In this Research Article Mohammad Suprapto and his colleagues discuss how you can use Q-methodology in your project to gain insight into different perspectives of stakeholders. They explain the method, show how they have applied it within the National Workshop Series and share the results of this exercise. -LH

**Research Article**

**THE APPLICATION OF Q-METHODOLOGY TO GATHER PERSPECTIVES ON COLLABORATION IN PROJECTS**

Amongst the students from the Master program Construction Management and Engineering in Delft, a clear trend was recognized in the application of Q-methodology in their Master Theses. Although Q-methodology as a research method is already known for decades, lots of academics as well as practitioners are not very familiar with this method. This article therefore aims to shed some light on the application of Q-methodology in project management research. Also it shows how outcomes of Q-research can be used in management practice.

What is Q-methodology and what can it be used for?

Q-methodology was created by psychologist-physicist William Stephenson in the 1930s to provide the basis for a scientific approach to human subjectivity, and he subsequently presented an in-depth description in his book that was published in 1953 (Stephenson, 1953). He put a great deal of emphasis on the importance of having an inquiring attitude and of making discoveries rather than simply testing one’s reasoning (Anderson, 2005). Davis and Michelle (2011) claim that Q-methodology is a research method that effectively combines qualitative and quantitative dimensions in a truly hybrid manner. Q-methodology was explicitly designed to systematically uncover and analyze similarities and differences in the subjective viewpoints of individuals, a task at which it excels. Subjectivity here means that a practitioner’s
perception stems from his/her ‘internal frame of reference’ that was casted through the experience of carrying a role in different situations (McKeown and Thomas, 1988). It is an exploratory, interpretation-intensive methodology suitable for small populations of respondents, and is ‘fortified’ (Brown, 1980) through resources to the statistical operation of factor analysis. One of the characteristics of Q-methodology is, unlike survey designs that will often consider minority voices as insignificant, all voices of respondent are ‘heard’ and have equal relevance in Q-methodology (Matinga et al., 2014).

Q-methodology has achieved widespread application since it published by Stephenson (Stenner et al., 2008; Van Exel and de Graaf, 2005). Mainly due to the work of Brown (1980) and McKeown and Thomas (1988), who further developed the principles and procedures of Q-sorting, the Q-methodology has more recently found its way to a wide variety of research areas. The method can be used in any research field where subjectivity is at issue, including attitude measurement (Stephenson, 1953, 1965). Q-methodology has been employed in research on audiences since 1960s (Davis and Michelle, 2011). Recently, it has also been adopted in studies on leadership (Militello and Benham, 2010), travelers’ behavior towards public transportation (Van Exel et al., 2011), and project managers’ perspectives towards collaboration in projects (Suprapto et al., 2014).

HOW TO APPLY Q-METHODOLOGY?
To apply Q-methodology, there are numbers of steps that should be taken. The first step is gathering the statements about the subjects. The statements are often presented as multiple possible answers to a given umbrella question such as: “what is important for good collaboration?” or “what is mostly contributing to project success?”. In the next step, each participant assigns the statements to each potential value that ranges from “least agree” to “most agree” or “least attractive” to “most attractive”, filling a predefined distribution sheet (typically in the form of a quasi-Normal distribution). Each person uses his/her own subjective criteria to evaluate the relative agreement on each statement. Since the same Q-sort is given to different people, a researcher can look at the patterns of responses to uncover and name distinct ‘points of view’, by means of freeware program named PQMethod (Schmolck, 2012). The outputs of Q-factor analysis consist of:

WHICH CRITERIA OR STATEMENT WERE RATED AT THE SAME LEVEL (EITHER HIGH, LOW OR NEUTRAL) BY MOST PARTICIPANTS.
Which statements are distinguishing, meaning that they were agreeable to some participants and disagreeable to others.

What are the distinct subgroups (or perspectives) within the set of participants who have a similar pattern of responses?

Q-sort during the NWS April 3 in Delft – some results
With the participants of the NWS workshop on collaboration in Delft, a Q-sort was performed in a one-hour workshop session. The materials were 28 small cards with statements reflecting seven important theoretical factors (derived from literature and prior empirical works see (Suprapto et al., forthcoming)) of collaboration in projects: teamwork, trust, relational attitudes, capability, collaborative practices, front-end loading, and contract.

There were 24 respondents with various backgrounds (project managers, consultants, and academicians), all project management related. They were instructed to sort the 28 cards (randomly numbered) on an A2 scoring board with a scale from -4 (most disagree) to +4 (most agree). The respondents’ average year of experience was 17 years. 14 respondents indicated to be practitioners and 10 respondents were from academics.

The Q-sort data were analyzed using PQMethod 2.35, using Principal Component factor analysis with Varimax rotation. From factor analysis, a three-factor solution was chosen which accounted for 50% of the variance. These three factors (perspectives) are discussed below, with particular attention to those statements that scored collectively in the extreme positions (agree or disagree).

Factor A: Focus on relations - This respondent group believed that collaboration in projects should be relationally oriented, based on teamwork, trust, and relational attitudes (11 defining sorters, accounting for 26% of the variance). In this group, these concepts appeared to have an outright importance to collaboration. Especially the intrinsic dimension of collaborative team—including open and honest as well timely communication, personal engagement, senior management leadership and commitment, and confidence relying on each other—received favorable judgments. Other aspects of collaboration factors were judged moderately positively (e.g., collaborative practices) or neutrally (e.g., capability). In general, the respondents in this group least agreed with the importance of front-end loading and contract on collaboration because “project are too complex to be ‘captured’ in its entirety into a contract; and not everything can be thought out beforehand”.

Factor B: Focus on structure – These respondents were structurally-oriented towards collaboration (5 defining sorters, accounting for 13% of the variance). The respondents in this group, too, were very positive about open and honest communication and interaction, but were also broadly concerned about systematic preparation and formulation of the project (front-end loading) and the project team (team building and integration). According to them, “it’s very important to have a stable project team and agreed project goals”. They also
perceived the relative importance of other aspects but only to support the mechanism of collaboration. Factor C: Focus on manager's capabilities – These respondents were driven by capability and leadership of the project managers and senior management (3 defining sorters, accounting for 11% of the variance). According to this group a successful collaboration starts from highly capable project manager (particularly from the contractor’s side). A capable project manager should possess complete set of competencies (technical, managerial, and soft skills). Besides project managers, senior management support and commitment will complement what is needed to shape the collaboration to achieve the project goals.

Imlications for project management

Implications for project management are twofold: the specific results of this Q-sort on collaboration could be used in practice, but in a particular project or company, one could also perform a Q-sort workshop to reveal certain perspectives amongst the participants. The Q-sort research on collaboration during the NWS in Delft identified three perspectives with different attitudes toward collaboration in projects: relation / structure / project manager’s capabilities. These perspectives provide insight into what practitioners and academicians perceived as important factors to collaboration and prioritize these theoretical elements (teamwork, trust, relational attitudes, capability, practices, front-end loading, and contract). In all three perspectives, the first three theoretical elements were recognized, while capability, practices and front-loading merely serve as supporting factors. The contractual factor was perceived least important to collaboration throughout. Hence we suggest that to improve collaboration, a focus on the so-called soft elements of project management is required.

REFERENCES