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## **Consumer's product comprehension: limitations of past work and recommendations for new directions**

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### Abstract

Advertising has to effectively explain new products to consumers. Product comprehension research provides the theoretical insights needed to do so. Yet, results from product comprehension research are limited because the stimuli used were not really new products and the validity of the comprehension measures used is questionable. We contribute by providing a brief literature review supporting the above claims and proposing two improvements for future work: the use of extensive pre-studies to identify stimuli of varying innovativeness levels and the inclusion of services new to consumers, not the market. Empirical illustrations of the value of both propositions are provided.

### Keywords

Consumer, product, comprehension, limitations, past, work, recommendations, for, directions

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# **Consumers' product comprehension: Limitations of past work and recommendations for new directions**

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## **Abstract**

Advertising has to effectively explain new products to consumers. Product comprehension research provides the theoretical insights needed to do so. Yet, results from product comprehension research are limited because the stimuli used were not really new products and the validity of the comprehension measures used is questionable. We contribute by providing a brief literature review supporting the above claims and proposing two improvements for future work: the use of extensive pre-studies to identify stimuli of varying innovativeness levels and the inclusion of services new to consumers, not the market. Empirical illustrations of the value of both propositions are provided.

*Keywords:* Product Comprehension, Really New Products, Complex Services

**Suggested track:** Advertising, Promotion and Marketing Communication

## **1. Introduction**

New product marketers are constantly seeking ways to ensure that their advertisements not only attract consumers' attention and generate interest, but also educate them about their new products' benefits (cf. Aaker, Batra, & Myers, 1992). Educating consumers is especially relevant in the case of really new products (RNPs). In practice, companies often communicate attributes when introducing new products (Hoeffler, 2003). But because RNPs are relatively complex, advertising of these products is not as simple as communicating product attributes and is, consequently, prone to using technical language that consumers are unable or unwilling to understand (Bradley & Meeds, 2004; Meeds, 2004). Given the challenge marketers face with the introduction of new products marketing researchers have shown increasing interest in this field of research (Gregan-Paxton, Hibbard, Brunel & Azar, 2002; Hoeffler, 2003; Moreau, Lehmann & Markman, 2001a; Moreau, Markman & Lehmann, 2001b; Roehm & Sternthal, 2001). However, these studies have failed to show convincingly that they have used stimuli that represent RNPs in correspondence with the definition as a new product offering that does not fit neatly into an existing product category (Lehmann, 1994). Apart from this, we believe and will argue that existing comprehension measures are not valid in the case of RNPs and complex social services. Having said this, the aim of this paper is twofold. First, we provide a literature review of how "really new" the stimuli products are used in past research, and which measures of comprehension were used. Second, based on this literature review we make two propositions for future work on consumer learning of new products. We propose that in order to continue comprehension research in the area of RNPs, pre-studies have to be conducted to empirically demonstrate – rather than postulate - that the RNP stimuli are in fact perceived as really new by respondents. Also we propose to extend comprehension research to social services given that their novelty to individuals and their complexity also requires (extensive) explanation on the side of the marketer to ensure consumer comprehension. We illustrate both propositions in a small scale empirical study.

## **2. What is a really new product?**

A growing percentage of new product introductions represent RNPs; innovative products that create new categories (Gregan-Paxton and Roedder John 1997; Gregan-Paxton, Hibbard, Brunel, and Azar 2002). These RNPs, by definition, represent entirely new product concepts that do not fit neatly into any existing product category (Lehmann, 1994) such as the personal digital assistant at the time of introduction. It has been suggested that a significant barrier to the success of RNPs is the difficulties faced by consumers as they attempt to understand what the new product is and what benefits it offers (Hirschman, 1980; Gatignon & Robertson, 1985; Lehmann, 1997;). Hence, a crucial communication objective during the introduction of RNPs should be to ensure that consumers learn its distinctive attributes and new benefits. Managing consumer learning of RNPs has received interest at an increasing rate in the marketing and consumer behavior literature (e.g., Gregan-Paxton, Hibbard, Brunel & Azar, 2002; Hoeffler, 2003; Moreau, Lehmann & Markman, 2001a; Moreau, Markman & Lehmann, 2001b; Roehm & Sternthal, 2001). However, these studies operationalised RNPs in a way that it does not represent what has been defined as a RNP (see Gregan-Paxton et al., 2002 for a notable

exception). For instance, Moreau et al. (2001a) start their paper with the following research question: "How do consumers learn about and develop preferences for new products that do not fit neatly into any existing category?". Subsequently they use a digital camera and an electric car as stimuli, both of which can be classified new but do not offer a truly new product concept. Instead these products represent incrementally new products that fit into an existing product category (camera and car product category). Interestingly in their JMR paper, Moreau et al. (2001a) provide an example of a categorization situation for the digital camera into a camera category suggesting that a consumer who encounters a digital camera for the first time will compare it to film-based cameras. This supports the position that a digital camera is not a RNP. The same argument holds for Hoeffler (2003) who used, among other stimuli, the IBM transnote which is a laptop with a paper notepad and for Roehm & Sternthal (2001) who operationalised a RNP with fictitious new software "NutriWatch" (nutrition management software package) and "MoneyWatch" (financial management software package). These products are incremental new products rather than RNPs.

### **3. Defining and measuring comprehension**

The desired outcome of marketing communications is guided by consumers'

comprehension of the communicated product information. In general, comprehension has been viewed as the degree to which consumers "correctly" or "accurately" comprehend advertised messages. As such, researchers have typically relied on recall of information from advertisements as a primary measure of comprehension (e.g., Graeff, 1995; Jacoby & Hoyer, 1987; Mick, 1992; Rathneshwar & Chaiken, 1991). However, being able to recall product information from the ad does not indicate whether consumers truly comprehended the new product or service (Graeff, 1995). Especially in the case of RNPs the attributes can be difficult to understand because consumers are not familiar with the underlying technology. In interviews with prospective consumers of several RNPs, Veryzer (1998) found that "quite often customers had no experience with the technologies underlying these products and thus they had little or no frame of reference for understanding them" (p.143). Even consumers with expertise in the domain of a RNP experience difficulties with comprehending and appreciating the benefits of this type of products (Moreau et al., 2001a).

Apart from the objective measure of comprehension by means of recall tasks, product comprehension has also been measured subjectively (e.g., Hoeffler, 2003; Moreau et al., 2001a; Rathneshwar & Chaiken, 1991). Hoeffler (2003), for example, measured the level of product comprehension with the following question: "I found the product description to be \_\_\_\_\_," anchored by "easy,"/"difficult" and "understandable"/"confusing". The risk of such a subjective comprehension measure is that participants may not be willing to express their miscomprehension because of social desirability. Research has shown that participants tend to have the desire to avoid embarrassment and project a favorable image to others when self-report measures are used (Fisher, 1993) affecting variable means (Peterson & Kerin, 1981). Apart from that, some of the items used to assess subjective product comprehension are questionable on relevance criteria. For example, Moreau et al (2001a) used a four item scale to assess

comprehension of the advertised new product. One item asked participants to report the extent to which they (dis)agreed with the following statement: "If this car were to have problems or break down, I am very confident that I could figure out what was wrong with it." Such an item could be irrelevant because the average consumer is not interested in understanding how a product works as long as they benefit from the use of the product.

#### **4. Propositions**

##### *Proposition #1 – assessing novelty levels of “really new products”*

Using RNPs for product comprehension research is a very suitable choice. As demonstrated above it is, however, not trivial to find a product that fits the definition of a RNP. We believe that it should be an essential part of any product comprehension study to pre-test and report in detail on the pre-testing of the stimuli to ensure RNP characteristics of the products under study. We illustrate our proposition empirically for the product category of pedometers.

##### *Proposition #2 – extending comprehension studies to complex services*

While the terms “innovative” can be defined in an objective manner (for instance by defining that a product has only recently been introduced to the market), the aspect that is of central importance for comprehension research is in fact that a product is perceived as a RNP by consumers, that consumers are not sure what the product does and which benefits it offers. Consequently the limitation of comprehension research to RNPs to the entire market is not necessary. Complex products or services which are not known to the majority of consumers appear to be equally suitable stimuli for investigating how product attributes and benefits can best be communicated in advertising messages.

#### **6. Methodology**

##### *Participants*

The research was conducted among 156 high school students ranging in age from 14 to 17 years. Participation was entirely voluntary.

##### *Design, stimuli and procedure*

The study employed a 3 (innovativeness: low, medium, and high level) x 3 (message type: attributes condition, benefits condition, and attributes plus benefits condition) between subject design. Three consumer products and three community services were selected to represent the varying levels on product innovativeness. For the product we selected a basic pedometer, an advanced pedometer, and the PAM (personal activity meter) to represent a low, medium, and high level of product innovativeness respectively. The State Emergency Services (SES), Surf life saving (SLS), and Community

guardianship program (CGP) were chosen for the community services as low, medium, and high on product innovativeness respectively. Each participant evaluated one type of message appeal of a single product or community service representing one of the product innovativeness levels (low, medium, or high). Participants were randomly assigned to one of the nine experimental conditions.

In total nine print ads were used corresponding to the experimental conditions. All print ads consisted of a headline, a picture of the target product, and a body of text. Given the intangibility of community services pictures were not included in the ad for this type of product. All versions of the ad were constructed to be as similar as possible to eliminate the lay-out of the ad as a possible confound. The body of text consisted of a brief description of the product or service followed by five attributes and five benefits that were presented in a bullet point format.

Each participant received a booklet containing instructions, stimulus, and measures. Participants were allowed to examine the ad at their own pace and they could freely turn back to the ad while filling out the questionnaire. After they completed the questionnaire, the purpose of the experiment was explained. The whole procedure took approximately 5 minutes.

### *Measures*

All closed-ended questions used a continuous bipolar scale.

*Comprehension.* Measures of comprehension of the product/service were derived from a combination of participants' written protocols and their response to a single item scale. The scale item asked participants how well they could explain the product/service to a friend anchored by "not well at all"/"very well". The open-ended question stated "How would you explain the product [service] at the back of this questionnaire to a friend?". Each participant's response was coded into three different categories whether a concise explanation was given, a basic explanation or whether (s)he could not explain well at all.

*Difficulty of comprehension.* To be able to determine whether participants experienced any difficulty understanding the advertised product/service they were given the opportunity to list any additional information they would like to have about the product/service. They could also list if anything from the ad was not perceived as entirely clear. Instructions stated to list each additional question on a separate line.

*Product familiarity.* Participants rated their familiarity with the product/service on a two-item scale ( $r = .80$ ,  $p < .001$ ): "How familiar are you with the [product]?" ("not familiar at all"/"highly familiar"), and "Have you ever read, seen or heard anything about the [product]?" ("never"/"very often").

*Product innovativeness.* Guided by Olshavsky & Spreng (1996) innovativeness of the product/service was measured using a single item: "How innovative is this product?" ("not innovative at all"/"very innovative").

## **7. Results**

A manipulation check was performed to ensure that the three products and three services differed across product innovativeness and familiarity respectively. Innovativeness is not a relevant variable for services as it is in the case for RNPs. However, the degree of familiarity is an important factor for the adoption of social services. Our intent was that the basic pedometer (SES) would score lower on product

innovativeness (familiarity) compared to the advanced pedometer (SLS) and the PAM (CGP) and that the advanced pedometer (SLS) would score higher compared to the basic pedometer (SES) but lower than the PAM (CGP). To test whether these differences are significant, an ANOVA was conducted for the product and service separately. For the product, the analysis with innovativeness as the dependent variable yielded a significant main effect ( $F_{(2,54)} = 26.7, p < .01$ ;  $M_{\text{basic pedometer}} = 1.4$ ;  $M_{\text{advanced pedometer}} = 2.4$ ;  $M_{\text{PAM}} = 3.4$ ). A Tukey post-hoc comparison test showed that all differences were significant for the product (mean difference<sub>PAM vs. advanced pedometer</sub> = 1.1,  $p < .01$ ; mean difference<sub>PAM vs. basic pedometer</sub> = 2.1,  $p < .01$ ; mean difference<sub>advanced pedometer vs. basic pedometer</sub> = 1.0,  $p < .01$ ). For the service, an ANOVA also showed a significant main effect ( $F_{(2,58)} = 23.3, p = .01$ ;  $M_{\text{SES}} = 2.6$ ;  $M_{\text{SLS}} = 2.6$ ;  $M_{\text{CGP}} = .5$ ). Contrary to our expectations, the services did not significantly differ on familiarity. A Tukey post-hoc comparison test only reached a significant difference between CGP with SES and SLS (mean difference<sub>CGP vs. SES</sub> = -2.1,  $p < .01$ ; mean difference<sub>CGP vs. SLS</sub> = -2.2,  $p < .01$ ).

An ANOVA with comprehension as the dependent variable yielded a significant main effect for product ( $M_{\text{basic pedometer}} = 3.3$ ;  $M_{\text{advanced pedometer}} = 2.6$ ;  $M_{\text{PAM}} = 1.9$ ;  $F_{(2,56)} = 7.1, p < .01$ ) and for service ( $F_{(2,58)} = 8.6, p < .01$ ;  $M_{\text{SES}} = 2.2$ ;  $M_{\text{SLS}} = 2.5$ ;  $M_{\text{CGP}} = .8$ ). A Tukey post-hoc comparison test showed that only the difference between the basic pedometer and PAM reached significance (mean difference = 1.3,  $p < .01$ ). For the service, a Tukey post-hoc comparison test reached significance between SLS and CGP (mean difference = 1.7,  $p < .01$ ) and between SES and CGP (mean difference = 1.4,  $p < .05$ ). A similar significant result of comprehension was found with the coded answers to the open-ended question for the product ( $M_{\text{basic pedometer}} = 2.7$ ;  $M_{\text{advanced pedometer}} = 2.4$ ;  $M_{\text{PAM}} = 2.0$ ;  $F_{(2,49)} = 5.6, p < .05$ ) and for the service ( $F_{(2,48)} = 6.8, p < .01$ ;  $M_{\text{SES}} = 2.4$ ;  $M_{\text{SLS}} = 2.5$ ;  $M_{\text{CGP}} = 1.7$ ). The Tukey-post hoc comparison test showed that a significant difference only existed between the basic pedometer and PAM (mean difference = .70,  $p < .05$ ). For the service, significant differences were found between SLS and CGP (mean difference = .8,  $p < .05$ ) and between SES and CGP (mean difference = .7,  $p < .05$ ). The number of additional questions requested by the average participant did not differ between the three products ( $M_{\text{basic pedometer}} = .7$ ;  $M_{\text{advanced pedometer}} = 1.3$ ;  $M_{\text{PAM}} = 1.0$ ;  $F_{(2,56)} = 1.1, p = .33$ ). For the services a significant main effect was found for the number of additional questions asked by participants ( $F_{(2,16)} = 4.2, p < .05$ ;  $M_{\text{SES}} = 1.0$ ;  $M_{\text{SLS}} = 3.0$ ;  $M_{\text{CGP}} = 1.5$ ). A Tukey post-hoc comparison test only showed a significant difference between SLS and SES (mean difference<sub>SLS vs. SES</sub> = 2.0,  $p < .05$ ). We believe that the response rate to this particular question was generally low due to its open-ended nature and the use of a convenience sample.

## 8. Conclusions and discussion

This paper had two purposes: to critically review the literature on product comprehension studies and to propose improved ways of implementing them. The two major criticisms emerging from the literature review are that (1) most of the stimuli used were not in fact RNPs. Consequently the comprehension measurement would be skewed by a significant amount of prior knowledge about the product or at least the product category. Second, the comprehension measures used in the past appear to be flawed because they either capture only recall of information, or measure subjective



comprehension only or use items which are of questionable relevance for the construct of comprehension altogether.

We propose extensive pre-testing of stimuli for comprehension studies and demonstrate for the product category of pedometers how three stimuli of varying familiarity and innovativeness can be identified for use in a comprehension study. Furthermore, we propose to extend the study of product comprehension to areas other than only RNP, for instance complex social services which – similarly to RNPs – require a substantial amount of explanation to consumers before these fully comprehend the benefits of the service and its attributes. We illustrate our proposal by pre-testing three stimuli. The three selected stimuli did not differ in innovativeness, which was not the major criterion given that all these services were not new to the market, but hypothesized to demonstrate different familiarity levels. Two of the three stimuli indeed differed in familiarity making them suitable stimuli for a comprehension study as well.

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