

WORKSHOP ON QUALITATIVE/QUANTITATIVE METHODS

Resource Paper

Qualitative Research in the Transport Sector

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INTRODUCTION

Qualitative survey methods are being used increasingly in research and policy studies to understand traveler perceptions, attitudes and behavior, as a complement to more-established quantitative surveys of public perceptions, attitudes and behavior. The aim of this paper and workshop is to review the use and potential use of qualitative research techniques in transport (particularly in relation to understanding existing behavior), to identify any areas requiring further research, and to recommend the role that qualitative techniques can play in comparison with quantitative techniques in a transport policy or research context. This paper attempts, with reference to a number of studies in the transport sector, to shed some light on some of the strengths and weaknesses of qualitative techniques.

Qualitative research techniques include one-to-one unstructured-depth interviews, triads, brainstorming, paired interviews, accompanied interviews, participant observation and so-called “mini” groups. Particular attention is given in this paper to focus groups, as the interaction that occurs in this type of research is unique to qualitative research. When respondents are completing questionnaires, the activity is isolated, whereas the focus group is an interactive process. Furthermore, many issues that pertain to focus groups also relate to other qualitative research techniques.

WHY QUALITATIVE?

Qualitative: “Concerned or depending on quality (opposite of quantitative)”
Oxford English Dictionary

The first point to make about the research techniques that are available to the transport policy maker and the transport service provider is that, in the experience of the author, the qualitative and quantitative techniques that are used to understand public behavior are fundamentally complementary, rather than substitutes. There has been a tendency sometimes (at least in the UK) to use techniques such as focus groups as a lower-cost option for examining public attitudes toward a particular subject. The smaller sample sizes involved can be an attraction for a budget-restricted client. Three focus groups might be seen as a lower cost substitute for a larger-scale quantitative survey, a sort of shortcut to measuring public attitudes. Clearly, this is fraught with danger. *Qualitative research can tell you something about the range of attitudes that are present amongst the population, but it cannot tell you how these attitudes are distributed within the population.*

The output of qualitative research can also be difficult to manage, and thus the question must be asked: Why qualitative? What kind of information can be obtained by this approach that does not arise from quantitative surveys, and how might this be of benefit to the transport researcher? The answer lies in two essential qualities of qualitative research: depth and breadth.

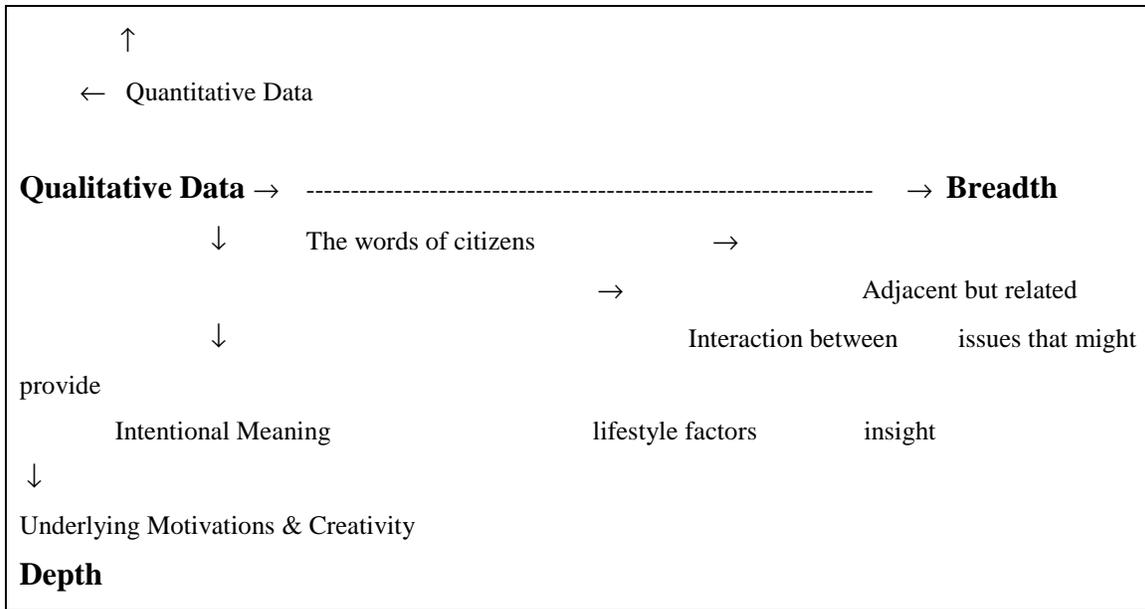


FIGURE 1 The breadth and depth of qualitative research.

Qualitative research techniques can be used either as an independent research tool or as a part of a multidisciplinary project in association with more traditional quantitative techniques. In relation to quantitative research, qualitative techniques can be used at different stages of the project lifecycle:

- prior to quantification
- in parallel with quantification
- post-quantification

It is perhaps of value to examine in more detail each of these potential uses of qualitative techniques.

Prior to Quantification

Quantitative research is a rigorous scientific process designed to provide an accurate measure of public opinion. It is clearly vital that a survey is carried out using the correct sampling procedures, but also that the questionnaire used is clear and unambiguous for both the interviewers and the respondents. Language and phrasing play an important role in this process. A quantitative researcher attempting to design a questionnaire cannot create questions out of thin air. The questions must be phrased in the language of the respondents if the responses to these questions are to be meaningful. To assist in this process, there is considerable merit in using the techniques of qualitative research to draw out the language that is used by “real” people, and furthermore, to draw out the range of issues that are present within the target population, such that the questionnaire covers these fully.

It is correct to say that qualitative research can be used to explore the range of issues present within a given population, and that this can guide the design of subsequent quantification. This is particularly relevant in situations that are dynamic or new. An example of this is where a new area of investigation is being considered. A new area of investigation for the Department of Transport lay in understanding the attitudes of drivers

to the provision of motorways (Attitudes of Drivers to Motorway Provision, Accent Marketing & Research Ltd., on behalf of the UK Department of Transport; Grosvenor, Hollings and Sheldon, “unpublished data”). A major qualitative study was undertaken to explore the range of factors that influenced the public’s perception of the provision of motorways. This study, which led to further quantification, involved many group discussions with different categories of motorway drivers, different geographic locations and different social groupings.

The qualitative research uncovered a wide range of factors that were seen to be fundamental to motorway provision, and included lighting, road surface quality, level of disruption due to repairs, refuge areas, provision of service areas, width of carriageway and information provision, amongst others. It also emerged that some motorway drivers had a changing view of the system in that, at one time, there was a belief that the motorway system would one day be “complete,” but that there was a growing recognition that this was a myth rather than a reality. For each of the variables generated by the respondents, an exploration was made of the optimum and minimum levels of provision required for each such that the subsequent quantification used meaningful and relevant levels of provision. All of the information obtained from the qualitative phase was used to guide the framing of questions for the subsequent quantification survey. To have entered a quantification exercise without understanding the range of attitudes present within the population would have been extremely unwise, as this was truly uncharted territory. A very similar qualitative approach has been used to examine the provision of public transport systems in the area of investment priority studies.

In Parallel with Quantification

Another area where qualitative research can combine well with quantification is in running qualitative methods alongside quantification. When respondents are completing questionnaires, either self-completed or interviewer-administered, there is an option to consider following these interviews directly with a more open-ended qualitative interview, to focus on some of the responses provided and to ascertain the frames of reference within which the questions were being answered. An interesting issue emerged on one occasion where this approach was adopted. A series of stated preference interviews were being undertaken on train as a part of a study to determine passenger priorities for investment in new rolling stock. When the stated preference interview was complete, a qualitative interview took place with a selection of respondents. It emerged from these interviews that many respondents had been responding to the stated preference experiment on the basis that the improvements to the rolling stock would take place within a very short time frame, when in fact the improvements would not emerge for the user for several years (due to the build time for the stock). Consequently, some respondents stated that they would have made very different choices if the real time frame had been presented to them.

Post-Quantification

Subsequent to undertaking a quantitative research exercise, it is also possible to use qualitative research to illuminate the findings, particularly if there is a question mark over a particular set of findings. This represents a post-mortem use of qualitative research. Although it is rarer to see qualitative research used in this fashion, it has been a valuable

element in the more fulsome interpretation of quantitative findings. A good example of this emerged in some research that was being undertaken to examine public attitudes toward new minibuses services. Some quantitative data suggested that the passengers were giving much higher ratings for the friendliness of drivers on the minibus services as against the “big bus” drivers. Although the service provider had some ideas as to why this was happening, a more detailed qualitative research phase discovered that at least one cause of this was that the minibuses only had one door; thus, when passengers were exiting the vehicles, the result was that the drivers and passengers thanked each other, which did not occur on the larger vehicles with separate exit doors. This was a small issue, but one of some importance to the operator, who felt that perhaps the training methods or recruitment process for drivers was the defining factor.

A Complementary Approach

Although qualitative research can play an important role in the quantification process, it also has a value independent of quantification. Qualitative research is not simply an unquantified survey that, when it grows up, will have numbers attached to it! Although there is considerable merit in undertaking qualitative research to better understand the language people use to express particular behavior or situations as input to questionnaire design, or to explore the range of issues prior to quantification, this is only one level of the output of qualitative research. A series of focus groups provides an independent data source that is complementary to quantitative data. As one senior researcher at the Home Office (UK) once said, “Qualitative research is as much about sampling ideas as people.”

Qualitative research is not a small-sample quantitative exercise, where the benefits of a deeper understanding of a problem are traded off against a larger sample with a lower level of information. This would be to demean the technique. The output of qualitative research is fundamentally different from quantitative data. For example, it would be possible for an individual uninvolved with a quantitative study to present the results of a survey with only limited knowledge of the techniques involved, and without having spoken to a single respondent. In this respect, the data can be shared and passed on from analyst to analyst without corrupting the integrity of the data. This is not the case with qualitative research. The analysis of results cannot be passed on to a third party, as the data is formed around the interviewer.

The “farming out” of the analysis or report-writing of qualitative research to a third party (which did, at one time, happen quite often) cannot be an appropriate way to analyze data of this kind. The qualitative research practitioner is, whether one likes it or not, a part of the process of analysis and interpretation. It is not a scientific process; it is more akin to an art, and is fundamentally human and probably flawed as a consequence—but then, so are the responses in any survey. Computers can help in the analysis of quantitative data, but as yet, and possibly for some time to come, would be incapable of making sense of the discussion that takes place in a focus group or depth interview, even though attempts have been made to use computers in the analytical process of qualitative data—for example, analysis of the repetition of various words or phrases used by respondents during the course of qualitative interviews.

For the time being, at least, the qualitative research practitioner is a fundamental part of the interpretation of the findings, and consequently, the orientation and background of the researcher have a significance that does not pertain to quantitative interviewers. Bill

Belson, who used to run the Market Research Society (UK) course on focus group moderation, raised the important question of whether group moderators were born or made. Clearly, there is a bit of both. Not everyone is suited to the technique, but then again, much can be learnt over time to improve the techniques of the qualitative research practitioner. Indeed, the experience is a fundamental part of the interpretative process, which links from study to study as well as group to group.

The interpretation of qualitative research also is dependent on nonverbal communication (NVC). It is not simply what people say, but how they say it. A silence following a question can be interpreted (and, of course, misinterpreted), but only by someone who is a close observer of the research. The qualitative research practitioner has to make sense of what is said, what was implied, and sometimes, what was not said. This, of course, can be alarming to a quantitative researcher, but as we all know, human beings communicate using more than just words. Facial expressions and body language are a part of the process of the interpretation of qualitative data, just as the silences that follow one person's comment in a discussion can say a lot about what the other respondents are thinking.

Wendy Gordon and Roy Langmaid provide a concise definition of qualitative research in their publication titled *Qualitative Market Research, A Practitioner's and Buyer's Guide*: "Qualitative research answers such questions as 'what', 'why' or 'how', but it cannot answer the question 'how many'." Some psychologists or philosophers might question the 'why' element, but in principle, the objective is to understand the more subjective elements of choice and decision making. To quote once more from Gordon and Langmaid, they define the comparative strengths of quantitative and qualitative research as follows:

Qualitative

- Open-ended, dynamic, flexible
- Depth of understanding
- Taps consumer creativity
- Database - broader and deeper
- Penetrates rationalised or superficial responses
- Richer source of ideas for marketing and creative teams

Quantitative

- Statistical and numerical measurement
- Subgroup sampling or comparisons
- Survey can be repeated in the future and results compared
- Taps *individual* responses
- Less dependent on research executive skills or orientation

(Source: Wendy Gordon and Roy Langmaid: *Qualitative Market Research*)

This comparison reveals some obvious differences between the techniques, but these can easily be ignored or forgotten in the budget-and-time-constrained world of research. To re-present this comparison in a different form, it could be argued that qualitative research has the following limitations:

- A qualitative research project is not strictly repeatable.
- Qualitative research is highly dependent on the research executive's skills or orientation.
- Results cannot be strictly compared between phases of qualitative research.
- Qualitative research is not about representative samples—it is general rather than specific.
- The output is 'soft' data rather than hard data.

To assist in the choice of method, it is of value to raise some fundamental questions relating to the objectives of the research. If the answer to any of these questions is ‘yes’, then a qualitative approach might be appropriate.

Q. Do you want depth of insight?

Q. Do you want creativity?

Q. Are you concerned with subtle relationships between the core subject and other (lifestyle) issues?

Q. Are you unsure about the current range of attitudes?

Q. Is the situation changing rapidly within the population you wish to examine?

Q. Are you interested in how ideas are exchanged and developed?

With reference to the transport sector, there are many areas of research that require these kinds of outputs. To provide a very clear example of where qualitative techniques were ideally suited to a client objective (independent of quantification), in this case, in the policy sphere, below is provided the client objectives for a study undertaken on behalf of the Department of Transport in the UK [Public Attitudes to Transport Policy and the Environment (for the DOT): University of Westminster (Grosvenor, Jones and Wofinden, “unpublished data”)].

The objective is to undertake an interactive study which examines attitudes to transport policy and the environment, setting policy options in the context of the actual trade-offs in terms of environmental effectiveness, personal freedom of choice and affordability.

The study was commissioned as a part of the Great Transport Debate initiated by Dr. Brian Mawhinney MP, (former) Secretary of State for Transport. One of the concerns that led to the commission of the study was that responses in surveys revealed there was a dichotomy in public opinion: People were worried about the threat to the environment and other effects of traffic growth. These concerns were not necessarily connected with the respondents’ use of the car, and furthermore, although public transport improvements were seen as being fundamental for generating a modal shift, there was little enthusiasm for restraint measures (which might be a more cost-effective measure).

The complexity and breadth of these issues were ideally suited to a qualitative exploration. The final methodology involved extended focus groups amongst different segments of the population, with pre- and post-questionnaires and a series of interactive household interviews, some held with those who had attended the focus groups. One key objective of the research was to present and discuss a considerable amount of background data with the respondents (relating to the real effectiveness of different transport measures), so that the attitudes of citizens could be explored within a more informed context.

Transport is a highly complex subject, and the transport researcher needs to be equipped with the full battery of research techniques at their disposal if they are to understand how human beings interact with transport systems, and how they make choices with regard to these systems. Qualitative research can help to define issues for further quantification and, in a broader context, can put flesh on the bones of the statistics. But it is not just in the area of the traditional household travel surveys that qualitative research

can play a part. The areas in which different qualitative techniques have played a substantial part in developing a better understanding of transport-related issues include:

- **Travel behavior and mode choice**
 - Understanding the emotional and perceptual factors influencing current behavior
- **Policy guidance**
 - Motorway tolling and provision
 - Congestion charging
 - Consensus building
 - Transport awareness campaigns
 - Exploratory, understanding the underlying issues, trawling of the range of public opinion
- **Infrastructure, design and operation**
 - Rolling stock, public transport vehicles
 - Station and terminal design and investment priorities
 - Security and safety
 - Ticketing systems
 - Subjective design factors, creative solutions, ambient qualities and aspirations
- **Passenger information systems**
 - Real-time information
 - Printed timetable information, leaflets
 - On-system information
 - Telematics and new developments (e.g., the Internet)
 - Design factors, requirements and aspirations
- **Public consultation**
 - Road building/widening schemes
 - Shopping/leisure/amenity development
 - Trawling opinion, real trade-offs, lifestyle implications

Qualitative Methods: Groups, Depths, Triads, Participant Observation

The selection of the appropriate qualitative technique is not an exact science. However, there has perhaps been a tendency to select focus groups at times, ignoring what might be more effective qualitative techniques for particular research issues. A guiding principle is whether the research will benefit from the interaction (and associated contamination) present in group discussions. A group is sometimes described as a 'hothouse' environment where ideas grow and are reassessed as part of the interview dynamic. The group discussion environment is ideally suited to a situation where creativity is a fundamental requirement. By example, focus groups have been used to examine possible solutions to complex transport policy initiatives where the citizens (or respondents) are encouraged to suggest solutions to problems that balance the requirements of the different interest groups involved: what might be called a consensus-building approach.

If personal information, rather than generalized or normative views, is required, then one-to-one depths may be more appropriate. Very detailed information about journey

patterns and choices are quite naturally buried in the focus group environment, and thus, it is either better to consider a one-to-one approach or to consider combining techniques, with personal information being collected before/after the discussion group. A combination of depths and groups can also be useful in that respondents in a group situation may temper their views according to the responses of other respondents in the group. For example, on a one-to-one basis, respondents might advocate stringent restrictive measures on car use that would affect others (but perhaps not themselves) that they would not be prepared to advocate in front of those who might be most affected by the measures. Of course, both methods reveal certain truths about how individuals are likely to respond to dramatic policy initiatives.

The triad or triangular interview is a technique that is not often used, perhaps because it seems to be somewhat artificial in design. This technique has been applied in particular situations where one wishes to explore the specific differences between segments of the population; for example, three different views on the subject of car restraint might be considered. A triad would involve recruiting three people for interview, one who would positively support the idea of car restraint, a second who would directly oppose the idea, and a third who would be uncertain. The objective of the interview is to examine, in a controlled situation, the differences of attitude and to see whether there are areas of commonality that can lead to a compromise of view. This process is a part of many traditional focus groups, but some of the clarity of difference can be lost in the mix present with a larger number of respondents.

Participant observation is a technique that is perhaps not used as extensively as it might be in the transport sector. Criminologists and other social scientists have used the technique extensively to great effect. The observation of behavior is linked with interviews where an attempt is made to understand the reason for specific actions. David Hollings (a leading transport consultant in the UK) pioneered the use of this technique in the transport sector in the UK, to examine passenger behavior and attitudes toward transport information provision. The particular merit of this approach lies in the opportunity to link actual behavior with attitudinal questioning. A study undertaken several years ago to examine attitudes of users of the underground station for the Waterloo International terminal used this approach to great effect. There was a requirement to examine very detailed behavioral issues that would perhaps be forgotten very soon after the journey event. Furthermore, the design of the station involved many subjective and emotional factors, such as claustrophobia, spatial orientation, guidance and safety. In linking observation of behavior with direct questioning, it was possible to build a more detailed picture for the user requirements for the subsurface station.

There are also hybrid qualitative techniques such as mini-groups and household interviews that involve all members of a given household in a qualitative interview. This again can be very useful in examining the complex travel patterns and interrelationship of behavior and choices as they affect different members of the household. This type of interview can explore such issues as the collective use made of the household car (or cars) and the knock-on effects of one individual's choice on the choices and behavior of other household members.

One additional technique that has just received an airing at the UK Market Research Society Conference is what has been called do-it-yourself (DIY) or unmoderated groups. Without going into great detail about this technique, as it is only in the early stages of development and is as yet unproved as a reliable technique, it is worth

considering the implications of this rather dramatic approach to qualitative research in the transport context. Yelland and Varty have pointed out that “unmoderated groups are likely to work best in mature, sophisticated, post-modernist societies which are ready to, and experienced in challenging the *status quo*.” It should be pointed out that the unmoderated groups used precise, written guidelines for the respondents to follow. They go on in their paper to raise some interesting questions that have implications for policy makers, and the definitions of the policy makers objectives:

- Does research prompt inauthentic responses, because of misunderstandings of language as well as a desire, on behalf of the respondents, to please the moderator?
- Does the focus on topics and issues of interest to the moderator and client alone avoid areas of principal interest to respondents?
- Does the moderation process create barriers to assessing the hierarchy of respondent issues?
- Do many group discussion processes fail to build the most appropriate bridges between clients and respondents, to aid the communication process?

There are many occasions where researchers wonder whether they are asking the right questions. Perhaps the approach that Yelland and Varty have developed represents a possible tool for opening the real issues that are of concern to citizens. It is felt that this approach may have very particular (potential) applications in transport research where new policy measures are being considered. It may well be that to use more citizen-(consumer)-driven research techniques may uncover more creative and applicable solutions to transport problems than are obtained from research that is essentially driven by the attitudes and objectives of the policy maker. At the least, this type of approach might extend the range of options that might be appropriate and meaningful to citizens. Further exploration of the value of this technique is recommended.

How Many Interviews, Respondent Segmentation?

Who should the groups or interviews be amongst? Men and women, different demographic factors? Very often, the issue is one of budget. Determining the size of the study is laden with difficulty. There are no absolutes. There is not a precise number of groups or depth interviews that will give you the result you are looking for. Furthermore, it is unlikely that a qualitative study will sample all the possible segments of the population—it would turn into a quantitative exercise. It is, however, important to embrace the range of attitude groups.

Thus, judgement and experience are the only real guides. It should also be noted that qualitative research is not the best guide to differences in attitudes within narrow segments of the population. Wide segmentation factors are valid—car owners as against public transport users, commuters as against infrequent travelers—but narrower bands, such as the differences between owners of new cars and owners of old cars, might not be sufficiently contrasting for these variations in attitudes to emerge within the research. A typical focus group study might involve as few as three or four groups or as many as twenty+ groups. However, at the upper end of the scale, there is a danger that the physical quantity of data can become overwhelming and difficult to interpret.

There is a tendency with focus groups to ensure that, within each group (consisting of about eight respondents), the characteristics are generally homogeneous rather than

heterogeneous in terms of key factors such as age, income and disposition toward the key subject area, e.g., car drivers separated from public transport users. This may not always be the right approach, and perhaps more could be done to explore the interactions that take place between heterogeneous segments of the population, particularly as there is a need in transport to weigh up the effects of different measures on different segments of the population (see triads above).

The most important factor is to assess whether the research will cover the right range of attitudinal groups and to bear in mind that the contrasts need to be strong in order to interpret the data accurately. Thus, mixing men and women in groups of car drivers does not generally affect the data or create difficulties in interpretation, whereas if the subject relates to security and safety on late-night public transport services, there may be merit in splitting groups so that gender issues can be explored in a more controlled situation, and the interpretation of the data is enhanced.

Respondent Recruitment

How will the respondents be found? The research industry has had major problems with the issue of respondent selection (not just for qualitative research), and focus groups represent a key area of concern. What is sometimes referred to as the ‘professional groupie’ phenomenon can arise. In transport, I think we are lucky in that the issues are ones that are very real to individuals, whereas, say, in advertising research, one does not want to feel that the respondents in the group have all attended three other discussions that week on advertising chocolate bars, or even advertising other products, because respondents may ‘play act’ responses. In my experience, transport research does not suffer, to the same extent, from this problem. By illustration, it would be quite easy for a respondent to pretend that he/she drank a particular brand of beer on a regular basis, but in discussing transport behavior, the range of factors involved would quickly expose the incorrectly recruited respondent.

There is also a very real concern about the kinds of people who participate in research—are they a self-selecting group? This is once again even more acute in the focus group context. Who is likely to travel to a group venue to spend an evening discussing a subject they were unaware of before attending the group? For this reason, some qualitative research practitioners have been using more spontaneous methods of recruitment, whereby groups are assembled in situ without the formal recruitment process—for example, on a train with passengers using a specific service, or in bars to discuss with young people their attitudes toward transport. There is considerable merit in this approach, aside from the practical difficulties that make the selection process more akin to participant observation than the more traditional home interview or focus group discussion. Transport research needs to explore the very active processes involved in the behavior and decision making, and perhaps this method has much to commend it.

Research Content

This is another area where there is considerable uncertainty. The arguments for the use of projective techniques and about how much stimulus material to use will perhaps never be resolved. However, there is a danger that over-use of stimulus material can lead to a dependent process whereby a type of lecture is taking place rather than an open discussion.

The dependent group is a recognized phenomenon where, instead of the ‘spider’s web’ of interaction, the group looks to the moderator for guidance. This can arise with very technical issues where the layperson defers to the apparent expertise of the moderator. Care has to be taken to ensure that stimulus material is used to *stimulate* reaction. If the stimulus material is outside the frame of reference of the respondents, there can be a danger that the moderator becomes a leading rather than a moderating influence. Several years ago, when undertaking research to explore public attitudes toward the Channel Tunnel (before it was built), it was evident that many respondents in the groups were so in awe of the scale of the engineering task that they actually *wanted* to be given a lecture on the subject, rather than discuss it. Consequently, a minimum of stimulus material was used as the presentation of the “artist’s impressions” of the tunnel, leading respondents to simply question the competence of the engineers, which was not the objective of the study!

By contrast with the example above, in a recent study related to transport policy, very successful use was made of a generalized map showing a “typical” town and surrounding area. The respondents were asked to consider the kinds of measures that would have to be introduced in the area to address traffic growth, whilst at the same time provide the community of this area with a suitable quality of life. The results were interesting in that they allowed the respondents to role-play as planning officers and to consider the interactive effects of measures across a wide area. In most cases, the respondents used an interesting combination of “carrot and stick” measures, favoured now by many policy makers in the transport arena.

The use of projective techniques and stimulus material is one where, again, the experience and judgement of the research practitioner are the key. Will the material be beneficial to the dynamics of the group? Will it be possible to interpret the meaning behind reactions to the use of the material? Very often in transport-related groups, the travel experience is such a powerful one that stimulus material can be quite unnecessary, whereas in research for fast-moving consumer goods, there may be a specific need to use this kind of material to generate reactions amongst respondents.

Analysis and Interpretation

The interpretation of qualitative research is perhaps the area that causes most confusion and mistrust of the technique. There are many levels to the interpretation of qualitative data, but perhaps the most important issue is the role the researcher plays in interpretation, which is quite different from that in quantitative methods. Interpretation is a process that continues through the life of the study, and also is a function of the orientation of the researcher involved. Clearly, there is an element of interpretation that actually takes place in the interview stage, as new ideas are being formed (as the group or interview takes place). This is followed by a detailed review of what was said in the groups or interviews, alongside the recall of the nonverbal communication (NVC) and intentional analysis.

In the experience of the author, qualitative presentations generally have more impact than the written reports that follow. It is at the presentation stage when the interpretation of the qualitative research practitioner can be most easily questioned; after all, the point has been made above that the researcher is an active element of the interpretation process. Qualitative research reports tend to take some of the colour out of the data, although a liberal use of quotations from the interviews can provide a rich source of reference material for the client.

Language, Expression, and Perception

When considering issues such as those evident in the transport arena, there are very few that are simple. There are so many buts, ifs and maybes that it is hard for quantitative surveys to measure the range of attitudes held by citizens.

One of the major benefits of the qualitative technique is that the respondents are using their own words to express particular behavior, situations or decisions. The language of citizens can sometimes be both illuminating and essential to a better understanding of current attitudes. By example, in a recent study examining mode choice for a rail operator wishing to attract new patronage from car travelers, a female respondent in a group replied that she would not use rail on the basis that ‘you can’t wear a white dress on a train’. This says more about the importance of cleanliness than any rating scale. It also tells us something about the kinds of factors that have to be considered when addressing the needs of customers.

Another example comes from a study concerned with traffic growth, where a citizen referred to ‘the murky blanket’ over her town—this is one very powerful way to describe various forms of nitrogen, carbon particulate and volatile organic compounds that go to make up certain kinds of pollution. Clearly, much time can be spent analyzing the phrases used by the public, as they are gathered in the focus group or depth interview context, but just to raise one issue that is important in the qualitative context, the woman who describes the murky blanket (over Ipswich, for those who are interested) is not making this up, even though the murky blanket might not be visible every day. The qualitative approach deals with the feelings of people, which are as important as the objective world around them.

‘My car is me’ is a quotation from a focus group where the subject under discussion was the strategic issue of the potential widening of the M25 around London. The quotation illustrates the significance of language and the unique quality of the response. There is no quantification possible here. The statement is independent of any measure, and yet has major implications on the policy orientation toward the car in society. There is no mention of cost, journey time or, indeed, other characteristics of car travel. The respondent was stating the degree to which she felt that her feelings and status were represented by her car. Not surprisingly, she was extremely reluctant to consider alternatives to the car. The dilemma for the policy maker is, What could happen for this situation to change? Clearly, measures of restraint are not going to suddenly change this person from viewing the car as a statement of her own independence to viewing the car as a polluting vehicle.

Furthermore, unless we understand some of the minutiae of behavior, factors such as tolerance to increased journey times (by car) can appear mystifying. Again, to quote from a group discussion: *‘I get into a routine, I listen to the car radio and it’s part of my way home. If I have a good run home, I may end up driving slowly so I don’t miss the end of the play.’* This person is by no means alone in using the time in the car in a constructive manner: *‘At home, I would feel guilty just sitting down and listening to something on the radio.’* This type of insight into the world of the car driver provides an explanation of behavior that is beyond the cold logic of journey-time efficiencies.

Qualitative research techniques are ideally suited to understanding the misconceptions and the subjective world, as much as determining the facts and the objective truth. If people feel that traffic problems are getting worse or, to use a non-

transport example, that crime is increasing, then aside from the statistics, which may tell one story, the mood suggests that something is not quite right. Perhaps the answer lies in the fact that the relationship among issues such as traffic congestion, crime and other socially important topics is not something that people perceive in isolation.

The cliché that “people don’t say what they mean and mean what they don’t say” is of importance to the qualitative research practitioner. Perhaps the murky blanket isn’t there, or the woman would wear a white dress on a train. Regardless, the woman feels that trains are dirty, and the other woman sees or feels something that makes her think that pollution is a problem. The words used are an indication of something that is important.

Language also provides an insight into the thought processes that, at times, need to be influenced. By example, the two quotations below have strong implications for policy makers:

“I take my daughter to school [by car] because she suffers from asthma, and if she walks, she’s in a terrible state by the time she gets to school, because of the fumes going past her.”

“As individuals, we probably don’t think when we open the car door in the morning, ‘My goodness me, we are going to cause pollution.’”

The first quotation suggests that, in seeking to protect her child from exhaust fumes, the woman is prepared to cause more pollution. What would have to happen here for there to be a change in behavior? The second quotation is equally lucid in identifying the precise moment when another kind of door needs to be opened if attitudes are to change.

The Emotional Journey

A theme that runs throughout this paper is that the use of qualitative techniques provides a depth of understanding that is essential in the transport context. A traffic model describes movements, not people, and if behavior is to be better understood, we need depth of understanding. Qualitative research can help to provide this.

On a recent radio broadcast in the U.K., a leading scientist specialising in Alzheimer’s disease was asked what had inspired her interest in the brain, and her reply was that it was the qualitative issues rather than the quantitative ones that set humans apart from computers. Her response illustrates one of the major factors that underpins the qualitative approach—that is, that human beings are feeling, emotional creatures, and many actions are determined by subjective (qualitative) judgements. Decisions—particularly in transport—are affected by a multitude of emotional factors, which include the following: aggression, anticipation, anxiety, certainty, comfort, confidence, contentment, control, despair, disadvantage, elation, embarrassment, enjoyment, failure, fear, frustration, guilt, pleasure, remorse, risk, satisfaction, security, status, stress, success, and uncertainty.

Just about every journey contains some of these emotions, and many choices are directly affected by them. If one considers how people describe their journeys in the qualitative situation, the language is littered with emotional phrases that represent emotion-filled episodes. The choices made in transport perhaps reflect a minimising of certain emotions (stress, uncertainty) and the maximising of other emotions, such as satisfaction, certainty or pleasure. Of course, hard variables such as cost and journey time are important in the decision-making process, but if the emotions are ignored, then only a

partial understanding is obtained as to why people continue to make choices that may not be defined by a price/time equation alone. A good example of this is found amongst young people who are prepared to pay high car insurance premiums (at a time when they may be financially restricted) for the emotional boatload of benefits the car is perceived to bestow on them.

What is remarkable is how quickly the emotions can change in the transport context, for example, from elation to despair. Advertisers bombard us with images of elation when biting into a chocolate bar, but this cannot compare with the emotions evident in even the simplest journey. To observe the despair of commuters on a platform when the announcement comes that their train has been cancelled is to witness the importance of the emotional spectrum in the transport context.

In the focus group or depth interview environment, the memory of these kinds of events is replayed and sometimes redefined. The despair felt at the time turns to a lack of confidence in the system, its management and control in the qualitative context. This all raises an important issue about how respondents recall events, behavior and choices regarding transport. It has been noted in research that travelers' emotions fluctuate rapidly during the course of a journey, and the frustration felt at a particular point can dissipate quite quickly—even within minutes of being angry. However strong the emotion is at the time, in order to remain stable, there is a natural process of jettisoning certain feelings as time passes. Equally, reassurance is an almost constant requirement throughout a journey. One only needs to consider how many times passengers on a new public transport system require reassurance—they will see the sign on the bus, then ask the driver if this is the correct destination, and then even ask other passengers. Qualitative research findings would suggest that there is an insatiable appetite for transport information.

In the group environment, there is evidence of certain of these emotions returning to the surface as the journeys are discussed. Some lurk quite deep, whilst others are quickly recalled, particularly through exposure to situations similar to their own. "I know exactly what you mean" is a familiar expression used by respondents in groups. Empathy is a common occurrence in groups. The qualitative research practitioner learns to explore where this empathy is real or just adopted, and where stereotypes are being used and where new ideas are being formed. A significant benefit of the group environment is that the respondents are encouraged to disagree as well as agree.

Thus, when someone says, 'I think trains are dirty,' others can comment on whether this statement reflects their views, and if not, why not. This is something that is absent from quantitative research, in that the technique allows for an investigation of why viewpoints differ when the object in question is the same. Returning to the dirty train, it is possible to uncover that the dirty train may only be a part of a more general concern about security or a feeling of a poorly managed system. "You never see anyone cleaning the windows on the trains" tells us that the visibility of a cleaning process may be as important as the physical state of cleanliness, or as more than one respondent has put it, "At least in my car, I'm surrounded by my own rubbish". Graffiti on public transport vehicles and in terminals generates mixed emotions—even pleasure, for a small minority. But for the majority, it is perceived as threatening. Why? Because it suggests that the graffiti is out of the control of the operator, which in turn reflects a more general concern about poor management and control.

The qualitative researcher enters, if briefly, the lives of people and is provided with an opportunity to explore, without the constraints of quantitative methods, the aspirations

and motivations of individuals. In other words, the researcher explores the “ifs, buts and maybes” of life. During the course of undertaking literally hundreds of focus groups and in-depth interviews where transport and travel have been the themes, it has been evident that emotions are as important as rational criteria in the decision-making process. “You wouldn’t get me in that tunnel if you paid me” is a contemporary reference to a transport system that has generated a considerable amount of emotional charge.

The “ifs, buts and maybes” are also important when considering the comparison between quantitative and qualitative methods. Qualitative research allows for self-contradiction in a way that sits uncomfortably with quantitative methods. Most decisions and behavior operate on a continuum, with many caveats included: “I sometimes take the train if...”, “I normally drive unless...”, “The tube is the best way to get there, but...”.

“I don’t like traveling by bus at night” is another example of the dominance of emotion over objectivity, in perhaps more than one respect. The bus may be cheaper and, indeed, quicker than the alternative, but it is the perception rather than the facts that has the greatest impact on choice. Several years ago, in undertaking a study on behalf of what was then InterCity, it emerged from some discussion groups with rail travelers that many were critical of the absence of late-night services to and from London. A senior British rail manager could point to the timetable and say that there were plenty of late- night services, but what he failed to recognize was that many of these passengers discounted the last train on the basis that this service was *perceived* to be threatening. The trains were there, all right, but the travelers’ perception of the services erased them from the mental timetable.

The majority of qualitative research discussions start from the perspective that the subject for discussion is only a part of the lives of the individuals. Transport and travel are rarely viewed in isolation from the pursuit of the activities that lie at either end of the journey. Transport, after all, is a derived demand. Quite naturally, people would rather talk about the play they went to see than the journey to get there, but that is not to say that the mode of transport used to get there is unimportant. Far from it, the method of transport can be directly influenced by the activities that are pursued or the lifestyle desired. “I put up with the journey to work every day because of the better lifestyle I can have living here” is an example of the relationship between lifestyle and travel. Unless one understands the context, the choices can appear too irrational.

In the experience of the author, the means of transport and the attitudes toward transport are deeply felt by the vast majority of the population. Perhaps the reason for this is a qualitative one: The attitudes toward transportation are not formed in isolation; they are a part of a quality of life that ranges from the desire to make a commuter journey on time, on a clean train, to the attitudes of a mother who wants to continue to provide her children with piano lessons and feels the car is the only way to facilitate this activity, or the person who puts up with a tortuous commuter journey for the benefits of a larger garden.

The emotional range experienced in the transport context is vast and can extend from despair to elation. In many respects, the life of the qualitative researcher in transport is an emotional journey, and the technique allows for an exploration of the emotions that is only partially visible in more rigorous quantitative methods.

QUALITATIVE AND QUANTITATIVE: CONVERGENT OR DIVERGENT?

If one considers research studies where qualitative methods have been used to compliment quantitative research findings, it is interesting to observe how these separate data sources

can provide similar findings, although they are obviously presented in different ways. In the case of the DOT study referred to above, at the same time as we were undertaking the focus groups and depth interviews, the LEX report on motoring was published, which revealed very similar findings to those obtained from the qualitative research.

The LEX survey, using a structured interview format with a sample of over 2,000 drivers and nondrivers, revealed high concerns about traffic congestion and registered strong support for public transport improvements, including cheaper fares, more park-and-ride facilities and more town pedestrianisation schemes. All of these were found to be high priorities in the qualitative study undertaken for the DOT. Furthermore, our research also found that there was support for more town and city bypasses, but there was opposition to major new road developments, as there was a perception that this was not the solution to traffic growth and was highly likely to have the opposite effect of generating traffic. Again, the LEX study supported these findings.

Although it is perhaps surprising how often the qualitative research findings are broadly inline with the quantitative findings, there is still, from time to time, the issue of conflicting data. The quantitative data say one thing, whilst the focus groups supposedly say another. This has never surprised me. What *would* be surprising would be if all data pointed in the same direction all the time.

One factor that may account for sometimes divergent data is the potential for qualitative research to pick up on the inherent conflicts within individuals. Most people are not certain about most issues. In the group environment, it is clear that respondents can contradict themselves within a very short space of time about some issue or another. Attitudes are, in general, very volatile, and perhaps qualitative research is witness to this more often than quantitative research. An analogy might be to say that, whereas qualitative research is more like a moving image, a quantitative survey is a snapshot or still photograph. Both portray an image of reality, but they are quite different. For this reason, qualitative research can pickup nuances that are omitted from quantitative surveys.

Whatever the specific technique chosen, the obvious difference between qualitative and quantitative research is the absence of statistical output with qualitative techniques. Indeed, the idea of a representative sample of people being involved in qualitative research is not a prerequisite of the technique. Many qualitative studies involve maybe less than one hundred people. Sampling discrepancies are therefore perhaps where divergent data are most likely to emanate from. To address this, it is vital that the qualitative sample encompass the range, if not the numeric depth, of the quantitative sample.

Furthermore, we all hear things in the research that perhaps we want to hear. But is this surprising? I have met many clients in my working life who listen to quantitative data and pick out the bits that they relate to, and ignore the bits they don't. To quote from the LEX report on motoring (1996): '75% of city dwellers say that congestion is a problem in their area.' What does this mean? It could easily have said, '25% of people didn't think there was a problem.' But then what do people mean by a "problem"? It could have been that the 25% all lived in quiet neighbourhoods, or maybe the problem lies in the interpretation of "problem". Perhaps in some of these people's lives, traffic congestion was not seen as a problem when compared with finding the money for the mortgage or a good school for their children. A similar finding in a qualitative report might say, "Many respondents found congestion in their area to be a problem, but there were also those who felt that education was a more serious issue in their area". Both findings have a role and are meaningful.

This labored point is made to illustrate the problem of interpretation, whether the data be qualitative or quantitative. The author may not be alone in having heard clients ask: “The quantitative data are all well and good, but what do they mean?”

The other major area of concern regarding qualitative research is how the data can be used and interpreted. Numbers as output are ideally suited to modeling. A quotation from a focus group cannot be fed into a computer to generate a modal split chart. “I sometimes drive, but on other occasions, I take the train” has its own integrity. Qualitative research can help us to explore beneath the surface of the comment and to illuminate the modal split chart. But one major concern about the technique that requires further research is the way that qualitative data are used by policy makers and transport operators. Unlike quantitative data, which can result in figures’ being quoted months, maybe even years, after the survey has been completed, there may be a tendency for the policy maker or transport operator to listen to the qualitative research presentation and then to forget about it. By their very nature, there is nothing absolute about the findings. Perhaps it is that the data from this kind of research feed into the approach of the user, but are not a direct transfer to policy. Just as quantitative research suffers from the “What does it mean?” question, qualitative data can open the question, “Well, it’s all very interesting, but how do I use it?”

KEY QUESTIONS LEADING TO BEST PRACTICE

Qualitative research has a major role to play in the development of transport policy and research, either in association with quantitative research, or independent of it. Like all research, it is flawed; there are no complete truths. However, the sensitive use of the techniques, complemented by quantitative studies, can provide an insight that is fundamentally about how humans behave as feeling and emotional creatures. The output cannot be presented as a histogram, but then human beings, as we understand them at the present, do not feel or make choices according to absolute values.

To provide some direction for the workshop and subsequent development of a guide to best practice, it is perhaps worth finishing with some questions that might be addressed within the workshop.

- How can the output of qualitative research be best used:
 - In relation to quantitative surveys?
 - In policy guidance?
- Are there ways in which qualitative research can be more effectively presented to the end user?
- How can the strengths of the depth and breadth of qualitative research be most efficiently and effectively used in the transport context?
 - Given the importance of the orientation and experience of the qualitative researcher, are there special skills that should be developed for the transport qualitative researcher?
 - Is enough emphasis given to the use of a combination of qualitative methods, for example, triads and depth interviews combined with more traditional group discussions?
 - What can we learn from the cultural variations in the approach to qualitative research?

- Quantitative techniques are benefiting from new technologies. Can qualitative research harness these technologies to good effect?

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WORKSHOP SUMMARY

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The workshop discussion focused on the use of qualitative methods, as outlined in the resource paper, to inform transport survey research. The main themes that emerged were:

- The uses of qualitative research;
- The key advantages of qualitative approaches;
- Suggestions for research guidelines or quality indicators; and,
- Suggestions for further research.

USES OF QUALITATIVE RESEARCH

Qualitative research should be considered:

1. To inform the design of policy
 - a. Identify the appropriate method/means of intervention
 - b. Assess preferences/determine issues around infrastructure, stations, signage, etc.
 - c. Develop public relations campaign
2. As an operations management tool
 - a. Assess customer satisfaction with service levels
 - b. Monitor perceived service quality
3. To inform the design of quantitative research
 - a. Pilot or pretest survey forms and/or items
 - b. Identify/generate response options
 - c. Can assist in identifying appropriate strata for sampling
 - d. Can assist in generating research hypotheses for data analysis
 - e. Can assist in interpreting direct results and unanticipated secondary effects

KEY ADVANTAGES OF QUALITATIVE RESEARCH

There were two key advantages advocated in the use of qualitative approaches. First, and most important, the entire approach fosters and encourages creativity in research design and in the conduct of the research. The best qualitative studies tend to be those that take advantage of the exploratory nature and design flexibility offered by the approach. This is especially an advantage when dealing with a new situation or question. A second advantage is that the results obtained from qualitative approaches tend to have a high level of realism; they are understood intuitively. In the United States, this is referred to as “face validity.”

SUGGESTIONS FOR RESEARCH GUIDELINES/QUALITY INDICATORS

There were several suggestions for incorporating qualitative approaches into traditionally quantitative transport surveys.

1. In any research program, the full range of quantitative methods should be considered, along with the qualitative.
2. The program of qualitative research should be designed to ensure that the full variety/range of ideas has been elicited from the target population. Note that the emphasis is on the representativeness of the ideas/issues elicited from the qualitative research, and not on the representativeness of the individuals or groups included in the research program.
3. The process of qualitative data collection/research must be fully documented and explained in such a manner as to permit critical examination or replication.
 - a. Qualitative research merits the same level of rigorous design and documentation as other types of research.
 - b. Communication of results, especially to top-level decision-makers, should be made with a professional assessment of the relative level of confidence in the findings.
 - c. In the methods documentation, the researcher should explicitly state his/her orientation or bias toward the issue being studied.

SUGGESTIONS FOR FURTHER RESEARCH

1. Need to foster interdisciplinary exchange of qualitative methods and experiences. We need to expand our understanding of the variety of methods in the “qualitative toolbox.” There is the sense that other disciplines, such as the social or political sciences, have more experience with qualitative approaches than transport.
2. Need reports on how qualitative efforts have informed or improved quantitative or other subsequent research programs.
 - a. Need case studies of both the successes and failures of qualitative approaches.
 - b. Need better reporting of the use of qualitative research as a component of a larger research program.
3. Need to understand the impact of respondent selection on the results of qualitative and quantitative research.
4. Need to better understand how to interweave the results of quantitative and qualitative research in the same program.
5. Need an assessment of the strengths and weaknesses of different quantitative and qualitative methods in the variety of research situations.