

MAIL VS PERSONAL INTERVIEW ADMINISTRATION
FOR Q SORTS: A COMPARATIVE STUDY

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The results Q methodology yields, pertinent to the study of attitudes, are highly appropriate to many market research problems as those problems relate to product development and/or identification of communication strategies directed towards consumers. As a result, there are several researchers, including ourselves, who employ Q approaches whenever possible and appropriate for market segmentation and product space exploration.

Along with its genuine and proven value to this field, Q has simultaneously confronted the market researcher with several questions. (Of course, simply because our work arises in the market research setting, we do not mean to imply that these same questions are of no concern to researchers using Q in other fields; indeed, they occasionally are of great concern.) These questions involve (1) the small-sample nature of Q, and (2) the complexity of Q-sort administration.

In the first instance, while Q methodology is fundamentally a small (people) sample methodology,

most commercial clients--unfamiliar with Q and numbed by decades of traditional descriptive survey research in which 200 respondents comprise a minimum and "1000 would be nice"--often demand large samples of people for studies they commission. Such redundancy of data may be a bit wasteful, although it is not inherently bad. It means, however, that when the researcher wishes to analyze such data utilizing principal factor procedures (which are the factoring methods most widely used today and the ones generally felt to be the most sophisticated and precise), the data matrix with far more variables (people) than observations (Q items) is mathematically inappropriate.

In the second instance, the complexity of the Q-sort task is generally felt to require in-person supervision of the respondent by trained interviewers. While this is frequently possible, interviewing by mail is sometimes more desirable for a variety of reasons: the higher cost of in-person interviews might be prohibitive to a client, relevant attitude patterns might have wide geographic distribution, etc. This second problem is clearly exacerbated by the large-sample stipulation of the first problem.

With regard to the first problem, some factor a data matrix that is a sub-population drawn from the larger sample (e.g., Mauldin, Sutherland & Hofmeister, 1978)--although this is usually not a satisfactory answer to most clients. Another response has been to adopt the technique described by Johnson (1970) for obtaining principal factor-like solutions from large sample Q-data matrices. This, along with several other refinements, has been the approach we have used. We regularly verify the results from the large-sample analysis by comparison with analyses of small sub-populations from the larger data set; the large-sample procedure seems to be satisfactory for 90% or more of our analyses. (When it is unsuccessful, we turn to the more tedious approach of multiple sub-population analyses followed by some consolidation procedures.)

With regard to the second problem area, the major purpose of this paper is to serve as a methodological note reporting one comparison of mail vs. in-person administrations of Q sorts.

BACKGROUND

The client--a national corporation manufacturing, among other products, an aid to household cleanliness --previously had commissioned a national consumer survey, utilizing one of the major consumer mail panel organizations. There was a desire to go beyond the descriptive demographic data of the survey and to identify psychological market segments. A Q method study was clearly the appropriate approach.

Because of the previous research, the client wished to have the respondents for the Q study drawn from the same consumer panel, which meant that hundreds of Q sorts would need to be mailed to respondents around the country for self-administration. Of course, there have been small sample Q studies conducted by mail, usually with the researcher discussing the procedures with the respondents by telephone once they had received the research materials. But we knew of no precedent for the large-scale administration of Q sorts. Beyond all the usual caveats to through-the-mail data collection, we were concerned that respondents would not comprehend the rather complex (to the lay public) and unfamiliar forced-distribution sorting procedures, that they would misrecord their data, and/or that they would misunderstand the sorting criterion--all problems that in-person interviewers meet and overcome regularly.

THE STUDY

As is typical, two focus group interviews were conducted in each of four major cities to identify consumer concerns and attitudes relevant to the client's product category. Analysis of these discussions, along with an examination of concerns voiced by the client, resulted in a 77-statement Q sort.

Instructions for self-administration of the Q sort were drafted, pre-tested, and revised until more than 90% of pre-test respondents satisfactorily comprehended and completed the task. The final mail questionnaire included a page and a half of single-spaced, typed instructions and a half page illustration showing correctly filled-in code sheets. Respondents were provided with the Q-sort deck, a pyramid-style coding form, and a set of self-adhesive, numbered stickers--one number for each item in the sort deck. Briefly, the instructions identified the materials, directed the respondent to make a freely-distributed 3-pile coarse sort, then asked for the completion of each rank in the 11-rank forced sort. As a rank was completed, the respondent was to transfer the appropriate numbered stickers to the corresponding column of blanks on the coding form. (This code-as-you-go procedure concerned us slightly; although it greatly simplified and clarified the instructions, it inhibits the respondent from reviewing and adjusting the sort at or near completion of the task should she feel that an adjustment would present a truer picture of her attitudes.)

The consumer panel organization mailed the Q-sort materials and an additional brief questionnaire about use of the product under study to 800 panel members; 400 of these had indicated on the previous study that they had used the product during the past two years; the other 400 were aware of the product but had not used it.

Because of our concerns about the efficacy of the large-scale mail administration of Q sorts, a sample of 50 housewives in the Chicago area was drawn; these women were not members of the consumer panel, but were recruited so that as a group they would resemble the consumer panel of respondents in product usage and key demographic characteristics. These respondents were selected after mail response was terminated so that matching could take into account any non-response bias that might occur in the usage and demographic variables of interest. This sample of women was ad-

ministered the same Q sort in a conventional in-person manner by a trained and experienced Q-sort interviewer.

RESULTS

Fifteen business days after the arrival of the first mail return, data collection for the mail sample was halted. At that point, sorts had been returned by 598 of the 800 who had received them. Of these, 36 (6%) were discarded as unuseable, primarily due to confusion in completing the sort coding form. As one might expect, response from product users was greater (65% of the remaining 562) than from non-users.

Data from the mail sample were analyzed utilizing our normal large-sample procedures, briefly described earlier. In terms both of variance explained and interpretability of resulting attitude patterns, a four-factor solution rotated to orthogonal (varimax) simple structure seemed our best choice for these data.

Data from the in-person interviews were analyzed with typical small-sample procedures using a standard version of the QUANAL computer program (Van Tubergen, 1975). Of course, decisions during analysis are a subjective matter, but a conscious effort was made to view this data set as independent from the mail sample and to find the best solution for it without regard to the solution found for the mail sample. Again, the best choice appeared to be a four-factor solution with orthogonal rotation. Three- and five-factor solutions with oblique and orthogonal rotations were all attempted, but each lacked the clarity and/or parsimony of the chosen solution.

The interpretation of the two solutions was highly congruent. Because of the proprietary nature of the data, we cannot present the attitude patterns or their interpretations in this paper. A good indication of our results, however, is given by the correlations in Table 1. The item z-scores from each pattern emerging in the mail sample were correlated with

TABLE 1. Correlations of Patterns in Two Analyses

		Mail Administration			
		P1	P2	P3	P4
In-person Administration	P1	.59	.36	.88	.30
	P2	.33	.85	.59	.44
	P3	.90	.59	.69	.71
	P4	.73	.34	.47	.24

those for each pattern emerging in the in-person interview.

DISCUSSION

As the correlations show, each pattern in one of the administrations had some association with all the patterns in the other administrations--just as each pattern within a single analysis will have some association with the other patterns of that analysis. What is important here is that, with one exception, each pattern in one analysis has one and only one extremely high (above .85, with 75% or more explained variance) correlation among the patterns of the other analyses. Further, these associations are mutually exclusive.

Thus, although patterns 1 and 3 are somewhat similar in both analyses, it is reasonably clear that pattern 1 in the mail administration is nearly identical with pattern 3 in the in-person administration ($r_{31} = .90$), and vice versa ($r_{13} = .88$). Similarly, pattern 2 seems to be nearly identical in the two administrations ($r_{22} = .85$).

The fourth patterns in the two analyses clearly do not fit together ($r_{44} = .24$). The mail administration pattern 4 shows modest similarity with in-

person pattern 3 ($r_{34} = .71$), while in-person pattern 4 shows a similar modest relation to mail pattern 1 ($r_{41} = .73$). This is not surprising given the identity between mail pattern 1 and in-person pattern 3, and suggests that the fourth patterns in the two analyses are subtle variants of that common pattern. Of course, we cannot rule out the possibility that the two pattern 4s are artifactual of their respective data collection methods, or indeed of some uncontrolled aspect of our comparison. Even if this is the case, the connections between these patterns and one of the common patterns would tend to minimize such concerns in the present study.

Some limitations on this study deserve mention. First, non-response bias inherent in mail data collection can affect Q as much as any other methodology. Here, we could have matched the in-person sample to the original mailing sample (rather than to the returns) on product usage; with more non-users of the product in the sample, we might have found a more distinctly "non-user" pattern of attitudes. Such sampling control is still a major advantage of in-person data collection where large samples are involved.

Second, it should be remembered that our mail respondents, while having never before seen or performed Q sorts, were members of a consumer panel and as such were accustomed to responding to research tasks. Because of this, they may have more easily assimilated our instructions; indeed, in order to maintain a "good record" with the panel organization (a regular source of incentive rewards), they may have expended more effort to do a competent Q sort than might a random sample of the general public. On the other hand, that the same patterns emerged in the two analyses suggests that the panel members (although "special" consumers) generally held the same attitude patterns as "unspecial" consumers (with the possible exception of pattern 4).

This last point reinforces for us the generaliz-

ability of Q with regard to pattern identification as discussed by Olins and others (1973). We refer to the notion that a particular group of people (large or small, "housewives" or "schizophrenics", etc.) will include relatively few but distinctive patterns of response to a particular attitude object, and that most of these will probably appear in an examination of any given sample of the people. In short, Q is reliable with respect to interpretations of subjective responses.

This study also emphasizes the point that Q is not generalizable with respect to the distribution of the observed patterns in the larger population. Brown (1978) has recently reminded us that a pattern associated with only one or two people might be of importance equal to or greater than patterns associated with many respondents--depending upon just who those one or two were. A further argument against ignoring a pattern with few members is that it may be more prevalent in the overall population--i.e., it is impossible to draw, on an *a priori* basis, a representative sample of attitude patterns, thus preventing such distributive generalizations. The present study is a case in point: As shown in Table 2, although the patterns appear in both analyses, their distributions among respondents are quite different.

TABLE 2. Percentage of Respondents
Associated with Patterns

Mail P1 = 34%	In-person P3 = 20%
Mail P3 = 38	In-person P1 = 48
Mail P2 = 13	In-person P2 = 26
Mail P4 = 15	In-person P4 = 6

What the foregoing speaks most loudly to, we think, is the general robustness of Q technique and the statistical methods generally associated with it. The in-person study might be seen as a fairly "by-the-books" use of Q. In contrast, the mail study involved a large sample of people, requiring unconventional

factor procedures and the hazards of Q sort self-administration by untrained consumers. Yet the attitude patterns and their interpretations arising in the two studies are essentially identical. And, when all is said and done, whether the application is to theory construction or to solving a practical marketing problem, the interpretation is what counts.

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Except for Q, factor-analysis is all technique without a methodology. (W. Stephenson)