C81-08820

E

To: Harry Daniel

Date: April 13, 1981

From: Carolyn Levy Carolyn Levy

Subject: Monadic Testing

At your request I have reviewed the literature on monadic testing as it compares to other test methods. A summmary of this review is presented below. In addition, a technique developed by Dr. Daniel Ennis is briefly discussed and a suggestion is made that this technique can be used to determine "position levels" for prototype cigarettes. A final suggestion is made that we should, as part of our product development efforts, test more cigarette models which vary systematically in product features in order to assess the relative importance of various product characteristics.

A monadic product test is often desirable because it is simple for the panelist to complete and the panelist implicitly uses his own brand as the reference product (Batsell & Wind, 1980). Additionally, in some cases, as outlined by Brown, Copeland and Millward (1973), there is no choice but to use a monadic test. Two of these cases are possibly relevant to our cigarette testing here at P.M.: 1) when there is no obvious competitor, and 2) when the competition is from a number of different types of products. It is essential in monadic testing to carefully match the panelists who are assessing different products so that any differences in ratings will be meaningful. Obviously, monadic tests are also more expensive to administer since a separate panel must be used for each product tested.

Staggered or sequential monadic testing provides panelists with an explicit reference product, and the rating of the product tested second is influenced by the characteristics of the product tested first (Daniels and Lawford, 1974). Bengston and Brenner (1964) conducted parallel tests of canned green peas using staggered and monadic procedures. They found that the panelists tended to be more critical of the products in the staggered than in the monadic design, and that the staggered design was more sensitive to product differences than the monadic design. Clearly, in our testing of brand modifications and flavor modifications the increased magnification of any differences afforded us by the staggered design is desirable. A suggestion made by Penny, Hunt and Twyman (1972) might prove of value, however. They proposed that comparative tests might be more "realistic" if the possibility that no differences exist between products were made more explicit and more plausible to the panelists.

One of the major advantages of comparative testing is that the panelist has the opportunity to express a preference for one product over the other. However, the reliability of the panelists' expressed preference is very rarely measured. Greenberg (1963) has suggested study replication using different code numbers as a way to classify true preferrers. If chance alone is operating, then 50% of the panelists should be inconsistent in a forced choice preference test (Penny, et al., 1972). We are planning to conduct tests using this type of procedure in order to assess its utility.

1000803224

All in all, the amount of information gained from comparative product testing, the fact that each panelist assesses both products, and the greater sensitivity to minor differences favor our continued usage of comparative product testing.

Bengston and Brenner (1964) pointed out that a benchmark is of value when developing a new product and that monadic testing is a convenient way to test products in the same category as the benchmark. In our standard product tests we have the ability to look at each product evaluated "monadically" by comparing panelists' responses when the control was smoked first to the responses of those panelists who smoked the experimental first. (We feel reasonably confident that the majority of panelists do smoke the cigarettes in the specified order since the cigarette smoked first usually receives higher positive ratings than the cigarette smoked second.) The ratings that the "first smoked" cigarette receives on the various qualitative dimensions provides information on how this cigarette compares with other test and/or commercially available cigarettes (Seaton, 1974). As part of our Newport testing program, we plan to look at "smoked first" ratings for the various brands tested and compare these to comparative ratings.

A technique recently developed by Dr. Daniel Ennis may actually be more useful in establishing benchmarks than the monadic approach outlined above, however. Essentially, Dr. Ennis' technique involves factor analyzing the subgroup means for all of the rating scales on our standard scalar questionnaire (a subgroup is, for example, Merit smokers rating Merit in test #4176). Two independent underlying factors have emerged from this analysis, suggesting that panelists, when using this questionnaire, are assessing the cigarettes on an "intensity" dimension and on a "pleasure" dimension. When the subgroup's scores on the two factors (or dimensions) are graphed, fairly well defined regions are evident. For example, the Merit smokers rating Merit tend to cluster in one area, while Vantage smokers rating Vantage cluster in another area. These regions could very well serve to define positions where new products should be targeted. This type of analysis can also suggest directions for product improvement. For example, when Merit was tested against the 5mg M+199 model, Merit received a higher "pleasure" score and a lower "intensity" score than usual. This suggests that the Merit smokers would find a less intense cigarette more pleasureable.

At present we are taking the necessary steps to develop product maps for each of the major product development areas. For some products (e.g., Marlboro) we are planning tests against competitive products in an effort to gain additional insight into what the smokers of a particular brand are seeking. As part of this mapping program, I would like to suggest that tests be conducted in which the models vary systematically in product features. The current dilution/RTD studies are an example of this approach. This type of study will allow us to assess the relative importance of various product characteristics to the smoker.

If you would like additional information on any of the topics discussed in this memo, please let me know.

CJL:yl

cc: Dr. R. B. Seligman
Mr. R. N. Thomson
Mr. M. E. Johnston
Mr. L. F. Meyer
Mr. P. N. Gauvin
Dr. D. M. Ennis
Mrs. A. F. Cantile
Mr. T. Budne (NY)

REFERENCES

Batsell, R.R. and Wind, Y. Product testing: current methods and needed developments. Journal of Market Research Society, 1980, 22, 115-139.

Bengston, R. and Brenner, H. Product test results using three different methodologies. Journal of Marketing Research, 1964, 1, 49-52.

Brown, G., Copeland, T. and Millward, M. Monadic testing of new products - an old problem and some partial solutions. Journal of Market Research Society, 1973, 15, 112-131.

Daniels, P. and Lawford, J. The effect of order in the presentation of samples in paired comprison product tests. Journal of Market Research Society, 1974, 16, 127-133.

Greenberg, A. Paired comparisons vs. monadic tests. Journal of Advertising Research, 1963, 3, 44-47.

Penny, J.C., Hunt, I.M. and Twyman, W.A. Product testing methodology in relation to marketing problems - a review. Journal of Market Research Society, 1972, 14, 1-29.

Seaton, R. Why Ratings are better than comparisons. Journal of Advertising Research, 1974, 14, 45-48.