

# The identification of factors influencing destination choice : an application of the repertory grid methodology

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## THE IDENTIFICATION OF FACTORS INFLUENCING DESTINATION CHOICE: AN APPLICATION OF THE REPERTORY GRID METHODOLOGY

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### ABSTRACT

A common problem of all cognitive-behavioural models of destination choice is that of the identification of factors influencing the behaviour of interest. This paper considers the applicability of Kelly's repertory grid methodology to identify the factors influencing consumer choice of shopping centres. Firstly, some methodological issues in the assessment of the relative importance people attach to certain variables in deciding where to shop are discussed. Secondly, the main findings of an application of the repertory grid methodology are presented. The paper concludes by discussing some implications of the measurement of the determinants of choice behaviour and the construction of mathematical models of destination choice.

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### Introduction

During the past decade, several disaggregate behavioural models for explaining individual mode-choice and destination-choice behaviour have been suggested and applied in a variety of transportation contexts. Examples include the binary and multinomial logit and probit model (e.g. Recker and Kostyniuk, 1978; Bouthelier and Deganzo, 1979), attitudinal models (e.g. Recker and Golob, 1976; Thomas, 1976) and models based on the information integration and functional measurement approach (e.g. Louviere and Wilson, 1978; Hensher and Louviere, 1979). Each of these developments has its own advantages and shortcomings but because all of these models attempt to understand the decision-making process of an individual traveller, they share the problem of identifying the factors influencing these decision-making processes. In fact, if these behavioural models are to contribute to the improvement of the policy-responsiveness and accuracy in the transporta-

tion-planning process, it first seems necessary that these factors are identified correctly. It was for this reason that a recent workshop on behavioural modelling suggested that the problem of the identification of independent variables be studied at length (Louviere, 1980). In particular, it was recommended that Kelly's repertory grid technique should be investigated, because it combined the major positive features of existing approaches.

The purpose of the present paper is to discuss the potentials of the repertory grid methodology in identifying the factors underlying destination choice. It reports about an empirical application of Kelly's technique to infer the relevant factors influencing consumer choice of shopping centres. In addition, the potentials of the repertory grid methodology as compared with those of other approaches are discussed from a methodological perspective.

### **Methods of Identifying Influential Factors in Destination Choice**

A very popular approach for identifying the factors underlying consumer choice behaviour has been that of multidimensional scaling (e.g. Dobson and Kehoe, 1974; Dobson et al., 1974; Nicolaidis, 1977). Multidimensional scaling involves specification of the preference or similarity of pairs of alternatives, on the basis of which the structure of the relationship between these alternatives is uncovered in terms of a set of independent dimensions. Multidimensional scaling thus yields a configuration of stimuli (transport modes, destinations) in multidimensional space. This configuration is supposed to correspond in some way to the psychological configuration from which the similarity or preference estimates were drawn by an individual. The influential factors are then identified, on an a posteriori basis, by inspection of the derived scaling configuration or by relating the scales to a set of independent variables denoting the attributes of the alternatives. Consequently, an advantage of multidimensional scaling methods is that no pre-specification of attributes is necessary. This will be an especial advantage in cases where the completeness of the set of attributes generated by preliminary research is in any doubt. Of course, one could start with an extensive list of attributes which is subsequently reduced, but the attributes presented to an individual may be meaningless to him, implying that serious bias might be present in his responses. On the other hand, multidimensional scaling methods involve a number of theoretical assumptions and practical issues which suggest some probable limits to their applicability.

Firstly, these methods presume that the dimensions are independent, that is, that the factors combine linearly to yield the configuration of the stimuli. However, if this assumption is incorrect, then the interpretation of the dimensions may be meaningless (Lieber et al., 1978). Moreover, as Lieber et al. have noted, attributes which are really independent in the mind

of an individual may load on a single dimension, and be evaluated as part of a single dimension, when in fact such a conclusion is incorrect. This type of analysis will therefore only yield meaningful results if the set of stimuli can be selected in such a way that it encompasses mutually independent attributes. However, such a design will be difficult to obtain in real-world situations, because not all combinations of attribute levels will occur.

Secondly, multidimensional scaling methods, assume that individuals are able to apply constantly and consistently a single function in combining the similarities of various attributes into a summary similarity or preference response throughout the interview. The plausibility of this assumption needs further examination, but it seems that it becomes more and more critical as the decision-making task becomes more complex. Finally, the interpretation of the dimensions presents a difficulty because multidimensional scaling methods usually discard eliciting the semantic labels of the attributes used in forming the summary similarity or preference judgements. The identification of the factors therefore relies upon a subjective a posteriori interpretation of the dimensions by the researcher, at the risk of superimposing his own perceptions.

Another approach to identifying the factors influencing destination choice involves the use of scales such as Likert or semantic differential scales to define these factors (e.g. Michaels, 1974; Thomas, 1976). This procedure requires an individual to rate subjectively the importance of a set of pre-defined attributes or to characterize stimuli using bipolar scales. Average ratings of importance are used to identify the factors influencing choice behaviour or, alternatively, multidimensional scaling or factor analysis is used to reduce the semantic scores to a smaller number of independent underlying perceptual dimensions. The fact, that the procedure involves a priori a list of attributes to which an individual is supposed to respond implies, however, that he may be forced to respond to attributes which are totally unimportant to him. Hence, these scores might be relatively unreliable. Further, this approach may generate biases due to the inclusion of irrelevant attributes or exclusion of relevant attributes. Moreover, some of the attributes might be semantically meaningless or subject to varying interpretations, implying that care should be taken to compute average importance scores.

A third approach, used extensively by Louviere and his associates (e.g. Louviere et al., 1977), is that of factor listing. This approach involves respondents being invited to specify the reasons for choosing a particular destination and not choosing another one. Then, their responses are classified and counted and the most frequently-mentioned reasons are considered to represent the most important attributes influencing choice behaviour. The advantage of this approach is its directness, but it inherently assumes that individuals are able to specify instantaneously the attributes they use to

make a decision. However, their stated reasons might be an ex post rationalization of their behaviour and, if so, one might artificially generate close correspondence between attributes and behaviour.

An approach combining most of the positive features of the considered approaches is Kelly's repertory grid methodology. This methodology is linked with personal construct theory which was developed in a clinical setting. The theory is erected on the fundamental postulate that an individual uses strictly personal constructs to give meaning to the world around him and guide his actions. The ramifications of this postulate are elaborated via eleven corollaries suggesting how individuals develop their personal constructions of reality.

The repertory grid methodology was developed in order to elicit these personal constructs. In its most commonly used form (Hudson, 1974; Fransella and Bannister, 1977), a subject is asked to name elements which perform specific roles. These elements must be within the range of convenience of the constructs to be used and must be representative. Next, an individual is presented sets of triads of elements and asked to specify some important way in which two elements are alike, and thereby different from the third. This process is repeated with different triads until, after several consecutive trials, the individual is unable to provide additional constructs. The individual is then requested to rate each element in each construct which he has provided. The resulting repertory of constructs and grid scores may then be subjected to some form of multivariate analysis to eliminate the redundancy in the grid matrix. In addition, individuals may be asked to rate the constructs in terms of their importance in influencing decisions.

The advantage of this method is that it relies upon an individual's own subjective and meaningful construing of reality. Hence, there is no need to pre-specify the attributes which a subject is supposed to respond to, and it avoids problems of ambiguity of semantic meanings of presented attributes. Thus, the researcher is able to appreciate better the nature of an individual's responses because he can also use the semantic labels which were specified by the individual. Moreover, this method does not involve possible difficulties with regard to the inclusion of unimportant attributes and, if employed correctly, by the exclusion of important attributes. By getting an individual to compare the similarities of grid elements, the repertory grid methodology ensures that the individual's perception of reality is built up carefully and consistently. As such, it provides a unified context for the rating tasks. It therefore seems a plausible assumption that this approach will yield relatively reliable responses. In the following section, the main findings of an empirical investigation which was conducted to gain more insight into the practical difficulties involved in using the repertory grid methodology to identify the factors influencing destination choice will be reported.

## Method

The empirical research reported in this paper formed an integral part of a wider study of consumer shopping behaviour. The aim of the more general study was to develop a behavioural model which explains consumer destination choice within the context of shopping, and which can be used to predict the probable effects of policy decisions regarding the shopping environment on spatial shopping behaviour. The first stage of this project was concerned with the identification of the factors influencing spatial shopping behaviour.

To obtain data on the factors influencing spatial shopping behaviour, 20 respondents were asked to participate in the repertory grid analysis. The respondents varied in age, education, sex and social class variables. All respondents were member of the same church community. Therefore, to some degree, the 20 respondents constitute a random sample, unless it is argued that all members of this church community are atypical in terms of their decision-making. Each person was interviewed in a lengthy session by two interviewers who were familiar with the aim of the research project.

The elicitation of the repertory grid data involved four general decisions with regard to the research design: the selection of the repertory grid elements; the elicitation of personal constructs; the scaling of the grid elements on the personal constructs; and the ranking of the personal constructs in terms of the respondent's subjective importance weights. The study area of the wider study was the district of Woensel, a part of the municipality of Eindhoven, The Netherlands. Within the district, 12 shopping centres can be identified. All except two are planned and have nucleated forms. The remaining two centres are older developments. One is a ribbon development, the other consists of a small number of shops within a residential street. Nevertheless, these older shopping centres are generally perceived as unified shopping environments. All shopping centres plus the town centre were selected as grid elements. The 13 grid elements varied considerably in terms of their size, price, morphology, age, range of shops, parking facilities, lay-out and distance to the respondent's residence. Thus, respondents were able to differentiate between the shopping centres on the basis of different physical and non-physical attributes.

The personal constructs were elicited by presenting randomly selected triads of grid elements to the respondents. Each respondent was requested to specify some important way in which two of these elements were alike and thereby different from the third. To ascertain that each shopping centre was presented at least twice to each respondent, 9 initial triads were constructed which fulfilled this requirement. After having presented these nine triads, the interviewer continued with completely random triads. The interview terminated when, after several consecutive presentations, no new constructs were specified by the respondent. An important difficulty involved







in eliciting the personal constructs was that most respondents were not familiar with all grid elements. Therefore, they only specified their constructs if they knew all three elements of the triad. Because the presentation of grid elements is only an instrument in eliciting the personal constructs, it is unlikely that this difficulty will yield systematic errors.

After having finished this phase, each respondent was asked to rate each of the 13 shopping centres about which he possessed information on each personal construct using six-point bipolar scales. Each respondent was instructed that the difference between successive scale units was equal. Each scale was constructed in such a way that the negative pole was indicated by the score 1 and the positive pole by the score 6.

In the final phase, each respondent was asked to rate his personal constructs in terms of importance. First, each respondent was requested to specify the construct he considered most important in choosing a shopping centre. This construct was assigned a value of 100. Next, each respondent was asked to express his subjective importance weights for the remaining constructs, bearing in mind the score of the most important construct. This procedure was repeated twice; once for daily goods and once for non-daily goods.

## Results

The scores obtained in the interviews form the basis for the following analysis. In terms of both the number and range of constructs, some clear differences between the respondents exist. The number of constructs elicited ranged from 8 to 16, with an average value of 11.8. In sum, the 20 respondents specified 236 constructs. This variation in terms of number of elicited constructs suggests some degree of variability in the number of cognitive constructs used to differentiate between shopping centres. The next step in the analysis involved the examination of the content of the constructs in order to look for similarities and dissimilarities between the respondents.

Table I presents the frequency with which the respondents specified each construct. This table clearly shows that different respondents may have used different verbal phrases for constructs which may have identical psychological meaning. Bearing this in mind, Table I shows that the number of shops is most frequently mentioned by the respondents as a factor in discriminating between the shopping centres in Woensel. Other constructs which are mentioned by most respondents are parking facilities, location relative to home, atmosphere, choice range, and presence of non-retailing functions. On the other hand, constructs such as cleanliness, advertisement, safety and degree of specialization were only mentioned by one of the 20 respondents.

These findings suggest that there are some clear differences in terms of the constructs people use to discriminate between shopping centres, while other constructs seem to be used by the majority of the respondents. Overall, the most frequently mentioned constructs were of an economic nature, while social and marketing factors were mentioned only occasionally. This finding therefore substantiates the tradition of including specifically economic and spatial variables into aggregate models of destination choice.

As has been noted before, each respondent was asked to indicate the subjective importance he attaches to his personal constructs in order to choose a shopping centre for buying daily as well as non-daily goods. Table II gives the results of this analysis for those constructs which were mentioned by at least 5 respondents. This table gives the results for the non-daily goods. It clearly shows that economic variables such as quality of the goods, choice range, price and total number of shops are considered as the most important factors. Table II also clearly illustrates that non-economic factors such as physical lay-out, atmosphere and cleanliness are less important factors in influencing consumer destination choice. It is interesting to note that the respondents consider the distance of lesser importance to their destination process when buying non-daily goods. If this result holds in other circum-

TABLE II

## Rank Ordering of Subjective Importance Weights (Non-daily Goods)

Constructs	Average weight
Poor quality goods/good quality goods	91.0
Narrow range of stock/wide range of stock	87.7
Low prices/high prices	84.2
Few shops/many shops	82.4
Poor service/good service	80.9
Poor parking facilities/good parking facilities	80.6
Poor choice range/good choice range	78.4
Windy/sheltered	77.6
A centre to shop around/not a centre to shop around	77.0
Dangerous/safe	75.7
Badly organized/well organized	72.3
Badly kept environment/well kept environment	69.2
Narrow range of speciality shops/wide range	68.1
Quiet/busy	65.6
Not cosy/cosy	61.5
Dark/light	60.8
No especially attractive shops/especially attractive shops	59.3
Absence of non-retailing functions/non-retailing functions	55.4
Far from home/near to home	52.0

stances, it becomes necessary to reconsider our modelling approaches for destination choice. For example, the factor distance might be conceptualized as a factor constraining the choice set of consumers (Timmermans, 1980), rather than as a disutility factor.

Table III gives the results for daily goods. Basically, it gives similar results to those presented in Table II. Economic factors are generally considered more important than non-economic factors in influencing consumer destination choice. There is only one significant difference; the factor distance is considered far more important in the context of buying daily goods than in the context of buying non-daily goods.

### A Validation Exercise

Louviere et al. (1977) have argued that an important area for research is to assess whether different techniques yield similar results with regard to the identification of factors influencing destination choice. The results of a particular technique may be used to validate the results which stem from the application of a different technique. Therefore, it was decided to compare the results of the repertory grid test with the results of a factor-listing approach. Consequently, 131 persons were drawn randomly from the telephone directory and asked to specify the reasons for choosing the centres

TABLE III

#### Rank Ordering of Subjective Importance Weights (Daily Goods)

Constructs	Average weight
Low prices/high prices	94.0
Poor quality goods/good quality goods	91.0
Narrow range of stock/wide range of stock	88.5
Far from home/near to home	80.8
Poor choice range/good choice range	76.7
Badly kept environment/well kept environment	73.0
Few shops/many shops	71.8
Poor service/good service	70.6
Dangerous/safe	65.7
Poor parking facilities/good parking facilities	62.8
Not cosy/cosy	58.7
A centre to shop around/not a centre to shop around	56.9
Absence of non-retailing functions/non-retailing functions	55.5
Dark/light	53.0
Quiet/busy	51.6
Narrow range of speciality shops/wide range	49.7

in which they usually shopped and for not choosing the centres in which they did not shop. This question was repeated twice; once for daily goods and once for non-daily goods. Next, these self-stated reasons were classified and counted. Tables IV and V show the results of this analysis. Table IV shows that distance, price, choice range and quality of goods are the most frequently mentioned reasons for deciding where to shop. This finding is similar to that obtained in the repertory grid test, although some differences in terms of rank-order occur. Table V gives the results for non-daily goods. The most frequently mentioned reasons were choice range, distance, parking facilities, price, quality of the goods and service. Bearing in mind that there is some degree of overlap in meaning in the constructs elicited in the repertory grid test, this result is again very similar to that obtained in the grid test, except that the factor distance now appears to be more important. Evidently this difference calls for further research, but generally these findings suggest that the results of the repertory grid methodology are validated by the results of the factor-listing approach. The choice of shopping centres for buying non-daily goods seems to some degree to be governed by other factors

TABLE IV

Frequency Distribution of Factors Influencing Destination Choice when Buying Non-daily Goods

Factor	Frequency	Relative frequency
Choice range	63	22.2
Distance	39	13.7
Parking facilities	36	12.7
Cosiness	31	10.9
Price of goods	27	9.5
Quality of goods	20	7.0
Service	12	4.2
Atmosphere	10	3.5
(Window)displays	9	3.2
Speciality shops	8	2.8
Department stores	7	2.5
Multi-purpose trip	6	2.1
Leisure trip	5	1.8
Habit	3	1.1
Easy access to bus	3	1.1
Liveliness	3	1.1
Advertisement	2	0.7
	284	100

Average number per respondent 2.17

TABLE V

Frequency Distribution of Factors Influencing Destination Choice when Buying Daily Goods

Factor	Frequency	Relative frequency
Distance	95	35.6
Price of goods	46	17.2
Choice range	36	13.5
Quality of goods	23	8.6
Parking facilities	16	6.0
Service	12	4.1
Speciality shops	10	3.8
Cosiness	8	3.0
Atmosphere	5	1.9
(Window)displays	4	1.5
Department stores	4	1.5
Advertisement	3	1.1
Easy access to bus	2	0.8
Multi-purpose trip	1	0.4
Habit	1	0.4
Liveliness	1	0.4
Leisure trip	1	0.4
	267	100
Average number per respondent 2.00		

than the choice of shopping centres for non-daily goods. Whereas the decision where to shop to buy daily goods is strongly influenced by price and distance, the choice of destinations to buy non-daily goods is less influenced by these factors and more strongly by considerations of choice range and the availability of parking facilities.

It should be noted, however, that in the absence of a structured interview situation, respondents stated far fewer constructs. To some degree this is the result of the fact that the respondent's answers were classified by the interviewer. In addition, the interview task is more direct; respondents are asked directly for their reasons to shop at a particular centre, whereas the repertory grid task first establishes a semantic and cognitive framework before measuring the importance weights a respondent attaches to the constructs. The latter point might suggest that the complexity of the repertory grid task establishes a bias in the respondent's answer, in that many constructs are elicited on the basis of which he might differentiate between shopping centres but only few are correlated to his destination choice.

## Discussion and Conclusions

This study has been concerned with the application of the repertory grid methodology in identifying the factors influencing destination choice within the context of shopping behaviour. The findings suggest that this methodology is appropriate for such a task. It was found that during the test, people's constructs of the retailing environment were built up gradually and meaningfully. Problems of including irrelevant attributes, of ambiguity in the specification of the attributes and of ex post interpretation were avoided. In general, the findings substantially support the basic implication of personal construct theory that an individual relies to some degree on his own system of personal constructs to structure his retailing environment. On the other hand, this study has indicated that there is a significant overlap in the factors which individuals use to differentiate between shopping centres. Although people may use different phrases to construct their perceptual maps, there is some evidence that attributes of an economic nature are most important in deciding where to shop, whereas advertising and social factors appear to be less relevant. In conclusion, this analysis has provided some evidence that, at least from a methodological perspective, the repertory grid methodology is a useful technique for eliciting the criteria people use to differentiate perceptually between shopping centres and to get some information regarding the importance of these constructs in destination decisions.

However, it must be emphasized that some practical issues limit the appropriateness of the repertory grid methodology. The interviews which are required to elicit the individual's personal constructs are time-demanding. Sometimes, an interview lasted over two hours. Bearing in mind, that most applied research has only limited funds and is dependent upon the willingness of consumers to participate in the research, this feature of the repertory grid test will preclude it from being applied in large-scale surveys. In part, this disadvantage stems from the fact that the repertory grid methodology primarily represents the approach of uncovering the individual's cognitive representation of reality and not of measuring the varying importance weights he attaches to different attributes in deciding on a particular action. It is necessary, therefore, that the process of eliciting the constructs a person uses to structure his environment is followed by a process in which a person applies some measure of importance to the elicited constructs. While this approach has the obvious advantage that these measurements take place within his own subjective and semantically meaningful system of reference, it is, nevertheless, a time consuming and demanding process. Although some time might be gained by pre-specifying some of the elements and constructs, this would mean that one of the most positive features of the repertory grid methodology would be lost. It appears, therefore, that a researcher can choose between either a smaller number of respondents providing relatively

reliable data in a grid session or a large number of respondents giving perhaps less reliable information in telephone surveys. This decision is difficult to make, especially in an applied context with limited time and funds. However, if the ultimate aim of the research project is to develop an aggregate model of destination choice, or a disaggregate model which includes identical attributes for all individuals, it seems that the ultimate validity of the model will be influenced most by decisions other than that regarding the technique to identify the relevant factors. Under these circumstances, it seems justified to use the technique of factor listing to uncover the factors which are held to be relevant by the majority of the respondents in influencing their destination choice. This conclusion is substantiated by the findings of this study, in that at the aggregate level only minor differences between the technique of factor listing and the repertory grid test were obtained. On the other hand, if the ultimate aim of the research project is to develop models at the individual level, including the attributes which are considered important by each individual respondent, the use of the repertory grid methodology is clearly to be preferred.

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