Application of Repertory Grid Technique in Construction Marketing Research

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Abstract The role played by the construction industry in the economic growth and development is significant. The industry has contributed greatly to the formation of fixed capitals assets, which constitute a significant portion of a nation's wealth. As competition increases construction contractors need for devising better, robust and realistic strategies to gain sustainable competitive advantage is crucial than ever before. As part of corporate strategy, marketing strategy is one of the fundamental pillars of construction business survival and sustainable growth. This paper discusses the potential application of the Repertory Grid technique in construction marketing research by construction companies. Since marketing deals with needs and wants of customers it necessarily involves, to a large extent, handling emotions, feelings, expectations, values and perspectives. The constructs associated with these dimensions are quite complex and their handling requires appropriate methods and techniques. It is suggested that repertory Grid technique can be a powerful marketing research technique aiming to reduce respondents' bias and the difficulties regarding concepts measurements. It can be used to complement the existing traditional marketing research techniques in several marketing decision areas.

Keywords Construction, marketing research, repertory grid

Introduction

Marketing has witnessed a paradigm shift from a sales-oriented perspective to a customer creation perspective. Construction contractors have realised the need for a move from the traditional selling/tendering approach to a more proactive marketing role. Customers' awareness of value for money has increased with the changes taking place in social, cultural, natural, political, economic, and technological spheres. The advent of new information and communication technologies and the process of globalisation have in addition created new challenges to construction organisations. The vast amount of data and information that customers have at their disposal, as well as the speed and ease with which they can retrieve this information is a powerful driving force towards the demand for better and improved products and services. Customers' expectations of quality and service are now a fundamental cornerstone than ever before.

The industry must respond to these challenges by adopting robust corporate and business strategies directed to satisfy customer needs and expectations. This could result in a wide diversity of products and services available in the market to satisfy customers' needs and wants.

It seems however, that many construction companies have paid little attention to marketing and business development [1]. Many companies have undertaken marketing studies in an informal and "ad-hoc" manner and there is a general agreement that marketing in construction industry is still in its infancy. The reason for that attitude seems to be the way through which works are obtained [2].

There is a wide perception that the tendering process leaves little room for contractors to play a relevant commercial role, except in cases of design and build markets where there is a significant number of directly negotiated contracts [3]. But as competition has become fierce the winning organisations are those who succeed in marketing innovation in order to satisfy the target customers in a cost-effective way.

As such, marketing management is one of the key management functions for organisational survival and sustainable growth. As part of their business plan/strategy construction contractors should strive for developing sound marketing strategies to enhance and increase their market share and consequently their growth. Indeed, strategic marketing is a valuable tool for achieving sustainable competitive advantage.

Part of marketing management entails practical application of marketing techniques and comprises steps such as understanding the marketplace and customer needs and wants, designing a customer driven marketing strategy, constructing a marketing program that delivers superior value and building profitable relationships, creating customer delight, and capturing value from customers to create profits and customer equity [4]. It is evident that the initial stages of marketing management deals with research activities directed to elicit concepts such as customers´ wants, needs, satisfaction, value and values, among others, which are to some extent complex. Indeed, robust and appropriate techniques are required to effectively capture customers perceptions associated with these constructs. It is within this context that Repertory Grid Technique is proposed as a tool to elicit marketing constructs associated with customers' perceptions. This paper concentrates on the first part of discussion, namely marketing data collection through RGT while the second part will focus on data analysis and interpretation.

Marketing

Marketing is defined as a social and managerial process by which individuals and groups obtain what they need and want through creating, offering, and exchanging products of value with others [5]. Marketing strives to influence wants and demands by making the good or service attractive, affordable, appropriate and available to customers. Successful organisations create and/or keep customers in order to improve their performance through value delivery at a profit.

Value delivery

There are two main perspective of the value-delivery process, namely the traditional view where a company produces goods and then sell them (make/sell perspective) and the proactive perspective where a company determines the value, provides the value and communicates the value. The latter view puts emphasis on market strategy (segmentation, targeting and positioning).

Whatever the specific approach an organisation adopts, the fundamentals of marketing comprise three main broad processes, namely identification, promotion and satisfaction of customer's needs and wants at a profit [3]. These marketing processes can be translated further into core concepts using the model proposed by [3] as: needs, wants, demand, products/services, value, cost, satisfaction, exchange, and markets.

For this purpose, a company should continuously carry out marketing research and analysis activities, which mainly focus on analyzing business opportunities in the market, collecting information about potential customers, competitors and the marketing environment, and then analyzing the company's strengths and weaknesses.

Marketing research

Marketing research is thus one of the most important steps of marketing management and some organisations regard marketing research departments as information centres for decision-making. Marketing research is the systematic and objective approach to the development and provision of information for marketing management decision-making. It comprises: establishing the need for information, formulating research objectives, research design, collection of data, analysis/interpretation of data and presentation of the results. Although marketing research can be either pure or applied research, in most cases it is an applied type of research aimed at solving specific problems facing organisations [6].

There are many areas pertaining to marketing research in which decisions need to be made. Each of these marketing domains employs certain research methods and techniques that are deemed appropriate for the circumstances. This study discusses the application of Repertory Grid technique to capture construction industry customers' perceptions on complex marketing variables that cannot be easily handled through the commonly applied techniques.

Marketing research methods and techniques

There are many research methods and techniques, qualitative and quantitative, that can be used for marketing research and there is no ideal or perfect research path. Various methods can often be used simultaneously in pursuit of specific research objectives and in accordance with their effectiveness. Despite the vast arrays of methods available, the most commonly employed data research methods or data collection methods in marketing research have been surveys, observations, focus group and experimental, being interviews, and questionnaires the prominent data collection techniques [3]. According to [6] market research was synonymous with the design, implementation and analysis of survey questionnaires. The analysis of data has commonly been conducted through various statistical methods of which the prominent are: multivariate techniques, regression, correlation, discriminant analysis, factor analysis, and conjoint analysis.

While all these methods and techniques are often effective in providing answers to a vast array of marketing problems, they may fall short in responding satisfactorily to the need for objective and accurate marketing information in many other situations, particularly in situations where there is a high likelihood of observer bias affecting the objectivity of the research. Another problem that can affect the quality of the results is the difficulty associated with measuring marketing constructs.

Indeed, marketing is part of social sciences and unlike physical sciences it deals with behaviour of people. Marketing research involves, to a large extent, eliciting perceptions, impressions and feelings of observers and thus prone to bias.

According to [7], consciously or unconsciously, backgrounds, history and experience give individuals a set of expectations about the world so that they recognize familiar things and bend less familiar ones until they resemble what they already know. For example, a single business problem presented to a panel of experts is likely to be viewed differently by different experts. Production experts may view it as a production problem, marketers as a marketing problem and so on. Observer bias poses obstacles to understanding an individual point of view and can lead to erroneous interpretations and consequently bad decisions.

Furthermore, dealing with people's behaviour poses serious difficulties of measurement, particularly in questionnaires [7]. This is the main reason why marketing research tends to use lower scales of measurement in contrast with hard sciences.

Many efforts have been channeled towards the reduction of measurement errors and respondents' bias but it seems that the problem still remains. The Repertory Grid technique can be a powerful alternative technique in reducing observer/respondent bias to a minimum, negligible level as well as the problems associated with constructs measurement. It is mainly aimed at collecting primary type of data and can be used in many types of research such as exploratory, evaluative, descriptive and explanatory. Repertory Grids are easy to design and offer a great flexibility of responses compared to other data collection techniques. A broad overview of the Repertory Grid technique is given below.

Application of Repertory grid technique in marketing research

Repertory Grid is a technique used to produce an individual's perceptions or mental map on some topic. The retrieval of such individuals' maps is extremely important in research areas that feature humanistic systems or involve decision-making such as marketing. The technique has had a wide application on subjects such as management science, education, health, psychology and knowledge based systems. Its application to the industry occurred in manufacturing and the researchers adopted the technique as an effort to reduce the distortions caused by intimate and specialised knowledge of products attributed to the industry experts. Typical applications include quality control, training assessment, questionnaire design, managerial effectiveness and counseling.

The Repertory Grid technique builds on the Personal Construct Theory PCT developed by [8], which regards individuals as scientists. According to the theory, individuals continually explore, develop understanding of their world and build cognitive maps of their experience. The cognitive maps define and limit their potential repertories. As a consequence, it follows that if it is possible to draw individuals' maps then it would be possible to understand their behaviour or, if necessary, to influence it.

The Repertory Grid Technique can be seen as a particular form of a structured interview that is used to explore another person's construct system through conversation. The technique allows the interviewer to, with the minimum of observer bias, get the mental map of how the interviewee views the world. The information obtained is detailed, very rich and deep. Therefore, it is essentially an instrument intended to collect data concerning individual's constructs.

Development of Repertory Grids

The design of a Repertory Grid comprises following main steps [8]: (1) definition of the objective of the grid that is, the topic under study and research objective; (2) elicitation of the elements; (3) elicitation of constructs by asking the respondent to compare and contrast the elements in groups of two or three; (4) rating or ranking each of the elements against each of the constructs using a predefined scale; (5) analysis of the grid; and (6) interpretation of the results.

A Repertory Grid has a matrix format with columns representing elements and rows representing constructs (Table 1). The main components of a repertory grid are elements, constructs and a linking mechanism.

There are several types of Repertory Grids in accordance with the way elements and constructs are derived. There are those where elements and constructs are elicited from respondents and those where elements and constructs are elicited by the researcher. In between, only one of the components, elements or constructs, is elicited from the respondent.

To illustrate the development of a Repertory Grid for a market research initiative let us consider a property development firm operating in residential segment. The firm needs to conduct a market research exercise to ascertain customers´ perceptions on a range of building types. Based on the research data the firm expects to take necessary measures in order to meet clients´ needs.

Table 1: Schematic Repertory Grid

Construct (Emergent Pole)	Elements					Construct (Contrast Pole)
	E1	E2	E3	E4	E5	
C1	1	3	5	3	2	C1'
C2	2	5	4	3	5	C2'
C3	….	…..	….	….	….	C3'
C4	….	…..	….	…..	….	C4'
C5	….	…..	….	…..	….	C5'

Elements

Elements are objects, usually people and inanimate objects or abstract ideas. The elements are the focus of the grid and they are selected to represent the area or topic over which construing is to be investigated. Therefore, elements comprise the subject under investigation, which may be in form of objects, ideas, entities, activities, interpersonal relationships, people, organisations etc.

Elements in the same grid must be homogeneous, specific and discrete. Specific examples elements for a construction company can be projects, products, services, delivery time, quality, cost and performance.

The company can use these elements to conduct a thorough marketing research in order to find out how clients, employees, consultants and any other respondents view (constructs elicitation) its performance/services/products and thus try to improve processes and methods to respond to needs. There are different ways of eliciting elements but the commonest way is the supply of elements by the interviewer [8].

To illustrate the development of a Repertory Grid for a market research initiative let us assume that an exercise is conducted to ascertain the customers´ perception on a construction company line of products, say various residential building types under a development project. These can be called product 1, product 2, product 3, product 4 and product 5 corresponding to elements E1, E2, E3, E4 and E5, respectively. The distinctive features of the products are the size of stand, built area, façades, number of floors, finishes, and incorporated appliances.

Constructs

Constructs are the qualities used by an individual to describe and distinguish between the elements.

In general, constructs can be seen as the qualities that people attribute to the elements, therefore, unlike elements which are names, constructs are qualifiers or attribute dimensions that group elements into varying clusters according to their similarities and differences within an individual's frames of reference [10]. [8] defined a construct as ″ a way in which two or more things are alike and thereby different from a third or more things″. A construct has two poles of which **Ci** is an emergent pole and **Ci'** is a contrasting pole. As such, constructs are contrasting attributes and not real oppositions. Kelly retains the notion that **constructs are bipolar** because people never affirm anything without denying something. In this sense, the notion of construct is different from a notion of concept.

Typical examples of constructs related to the above mentioned elements can could be " C1 - Excellent quality / C1' Greatly defective"; "C2 Good value for money / C2' Unworthy", " C3 Largely Spacious / C 3' Too Cramped" and so on. The number of constructs depends on the dimensions required to adequately describe the elements.

The data gathered in this way is then analysed and interpreted so as to identify the weaknesses and strengths.

How constructs are elicited

The elicitation of constructs is a key process in the Repertory Grid design. Constructs can be elicited in various ways but the most important are triadic, dyadic, laddering, supply, free-response and combination. The common procedure is to combine various techniques to reach quality and informative constructs. The constructs shown above are the final ones after completion of elicitation process comprising several steps.

Triads of elements

This is the classical approach to generating constructs and involves the selection of three elements at a time from the full list of elements. Considering the example, the respondent is then asked to describe in what ways product 4 and product 5 are alike and in what way the third element, for example product 1, is different from the other two. The respondents are also asked why they think products 4 and 5 are alike. The main aim of this approach is to produce two contrasting poles for the construct, that is, contrasted elements attributes.

Dyads of elements

Eliciting elements using triads can be very difficult in some circumstances, particularly when elements are complex and the respondent is not able to generate constructs from triads. An alternative way is to use dyads of elements, where two elements are selected at a time and the subject is asked to say whether they are alike or different, as well as what makes them alike or different. The example of constructs mentioned above used dyads of elements. Again, this approach poses the dangerous of producing logical rather than opposites of meaning. Fortunately, there are some strategies to mitigate these risks.

Laddering

Laddering is a technique usually used in conjunction with one the above mentioned approaches. It is applied after the elicitation of few initial and original constructs. Based on the initial constructs the subject is asked to look closely at them in order to say which ends (poles) of the constructs are preferable or important to him. The main objective of laddering is to elicit more constructs by moving either downwards (laddering down) or upwards (laddering up). It is a kind of refinement process in which one moves from wider to the core concepts in an attempt to obtain higher order constructs. This is usually accomplished by asking why and how types of questions. It is argued by Kelly that ″why″ tends produce constructs of greater generality while ″what″ and ″how″ produce more specific constructs.

Linkages between elements and constructs

The linkage between elements and constructs is an essential feature for most applications of grids since it is the way the construct is used in relation to the elements which indicates the meaning of the labels given to each pole. Three forms are used to establish the links between elements and constructs namely, dichotomising,

ranking and rating scales. Rating, ranking or dichotomising are thus used to show how each element is being assessed on each construct.

Dichotomising

Dichotomising is the technique that employs ticks and crosses to indicate how close an element is to the left or to the right pole of the construct. If the element is closest to the left pole of the construct, a tick is placed in the appropriate box. On the other hand, if the element is closest to the right pole of the construct, a cross is placed in the appropriate box. Dichotomising is seen as a rating scale with only two points and is often used when the analysis of the grid is done manually.

Ranking

Ranking involves rank-ordering the elements in a grid. For example, if there are five elements is a grid they are placed in order from one to five on each construct (1 - 5).

Rating

It is generally accepted that rating elements is less confusing to the respondents than ranking, particularly when there is a large number of elements. In rating the respondent assigns rates along a linear scale from the emergent pole to the contrasting pole of each construct (for example from 1 to 5). The exact number of points in the scale depends on personal preference but in most cases five-point or seven point scales have been used. The choice between ranking and rating depends on the purpose of the grid. However, Shaw (1980) revealed that about 70 per cent of published works used rating methods. Considering a rating scale, the numbers shown in Table 1 have the following meaning: the rating 1 of element E1 on construct C1 means that the element is most identified by the left pole (emergent pole) of the construct; element E2 on construct C2 has a rating of 5 and therefore is most identified by the right construct (contrasting pole); element E2 on construct C1 has a rating of 3 and it is therefore in the middle of the linear scale (between emergent and contrasting poles). The bipolar nature of constructs facilitates rating elements on each constructs along a predefined scale.

As an illustration, the rating **1**, shown in Table 1, for example, indicates how element **E1, product 1,** is assessed on construct **C1, excellent quality,** and the rating **4** indicates how element **E3, product 3,** is assessed on construct **C2, good value for money**. In this sense, product 1 has excellent quality based on the rating, whereas product 3 is almost unworthy since it is closer to the contrast pole.

Analysis

There are several ways in which a grid can be analysed and the choice of anyone depends upon the specific objectives of the research. The common techniques are frequency count, content analysis, visual focusing, cluster analysis and principal component analysis. The analysis of Repertory Grids will be part of the second paper and it is not explained here.

Conclusions

This paper has discussed the application of Repertory Grid technique to construction marketing research. It is envisaged that the technique has a potential application in construction marketing research and it can powerfully complement the traditional methods and techniques of data collection such as interviews and questionnaires. The decision areas of construction marketing that can benefit from the technique include service, product, buying behaviour and promotion. The main advantage of Repertory Grid lies on its ability to reduce respondents' bias to a negligible level thus enhancing the quality of marketing information for decision-making. Furthermore it is easy to design, offers a great flexibility in terms of responses and minimises the problems associated with measurement.

The final result of elements, constructs and linkages determination is a very rich matrix on which a great deal of information can be extracted in order to respond to the research purposes. In this case, the firm can make conclusions on the value of the different products to the clients taking into account several dimensions. This

information will be important on the decision-making process. The most important issue is the richness of the data obtained from potential clients which was achieved in a simpler manner.

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