

THE UTILITY OF Q-METHODOLOGY IN HUMAN RESOURCE MANAGEMENT RESEARCH

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ABSTRACT

Ever since Q methodology was introduced, it has been put to extensive use by researchers of social science. Through this methodology it is possible to obtain the subjective meaning of the statements presented to the respondents. Q methodology is ideal for the exploration of characteristics like tastes, preferences, sentiments, motives and goals, etc. The sorting of the statements according to a normal distribution has the advantage of forcing the participants to contemplate them in a thoughtful manner. The peculiarity of the methodology is that by correlating people, the Q factor analysis gives information about similarities and differences in viewpoint on a particular subject. The present study attempts to analyze the utility of Q methodology in human resource management research. The researcher arrives at a conclusion that the methodology is highly appropriate for the conduct of HRM research.

KEYWORDS: HRM Research, Q methodology

INTRODUCTION

Q methodology has the quality of being qualitative as well as quantitative. It is qualitative because it utilizes descriptive approaches for each factor tracked down. It is quantitative because it uses factor analysis as a calculation method. Q methodology presents investigators with a firm footing for the systematic study of subjectivity, a person's viewpoint, opinion, beliefs, attitude, and the like (Brown 1993). In Q methodology respondents are presented with a set of sample statements about the topic of study. This set of statements is called the Q-set. The statements are matters of opinion only, and not facts. In this methodology respondents are known as the P-set. The P-set is asked to rank-order the provided statements (usually from 'agree' to 'disagree'). This is termed as Q sorting. This sorting could be based on their individual view point; based on some preference, judgment or feeling. This is done using a quasi-normal distribution. Since the Q sorter ranks the statements based on his or her view point, it brings subjectivity into the whole exercise. Thus through exercising Q sorting the respondents tend to provide their subjective meaning to the statements presented to them (Brouwer, 1999).

These individual rankings of the respondents are subsequently subjected to factor analysis. Q methodology is an inversion of conventional factor analysis as Q correlates persons instead of tests. The factors obtained from Q analysis would represent clusters of subjectivity that are operant. In other sense it represents functional rather than merely logical distinctions (Brown, 2002[b]). Presenting the advantages of Q methodology, Smith (2001) states that:

'Studies using surveys and questionnaires often use categories that the investigator imposes on the respondents. Q, on the other hand, determines categories that are operant'.

Correlation between personal profiles then indicates similar viewpoints, or segments of subjectivity which exist (Brown 1993). By correlating people, Q factor analysis gives information about similarities and differences in viewpoint on a particular subject. If each individual would have her/his own specific likes and dislikes, Stephenson (1935) argued, their profiles will not correlate; if, however, significant clusters of correlations exist, they could be factorised, described as common viewpoints (or tastes, preferences, dominant accounts, typologies, et cetera), and individuals could be measured with respect to them.

A crucial premise of Q is that subjectivity is communicable, because only when subjectivity is communicated, when it is expressed operantly, it can be systematically analysed, just as any other behaviour (Stephenson 1953; 1968). Q methodology is ideal in exploring characteristics like tastes, preferences, sentiments, motives and goals, as well as certain aspects of personality that could influence behaviours but has remained mostly unexplored. The results of a Q methodological study can be used to describe a population of viewpoints and not, like in R, a population of people (Risdon et al. 2003).

REVIEW OF LITERATURE

Q methodology was developed by the psychologist William Stephenson in 1930. According to him it is a reference matter to study people's subjectivity (Stephenson 1935). Stephenson (1953) has also written a book entitled *The study of behaviour: Q technique and its methodology*. This provides an exhaustive picture as to how the methodology can be used to study human behaviour. It is worth noting that the first application of the methodology was in the field of psychology. However, on a later stage it was used in various other fields of social science like politics (Dryzek, 1990); environment (Addams and Proops 2000); conservation (Guimarães, 2010); management, etc. Q methodology is a suitable and powerful methodology for exploring and explaining patterns in subjectivities, generating new ideas and hypotheses, and identifying consensus and contrasts in views, opinions and preferences.

The basis of Q methodology is the Q sort technique, which is followed by Q factor analysis (Brown 1980). The "Q" of Q methodology originated from the form of factor analysis used in analyzing the data. While in conventional factor analysis (R method) the correlations between variables across a sample of subjects are obtained, in Q the correlations between participants across a sample of variables are assessed. The analysis reduces various individual viewpoints of the subjects into a few factors. This factor would represent the shared ways of thinking (McKevitt, Davis, Woldring, Smith, Flynn and Mcevoy, 2012).

The biggest advantage is that Q methodology combines both qualitative and quantitative aspects, in addition to field and desk research, interaction as well as reflection. Barry & Proops (1999) and Brown (1996) viewed that Q methodology's strength rests in its capability of exploring human subjective meanings, as well as the points of view of individuals in a structured and interpretable form. It helps in uncovering subjective understandings of people about specific phenomena (Robbins & Krueger, 2000). The method helps researchers to understand '*why and how people believe in what they do*' (Addams & Proops, 2000), and has high utility with respect to topics which are debated or contested. Further, according to Previte, Pini, & Haslam-McKenzie (2007) Q method is capable of bringing to light people's own perspectives, meanings and opinions on the subject under study; rather than that of the investigators'. All these qualities of Q methodology undoubtedly bring to light its utility for HR research.

How does Q methodology Work?

This section provides those unfamiliar with Q methodology a very basic introduction to Q, largely based on Brown (1980; 1993). Q methodological consists mainly of the following steps:

- definition of the concourse;
- development of the Q sample;
- selection of the P set;
- Q sorting; and
- Analysis and interpretation.

Definition of the Concourse

Concourse according to Brown (1993) is 'the flow of communicability surrounding any topic in the ordinary conversation, commentary, and discourse of everyday life'. Concourse is a technical concept used in Q methodology for the collection of all possible statements the respondents can make about the particular subject. The concourse may consist of self-referent statements, objects, pictures, and so on. This could be opinions and not necessarily facts. They are obtained by interviewing people; participant observation; popular and scientific literature, media reports, newspapers, magazines, journals, books; etc. The material so obtained, which is the raw material for Q, could represent existing opinions and arguments that lay people, academicians and professionals, scientists, representative organisations, etc. have to say about the topic.

Development of the Q Set

In the step a subset of statements called Q set or Q sample is drawn from the concourse, to be presented to the participants. This often consists of 40 to 50 statements. However, less or more statements could also be used (Van Eeten 1998). The selection of statements from the concourse for inclusion in the Q set is of crucial importance. The researcher could use a structure for selection of a representative concourse. This structure could be arrived at from detailed examination of the statements in the concourse as well as on the basis of theoretical literature. Care is to be taken to select statements that are widely different from one another so that the Q set is broadly representative in nature (Brown 1980). The statements are then edited if necessary, and numbers are randomly assigned to them. The statements and the corresponding number are then printed on separate cards, known as the Q deck, for Q sorting.

There is a possibility that differing Q sets could arise from the same concourse for different investigators or structures. This is not considered as an issue due to the following reasons:

- The structure chosen by the particular investigator is only a logical construct. The ultimate aim is to arrive at a Q set that is representative of the wide range of existing opinions about the topic.
- Whatever be the structure devised by the researcher, eventually it is the subject/ respondent that gives meaning to the statements by sorting them.

Studies by Thomas & Baas (1992) have established that different sets of statements, though structured in different ways can however converge on the same conclusions.

Selection of the P Set

Q methodology requires only a limited number of respondents or P sets. However, care should be taken to provide breadth and comprehensiveness so as to maximise confidence of the major factors at issue. Normally the P set is smaller in size than the Q set (Brouwer 1999). The P set is however, not random. It is a structured sample of respondents who are theoretically relevant to the problem that is considered. The respondents could be those having a clear and distinct viewpoint regarding the problem. Eventually, the number of persons associated with a factor is of less importance than who they are. According to Brown (1986) 10 to 30 samples are adequate for the study using Q-sort technique. McKeown and Thomas (1988) states that rigorous sampling methods are not as relevant in Q methodology as subject selection is driven by theoretic or pragmatic considerations of the study. As per theoretical considerations, a subject is selected due to their specific relevance to the objectives of the study. The pragmatic considerations assume that all the participants of the study are equal. Hurd, Beggs and Fokken (2009) have done an analysis with just 11 subjects and 77 statements. He argued that the sample size is determined by multiplying the Q sample (subset of statements) and P sample (subjects involved in the study). Thus the sample size for this study was 847. Another study by Brown (1986) used 12 subjects (managers in service firms) and sorted the items into several groups.

Q Sorting

The Q set is presented to the respondent in the form of a pack of randomly numbered cards along with a score sheet. Each card normally contains one statement from the Q set. The respondent is instructed to rank the statements according to some rule. This could be based on his or her view point regarding the issue under study. The score sheet is normally a continuum that ranges from most disagree to most disagree, with neutral in between.

For proper Q sorting, the respondents are first asked to read through all of the statements carefully. This helps the respondent to know about the type and range of opinions at issue. The respondent is instructed to do a rough sorting while reading. This could be done by dividing the statements into three sets – statements that the respondent generally agrees or is found important; those that may be agreed to; and those that could be neutral, doubtful or undecided. Thereafter, the number of statements in each set is recorded to check for agreement-disagreement balance in the Q set. The respondent then ranks the statements and places them in the score sheet provided. If the Q sort is done subsequent to an interview, it would be more effective for interpretation of factors.

Analysis and Interpretation

Analyzing the Q sorts is the scientific base of Q. It requires a technical and objective procedure. In this stage the correlation matrix of all Q the sorts is prepared. The matrix represents the level of disagreement or agreement of points of view between the individual Q sorters. The correlation matrix so prepared is subjected to factor analysis. This helps to identify the number of natural groupings of Q sorts and to examine the number of basically different Q sorts. The respondents who are having similar views will come under the same factor. The next step is determining the factor loading for each Q sort. The Q factor analysis reduces different individual viewpoints of the subjects to a few factors. These factors represent the shared ways of thinking of the respondents. The factor loading helps in finding out the extent to which each Q sort is associated with the other factor. The number of factors normally depends on the variability in the arrived Q sorts. It is possible to anticipate the number of factors in the final set from either of the following ways:

- The number of original factors having at least two significant loadings; or
- The number of original factors having an Eigen value of over 1.00.

This original set of factors is then subjected to rotation to arrive at a final set of factors. Through rotating the factors it is possible to examine the opinions of the samples from different angles. The resulting final factors would represent the points of view of a group of individual that are highly correlated with each other and uncorrelated with others. The strength of Q rests upon the ability of the analyst to combine factors with the qualitative data. This ability is also capable of promoting greater interpretability of different factor solutions (Mckevitt et al, 2012).

Commonly Asked Questions

How is Sampling Done in Q methodology?

In Q methodology participants who conduct Q sorts are not chosen using random sampling. It does not require large number of subjects either, as it aims at systematically comparing, contrasting and generalizing to theory, and not populations. According to Smith (2001) the methodology 'is capable of revealing the characteristic independently of the distribution of that characteristic, relative to other characteristics'. Further, since Q-methodology focus primarily on the nature of the segments as well as the extent to which they are either similar or dissimilar, the need for large numbers of samples fundamental to most social science research is irrelevant (Brown, 2002b). Stephenson (1935) states that while in other methodology, a large number of people are given a small number of tests; in Q methodology a small number of people are given a large number of test items. Thus Q methodology does not operate with a type of population sample, but with opinion sample. To maintain the quality of research based on the Q methodology, the opinions are gathered from samples that have an opinion to say in that matter.

How about the Reliability and Validity?

Since Q uses a small sample investigation of human subjectivity based on sorting of items, whose reliability are unknown, results using this methodology have often been criticised for their reliability. Such people have also questioned the possibility for generalization too. Thomas and Baas (1992) analyzed the findings of two pairs of tandem studies and concluded that there is no need for scepticism over the reliability of Q methodology. This is because the need to generalise sample results to the general population, is of less concern here. They further opined that the results of Q methodological study are the distinct subjectivities about the particular topic that are operant, and not merely the per cent of the sample that (dis)agrees to any of them. Brown (1980) reported that test-retest reliability of Q has been above 0.80. Another important aspect of Q methodology is its easy and consistent replicability (Brown, 1980). The issue of validity does not apply to Q sorts and there is no external criterion for a person's view point (Brown, 1980).

OBJECTIVE OF THE STUDY

The objectives of the study are:

- To find out the present position of Q methodology in HR research
- Assessing the possibility of Q methodology in the field of HR.

METHODOLOGY

A loose form of meta-analysis was done for the present study. ProQuest (ABI/INFORM Global) and Google search were used for the study and the databases/ sites were initially queried using the keyword 'Q methodology'. Since a large number of articles and sites came up with this keyword, the search was repeated using the keyword 'Q methodology in HRM'. No specific initial date of search was prescribed. The search in the Google provided 135 articles and sites and that of ProQuest provided 124 per reviewed articles. Duplications, articles nonspecific to the workplace, and those which had only casual reference to Q methodology were eliminated. This process resulted in retaining 45 articles. The breakup of the said 45 articles is presented in Table 1. A structured review of the resulting literature revealed that Q methodology is used extensively in almost all fields of social science and to a certain extent in management. The review found that there are quite a few peer-reviewed articles related to HRM.

Table 1: Discipline Wise Distribution of Articles Using Q Methodology

No	Area	Reference
1	Environment management	Byrch, Kearins, Milne, and Morgan (2009); Clarke (2002); Joseph (2013); Kerkhof (2006)
2	Personality	Block (1961)
3	Leadership	Oterkiil (XXXX)
4	Education research	Cross (2005), Rani (2011)
5	Recreational research	Ward (2009)
6	Cross culture	Jacobson & Aaltio-marjosola (2001)
7	ISO Certification	Tao & Koo (2000)
8	Accounting research	Massingam, Massingam and Diment (2012)
9	Logistics management	Boon-itt, and Pongpanarat (2011); Carter, Kaufmann and Michel (2007); Kaufmann, Carter and Buhrmann (2010); McKeivitt, Davis, Woldring, Smith, Flynn and McEvoy (2012)
10	Consumer behavior	Fitzgerald and Drennan (2003)
11	e-commerce	Mora-monge, Azadegan and Gonzalez (2010)
12	Ethics/ Ethical orientation	Graaf & Exel (2009); Hiruy (1987)
13	Believes and values	Howard (1998); Lyons (2013); Polychronicity – Bluedorn, Kalliath, Strube and Martin (1999); Rappange, Brouwer & Van Exel (2009); Tom (1993)
14	HRM	Aaltion & Huang (2007); Gaines, van Tubergen, and Paiva (1984); leadership (Oterkiil, XXXX), authentic leadership (Owusu-Bempah, 2012), leadership development – Lee and Yu (2004) and Militeello & Benham (2010); OD –Marlowe, Hoffman and Bordelon (1992), Employee attitude – Richardson (1968), Organisational culture – Zsoka (2007) and Howard (1998), Board member competency – Hurd, Beggs and Fokken (2009)

The areas in which Q methodology was used are discussed in the following sections.

DISCUSSIONS

The review revealed that Q methodology has been used in such areas like psychiatry, environmental management, education, management, etc. A few specific areas in which the methodology has been used include stakeholder dialogues to environmental policy making (Kerkhof, 2006), sustainable development (Clarke, 2002), psychiatric research (Block, 1961), teacher's perception of leadership (Oterkiil, XXXX), attitudes towards health education research (Cross, 2005), opinions and perceptions of the administrator-legislator relationship (Cunningham and Olshfski, 1986), etc. Byrch, Kearins, Milne, and Morgan (2009) used a multi method design, which included Q methodology, to explore the meaning of sustainable development among prominent business leaders in New Zealand.

From the present study it could be observed that Q methodology is not a novice in the area of management. It has been extensively used in management research too. For instance Block (1961) used it to assess personality as early as in 1961. Other areas where Q methodology was used include cross-culture research (Jacobson & Aaltio-marjosola, 2001), perception towards ISO certification (Tao & Koo, 2000), conceptions of administrative roles and responsibilities (Selden, Brewer, and Brudney, 1999), etc.

Ethics and ethical orientation seems to be an area that used Q methodology extensively. Hiruy (1987) conducted a study using this methodology about ethical orientation of public administrators. Following this up, Graaf & Exel (2009) conducted a study in the area of administrative ethics, and established that managers can be made more aware of the problems in their work settings.

Q Methodology in HRM

Quite a few studies have been done in the area of HRM. Gaines, van Tubergen, and Paiva (1984) conducted a study among police officers about their perceptions towards promotion as a source of motivation. Aaltion & Huang (2007) explored women IT managers' experience on career in relation to the Chinese cultural environment, using Q-sort methodology and interpretive analysis. The study revealed the high future expectations and strong belief in own competence of the women managers. The findings of this study succeeded in presenting the career orientations and strategies of women managers. Specifically, researchers of leadership seem to have got fascinated with Q methodology. A large number of studies have used this methodology. Some of them include the study on teacher's perception of leadership (Oterkiil, XXXX), bestowing Authentic Leadership (Owusu-Bempah, 2012), leadership development (Militeello & Benham, 2010).

Lyons (2013) established that Q methodology has been recognized as a research method to assess the beliefs and values of individuals. His study also outlined how Q methodology as a research approach can be used to gauge the beliefs held domestically by individuals. This in turn will help in gaining insight into the beliefs, and it's sharing, of different groups of people. Q methodology has the quality of systematically integrating subjectivity into the research process. It bridges qualitative and quantitative research (Cross, 2005); and combines their strengths (Wilson, 2005). Due to its strengths Q methodology can be a valuable tool in the field of social science in general and management research in particular.

CONCLUSIONS

The Q methodology has a number of strengths and advantages over R methodology. One of the advantages of the methodology as presented by McKeown and Thomas (1988) is about its purpose. According to them:

“The purpose is to study intensively the self referent perspectives of particular individuals in order to understand the lawful nature of human behavior” (p. 36).

Sexton, Snyder, Wadsworth Jardine, and Ernest (1998) identified the following strengths of Q methodology:

- “Results can be used to develop and test theories regarding people's beliefs, judgments, and attitudes;
- Fewer research participants are required thus reducing costs while maintaining power;
- The methodology controls issues of interview bias and socially desirable responses; and

- Novelty of the process increases a participant's willingness to rank order a large number of statements".

Further, it does not focus on the number of people who involve in sorting the statements. The focus is primarily on the relative position of each statement. This provides valuable insights in effectively understanding subjective behaviors (Hurd, Beggs and Fokken, 2009).

R methodology merely obtains the understandings of samples on a rating scale that are representative of the population. However, Q methodology does not rate competencies on a pre-determined Likert type scale and compare responses based on demographic variables (Brown, Durning, & Selden, 1998). A contrast of the Q and R methodology would reveal that while the result of the former (Q methodology) presents how people with common views understand an issue, the later (R methodology) describes the characteristics of a population that are 'associated statistically with opinions, attitudes, or behaviors being investigated' (Brown, et al, 1998). This shows the high utility of Q methodology in HRM research.

From the above discussions, a question arises as to whether Q methodology has more utility for HRM research than R methodology. This is because Q methodology attempts to examine in an in-depth manner as to how the individuals think and feel about an issue. This is what is precisely done in HRM research. It is expected that the present study would motivate social scientists and management researchers to study about Q methodology, understand its innumerable advantages, and utilize it for future researches.

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