructed that incorporates the following characteristics (Lilien, et.al. 2002; von Hippell 1986; von Hippel, et. al. 1999; Urban and von Hippel 1988):
  - ✓ actively engages in a broad range of activities related to the delivery of consumer goods to their home and workplace (category specific expertise),
  - ✓ expects that adoption of the innovation will address their needs and provide clear benefits, and
  - ✓ experiences these needs ahead of the general population.

Study One: Method

- Respondents will be randomly sampled from the eLab Online Panel to achieve N=1000 and randomly split into calibration and validation subsamples of 500 respondents each.
- Standard psychometric procedures as a first step in assessing the structural relationships among the various constructs in the calibration sample (Novak, Hoffman and Yung 2000).
- Structural equation modeling to formally test the fit of confirmatory factor analysis models, and further refine the measurement of emergent nature, lead user, and innovativeness constructs (Andersen and Gerbing 1988).
- Fit of the final structural model, using reduced item sets across the relevant scales, will be assessed in the validation sample.
- The outcome will be individual level scores on the construct of emergent nature (there may possibly be subscales for this construct), as well as scores on additional constructs including innovativeness, lead user status, and rationality.

Study One: Hypotheses

- Emergent nature will be defined by experiential processing style, introspection, creativity, and imagination.
- Rationality, innovativeness and emergent nature will be orthogonal.
- Emergent status will predict both interest in and intention to adopt the radical innovation concept.
- Innovativeness will be predictive of the incremental innovation concept, but not the radical innovation concept.
- Will test for lead user effects. Lack of in-depth examination of the characteristics of and identification of lead users, particularly in the consumer market (Morrison et al. 2000) makes prediction difficult.
  - ✓ We expect that lead user status will relate to innovativeness and rationality – potentially defining an additional independent construct .

Study Two: Concept Development

- Four different consumer groups will be instructed to further develop the SmartBox concept so that a typical consumer would like it.

	Emergent Nature	Innovativeness	Lead User Status
Group 1	High	Average	Average
Group 2	Average	High	Average
Group 3	Average	Average	High
Group 4 (control)	Average	Average	Average

- Each group will meet in a moderated electronic chat room with discussion board for four 45-60 minute sessions over 4 weeks.
- Goal: generate innovative and distinctive descriptions and use of the concept using basic creativity tasks (Goldenberg and Mazursky 2002) and structured Web-based user design exercises (Dahan and Hauser 2002).

Study Three: Can Emergent Consumers Develop Successful Concepts?

- Are emergent consumers more effective relative to the other groups in developing radical innovations that mainstream consumers find appealing?
- Within-subject design will use the four modified new product concepts from each of the four groups.
- 250 mainstream consumers (i.e., within one standard deviation of the mean on emergent nature, lead user status, and innovativeness) drawn from the original 1,000 respondent combined calibration and validation sample will rate the likelihood of adoption of each of the four new product concepts.
- Key hypothesis: Emergent consumer concept most closely represents the "global pattern" that mainstream consumers would be most likely to adopt.
- Multivariate model to test.

Substantive Contributions

- Draws on psychological theories of human information processing and self-organizing theory in biological systems to introduce the idea of emergent consumers:
  - ✓ identify their important role in the new product development process for radical innovations in consumer markets.
- Develop a new methodology for the identification of emergent consumers and show how such consumers can be used in the concept development phase of new product development for radical innovations:
  - ✓ improve targeting of the broader mainstream consumer and improve opportunities for new product success in the marketplace.

Potential Managerial Impact

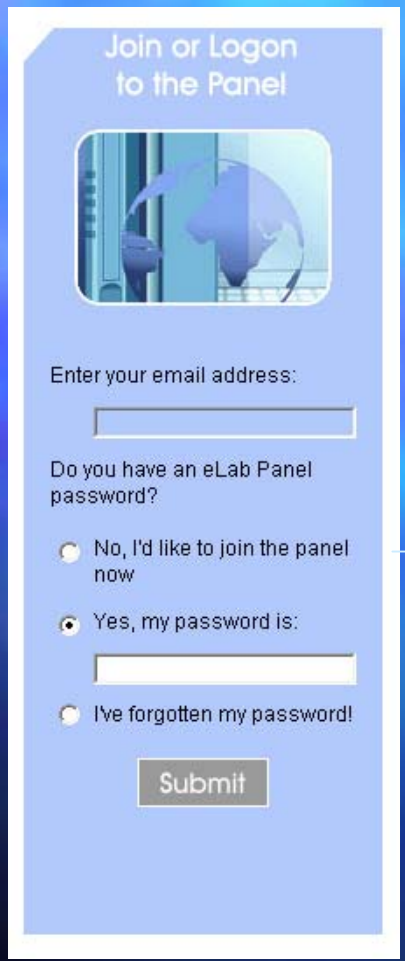
- Addresses why firms should not seek input first from its average, mainstream consumers in developing radically new products.
- New product concepts developed and modified in conjunction with emergent consumers may actually have a higher likelihood of ultimate success with the mainstream customer base.
- Distinguishes emergent consumers from lead users, Roger's (1962; 2003) classic innovation adopter categories, and distinguishes the emergent consumer construct from the construct of dispositional innovativeness (Steenkamp and Gielens 2003).
- David Porter's SmartBox concept presents the opportunity for a unique and exciting application of our proposed methodology.
- More generally, we expect this methodology may influence business practice where radical innovations are concerned.

Appendix: eLab Details

eLab Panel – Attracting Panelists

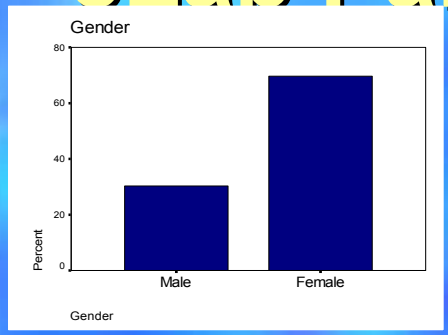
- Primary panelist recruiting sources:
  - ✓ Links on sites that provide directories of surveys and contests.
  - ✓ Email solicitations from lists provided by corporate partners.
  - ✓ Online discussion group postings.
  - ✓ Direct (internal) links from the eLab site.
  - ✓ "Refer-a-Friend" program (word of mouth).
  - ✓ eLab's 1-800 Number game.
  - ✓ Search engine optimization to direct targeted Web searchers to our panel sign-up page.
- Panelist incentives:
  - ✓ Monthly $250 prize drawing for all registered panelists.
  - ✓ Additional minimum $100 prize drawings for participation in experiments.
  - ✓ Panelists can earn additional chances of winning prizes by completing experiments and referring new panelists. One panelist has increased their chances of winning by a factor of 37!

eLab Panel – Attracting Panelists

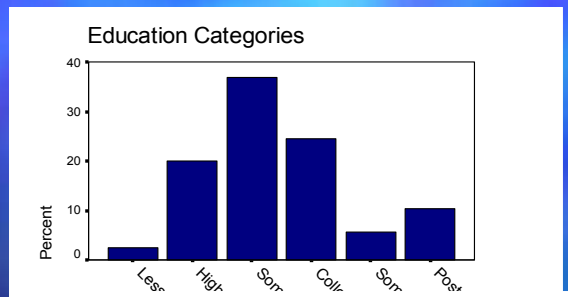


- ✓ Must be age 18+.
- ✓ Newly registered panelists must respond to our confirmation email to become an Active Panelist.
- ✓ 91% do respond and confirm their email address. The 9% who do not confirm their email address are dropped from the panel.
- ✓ We collect very limited optional demographic data at signup. 97% provide this data.

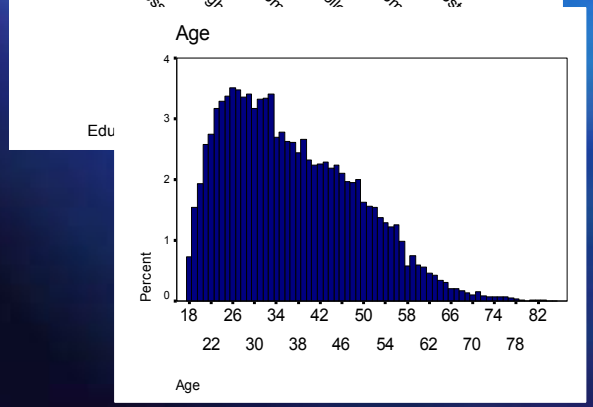
eLab Panel - Demographics



- ✓ Almost 70% of our panelists are women. Women tend to be more willing to cooperate with Web surveys than men.



- ✓ Panelists tend to be well educated. Still, 25% have a high school degree or less.



- ✓ Somewhat young age skew, ages 25-34 most prevalent. (*Not "college kids").* Still, one-third of sample is over age 40.

eLab Panel – Demographics

Panelists come from 95 different countries, but the vast majority are from English speaking countries:

79%	United States
7%	Canada
4%	Australia
3%	United Kingdom
1%	India
.4%	New Zealand

All other countries are .2% or less.

Albania, Algeria, Angola, Antigua, Argentina, Australia, Austria, Bangladesh, Belarus, Belgium, Bosnia, Brazil, Bulgaria, Canada, Chile, China, Croatia, Denmark, Dominica, Ecuador, Egypt, Estonia, Finland, France, Germany, Ghana, Greece, Grenada, Guatemala, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Korea (South), Kuwait, Latvia, Lebanon, Lithuania, Macau, Macedonia, Malawi, Malaysia, Malta, Mauritius, Mexico, Moldova, Nepal, Netherlands, Netherlands Antilles, New Zealand, Nigeria, Norway, Oman, Pakistan, Peru, Philippines, Poland, Portugal, Puerto Rico, Romania, Russia, Saudi Arabia, Singapore, Slovenia, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Taiwan, Thailand, Trinidad and Tobago, Tunisia, Turkey, Turks and Caicos, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Venezuela, Yugoslavia, Zambia.

eLab Panel – Participation Rates

- Cooperation rates over all studies average 53%.
- Within individual studies, cooperation rates have ranged from a low of 31% to a high of 74%.
- Cooperation increases with education level (47% less than high school vs. 57% postgraduate degree).
- To achieve these cooperation rates, we use up to three email notifications over a one week period. 65-75% of all responses, however, arrive within 2 days after the first email notification.

The Virtual Lab

- Respondents are randomly selected from the eLab Panel and emailed an invitation to participate in an online experiment.
  - ✓ Respondents are randomly assigned to experimental conditions, designs can be quite complex.
- Experiments
  - ✓ Take 1-3 weeks to program, depending upon complexity. Each is custom-built drawing on template components.
  - ✓ Collect rating scales, checklist, multiple choice, open ended questions. Can collect timing and browser/OS data.
  - ✓ Web-based experiments can also be conducted in our computer lab as appropriate.

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The Virtual Lab - Experiment Screen Shots

Web pages are dynamically generated for the specific combination of experiment conditions for a given consumer.

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TIP

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