AN ALTERNATIVE TEXTBOOK SELECTION METHOD

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Abstract

Evaluating and selecting a basic marketing text-
book is a judgemental process. This study sug-
gests the use of a quantitative technique not as a
substitute for decision-making, but as a tool to
guide those making the decision. The results of
using multidimensional scaling (MDS) techniques as
an objective method to guide the textbook selec-
tion process are reported.

This study reports the results of using an altern-
ative method as a basis for selecting a basic
marketing textbook. Four broad considerations are
suggested for selecting a basic marketing text-
book, followed by an approach for satisfying those
considerations. A brief discussion of the method-
ology used in this study is followed by an
analysis of the results, the actual textbook
selection for a basic marketing course at a large
southern university.

Selection Criteria

Selecting a basic marketing textbook is a task
with some pitfalls. Whether this task is accomp-
lished by an individual, by a committee, or in
some other manner, the textbook selected must
satisfy certain criteria. First, the textbook by
itself should present a complete and unique
module, one that is satisfactory to the teachers
of the course. Since the basic marketing course
provides the foundation for all other marketing
courses as well as for other business courses, a
second consideration is to prepare students for
these other courses. Third, undergraduate
students should find the textbook appealing since
the basic marketing course often serves as a
method for recruiting marketing majors. Finally,
perspectives outside the selection tradition
should be gathered-- perspectives that provide new
ideas and a different view of the process.

Identification of these broad considerations leads
to the solution of satisfying these four basic
considerations. First, it is necessary to acquire
a careful understanding of the criteria used to
evaluate the textbooks by those individuals
teaching the course. In this way, when conflicts
arise, reasonable compromises can be reached.
Further, there needs to be an understanding of the
important textbook selection criteria for the rest
of the marketing faculty, what they consider to be
the important factors in the basic marketing
textbook. Third, it is necessary to know what
textbook characteristics are important to advanced
undergraduate students. "Advanced" students
should have a fuller perspective of the field of
marketing. Further, "better" students are
preferred because these are the students the
marketing department hopes to recruit. Finally,
the perspectives from outside the selection
tradition can be sought from a convenient source--
marketing doctoral students. These doctoral
students combine the perspectives of students,
which they are, and teachers, which they are
preparing to become.

Having identified the broad considerations and
possible ways to satisfy these considerations, the
next problem is to identify an objective method for
gathering the necessary information. This paper
proposes multidimensional scaling (MDS) as an
objective method to accomplish the goals previously
proposed.

Methodology

Using MDS as a technique upon which to base text-
book selection has several advantages. It works
well with small samples, and it not only identifies
preferred objects but also indicates suitable
compromises. However, MDS does more than just
indicate the preferred or the suitable choices.
Perhaps its greatest advantage is that it ident-
ifies the factors underlying people's opinions; it
brings in their perceptions. Further, MDS
techniques allow for the creation of visual
displays, referred to as spatial maps, that
represent the respondents' perceived dimensions
when evaluating the stimulus objects. These
spatial maps permit a better understanding of the
similarities and dissimilarities between objective
and perceptual dimensions. Spatial maps do not
necessarily represent perceptions, but they do
provide insights into perceptions. In addition,
MDS provides a measure of "goodness of fit" of the
multidimensional model to the data.

In general, MDS is a group of geometric models for
representing one-dimensional expressions of relat-
ionships in multidimensional space and the methods
for fitting the data to these models. A basic
concept of MDS is that anything, whether a product,
a service, or a textbook, has both perceived and
objective dimensions. Early MDS methods
(Richardson 1938, Torgerson 1952, Messick and
Abelson 1956) were metric techniques that generated
only perceived stimulus space, not ideal points.
Shepard (1962a, 1962b) developed a nonmetric MDS
method which summarized nonmetric input and
provided metric output. Refinements and extensions
of MDS were made by Carroll and Chang (1969),
Guttman (1968), Kruskal and Carmone (1969), McGee
(1968), Tucker and Messick (1963), and Young and
Torgerson (1967). The procedures used in this
analysis were developed by Carroll and Chang for
Bell Laboratories. These algorithms can be
purchased inexpensively from Bell Laboratories,
Murray Hill, New Jersey.

The analysis reported illustrates the use of MDS
for textbook evaluation and selection. Three
groups of respondents participated: five under-
graduate marketing students, eleven graduate
marketing students, and five marketing department
faculty members. The undergraduates were all
seniors, marketing majors enrolled in quantitative
marketing decision analysis. The majority of the
graduate students were doctoral student; all were
enrolled in a quantitative marketing seminar, a
required course for marketing majors. Of the five
faculty members, two regularly teach the under-
graduate basic marketing course.

Each respondent was given a form upon which were listed eight basic marketing textbooks by authors: McCarthy, Pride and Ferrell, Markin, Evans and Berman, Kotler, Stanton, Cunningham and Cunningham, and Kurtz and Boone. Each respondent ranked each possible pair of textbooks from 1 (most similar) through 28 (least similar) and then ranked the textbooks from 1 to 8 in order of preference.

Four general types of data can be analyzed with MDS: similarities data, attribute data, appropriateness data, and preference data. These can be used singly; however, analyses linking one to another are usually more useful. This study analyzes both similarities (or, as in this case, dissimilarities) data and preference data. The algorithm used to analyze dissimilarities data was the Bell Laboratories SINDSCAL, which uses rankings of most similar to least similar pairs of stimulus objects to generate a multidimensional plot of these objects.

The software allows a large number of dimensions to be selected for the SINDSCAL analysis. In this analysis two- and three-dimensional plots were used. Increasing the number of dimensions increases the chance of finding a unique model; however, there is a tradeoff between uniqueness and ease of understanding. Shepard (1972) pointed out that most applications of MDS have yielded "interpretable and sometimes even enlightening representations in mo more than three and, indeed quite often, in only two spatial dimensions."

The SINDSCAL output served as input for the PREFMAP algorithm, which uses both the dissimilarities and the preferences to generate multidimensional plots with the stimulus objects, ideal points, and vector preferences. Not only does PREFMAP provide both the ideal point and vector preferences, it also indicates which should be used in the analysis on the basis of F ratios and correlations.

In this example, an ideal point model was used with each respondent represented on the spatial map by a point. This ideal point indicated the position of that respondent's ideal stimulus object (in this case, the ideal textbook) along the dimensions. In addition, an average ideal point was given for each group of respondents. This average ideal point is useful for reaching compromises. However situations may arise when the respondents do not completely fit the similarities data; such a situation occurred in this example. When this happens, anti-ideal points are generated. Anti-ideal points may be given for any or all of the respondents and for the average respondents. These points are interpreted so that the textbooks furthest away from an anti-ideal point are actually most referred by that respondent's.

PREFMAP employs external analysis, fitting ideal points based on preference data to a stimulus space developed from similarities data from

the same respondents. According to Green and Rao (1972) external analysis is preferable in most instances to internal analysis.

Like any other quantitative technique, MDS has its limitations. All respondents will not perceive a stimulus object to have the same dimensions or the same number of dimensions. Neither will they attach the same level of importance to a dimension. Further, the dimensions and levels of importance used by respondents to judge a stimulus object may not remain stable over time. in addition, the availability of MDS computer programs can allow the abuse of MSD techniques by those unaware of its limitations.

Findings

The data from each of the three sets of respondents were analyzed with both SINDSCAL and PREFMAP. The results of these analyses are reported here for the undergraduate students, the graduate students, and the faculty, in that order.

Undergraduate Students. For the undergraduates, the three-dimensional model explained 57.4 percent of the total variance. In addition, the correlations between the respondents and the model ranged from .58 to .89. MDS techniques have no built-in procedures for labeling the model's dimensions; this is the researcher's responsibility. In this situation axes were labeled in terms of textbook characteristics as they would be perceived by undergraduate students.
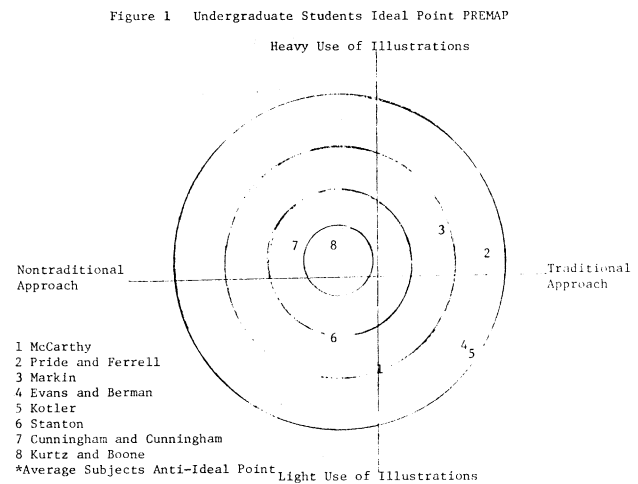
Figure 1   Undergraduate Students Ideal Point PREMAP

Heavy Use of Illustrations

Nontraditional Approach

Traditional Approach

1 McCarthy
2 Pride and Ferrell
3 Markin
4 Evans and Berman
5 Kotler
6 Stanton
7 Cunningham and Cunningham
8 Kurtz and Boone
*Average Subjects Anti-Ideal Point

Light Use of Illustrations

Figure 1 is a representation of the first two dimensions and the textbooks and the average undergraduate student in relation to those dimensions. However, **Figure 1** shows only the first two of the three dimensions. This was done for two reasons: (1) the first two dimensions explained most of the variance, and (2) the two dimensional model was easier to display and comprehend. Dimension 1 was judged to be the type of approach used to present the material, ranging from traditional to nontraditional with the assumption that the traditional approach would be the one more familiar to the undergraduates. Dimension 2 was identified as use

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of illustrations and similar supports, ranging from heavy to light use. Dimension 3 (not show) was ease of reading, ranging from easy to difficult.

The ideal point model generated by the PREFMAP algorithm gave anti-ideal points for all subjects including the average. As explained earlier, an average ideal point indicates the position along the dimensions of the model that would best suit the average respondent. However, in this situation, the subjects did not completely fit the similarities data; therefore, anti-ideal points were generated by the computer package. With anti-ideal points, the textbooks furthest away from the average anti-ideal point were actually the most preferred. Referring to **Figure 1**, for example, Pride and Ferrell was the textbook furthest away from the anti-ideal point and, therefore, the one best suited to the average undergraduate student. Evans and Berman was second, followed by Kotler, Markin, McCarthy, Stanton, Cunningham and Cunningham, and Kurtz and Boone, in that order.

Figure 2   Graduate Students Ideal Point PREFMAP
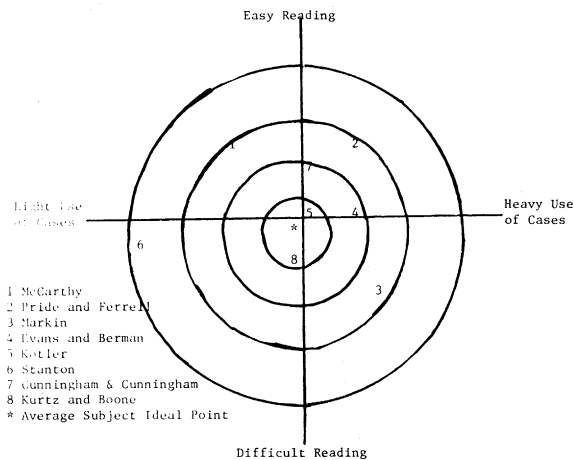
Graduate Students. It would be unrealistic to assume that graduate students would use the same dimensions as undergraduates. Graduate students have had more of an in-depth study of the discipline, and most of these students were preparing to teach marketing. Therefore, new dimensions had to be identified for this group of respondents. **Figure 2** shows the placement of the textbooks and the average graduate student in relation to the first two dimensions. Again, only two dimensions were represented for the same reasons given previously: (1) the first two dimensions explained the greatest amount of variance and (2) two dimensions were easier to represent and understand graphically. Dimension 1 was judged to be the use of supplemental materials, such as cases and illustrations, ranging from light to heavy use. Dimension 2 was ease of reading from easy to difficult. Dimension 3 (not shown) was prestige, ranging from low to high.

Although a few of the graduate students were represented by anti-ideal points, the average was not. As Figure 2 shows, the two textbooks closest to the average ideal point were Kurtz and Boone and Kotler. Next were McCarthy, Evans and Berman, and Cunningham and Cunningham. Pride and Ferrell and Markin were next, followed by Stanton.

The model produced by the SINDSCAL analysis accounted for 43.9 percent of the variance. The correlations between the individual graduate students and the model ranged from .56 to .84.

Faculty. Again, it is logical to assume that the professors' perceived dimensions would differ from those of students, both graduate and undergraduate. The faculty members' perceptions were a result of a greater degree of experience and expertise in the field of marketing. Therefore, assistance was requested from some of the faculty members to label the axes.
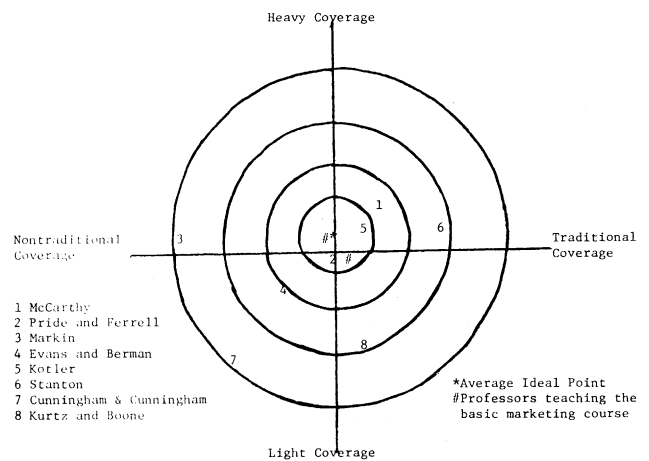

Figure 3   Faculty Ideal Point Average PREFMAP

Figure 3 represents the positioning of the textbooks and the average faculty member along the first two dimensions. Again, only the first two dimensions were illustrated for the same reasons mentioned previously. Dimension 1 was judged to be traditional /nontraditional coverage with Pride and Ferrell, Evans and Berman, Cunningham and Cunningham, and Markin typifying increasingly nontraditional coverage. Dimension 2 was depth of coverage, ranging from heavy to light with Markin, Stanton, Kotler, and McCarthy representing increasingly heavy coverage. Dimension 3 was definitional/strategic approach with Kotler alone typifying the strategic approach.

Of the faculty members, only one was represented by an anti-ideal point. All others including the average subject were ideal points. The textbook that was closest to the faculty average ideal point was Pride and Ferrell. This is the textbook that was closest to satisfying the dimensions that the faculty members, on the average, felt were most important for a basic marketing textbook. Evans and Berman and Kotler were next, followed by McCarthy, Stanton, Kurtz and Boone, and Cunningham and Cunningham. Markin was furthest from the average ideal point.

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The SINDSCAL model generated for the faculty accounted for 74.1 percent of the variance. The correlations between the model and the individual faculty members ranged from .82 to .89.

The two faculty members who regularly teach the basic marketing course, although in different quadrants in the PREFMAP output, were not very far from each other, nor from the average subject. The ideal point for one of the two was closest to Pride and Ferrell, Evans and Berman, and Boone and Kurtz, in that order. The other's ideal point was closest to Pride and Ferrell, Evans and Berman, and Kotler, in that order. The correlations between the model and each of those two faculty members were .82 and .88.

Summary and Conclusions

The overall question is, "What textbook should this Marketing Department use to teach basic marketing?" According to the faculty's average ideal point, the first choice should be Pride and Ferrell. The textbooks closest to the average ideal point for the graduate students were Kurtz and Boone and Kotler. The textbooks furthest away from the average anti- ideal point for the under- graduate students were Pride and Ferrell, Evans and Berman, and Kotler. Not surprisingly, these three groups were not in complete agreement.

There are different ways to resolve those differences. One possibility would be to use only the faculty data since they should have more experience and expertise. However, this would not take into consideration the perceptions of the two groups of students. Further, one of the advantages of MDS is that it indicates suitable compromises.

Another possibility would be to select the Pride and Ferrell textbook since it was the most pre- ferred for the averages of the two most involved groups--the faculty and the undergraduates. Further, this textbook was closest to the ideal points of the two faculty members who regularly teach the basic marketing course. However, this textbook was not very close to the graduate students' average ideal point.

Considering all three average ideal points, Evans and Berman appeared to be a good compromise choice. It appeared no lower than in the second choice areas for all three groups and was selected for use in the semester that followed. The data provided by MDS was not used in absolute terms, but rather, was used in open discussion to aid in reaching this compromise.

The purpose of this research was to illustrate the use of MDS techniques for textbook evaluation and selection. Four basic considerations were identified as important to the textbook selection process. First, the textbook should be a complete and unique module that is satisfactory to the teachers of the course. The second consideration

was the requirements of other marketing in a business courses. These first two considerations were satisfied by seeking data from the marketing faculty. The third consideration, that under- graduate students find the textbook appealing, was met by the perceptions of advanced marketing undergraduate students. Finally, perceptions from outside the selection tradition were considered with data from marketing doctoral students.

MDS does not make the selection, but it was a useful tool to guide those making the selection. Not only does it identify preferred selections for the different groups but it also identifies pre- ferred selections for the individuals within those groups. Further, MDS allows insights into the factors that influence those preferences.

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