

The Measurement of Innovativeness

Ronald E. Goldsmith¹ and Gordon R. Foxall²

¹ College of Business, Florida State University, USA

² Cardiff Business School, Cardiff University, Wales, U.K.

Abstract: Diffusion of innovations is a theory that describes the spread of new things through social systems as they are adopted or rejected by individuals. Innovativeness refers to interindividual differences in how people react to these new things and accounts for much of their success or failure. Innovators may welcome them; the majority may gradually adopt them; laggards either slowly or never adopt them. Thus, the measurement of innovativeness is an important activity for both theory testing and practical purposes. This chapter presents many of the current theoretical perspectives on innovativeness and describes the measures that reflect them.

Keywords: Innovativeness; Measurement of innovativeness; Interindividual differences; Diffusion of innovations.

Introduction

The way in which innovativeness is measured depends upon the intentions of the researcher and the conception of innovativeness that is driving his or her work. Only when these matters have been resolved can the measurement of innovativeness itself be considered. This chapter discusses each of these in turn. First, the reasons researchers would have for measuring innovativeness are addressed. These range from intellectual curiosity—the desire simply to find out—to practitioner concerns—the expectation that behavior can be modified by the application of knowledge. Second, the researcher's understanding of the nature of 'newness', 'change', and 'innovation' is addressed. The role of discontinuity in the definition of innovativeness is discussed, and the points are illustrated with material from research on innovativeness in industry, marketing, and consumer choice. The conceptualization of innovativeness as a trait or latent process as opposed to a behavior-based understanding of innovativeness is also raised. Third, the intellectually driven approach will be illustrated by the role of psychometrics in assessing innovativeness. Discussion follows on the relationship of innovativeness to: (a) personality; and (b) situations, and the measurement issues arising from each are examined. Global vs. situation-specific measures of innovativeness are compared. Both qualitative and quantitative approaches to measurement are con-

sidered, though issues of quantification are treated in greater detail.

Diffusion of Innovations

Diffusion theory describes how new things (such as new products) spread through a social system (Rogers, 1995). The diffusion of innovations has been and remains an important topic in marketing management and consumer behavior owing to the importance of new products to the health of many companies. As consumers make their individual *adoption* decisions, these aggregate to produce the timing and pattern of *diffusion*. Thus, adoption is an individual or micro decision process, while diffusion is a social or macro process. In diffusion theory, when the time of adoption of a new thing since its introduction is plotted as a frequency distribution, the result is a normal or bell-shaped curve. A cumulative plot of adoptions yields an S-shaped curve describing the spread of the new thing through the social system as increasing numbers (followed by decreasing numbers) of individuals adopt. Most discussions of adoption and diffusion are based on these basic principles.

The importance of diffusion theory was recognized by some of the first academics to describe consumer behavior as a topic of systematic study (e.g. Zaltman, 1965), and diffusion was prominently featured in some of the first consumer behavior texts (Engel, Kollat &

Blackwell, 1968; Howard & Sheth, 1969; Wasson & McConaughy, 1968). Diffusion continues to be an important topic requiring space in recent texts in both marketing management (e.g. Kotler, 2000) and consumer behavior (e.g. Hawkins, Best & Coney, 1998). A key element in diffusion theory is the concept of ‘innovativeness’. While there are several definitions, they all incorporate the notion that people differ in their reaction to the novel, ranging from quick acceptance to outright rejection. These concepts form the subject of this chapter.

What is an Innovation?

The term ‘innovation’ has many meanings. It can refer to the inventive process by which new things, ideas, and practices are created; it can mean the new thing, idea, or practice itself; or it can describe the “process whereby an existing innovation becomes a part of an adopter’s cognitive state and behavioral repertoire” (Zaltman, Duncan & Holbek, 1973, pp. 7–8). The first meaning is the domain of the New Product Development (NPD) process, an important aspect of marketing management (Thomas, 1993, 1995). Our concern is with the second and third of these meanings. We understand innovations to be things, ideas, or practices that are perceived to be new to the audience to which they are introduced (Rogers, 1995). How consumers react to them, whether they are adopted or not, and how rapidly they spread if adopted are the results of a decision-making process by individual adopters who are subject to a variety of influences both internal and external. The measurement of ‘innovativeness’ is important to this process.

Definitions of ‘innovation’ abound. This is because the concept of innovation appears in many different fields of study and social theories. In the area of high technology, for instance, we are told that “Innovation is the use of new knowledge to offer a new product or service that customers want. It is invention + commercialization” (Afuah, 1998, p. 13; see also Foxall, 1984). In the context of educational research (Evans, 1967, pp. 15–16) an innovation is described as having two subcomponents: “First, there is the idea or item which is novel to a particular individual or group and, second, there is the change which results from the adoption of the object or idea”. Evans adds an important qualification. “We would also include among innovations those items or ideas which represent a recombination of previously accepted ideas”. In high-technology businesses innovations can be totally new devices or ways of using devices, or they can be modifications of existing machines or processes (Foxall, 1988; von Hippel, 1988). Examples of medical innovations are a new drug, apparatus, or treatment (Coleman, 1966). Agricultural innovations are new seeds, fertilizers, equipment, or farm practices (Lionberger, 1960).

In the marketing context, new products are very important to the long-run success of a business. We can observe several different types of new products:

- Modifications—these are the venerable ‘new and improved’ versions of brands. They may be relatively minor changes, and they replace the existing version, which vanishes;
- Line extensions—These are different varieties of the product. They are new sizes, flavors, formulations, and packages that supplement the product line and sit side by side with the existing versions;
- Brand extensions—Companies execute brand extension strategies by putting a brand name onto products in a different category than the first;
- New Brands—In this instance, the product may be common, but the brand name is new;
- Innovations—We want to reserve the term ‘innovation’ to refer to a new-to-the-world product. It may replace an old version or sit beside it, but the product itself is unlike anything that has existed before.

In the marketing context, any of the first four types of new products may involve the fifth concept, but they do not have to in order to qualify as new products. That is, all innovations can be new products, but not all new products are innovations.

Thomas S. Robertson (1971, p. 7) proposed that new products could be arrayed along a continuum of “newness in terms of consumption effects” describing how continuous or discontinuous their effects were on established consumption patterns. This scheme described three categories:

- (1) A *continuous* innovation has the least disrupting influence on established consumption patterns. Alteration of a product is usually involved, rather than the creation of a new product. An example would be a new microwaveable snack food.
- (2) A *dynamically continuous* innovation has more disrupting effects than a continuous innovation. Although it still generally does not involve new consumption patterns, it involves the creation of a new product or the alternation of an existing one. An electric car is arguably ‘dynamically continuous’ owing to the relatively minor changes owners would make in fueling and driving patterns.
- (3) A *discontinuous* innovation involves the establishment of new consumption patterns and the creation of previously unknown products. The fax machine was discontinuous, as was downloading music as MP3 files.

Thus, the concept of ‘innovation’ is broad enough to cover new things in many domains and in many forms. But what does ‘new’ mean? By explication of this concept we can get a better idea of what innovations are all about.

One way of viewing this issue is to argue that newness implies at least three different qualities. The first is *recency*. Things are new when they are encountered or acquired recently (Richins & Bloch, 1986). Thus, consumers speak of the 'new car' just as if they describe the 'new baby'. A second aspect of newness is *originality*. Things are judged as new when they are unfamiliar because they are so original. 'That's new to me', we might say, upon viewing unfamiliar art or an unfamiliar product. Finally, newness is a function of *similarity* (Barnett, 1953). How similar or different a thing is from existing things of the same type lead to perceptions of newness. Fashionable clothing, for example, might be considered innovative in so far as it has only recently appeared in the marketplace, it is creative and original, and it is stylistically different from existing clothing.

Since newness is often in the eye of the beholder, it should be possible to measure perceived newness of innovations by measuring perceived recency of acquaintance, perceived originality, or perceived similarity to existing things. That is, the perceived recency, originality, or similarity of a stimulus may be assessed in much the same way, via semantic differential scales for instance, as researchers assess the perceived qualities of any other stimulus. It may be as important to measure 'perceived newness' as it is to measure innovativeness since these two constructs may interact as the adoption decision process proceeds.

Why Measure Innovativeness?

The measure of innovativeness depends in part on the motives of those doing the measurement and on the contexts of their measurement. In other words, investigators may want to measure innovativeness for different purposes. Thus, researchers may want an interval level measure of innovativeness as an individual difference variable, much like any other personality or intelligence measure; or they may want simply to categorize people into an 'adopter category'. This latter notion comes from Rogers (1995, p. 262) who used the bell-shaped distribution of adoption partitioned into its standard deviations from average time of adoption to form five categories of adopters:

- (1) innovators (the first 2.5% to adopt);
- (2) early adopters (the next 13.5% of adopters);
- (3) the early majority (34%);
- (4) the late majority (34%);
- (5) laggards (the last 16% to adopt).

Some researchers study diffusion theory, seeking to understand this social phenomenon in greater detail. They may, for instance, be trying to identify the influence that innovativeness has on other market-related phenomena, such as search for and processing of information, decision-making, or brand loyalty (Klink & Smith, 2001). Innovativeness may be incor-

porated into models as an independent variable, a moderator or covariate, or as a dependent variable. Multiple-item interval level measures facilitate the incorporation of innovativeness into structural equation models. Theory-oriented research emphasizes innovativeness measures that correspond closely to the way innovativeness is conceptualized for a specific theoretical context (Foxall, 1988). They will most likely want an interval level measure that possesses high levels of content and construct validity, and emphasize reliability, generalizability, or uniqueness. Ease of use and convenience may be sacrificed to attain these psychometric characteristics.

Other researchers have applied commercial reasons for studying innovativeness. They are trying to solve specific problems involving the spread of new things, especially new products. If members of the different adopter categories can be identified, even crudely as a tripartite classification of 'early adopters', 'majority consumers', and 'laggards', this information may help those responsible for developing strategies to promote or to retard innovation spread. While desiring the psychometric rigor of theory-oriented measures, they will likely put more emphasis on speed, simplicity, and ease of use. McDonald & Alpert (1999) describe six practical reasons for identifying innovators:

- (1) *To enlist the cooperation of innovators in refining and improving new products.* The idea of enlisting innovative lead users for new product ideas and evaluations is well established in industrial marketing (von Hippel, 1988) and in the marketing of consumer goods (e.g. McCarthy, 1998). We can suggest that a related reason for identifying innovators is that they may be able to identify new products that are destined to fail with cutting-edge buyers.
- (2) *To enhance the speed of new product diffusion in order to generate cash flow.* Thus, the innovators can be targeted for concentrated marketing effort designed to persuade them to adopt quickly. Marketing spending for a relatively small number of early buyers should be more productive than for the larger mass markets further along the diffusion curve. And because innovative consumers are relatively price-insensitive (Goldsmith & Newell, 1997) sales should yield greater gross margins.
- (3) *Early adopters promote new products to other buyers.* The diffusion process is driven largely by social communication or word-of-mouth (Gatignon & Robertson, 1991). Innovators play a key role in initiating this process as they provide positive role models and recommendations to later adopters. Finding them and cultivating their good will and good opinions will enhance the acceptance of the new product in the rest of the market.
- (4) *Early adopters are often heavy users of the product category.* While making up a minority of buyers,

heavy users account for a disproportionate share of sales and profits in most product fields (Hallberg, 1995), and the overlap between innovativeness and heavy usage is well documented (Goldsmith, 2000a; Taylor, 1977). Innovators are experienced consumers who have a level of product knowledge and expertise in consumption plus a degree of wealth that allows them to make earlier adoption decisions and to act on them. Their capacity to make adoption decisions relatively earlier and relatively quickly stems in large part from their being heavy users of the product category (Foxall, 1993).

- (5) *Early adopters help create a 'market leader' image.* Firms may want to be seen as market or product leaders, the source of breakthrough products that are the choice of the innovative consumer in their product field: "Product leaders have to prepare markets and educate potential customers to accept product that never before existed" (Treacy & Wiersema, 1995, p. 87). Identifying and understanding lead users (innovators) may be a key to success in this strategy.
- (6) *Some may want to stop the diffusion of an undesirable innovation.* "Not all innovations are good, and some are socially undesirable or destructive" (McDonald & Alpert, 1999). Agencies that want to inhibit the spread of undesirable innovations might start with identifying those innovative souls who would be the first to adopt them and target them with counter-adoptive strategies.

Companies or agencies wishing to measure innovativeness for one or more of these reasons are chiefly interested in identifying innovators (and membership in the other adopter categories). They wish to categorize consumers and may likely be willing to sacrifice content and construct validity for criterion-related (predictive) validity and easy of use and flexibility (adaptable to a variety of data-collection contexts, such as personal and telephone interviews). They may be able to classify innovators based on records of prior behavior and not need to conduct primary data gathering activities. Of course, innovativeness measures developed and used by one group of researchers might also be used by others; the distinction is not mutually exclusive.

Three Concepts of Innovativeness

The concept of innovativeness refers to interindividual differences that characterize people's responses to new things. There are at least three approaches to the conceptualization of innovativeness, each of which carries its own implications for the measurement of the construct: behavioral, global trait, and domain-specific activity. Each makes its own contribution to the purposes of the investigator and requires its own interpretation of the results it produces.

Behavioral

The behavioral perspective on innovativeness identifies the concept with the act of adoption. Consumers are thus designated as innovators or not depending on whether they adopt a new product or not. Moreover, the degree of innovativeness they possess depends on how quickly they adopt after encountering the innovation. This simple, time-based approach to the conceptualization of innovations has given rise to a more sophisticated behavioral approach to the diffusion of innovations, which emphasizes the external rewards available to consumers at each successive stage of the product-market life cycle (Foxall, 1993, 1994b). Conceived within a broader behavioral perspective approach to consumer behavior (Foxall, 1990), this depicts the behavior of the earliest adopters of new products (*consumer initiators*) as determined by the high levels of both utilitarian (functional, technical, economic) and symbolic (social, psychological) rewards available to the consumer at this initial phase of the life cycle. Only consumers with the appropriate learning history of innovative behavior are likely to purchase at this stage. Subsequently, *earlier* and *later imitators* are induced to adopt by patterns of reward that emphasize first the utilitarian and then the symbolic benefits of purchasing at that time. Finally, the *last adopters* venture into the market place when the benefits of adopting the 'new' item are obvious to all, and the alternative products these consumers have hung on to for so long have themselves disappeared from the market (Foxall, 1996).

Global Personality Trait

The global trait view argues that innovativeness is a type of personality trait. Personality traits are thought to be relatively enduring patterns of behavior or cognition that differentiate people. Innovativeness describes reactions to the new and different. These reactions range from a very positive attitude toward change to a very negative attitude. Across the population, these attitudes are hypothesized to follow a bell-shaped normal distribution (Rogers, 1995). In Jackson's (1976) personality theory, innovation exists along side other personality traits such as conformity, risk taking, or tolerance as one of a battery of traits that describe "a variety of interpersonal, cognitive, and value orientations likely to have important implications for a person's functioning" (Jackson, 1976, p. 9). Another example can be found in the Five Factor Model of Personality, which contains a trait called 'openness to experience' that has been described as "how willing people are to make adjustments in notions and activities in accordance with new ideas or situations" (Popkins, 1998). Costa & McCrae (1992) characterize openness as curiosity and a motivation toward learning. Hurt, Joseph & Cook (1977) describe innovativeness as a willingness to try new things

- (1) Global Innovativeness: A personality trait 'willingness to try new things'.
Related to other personality traits: risk taking, openness to experience. Of the demographic variables, only youth may be related. Only weakly related to any specific overt behaviors.
- (2) Consumer Innovativeness: Describes consumers who want to be the first to buy new products.
Related to other consumer characteristics: marketplace knowledge, opinion leadership, price insensitivity. Higher levels of income and gregariousness (cosmopolitanism) may characterize consumer innovators.
- (3) Domain Specific Innovativeness: Describes consumers in specific product fields who wish to be cutting edge, the owners of the newest products in the field.
Related to consumer characteristics: product-category knowledge, domain-specific opinion leadership, involvement in the product category, a heavy user of the product. May be characterized by specific demographic characteristics, such as age and gender, and these will vary by product category.

Figure 1. Conceptual levels of innovativeness.

(Goldsmith, 1991). This global trait can be compared to other traits at a similar level of specificity (e.g. Goldsmith, 1987).

Domain-Specific Personality Trait

An alternative to the global view of innovativeness suggests that while it is true that people can be differentiated in this way, for the purposes of prediction and explanation in marketing, it is useful to think also of innovativeness as a domain-specific characteristic. That is, consumers are thought of as being more or less innovative within specific product categories, such as a fashion enthusiast, a wine connoisseur, or a movie buff. Innovativeness does not overlap across product categories unless these are closely related (Goldsmith & Goldsmith, 1996). For example, the wine connoisseur may have no interest in new movies but may be enthusiastic about new restaurants; the movie buff may keep up with the latest in popular music but have no interest in new wines.

In this view, innovativeness may manifest itself at different levels of generality/specificity or abstraction/breadth (see Clark & Watson, 1995). A consumer may be characterized by an overall level of global innovativeness, and also by different levels of domain-specific innovativeness. Global innovativeness may be linked to domain-specific innovativeness (Goldsmith, Freiden & Eastman, 1995), but not necessarily (Foxall & Szmigin, 1999). Possessing higher levels of global innovativeness predisposes individuals to seek the new and different across many facets of life, and this influence may extend to consumption. The desire for the new and different may manifest itself in specific product domains where the individual is innovative, seeking the new and different products as they appear, but perhaps shunning newness in other product categories. Conceivably, a given product innovator may be generally conservative when it comes to new things in general.

Figure 1 summarizes the three concepts of global, consumer, and domain-specific innovativeness. Each is related to the lower level construct, but relationships

with overt behaviors grow stronger as one proceeds down the scale of specificity.

Three Ways to Measure Innovativeness

Behavioral

The behavioral perspective of innovativeness identifies the concept with: (1) adoption or non-adoption of an innovation; and (2) the time of adoption. Consumers are classified as innovators or non-innovators depending on their purchase (consumption) of a new product. They may alternatively be graded on their innovativeness by marking their time of adoption as measured from the instant the new product appears in the marketplace. This latter approach, termed the "temporal conception" of innovativeness (Midgley & Dowling, 1978), was for many years the most commonly used way to measure innovativeness. Unfortunately, trying to measure innovativeness by the time-of-adoption method has many flaws.

Theoretically, it confuses the behavioral phenomenon to be explained and predicted with one of the chief concepts employed to explain and predict it. That is, what social scientists often want to explain and predict is time of adoption, and one of the most theoretically relevant and powerful concepts used to explain and predict time of adoption is 'innovativeness'. Innovativeness is a hypothetical or latent construct. It refers to interindividual differences in personality. The relative recency with which a new product is adopted is a behavior that is partially explained by innovativeness: higher levels of innovativeness, *ceteris paribus*, lead to faster adoption. One would not use 'years married' as a measure of spousal affection, although the latter may explain and predict the former.

Methodologically, time of adoption is most appropriate as an indicator of precisely what it refers to: how much time passed since the new product was introduced before it was adopted. Even as an indicator of behavior, however, time of adoption is a fallible measure. The exact time when a new product is introduced into a specific market may be unknown.

There may be no record of purchase to show exact time of adoption. Moreover, consumers may not be able to accurately recall when they did adopt, and memory shortcomings are a well-documented flaw in many measures used in marketing research. There may be a difference between when the new product is introduced to the market and when the consumer learns about it. Although innovators are earlier to adopt than later consumers, there will be differences in the time between the appearance of a new product and when it is perceived. Finally, innovators may reject new products; non-innovative consumers may buy them. Not buying a new product because it is of poor quality, inappropriate for one's needs, or because one cannot afford it does not make an innovative consumer less innovative. A non-innovative consumer, for instance, may buy a new product as a gift for an innovator.

An alternative measurement technique proposed to overcome the shortcomings of time-of-adoption is termed the 'cross-sectional' method (Midgley & Dowling, 1978). This approach provides a list of new products, and level of innovativeness is indicated by how many of these the consumer has purchased. Not only does this measurement approach have many of the problems of the time-of-adoption method, but also it would seem to be indicative of the more global concept of innovativeness than of innovativeness in any specific product category, unless one limited the list of new products to a single category. (But what if there were few new products in the category, or they were widely spaced in time?) Determining which products are new and whether consumers were exposed to all of them (not all new products may be available in a specific market area) contribute to the methodological difficulties of measuring innovativeness by the cross-sectional method.

It can be argued that these behavioral measures are best thought of as measures of what they are simply said to be: behavior. Time of adoption is a measure of when a consumer purchased a new product after its appearance in the market. This may be an important dependent variable in a larger study of new product adoption but is not suitable as a measure of innovativeness as a latent construct. The cross-sectional method denotes ownership of a variety of new products, again, possibly a key dependent variable in a study of ownership of new products (e.g. *America's Taster-makers*, 1959). Both measures, it should be kept in mind, are subject to measurement errors.

Global Trait

Innovativeness as a global trait is best measured by means of a standardized self-report. Such scales are normally the products of rigorous validation procedures, so that they can be used with some confidence that they meet conventional standards of reliability and validity. Their psychometric shortcomings should be well described by their scale developers (in contrast to

the unknown and likely unknowable errors in the behavioral measures).

Four scales have been described in literature that seem to do a reasonable job measuring global innovativeness: Jackson, Kirton, NEO, Hurt et al. (1977).

The Jackson Personality Inventory (Revised) contains 300 True/False items comprising 15 scales that are organized in terms of five higher-order dimensions. One of these 20-item scales is termed 'innovation' and measures the global personality dimension as described above.

M. J. Kirton (1989) developed a pencil-and-paper self-report, the Kirton Adaption-Innovation Inventory or KAI, to measure individual differences in decision-making and problem-solving. Innovators seek to change the context in which problems are imbedded, while adaptors try to disturb these frameworks as little as possible to solve the problem. Adaptors try to do things better, while innovators seek to do things differently. The KAI consists of 32 items organized into three subscales. High scores identify innovators and low scores adaptors, but no especial value is accorded to either tendency, as both cognitive styles are important. The bipolar nature of this scale has important implications for the measurement and conceptualization of innovativeness. Expecting consumer innovators to show the characteristics of Kirton's *innovators*, Foxall (1994c) undertook a series of studies of early adopters of new food products and brands, which identified the heaviest purchasers of these items as *adaptors*. Further investigation revealed that adaptors who were highly involved with the product category bought most new products or brands, followed by innovators (whether high- or low-involved) and finally less-involved adaptors (Foxall, 1995; Foxall et al., 1998). These results are of considerable practical relevance since they explain: (a) why marketing research has consistently found only weak relationships between innovator personality characteristics and early adoption; and (b) why so many new consumer products, aimed promotionally at innovators (in Kirton's sense), fail at the point of consumer acceptance. Clearly, marketing campaigns need to take adaptors into greater consideration. Similar results have been found for consumers' adoption of new financial products, use of credit cards, use innovativeness with respect to computer software, and organizational computer utilization (Foxall, 1999).

The NEO Personality Inventory (Costa & McCrae, 1992) contains the Openness to Experience subscale. The sense of this scale is that synonyms are "original, imaginative, broad interests, and daring" (McCrae & Costa, 1987, p. 87).

Hurt et al. (1977) describe a 20-item scale to measure innovativeness as a global personality trait characterized by a "willingness-to-change" or a "willingness-to-try new things". Their original scale actually contained items measuring this concept as well

as items identifying a “creative and original person”. The scale has been evaluated for its psychometric characteristics, and there is good evidence that the Innovation Subscale is a valid measure of the global trait (Goldsmith, 1991; Pallister & Foxall, 1998).

Consumer Innovativeness

While global personality traits are important concepts in the explanation of behavior, they have proved to be only weakly associated with specific consumer behaviors (see Foxall & Goldsmith, 1988). For this reason, efforts have been made to conceptualize ‘consumer innovativeness’ as the tendency to buy new products soon after they appear in the marketplace (Foxall, Goldsmith & Brown, 1998, pp. 40–45). Thus, consumer innovativeness is a more restricted or less general concept than global innovativeness.

The consumer innovator has long been of interest to marketers and to advertisers (How Consumers Take to Newness, 1955; Who are the Marketing Leaders?, 1958). Most of the earliest studies in marketing of consumer innovativeness used time of adoption as a means of identifying innovators. Some thought, however, was given to developing other ways of measuring innovativeness. An early study of American consumers (*America’s Tastemakers*, 1959) identified a leading-edge group of consumers termed the ‘high mobiles’ who disproportionately adopted many of the current innovations. Membership in this group was derived from their geographical, social, and economic mobility.

In the 1960s advertising researchers originated the concept of lifestyle. To measure lifestyle (psychographics) they developed large batteries containing items designed to tap a variety of lifestyle dimensions. In one of the Activities, Interests, and Opinions (AIO) batteries developed in advertising to measure lifestyles can be found in sets of items labeled in ways that suggest a measure of innovativeness. Wells & Tigert (1971) present three items in a large AIO scale to designate the ‘New Brand Tryer’. These items would form a Likert scale, self-report measure of consumer innovativeness. Leavitt & Walton (1975) attempted to develop a self-report measure of general consumer innovativeness. Their Open Processing scale showed some promise as a measure of consumer innovativeness, but little effort was made toward a thorough psychometric evaluation. One study did show that four of these innovativeness scales (Jackson, KAI & Hurt et al., Open Processing) generally exhibited convergent validity indicating that they are measuring either the same or highly related constructs (Goldsmith, 1986).

Within the framework of measuring consumer innovativeness, some scholars have expanded and enriched this concept by conceptualizing and measuring varieties or dimensions of consumer innovativeness. Venkatraman & Price (1990) distinguish ‘cognitive’ from ‘sensory’ innovativeness. The

former refers to individuals who prefer to engage in activities that stimulate the mind, while the latter seek sensory stimulation. Their 16-item Likert scale contains two eight-item subscales to measure the two types of innovativeness. Similarly, Manning, Bearden & Madden (1995) distinguish two aspects of consumer innovativeness: consumer independent judgement-making and consumer novelty-seeking. The former is defined as the degree to which an individual makes innovation decisions independently of the communicated experience of others (Midgley & Dowling, 1978) while the latter is defined as the desire to seek out new product information (Hirschman, 1980). Finally, Price & Ridgway (1983) formulated the concept of ‘use innovativeness’. They defined this concept as the use of previously adopted products in novel ways (Hirschman, 1980) and developed a scale to tap the five dimensions of the concept: creativity/curiosity, risk preference, voluntary simplicity, creative reuse, and multiple use potential.

Domain-Specific Innovativeness

Although conceptualizing innovativeness at this level of generality/specificity may be an improvement over the global personality approach for marketing purposes, it still leaves something to be desired for researchers interested in the new buyers for a specific product. Because consumer innovativeness is largely domain-specific, measures of general consumer innovativeness will identify the effects of that construct on behavior, but will not be good measures of consumer innovativeness within a specific product category; consumer innovativeness tends to manifest itself within specific categories with little overlap to other categories (Goldsmith & Goldsmith, 1996).

Consequently, researchers who wish to study consumer innovativeness will likely focus on a single product category to discover how this individual difference variable functions within a network of other variables where it can operate as an independent variable, a dependent variable, a mediating variable, or a moderating variable. Applied researchers would like to be able to identify innovators within the product category of their firm so that they can target innovators with unique marketing strategies, seek the input of innovators in the NPD process, or test how different consumers react to various marketing and advertising strategies. With these concerns in mind, Goldsmith & Hofacker (1991) developed the Domain Specific Innovativeness Scale (DSI). This is a balanced Likert scale with three positively and three negatively worded items (Bearden & Netemeyer, 1999, pp. 86–87).

The DSI has been evaluated for its psychometric characteristics (e.g. Goldsmith & Flynn, 1995). It has been shown to be internally consistent and free from both social desirability and acquiescent response bias. There is evidence for its convergent, discriminant, and nomological validity as well as its predictive and

known-group validity (Goldsmith, 2000b, 2000c; Goldsmith, d'Hauteville & Flynn, 1998). Using the DSI yields a distribution of scores with a theoretical range of 6–30 with a mean of 18. The items can be used to assign a single score to each consumer studied, or the items can be used as multiple measures of the construct in a structural equations model.

Conclusion

This chapter has discussed the measurement of innovativeness in the context of research into innovation and has, therefore, taken concepts of innovativeness and the purposes of the investigator into central consideration. It has shown how researchers' expectations of a simple relationship between the behavior of the earliest adopters of new products and their personality traits and types gave way to a more sophisticated treatment of both the concept of 'newness' and the measures that could be brought to bear on the empirical identification of innovativeness and its impact on behavior. In this conclusion, we draw attention once again to the interconnectedness of concepts of innovativeness and the ways in which this construct is measured.

We employed the idea that innovation lies, ultimately, in the 'eye of the beholder'. This remains a convenient but unanalyzed term: as behavioral scientists we seek the underlying psychological characteristics that may make such terminology empirically intelligible. Foxall (1994a) draws attention to the confusion inherent in much usage of 'innovation', 'innovator', and 'innovativeness'. Such confusion arises in part from the same term being used to describe distinct conceptual levels from the hypothetical and abstract notions of 'innate' and 'inherent' innovativeness, to the concrete and observable 'actualized' innovativeness. To use the same term in each case, while claiming that the former provides an explanatory basis for the latter, is to prejudice the issue of whether innovative behavior is attributable to an underlying personality system. Between these extreme concepts there are a plethora of terms that refer to measurable intervening variables: sensory innovativeness, cognitive innovativeness, hedonic innovativeness, adaption innovation, and so on. Finally, at the level of consumption rather than purchasing, the term 'use innovativeness' has been proposed to refer to the deployment of a product in a novel application (Hirschman, 1980).

One means of addressing this problem is to adopt terms that distinguish the earliest adopters of new products (currently called 'innovators') from the underlying trait that is hypothesized to account for their behavior ('innovativeness'). Foxall (1994a) proposed 'consumer initiators' for the earliest adopters, a term that emphasizes the role of these purchasers in the initiation of markets. A synonym is 'initial adopters', which similarly depicts an observable level of analysis

which may be related on the basis of further empirical and conceptual work to an underlying trait or to the environmental consequences (the pattern of utilitarian and symbolic rewards) that induce adoption at each stage of the diffusion process, or to both. This approach leaves open the question of what causes innovative behavior and, in addition, encourages the investigation of a diversity of underlying traits (e.g. adaption as well as innovation, to use Kirton's terms) which may form the basis of empirical research. This approach also readily embraces Robertson's continuum of innovations (from the most continuous to the most discontinuous) and the idea of use innovativeness (perhaps 'use initiation' would be a more consistent term).

This is one source of solution, of course, but one that has been incorporated in both the consumer behavior and marketing research literatures as a means of both encouraging the resolution of terminological confusion and emphasizing that the measurement of innovativeness cannot be divorced from the meanings we attach to the term.

References

- Afuah, A. (1998). *Innovation management*. New York: Oxford University Press.
- America's Tastemakers (1959). *America's tastemakers no. 1 and no. 2*. Princeton, NJ: Opinion Research Corporation.
- Barnett, H. G. (1953). *Innovation: The basis of cultural change*. New York: McGraw-Hill.
- Bearden, W. O. & Netemeyer, R. G. (1999). *Handbook of marketing scales* (2nd ed.). Thousand Oaks, CA: Sage.
- Clark, L. A. & Watson, D. (1995). Constructing validity: Basic issues in objective scale development *Psychological Assessment*, **7** (3), 309–319.
- Coleman, J. (1966). *Medical innovation: A diffusion study*. New York: Bobbs-Merrill.
- Costa, P. T. & McCrae, R. R. (1992). *Revised NEO personality inventory and NEO five-factor inventory professional manual*. Odessa, FL: Psychological Assessment Resources.
- Engel, J. F., Kollat, D. T. & Blackwell, R. D. (1968). *Consumer behavior*. New York: Holt, Rinehart and Winston.
- Evans, R. I. (1967). *Resistance to innovation in higher education*. San Francisco, CA: Jossey-Bass.
- Foxall, G. R. (1984). *Corporate innovation: Marketing and strategy*. London: Croom Helm; New York: John Wiley.
- Foxall, G. R. (1988). Marketing new technology: Markets, hierarchies, and user-initiated innovation. *Managerial and Decision Economics*, **9**, 237–250.
- Foxall, G. R. (1990). *Consumer psychology in behavioural perspective*. London: Routledge.
- Foxall, G. R. (1993). Consumer behaviour as an evolutionary process. *European Journal of Marketing*, **27** (8), 46–57.
- Foxall, G. R. (1994a). Consumer initiators: Both adaptors and innovators. In: M. J. Kirton (Ed.), *Adaptors and Innovators: Styles of Creativity and Problem Solving* (pp. 114–136). London: Routledge.
- Foxall, G. R. (1994b). Behaviour analysis and consumer psychology. *Journal of Economic Psychology*, **15**, 5–91.

- Foxall, G. R. (1994c). Consumer initiators: Adaptors and innovators. *British Journal of Management*, **5**, S3–S12.
- Foxall, G. R. (1995). Cognitive styles of consumer initiators. *Technovation*, **15**, 269–288.
- Foxall, G. R. (1996). *Consumers in context: The BPM research program*. London: Routledge.
- Foxall, G. R. (1999). Consumer decision making: Process, involvement and style. In: M. J. Baker (Ed.), *The Marketing Book* (4th ed., pp. 109–130). London: Butterworth-Heinemann.
- Foxall, G. R. & Goldsmith, R. E. (1988). Personality and consumer research: Another look. *Journal of the Market Research Society*, **30** (2), 111–125.
- Foxall, G. R., Goldsmith, R. E. & Brown, S. (1998). *Consumer psychology for marketing*. London: International Thomson Business Press.
- Foxall, G. R. & Szmigin, I. (1999). Adaption-innovation and domain specific innovativeness. *Psychological Reports*, **84**, 1029–1030.
- Gatignon, H. & Robertson, T. S. (1991). Innovative decision processes. In: T. S. Robertson & H. H. Kassarijan (Eds), *Handbook of Consumer Behavior* (pp. 316–348). Englewood Cliffs, NJ: Prentice-Hall.
- Goldsmith, R. E. (1986). Convergent validity of four innovativeness scales. *Educational and Psychological Measurement*, **46**, 81–87.
- Goldsmith, R. E. (1987). Self-monitoring and innovativeness. *Psychological Reports*, **60**, 1017–1018.
- Goldsmith, R. E. (1991). The validity of a scale to measure global innovativeness. *Journal of Applied Business Research*, **7**, 89–97.
- Goldsmith, R. E. (2000a). Characteristics of the heavy user of fashionable clothing. *Journal of Marketing Theory and Practice*, **8** (4), 1–9.
- Goldsmith, R. E. (2000b). How innovativeness distinguishes online buyers. *Quarterly Journal of Electronic Commerce*, **1** (4), 323–333.
- Goldsmith, R. E. (2000c). Identifying wine innovators: A test of the domain specific innovativeness scale using known groups. *International Journal of Wine Marketing*, **12** (2), 37–46.
- Goldsmith, R. E., d’Hauteville, F. & Flynn, L. R. (1998). Theory and measurement of consumer innovativeness. *European Journal of Marketing*, **32** (3/4), 340–353.
- Goldsmith, R. E. & Flynn, L. R. (1995). The domain specific innovativeness scale: Theoretical and practical dimensions. In: *Association of Marketing Theory and Practice Proceedings* (pp. 177–182).
- Goldsmith, R. E., Freiden, J. B. & Eastman, J. K. (1995). The generality/specificity issue in consumer innovativeness research. *Technovation*, **15** (10), 601–612.
- Goldsmith, R. E. & Goldsmith, E. B. (1996). An empirical study of overlap of innovativeness. *Psychological Reports*, **79**, 1113–1114.
- Goldsmith, R. E. & Hofacker, C. F. (1991). Measuring consumer innovativeness. *Journal of the Academy of Marketing Science*, **19** (3), 209–221.
- Goldsmith, R. E. & Newell, S. J. (1997). Innovativeness and price sensitivity: Managerial, theoretical, and methodological issues. *Journal of Product and Brand Management*, **6** (3), 163–174.
- Hallberg, G. (1995). *All customers are not created equal*. New York: John Wiley.
- Hawkins, D. I., Best, R. & Coney, K. A. (1998). *Consumer behavior: Building marketing strategy*. Boston, MA: McGraw-Hill.
- Hirschman, E. C. (1980). Innovativeness, novelty seeking, and consumer creativity. *Journal of Consumer Research*, **7** (3), 283–395.
- ‘How Consumers Take to Newness’ (1955). *Business Week*, (September 24), 41–45.
- Howard, J. A. & Sheth, J. N. (1969). *The theory of buyer behavior*. New York: John Wiley.
- Hurt, H. T., Joseph, K. & Cook, C. D. (1977). Scales for the measurement of innovativeness. *Human Communications Research*, **4** (1), 58–65.
- Jackson, D. N. (1976). *Jackson personality inventory manual*. Goshen: Research Psychologists Press.
- Kirton, M. J. (1989). *Adaptors and innovators: Styles of creativity and problem-solving*. London: Routledge.
- Klink, R. R. & Smith, D. C. (2001). Threats to the external validity of brand extension research. *Journal of Marketing Research*, **38** (August), 326–335.
- Kotler, P. (2000). *Marketing management: The millennium edition*. Upper Saddle River, NJ: Prentice Hall.
- Leavitt, C. & Walton, J. R. (1975). Development of a scale for innovativeness. In: M. J. Schlinger (Ed.), *Association for Consumer Research (Proceedings)* (Vol. 2, pp. 545–552). Association for Consumer Research.
- Lionberger, H. F. (1960). *Adoption of new ideas and practice*. Ames, IA: The Iowa State University Press.
- McCarthy, M. J. (1998). Stalking the elusive teenage trendsetter. *Wall Street Journal*, (November 19), B1.
- McCrae, R. R. & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, **52** (1), 81–90.
- McDonald, H. & Alpert, F. (1999). Are innovators worth identifying? In: *Australia–New Zealand Marketing Academy Conference Proceedings*.
- Manning, K. C., Bearden, W. O. & Madden, T. J. (1995). Consumer innovativeness and the adoption process. *Journal of Consumer Psychology*, **4** (4), 329–345.
- Midgley, D. F. & Dowling, G. R. (1978). Innovativeness: The concept and its measurement. *Journal of Consumer Research*, **4** (March), 229–242.
- Pallister, J. G. & Foxall, G. R. (1998). Psychometric properties of the Hurt–Joseph–Cook scales for the measurement of innovativeness. *Technovation*, **18** (11), 663–675.
- Popkins, N. C. (1998). *The five-factor model: Emergence of a taxonomic model for personality psychology*. <http://www.personalityresearch.org>
- Price, L. L. & Ridgway, N. M. (1983). Development of a scale to measure use innovativeness. In: R. P. Bagozzi & A. M. Tybout (Eds), *Advances in Consumer Research* (Vol. 10, pp. 679–684). Association for Consumer Research.
- Richins, M. L. & Bloch, P. H. (1986). After the new wears off: The temporal context of product involvement. *Journal of Consumer Research*, **13** (September), 280–285.
- Robertson, T. S. (1971). *Innovative behavior and communication*. New York: Holt, Rinehart and Winston.
- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: The Free Press.
- Taylor, J. W. (1977). A striking characteristic of innovators. *Journal of Marketing Research*, **14** (February), 104–107.

- Thomas, R. J. (1993). *New product development*. New York: John Wiley.
- Thomas, R. J. (1995). *New product success stories*. New York: John Wiley.
- Treacy, M. & Wiersema, F. (1995). *The discipline of market leaders*. Reading, MA: Addison-Wesley.
- Venkatraman, M. P. & Price, L. L. (1990). Differentiating between cognitive and sensory innovativeness: Concepts, measurement, and implications. *Journal of Business Research*, **20** (4), 293–315.
- von Hippel, E. (1988). *The sources of innovation*. New York: Oxford University Press.
- Wasson, C. R. & McConaughy, D. H. (1968). *Buying behavior and marketing decisions*. New York: Appleton-Century-Crofts.
- Wells, W. D. & Tigert, D. J. (1971). Activities, interests, and opinions. *Journal of Advertising Research*, **11** (August), 27–35.
- 'Who are the Marketing Leaders?' (1958). *Tide*, **32**, 53–57.
- Zaltman, G. (1965). *Marketing: Contributions from the behavioral sciences*. New York: Harcourt, Brace, and World.
- Zaltman, G., Duncan, R. & Holbek, J. (1973). *Innovations and organizations*. New York: John Wiley.