The Development of Classificational Schemata in Marketing: a Review and Critique

Michael R. Bowers, University of Alabama-Birmingham
John T. Bowen, University of Nevada-Las Vegas

A set of criteria used to evaluate classificational efforts in marketing is developed from a review of the philosophy of science, and social sciences literature. Articles dealing with classification of marketing phenomena from 1982 to 1993 are reviewed. Strengths and weaknesses of current classification efforts in marketing are identified. Means of improving marketing classifications are presented.

Introduction

Classification is a mode of knowledge, a way of grasping the unity of certain things, and the relation between various kinds of things (Wolf 1925, p. 31).

The goal of science is to be able to explain, predict, and control phenomena. According to Hunt, any science starts with "a classified and systematized body of knowledge" (1983, p. 17). Classification schemata serve the purpose of organizing concepts and establishing domains, without which the pursuit of knowledge would be impossible (McKelvey 1978). In fact, classification is so pervasive that it is too often taken for granted (Bailey 1994).

Despite its importance there have been few comprehensive discussions of classification schemata in marketing. The purpose of this paper is to critique the state of classification in marketing science. First, we provide the criteria for a classification scheme based on a review of literature from the philosophy of science, and social sciences. Second, the paper presents the results of a review of articles dealing with classification of marketing phenomena from 1982 to 1998. The third section of the paper discusses the strengths and weaknesses of current classification efforts. We conclude by proposing suggestions for improving the development of classifications in marketing science.

Development of Classificational Schemata in Marketing

The first stage of scientific inquiry begins with a list of unanswered questions about a central subject matter, for example-exchanges. Stage two involves defining the concepts, for example-products. Classification and organization is the next step. Classification schemes supply the language necessary to recognize and discuss different phenomena. Everitt (1980, p. 2) states each noun is a label used to describe a class of things that have striking features in common. Bliss contends that the general aim of all classification is, of course, to give us clear ideas, definite, well-ordered knowledge, control over facts, increase of power in retaining and communicating our knowledge about them (1929, p. 146).

Several scholars have noted how inadequate classification schemes have retarded the development of knowledge in marketing. Over twenty-five years ago Engel, Kollat, and Blackwell (1973) cited the need for precise classification schemes in the discipline of marketing. Bowen credits improper classification with many generalizability problems in services marketing (1990). Sing (1990) criticizes consumer behavior researchers for lack of empirical verification of the schema that are frequently used. Referring to schemes for classifying creative message strategies, Laskey, Day, and Crank contend that none of the existing classification systems meet established criteria (1989). Bunn claims that "the schemes developed in the organizational buying behavior literature have weaknesses... They often provide little basis for specifying functional relationships among the variables" (1993, p. 39).

Copeland (1923) is credited with the first, and now quite famous, product classification: convenience, shopping, and specialty goods (Enis and Roering 1980). Yet despite its legendary status, Hunt (1991) contends that Copeland's classification fails tests of valid schemata. Hunt (1983) argues that Copeland's scheme classifies shopping goods on the property of comparison while classifying specialty goods based on willingness to expend effort. It is this inconsistency in characteristics which suggest that the schema is structurally unsound. The popular "4 P's of Marketing" classification has recently been criticized and revised (Van Waterschoot and Van den Bulke 1992).

Enis and Roering caution that "academicians and practitioners alike are aware of the limitations of extant classification schemes, yet regularly use these classification systems in discussing marketing theory and strategy" (1980, p. 282). Enis and Roering say that current schemata are "characterized by ambiguity and imprecision" (1980, p. 284). Hunt (1991) claims that few, if any, marketing schema are mutually exhaustive. Developing taxonomies from empirical data does not eliminate problems of subjectivity concerning mutual exclusivity and collective exhaustiveness.

A brief review of the nature of classification in sources
outside of marketing reveals difficulties that are also common to the marketing science. Carper and Snizek (1980) conducted a state-of-the-art review of classification in organizational research. They suggested that there was a lack of uniformity in terminology used by various researchers in organizational behavior and concluded that no generally accepted method of classifying organizations has yet been formulated (p. 65). Similarly, McKelvey (1978) contends that organization scientists have failed at developing widely accepted classificational schemes.

Based on the studies cited above, a reasonable conclusion is classification in marketing, as well as other disciplines, offers opportunities for researchers. The purpose of the next section is to present an explanation of criteria that might be used to evaluate and improve classificational efforts in marketing.

Criteria for Evaluating Classificational Schemata

Hunt (1991) presents five criteria for evaluating classificational schemata. This paper expands Hunt’s criteria. These criteria state a sound classification scheme should:

1. Be useful
2. Be intersubjectively certifiable
3. Be mutually exclusive
4. Be collectively exhaustive
5. Be based on overall similarity, not on rigid criteria (polythetic)
6. Use all available distinguishing characteristics without any weighting (phentic relationship)
7. Adequately specify the phenomenon to be classified
8. Use consistent characteristics in determining the classification scheme

Hunt (1991, p.183) states the ultimate criterion is usefulness. Classifications are developed to solve some kind of problem. One way a classification is useful is that the terms and concepts used in the classification develop into a vocabulary for an area of study (Hempel 1965, Everitt 1980, and Stohotack 1984). Varadarajan (1996) recently called for clearly defined constructs, theory and models. Classifications can help researchers define constructs that are used to develop models and theory.

Wolf (1925) describes usefulness as a way of grasping the unity of phenomena and the relationship between various kinds of phenomena. Funk (1983) states that a classification must be useful in two ways; it must categorize for identification and predictive power. McKelvey (1982, p. 17) provides a summary of criteria for a classification scheme to be useful:

1. Offer a basis of explanation, prediction, and scientific understanding
2. Present a conceptual framework for understanding
3. Aid in the handling of complex sets of variables by allowing the substitution of a few broad classification variables for many more specific attributes
4. Provide insight for the discovery and development of principles and guidelines.

Varadarajan cited the need for authors to highlight what the reader might learn from the manuscript that “would be useful in other contexts…” (Varadarajan 1996, p.6). When reporting the results of their research, researchers should be explicit when they state how their classification schemes are useful.

A second requirement of a classification scheme is that it should be intersubjectively certifiable (Hempel 1965, Hunt 1991). Hunt (1991, p. 187) states that to be intersubjectively unambiguous, the schema must have rigorous procedures to enable different people to reliably classify objects. Hempel holds that explicit criteria based on quantitative devices, such as rating scales or measurements can help a classification become intersubjectively certifiable.

The third requirement of a classification scheme is that the categories should be mutually exclusive (Burtt 1928, Hunt 1991, Kemeny 1959, Searles 1956). If it is possible to fit an object in several categories then the classification scheme would be vague and lose its ability to become intersubjectively unambiguous.

The fourth requirement of a classification scheme is that it should be collectively exhaustive (Hunt 1991, Kemeny 1959, Searles 1956). Hunt (1991) implies that it is permissible to make a classification scheme collectively exhaustive with an “other” category. However, he cautions that if the other category becomes too large, the system should be reviewed for the possible addition of new categories.

The fifth requirement of a classification schema is that it should be based on overall similarity, not rigid criteria (polythetic) (Carper and Snizek 1980, McKelvey 1975, Sheat and Sokal 1973, Sokal 1977, Wagner 1969, Wiley 1981). Sheat and Sokal state that the advantages of polythetic groups are they are natural, have a high content of information, and are suitable for many purposes. A polythetic group is more useful when consisting of many attributes because it is based on the overall similarity of the objects to be classified.

Taxonomic classification is not without problems of subjectivity concerning mutual exclusivity and collective exhaustiveness. Without apologies, discriminant functions with less than 50% correct classifications are given as evidence of the validity of a model (Fader and Lodish 1990, p. 60). Criteria need to be established for such issues as where is the “break” between cells in a system. Ingram et al. suggest the median (1991). What determines a “factor” or “cluster” is not completely objective. Many multivariate statistical techniques used to produce classifications contain subjective elements.

The sixth requirement of a classification scheme is that it should use all available distinguishing characteristics without weighting (phentic relationship) (Blackwelder 1964, Carper and Snizek 1980, Wagner 1969). A priori judgements that some attributes are more important than others should not be made.

The seventh criterion is the schema must adequately specify the phenomena to be classified. The universe of the phenomena must be clearly specified, as well as what entities are being categorized. Often a schema professes to classify objects, for example—Copeland’s classification of shopping, convenience and specialty goods. But, the classification rules utilize the consumer’s perceptions of the objects (Hunt 1991).
Typologies are often developed as a framework for presenting concepts. However, as classification schema, typologies frequently have shortcomings in terms of specification of the phenomena to be classified. Bitner (1992) poses a creative typology of "Servicescapes" and suggests classifying industries by level of tangible ingredients. She then classifies bank ATM machines, which are clearly an operating unit of an industry. Bitner's work also typifies the subjectivity problems inherent with typologies. One of her axes describes the physical environment as "lean" or "elaborate." Where is the dividing line between lean and elaborate?

The eighth requirement of a classification scheme is that the characteristics that determine the classification should be consistent (Bunge 1967, Hunt 1991). Hunt (1983) argues that Copeland's scheme classifies shopping goods on the property of comparison while classifying specialty goods based on willingness to expend effort. Hunt argues this inconsistency in characteristics provides strong evidence that the schema is structurally unsound. Gore (1978) and Oliver (1951) cite the ninth requirement of a classification scheme that useful classification schemes are built upon existing schemes. Oliver (1951, p.299) states significant classifications grow, they are not accomplished all at once.

**Typologies and Taxonomies**

Typologies are conceptually developed classification schemes, while taxonomies are empirically developed classification schemes. Typologies are often developed as a framework for presenting concepts by those who have a good understanding of the phenomena they are categorizing. As Harvey (1969, p.366) states, a typology presupposes a fairly sophisticated understanding of the phenomena to be classified. If this is not the case, then the classification may be totally unrealistic, nothing more than a good guess. Typologies, because they are conceptual, do not meet the all criteria for classification schemes listed above. Typologies are often two by two matrices. They are limited in the number of criteria used to do the classification. Typologies are based on rigid criteria, not on overall similarity. They do not use all available distinguishing characteristics without any weighting. Thus, typologies will not meet criteria five and six above. Criterion five states schemata should be based on overall similarity, not on rigid criteria. Criterion six states schemata should be based on all available distinguishing characteristics without any weighting.

Typologies are useful and help to shape future research. For example, Lovelock (1983) presented five typologies for classifying services. Lovelock's typologies helped to develop the then emerging area of service marketing. The article Lovelock wrote to present the typologies was selected as a best article in the Journal of Marketing in volume 47. Thus, although typologies will have difficulty meeting the criteria of a good classification scheme they are useful in the development of concepts and theories. They also lead to the development of taxonomies.

Taxonomies can refer to both the process and result (Bailey 1994). For example, Sneath and Sokal (1973, p. 3) define taxonomy as the theoretical study of identification. In this paper taxonomy refers to the result or a classification of empirical entities. Today, most taxonomies are quantitative and developed through the use of a computer. This type of taxonomy was originally called a numerical taxonomy by Sneath and Sokal (1973).

**Description of the Literature Review**

A review of classification schemes in marketing was undertaken as part of this research. Major journals reporting research of general marketing interests (Gordon and Heischmidt 1992) and journals devoted to a specific marketing interest were surveyed. The period for the study is from 1982 through the first quarter of 1998. Beyond a physical search for the articles, several electronic citations' services were accessed. These included ABI Inform and The Wilson Social Science electronic database. The review is not presented as exhaustive. The study did not include specialty marketing journals or journals not widely cited. However, the purpose of this paper is to give an overall description of marketing classificational systems in recent years.

Any empirical article involves concepts, variables, constructs, and therefore, classification. An article was selected for analysis only if the authors claimed to have 1) induced a scheme, 2) deduced a scheme, or 3) tested an existing typology or taxonomy. The intention of this paper was to review original typologies/taxonomies. It is believed the fifty-three articles studied in this research meet these criteria.

**The Current State of Classification in Marketing**

Table 1 reports the areas of marketing in which classification efforts have been made recently. The most frequent phenomenon to be classified is consumer/buyer behavior, followed by promotion and marketing strategies. Services have received more attention than have goods since 1982. That is explained in part by the recent research interest in health care services. Of the traditional "4 Ps of Marketing," promotion has been classified more often than the products.

Table 2 presents the statistical methods that were used in developing and validating the classification schemes. Factor and cluster analysis are still the most popular statistical methods used in taxonomies, with LISREL gaining in popularity. Sophisticated multivariate statistical procedures produced the last "wave" of taxonomical work in the 1960s and early 1970s. According to Enis and Roering (1980), activity in the late 1970s waned. Activity has increased recently, based on LISREL and other confirmatory procedures.
Table 1. Phenomena to be Categorized

<table>
<thead>
<tr>
<th>CATEGORIZED</th>
<th>TOTAL</th>
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</thead>
<tbody>
<tr>
<td>CONSUMER/ ORGANIZATIONAL BEHAVIOR</td>
<td>16</td>
</tr>
<tr>
<td>MARKETING MIX</td>
<td></td>
</tr>
<tr>
<td>PROMOTION</td>
<td></td>
</tr>
<tr>
<td>Advertising</td>
<td>5</td>
</tr>
<tr>
<td>Sales Prom.</td>
<td>1</td>
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<tr>
<td>Public Rel.</td>
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<tr>
<td>Sales</td>
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</tr>
<tr>
<td>Non Specific</td>
<td>1A</td>
</tr>
<tr>
<td>TOTAL</td>
<td>13</td>
</tr>
<tr>
<td>PRODUCT</td>
<td></td>
</tr>
<tr>
<td>Services focus</td>
<td>5</td>
</tr>
<tr>
<td>Goods focus</td>
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<tr>
<td>Both</td>
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<tr>
<td>TOTAL</td>
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<tr>
<td>PLACE</td>
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</tr>
<tr>
<td>PRICE</td>
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</tr>
<tr>
<td>STRATEGY</td>
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<tr>
<td>OTHER</td>
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</tr>
<tr>
<td>(Domain)B</td>
<td>1</td>
</tr>
<tr>
<td>(Models)C</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2</td>
</tr>
<tr>
<td>TOTALS</td>
<td>53</td>
</tr>
</tbody>
</table>

A. Article classifies social marketing promotion efforts
B. Article classifies the various domains of marketing
C. Article classifies hybrid conjoint models

Three researchers reviewed the fifty-three classifications and evaluated them against the criteria mentioned earlier in the paper. The two major weaknesses of the classification schemes were the categories used in the classification were not mutually exclusive. Only twenty-one schemata were judged to have mutually exclusive categories.

The other major weakness was only twenty-five schemata were judged to be intersubjectively certifiable. The other classifications were felt to have sufficient ambiguity in the terms they used, making it difficult to obtain a consistent classification across researchers. The development of a useful vocabulary to describe and label categories is often not attended. Achieving this should communicate some sense of the unique nature of the elements being classified. The development of category labels will reduce the ambiguity of the classification scheme. Finally, the classification schemes that were judged to meet the fewest of the criteria, did not make a case for the usefulness of the classification scheme. It appears that the researchers that developed these schemes did not think about and communicate the purpose of their research. This lack of direction was evident in other areas of their methodology, resulting in a poorly conceived and executed classification scheme.

Table 2. Statistical Methods Employed

<table>
<thead>
<tr>
<th>METHOD</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative:</td>
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<tr>
<td>Factor Analysis &amp; PCA</td>
<td>15</td>
</tr>
<tr>
<td>Cluster Analysis</td>
<td>14</td>
</tr>
<tr>
<td>Group Means Tests</td>
<td>9</td>
</tr>
<tr>
<td>MANOVA</td>
<td>5</td>
</tr>
<tr>
<td>ANOVA</td>
<td>5</td>
</tr>
<tr>
<td>Discriminant Analysis</td>
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<tr>
<td>Cross Tabs</td>
<td>1</td>
</tr>
<tr>
<td>Model Confirmation</td>
<td>23</td>
</tr>
<tr>
<td>LISREL</td>
<td>(6)</td>
</tr>
<tr>
<td>DFA</td>
<td>(9)</td>
</tr>
<tr>
<td>Regression</td>
<td>(8)</td>
</tr>
<tr>
<td>Reliability</td>
<td>7</td>
</tr>
<tr>
<td>Alphas</td>
<td>(5)</td>
</tr>
<tr>
<td>MM Matrix</td>
<td>(2)</td>
</tr>
<tr>
<td>Qualitative:</td>
<td></td>
</tr>
<tr>
<td>Content Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Decision Tree</td>
<td>1</td>
</tr>
<tr>
<td>Narrative Analysis</td>
<td>1</td>
</tr>
<tr>
<td>None</td>
<td>15*</td>
</tr>
</tbody>
</table>

*Numbers total more than 53 because some studies used multiple techniques

Discussion and Implications

Results from our research suggest several ways in which classification efforts can be improved. First, the development of categories that are mutually exclusive and intersubjectively unambiguous is one area that needs to be improved. Mutual exclusivity is presently considered an extremely important element of classification (Hunt 1983). When developing typologies, categories that are intersubjectively unambiguous and mutually exclusive result from the application of consistent logic. Failure to fully develop the logic behind a given classification results in confusion by the audience.

There is a need to replicate classification to test their validity.
A natural consequence of multivariate techniques such as factor analysis and cluster analysis is that they will produce factors and clusters. The question of whether these are natural groups is too often unclear and always highly subjective. Even if a taxonomy is valid for a given time and place, little effort is given to replicating taxonomies. Therefore, the temporal stability of most taxonomical clusters is speculative.

Lastovicka, Murry, and Joachimsthaler (1990) caution marketers to validate and assess classification systems. Yet, few articles even reported alpha scores. Only two studies reported use of a MM Matrix. The value of a classification, which is not tested, is minimal. In the best case scenario, researchers should provide an empirical test (see for example: McKee, Varadarajan, and Vassar 1990), at a minimum a conceptual test of examples should be illustrated.

We found the schema reviewed for this study to be useful, more in explanation than prediction or theory. Perhaps this indicates that marketing is at the early stages of classification and not yet ready to build grand theories or laws. Theories built on shallow foundation of poor conceptualization or classification are ill fated, as have been many of marketing's few theories.

References


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