

# *Quantitative versus Qualitative Research*

Dr Elspeth McFadzean

## Quantitative versus Qualitative Research

There are a number of different methods for gathering data and these are generally divided into two groups, namely quantitative and qualitative methods.

Quantitative data are analysed using statistical techniques which can range from very simple methods such as calculating means and standard deviations to more complex techniques such as analysis of variance or the use of non-parametric methods. In addition, quantitative methods tend to reduce phenomena down to their basic elements and investigate the causal relationships between these elements. The basic belief is that variables are objective, hard and tangible.

Qualitative methods, on the other hand, tend to be more subjective. Researchers using these methods are inclined to explore a more holistic picture. Rather than investigate the causal relationships between basic elements, they want to understand how these phenomena, as a whole, work. Moreover, they are interested in the thoughts, feelings and ideas of the people who use and/or develop the phenomena. Thus, the data that is collected is subjective and internal. In other words, researchers are collecting data that are socially constructed by their subjects. Their aim is to understand the meaning of the phenomena rather than how one element affects another.

In the past, researchers have tended to utilise quantitative methods because they were seen as “accurate”. There is very little controversy or criticism that can be aimed at quantitative research if it is methodologically sound. However, for a long time, qualitative methods were much maligned by academics because of its lack of robustness. This was due to its subjectiveness and its socially constructed nature. For example, if one interviewee claimed that motivation was good within a department, it did not make this “true” as it was only one person’s opinion. However, if a questionnaire was used to gather 100 opinions and 80% of the employees claimed that motivation was high then it would be deemed to be “true”. Thus, the quantitative method was seen as more robust than the qualitative method.

This problem was soon solved by the development of more robust qualitative methodologies such as grounded theory, case studies, ethnography and so on. These methodologies

advocated the use of triangulation in order to ensure greater accuracy. Triangulation occurs when the same evidence is collected from more than one source. These sources can be different people – for example, if more than one interviewee agrees that motivation is high – and/or from different data sources – for example, interviewees may claim that motivation is high, the researcher also observes that motivation is high and he or she reads about departmental parties and outings in the company newsletter, which would imply that motivation is high. Here three different sources as well as a number of different people are suggesting that motivation is high.

This same information, though, could also be gathered via a questionnaire and analysed using statistics. As long as this statistical analysis is robust then the results will also be accurate. Therefore there is no need to triangulate the quantitative data in the same way as you would qualitative data.

The biggest difference between quantitative and qualitative methods, however, is the data that is collected. A quantitative questionnaire may provide information on the levels of motivation in the department but qualitative methods such as interviews, observations and documentary evidence such as newsletters, meeting minutes and memos can provide information on why motivation is so high. Consequently, qualitative methods help researchers understand motivation, the factors that influence motivation, how these work and the resulting consequences. In addition, they can enable researchers to gather information on what employees feel about the varying influencing factors such as whether the staff outings are appropriate, timely or expensive.

In summary, therefore, there is no need to triangulate quantitative methods as these should be accurate if undertaken properly. Qualitative methods, on the other hand, do not rely on large numbers, information is socially constructed by the interviewees and the data is interpreted by the researcher. Therefore accuracy must be ensured by triangulating people and/or sources. These sources should also be qualitative in nature to ensure that the researcher gathers the in-depth material that he or she requires when using this method.

### **When can Quantitative and Qualitative Methods be used together?**

There has been a lot of debate in the literature about the use of mixing methods. There is no reason why researchers cannot mix their methods if the situation is appropriate. Generally, this means that the research questions or the way the researcher has worded the research questions – will dictate the research method to be used. For example,

1. What levels of motivation do our employees have in our department? – Would require quantitative methods – a questionnaire could answer this
2. How can we enhance motivation in our department? – Could be undertaken using either quantitative or qualitative methods. The method would depend on the depth of information required.

The first question is closed. The answer requires a numerical value – the level of motivation (e.g. 80% are motivated). The question does not ask why they are motivated or how their motivation can be improved and therefore the researcher does not need more detailed information.

The second question, on the other hand, is an open question and could be answered using a questionnaire along the lines of:

Would your motivation be enhanced if (please tick two options):

- You have more parties
- You receive a higher salary
- You are offered opportunities for further education
- You have a three day weekend
- You can start work at 10 o'clock
- Others (please specify)

This questionnaire would provide some information and would certainly answer the question but the researcher would gain much more information if he or she interviewed the subjects. Here, the researcher could ascertain what type of parties would improve motivation, what

salary they would like to receive and why, what they would spend it on, what further education they could undertake and why and so on.

If researchers triangulated their questionnaire with their interviews, what would happen if their quantitative results differed from their qualitative results? Which one would be “correct”? In fact, it would be difficult to tell without seeing how robust their methodology was. However, it would suggest that neither result is particularly accurate. If the researchers had triangulated the interviews with, say, observations and found an anomaly, then they could go back and ask the appropriate subjects about the anomaly. Thus, they could gather more detailed information so that they could explain the anomaly. This would not be possible if a questionnaire had been used because of the sheer volume of subjects and data.

Methods can be mixed, though, if the researcher is asking two or more questions. He or she can then use, say, quantitative methods to gather data on the first question and qualitative methods to gather data on the second question. So, if we go back to the above questions, we could undertake the following:

1. What levels of motivation do our employees have in our department?	Quantitative methods - questionnaire
2. How can we enhance motivation in our department?	Qualitative methods – interviews triangulated with observations and documentary evidence

Thus, the quantitative and qualitative methods are not mixed. Rather, they are used to gather information on two separate, but linked, questions.

There is only a finite length of time to undertake an MBA dissertation, however, and therefore it may be prudent to focus on only one question. In the above example, it may not matter too much about the level of motivation within a particular department. Instead, the useful part of the research would be to ascertain how motivation can be enhanced no matter what its level is. Thus, the researcher would focus on the second question and undertake his or her research using a qualitative method which would be triangulated using at least one other qualitative method.