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Q-METHODOLOGY: AN OBJECTIVE TECHNIQUE FOR HANDLING SUBJECTIVE ISSUES IN EDUCATIONAL RESEARCH

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Abstract:

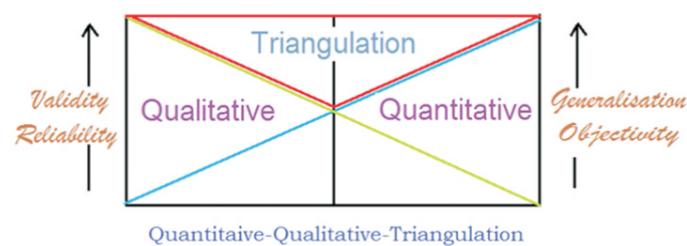
With the trend of innovative methods and giving due importance to subjective issues in educational research people started for looking the constructs of subjective terms like education, quality education, teacher effectiveness, teacher behaviour and the like. It is now being thought that dealing such problems with quantitative or qualitative research methods does not produce the acceptable results. Q-methodology is a combination of the two, thus can be termed as triangulation method. It combines the goods of both quantitative as well as qualitative methods of research. Paper explains theory as well as illustration of application of Q-methodology. At the same time it compares Q-methodology with R-methodology. It attempts to evaluate the utility of Q-methodology in solving subjective educational problems thus emphasizing its heuristic nature.

KEYWORDS:

Q-Methodology, R-Methodology, Triangulation, Q-sort, ipsative measures

.INTRODUCTION

Social science researchers have always caught in dilemma of choosing research approach for solving a problem- should it be positivistic or qualitative? Positivistic research opposes the basic nature of the behaviour which is the basic subject of the social science research. It attempts to convert behaviour a dynamic entity in to numbers for its basic need to improve the objectivity, which definitely goes against the nature of the behaviour. In qualitative study it attends the intricacies of the behaviour but has low reliability and doubtful applicability of results on similar situations. Further qualitative approach needs imaginative mind, high level research skills and huge variety of data to derive a meaning out of observations. The two approaches with identity characteristics can be depicted pictorially as given below in the figure.



As clear from the figure that quantitative research assures generalization and strives for objectivity of the solution. However, it scores less on validity and reliability due to the fact that in intention to cover broader area depth analysis is grossly missed. On the other hand qualitative research is more concerned about validity and reliability of the solution but lack generalizability as well as objectivity. The third approach is fusion of the two called triangulation, which takes positives of both the approaches. Triangulation is only the symbolic term having dictionary meaning 'a method of finding out distance and position, usually on a map, by measuring the distance between two fixed points and then measuring the angle from each of these to the third point'. The known points are the distinguish characteristics of the two approaches and the point we are looking to find is the point where two approaches meet and agree to leave some of its less rigid characteristics. This gives us the new approach of research we call it as Triangulation.

Q – Methodology a Triangulation Approach

The name Q-methodology is actually in reaction to the fact that it is operationalized in exactly reverse fashion as that of R-methodology (letter Q comes before R in English alphabets). It can also be considered as alternative to R-methodology. First we need to learn these two approaches.

Q-Methodology

Q-methodology was devised by Stephenson “to characterize a set of philosophical, psychological, statistical and psychometric ideas oriented to research on the individual” (Stephenson, 1953). It is a method of Q-sorting which calls for a person to rank order a set of stimuli according to a well defined rule. The operation of rank ordering though a subjective matter yet it uses the ipsative or forced choice sorting of cards into a set of well defined categories. The Q-sorting is done by using a set of objects, behaviours or statements. An individual is asked to sort them into a number of piles in accordance with some criterion. The sorter is instructed to place varying number of cards in several piles using approval/ disapproval (or some other) criterion, the whole making up a distribution. The distribution is known as a Q-distribution which can be quasi-normal, normal or some other. This Q-sort distribution is a rank order continuum from most desirable (most approved or the like) to least desirable (least approved or the like) with varying degrees of desirability (approval) between the two extremes. The sorting instructions and the objects/ statements sorted vary with the purpose of research. The number of cards (items) in this technique is determined by statistical measures involved.

Brown (1993) submits that Q-methodology provides a foundation for the systematic study of subjectivity, a person's view point, opinion, beliefs, attitude and the like. Exel and Graaf (1985) have reported that in a Q-methodological study people are presented with a sample of statements about some topic called Q-set. Respondents, called P-set are asked to rank order the statements from their individual point of view, according to some preference, judgment or feeling about them, mostly using quasi-normal distribution. These individual rankings are then subjected to factor analysis. The results of Q-methodology study can be used to describe a population of view point.

Ipsative versus Normative Measures

Normative measures are generally used with tests and scales. An individual is free to choose any of the alternatives out of five/seven alternatives if administration is done on a five/seven point scale. On the other hand ipsative measure involves forced choice procedure of placing items into a number of categories using a specific criterion. The Q-methodology uses ipsative measures in which specified number of items are placed into different categories formed according to some symmetrical distribution of items (to be placed into categories).

Types of Q-Sort

There are two types of Q-sort which have been used to investigate different problems.

Unstructured Q-Sort

An unstructured Q-sort is a set of items assumed without specific regard to underlying factors or theoretical basis concerning some concourse (set) of the subject under study.

Structured Q-Sort

Structured Q-sort consists of items framed with specific regard to the underlying structure of factors based on theory. The purpose of a structured Q-sort is to develop a theory or by virtue of testing an already existing theory or constructs.

R-Methodology

In R-methodology tests and scales are administered on samples of persons which are then scored objectively using normative methods of scaling and the main purpose of R-methodology is to study individual differences as the tests are used to measure abilities by way of individual differences. R-technique is concerned with co relational analysis of tests. Every human action was grasped by Karl Pearson as a vast matrix, cemented together by correlation (Stephenson, 1953). Correlation of tests called R had its roots in this postulate. In mental tests and individual differences correlation seemed to be an important statistical tool and for traditional theorists using significance of correlation and factor analysis, it was an issue in almost all the problems. The history of R-methodology can be traced to the concept of correlation. It was Galton who worked out the method of statistical correlation by way of his principle of “reversion” or “regression towards mediocrity” in describing the phenomenon of inheritance and in 1892 F.Y. Wedgeworth named it coefficient of correlation.

Steps of Q-methodology are

working out a “concourse” to develop statements (developing a Q-Set)
 Sampling of P-Set (participants/ persons)
 Q-Sorting uses ipsative measures
 Finding the inter-person correlations.
 Factor analysis to find groups of persons
 Working out underlying structure of items

Steps of R-methodology are

Concept development
 Determining operations
 Development/selection of tests
 Sample and administration of tests.
 Finding the inter-item correlations
 Factor analysis to work out the underlying structure of items

How Does Q-methodology Work?

Brown (1993) has reported the following steps of Q-methodology
 (I) defining a concourse, (ii) development of Q-sample, (iii) Selection of a P-set, (iv) Q-sorting and (v) analysis and interpretation. A concourse is a technical term used for the set of all possible items/ objects/ statements about the content of the problem (subject) under investigation. The concourse is developed by using a number of tools and sources. The investigator can use observation, interview, and literature on the subject of the study (newspaper, articles, books, magazines etc.) and media reports for framing of the items for the concourse. The items are then written on different cards for the purpose of sorting by the respondents of P-set. The sorting is done on the ipsative scale according to the Q-distribution of items to be placed into a number of piles (seven to fifteen piles) depending upon the number of items in the concourse, Q-sample and the quasi-normal distribution of the items.

After the completion of the Q-sorting by the sorters, the scoring is done by assigning same score to the items of the same pile. If there are seven piles, scores from 1 to 7 are assigned to them ranging from the least approved category to the most approved category on the approval disapproval continuum.

Analysis of the data so obtained is then subjected to Q-type factor analysis using Interperson correlation instead of inter item correlation. Q-arrays are then used to work out the factorial structure of the items for the purpose of interpretation.

How Does R-methodology Work?

As has already been mentioned that R-methodology involves the development of concept and determining of different operations involved for the measurement by developing tests/ scales and administrating them on an appropriate sample of subjects to find the internal consistency along the measures and inter-item correlations for the purpose of finding the factorial structure of the items of the test/ scale. The factors are then interpreted according to the nature of items.

Procedure - Analysis – Interpretation (An Illustration to address the question: what amounts to Quality Education?)

Let us take a case that we are interested to know the meaning of quality education for students/teachers/employers/educationists etc. Being a subjective issue the perceptions vary from person

to person. The participant is instructed to sort the given items (regarding attributes of quality education) written on fixed number of cards in fixed number of piles. Suppose we have taken 39 desirable characteristics (taking normal distribution for making 7 groups/piles) of quality education. A schematic representation of sample of this data of a participant and scoring procedure is given below. All the cards are already numbered and the researcher has to record the position of each card in the Q sort accordingly scores are assigned. A matrix of Person x Attributes is developed. This matrix is fed to computer to calculate Interperson correlation and then factor analysis. Groups of persons instead of group of items (factors) are found out. Here smaller groups are rejected and person falling in more than one group is retained in the group where highest loading is recorded. In this way limited groups are obtained. Now preference of these persons is retrieved back from original data and Q array are calculated. This creates a new order for items in priority (desirability scale) which can be put back in original Q-Sort distribution. The most desirable piles first three (twelve cards) in this case are studied carefully for dubbing (naming) of the factor. These all factors will represent the constructs of the concept (Quality Education) as perceived by the participants. These constructs/dimensions can be used to study the variations in respect of demographic variables of the sample involving quantitative analysis as well. Thus we find that technique is really represent triangulation in true sense and can very well be applied to the subjective issues like values, expected behaviour, characteristics, qualities and the like.

Distribution of 39 desirable characteristics for Quality Education (An illustration)

	Most Desirable	Slightly less than most desirable	Somewhat less than most desirable	Equidistant from most desirable and least desirable	Somewhat greater than least desirable	Slightly greater than least desirable	Least desirable
No. of Cards to be placed	1	3	8	15	8	3	1
Score	7	6	5	4	3	2	1

3	28	20	38	4	19	26
1 Card	11	35	12	15	24	1 Cards
	21	7	33	2	39	
	3 Cards	27	18	34	3 Cards	
		8	1	10		
		14	36	16		
		25	5	32		
		30	22	6		
		8 Cards	13	8 Cards		
			37			
			17			
			29			
			23			
			9			
			31			

15 Cards

LIMITATIONS

There are some limitations with Q-methodology

Its small sample technique as bigger sample may create unmanageable number of groups.

Calculations are voluminous and difficult to control.

Interpretation task requires imaginative mind.

There are some decisions to be only made by the researcher in the context of the study like rejecting of smaller groups, limiting number of groups and the like.

CONCLUSION

Q- Methodology is an innovative and heuristic approach to deal with subjective problems of complex and multidisciplinary nature. It can be used to study the problems which can easily be felt but difficult to define and demarcated. Institutions /Teachers can apply this technique to understand perceptions of students under their about some issues which are loosely defined but are of immense importance. Institution / Teachers must understand how students perceive meaning of education, quality education, success, character, personality, values, religion, excellent school, excellent teacher, effective teaching and the like. Although it has low generalization, but results obtained for an institution/teacher can definitely be taken as experience could be used in future hence can lead to theorization of various dimensions of institution and teaching.

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