

**Quality Attributes of a Journey:
Their Identification and Impact on Travellers**

by

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1. INTRODUCTION

1.1 Background

Formal transport planning techniques have been dominated by consideration of the importance of time and money influences on travellers' choices between available alternative modes. This has come about for a number of reasons including:-

- The relative simplicity of time and money cost data collection and analysis.
- The convenience of evaluating such costs; they can easily be perceived as dimensions of disutility.
- Empirical research has provided evidence to support their importance.

However, it has always been recognised that time and money are not the only influences on travel choice, and in some circumstances may not even be the main ones. Very large numbers of other important variables have been suggested, some of which are discussed below. They are sometimes referred to collectively as the 'quality' variables, of which comfort is the archetypal example, but this classification also includes security and reliability. Some of these attributes, such as convenience, are conceptually simple but operationally difficult.

There has been a long tradition of empirical analysis concerning the 'quality' factors, employing a wide variety of different research techniques. Indeed, simply because the other factors are disparate, complex and not usually incorporated into established evaluation methodology, the research techniques have in some cases shown a wider variety and greater ingenuity than has become the case in studies of time and money.

In the past, quality factors have had second place in transport assessment, perhaps correctly, but there is a likelihood that their importance will continue to grow in the future. This is likely to arise for two reasons.

First, increasing incomes and changing social norms are combining to put a stronger emphasis on the general quality of life. In theory, if people have more money then the marginal utility of the money cost of a journey may decline and if they have more time to spare then the marginal utility of time savings would decline (though not necessarily at the same rate; the money value of time representing the ratio of the two marginal utilities, would not necessarily go down). It is then possible that both the money value and the time value of other factors could increase. The long term trend to improve the comfort and attractiveness of vehicle design, at least for private cars, may be seen as a natural market response to such changing priorities.

Secondly, in some parts of the transport system it is likely that demand growth will proceed at a greater rate than will be satisfied by increases in supply. Where this occurs there is an inherent

pressure on quality of travel; overcrowding causes discomfort, and congestion causes unreliability. Therefore, it may be that in some circumstances the quality factors will get worse.

It is clear that a combination of the rising expectations for improved quality and actual experience of reduced quality, would cause increased stress at both individual and policy levels. Indeed such a prospect is one of the reasons why the project is timely. Its results are likely to be directly and swiftly relevant for practical policy decisions. However, there is also a methodological implication for the study itself. Under circumstances involving such twin pressures, it is theoretically very likely that there will be an interaction effect between those factors affecting travellers' attitudes and utilities and those factors affecting the levels of the attributes themselves. Interaction effects are always possible and good research technique stresses the importance of maintaining vigilance given the possibility that they may become important. In practice, however, this is often a casualty of research budgets and time scales. But, there is a *prima facie* reason in this case to ensure their centrality.

1.2 Alternative Approaches

Although in one way the problem of identification and assessment of the importance of various quality factors of a journey seems well defined, it should be noted that the range of different results available can only be understood and synthesised by noting that they derive from five different analytical traditions, each somewhat distinct, yet frequently interacting.

The five traditions comprise three with a strong theoretical framework and two with empirical emphasis. In summary these can be referred to as:-

- Work deriving from a formal statement of utility maximisation as the motivating force within an economic theory of consumer behaviour. In principle any type of attribute can be handled, but in practice the total effect of all the included attributes is converted into dimensions of disutility. This means an inevitable emphasis on cost-like attributes and is the reason why generalised cost is not usefully considered as a weighted sum of all influencing factors, but only those which are or can easily be expressed in such a cost-like form. Additivity lends itself well to interpretation of fairly simple trade-off rules giving values which can, with suitable amendment, be used in cost benefit evaluation. In this context the approach would lend itself well to incorporation of factors which involve the expenditure of some sort of disutility; for example, effort or stress by the traveller.
- Research deriving from theories initially developed in the context of time-space geography. Travel is seen essentially as a facilitating process to allow participation in rather complex patterns of activities separated in time and space; constrained by the availability of modes and the characteristics of the origins, destinations, and social obligations of the travellers. The main insights produced by this body of work have included a great emphasis on the importance of timing as distinct from travel duration i.e. the opening hours of shops, starting time of work, collective meal times in households, etc... Hence, a greater attention to such quality factors as the discreteness of

public transport timetables and the unattractiveness of unpredictable journey times caused by variable congestion. Also of importance has been a recognition that there is often some degree of switching among members of a household about who carries out what task and who has access to vehicles. This can influence the incidence, and sometimes the size, of costs and benefits. Finally, there has been a tendency to consider quality effects in terms of the presence or absence of constraints, rather than as continuous functions.

- In studies using psychological theories of human behaviour, especially those involving the satisfaction of (socially influenced) desires, or the generalised relationship between stimulus or response, there is a tradition in this analysis of using rather different mathematical forms than those common in economic analyses of utility. A number of important quality factors have been discussed using psychological methods, for example the concept of the advantage to the traveller of being able to exercise 'control' and therefore the potential importance of those factors which take control out of his hands. In addition, it is now a matter of received wisdom that behaviour will be influenced by status, image, and links between travel modes together with perceptions of sex, power, success, and personal security.
- With less theoretical dignity, there have been a number of empirical studies, often using econometric techniques (though with only lip-service to an econometric rationale) to produce multi-variate equations relating to some measures of disparate variables. Typically no functional distinction is made between attributes of the person, the context, and the travel, which means that the interpretation of trade-offs has to be done with great care, if at all. There have been considerable successes in finding statistically significant and sensible results for quality variables such as the probability of having to stand in a bus. In many cases, for reasons connected with the ease of operating statistical examination procedures rather than theoretical preferences, the use has been made of dummy variables to encapsulate unspecified qualitative attributes. However, such an interpretation of coefficients as 'values' is not straightforward.
- Qualitative unstructured interviewing techniques, which may be applied to any of the above approaches, also tend to have some independent characteristics of their own. In particular they allow the traveller to assert his or her own perception of which factors are important and how they relate to each other, without being forced into any theoretical framework which may not be appropriate to the person, the circumstances, or both. Clearly, the rich picture of complex interacting motivations which is characteristic of this approach has then to be simplified and made operational for practical purposes. The nature of the simplification will be influenced by the research itself, as will any important and improved understanding of the limitations of specific procedures.

1.3 Re-examination of Qualitative Data

The research findings reported in this document focus on the qualitative approach and are based on an analysis of a series of qualitative unstructured interviews. Although journey time and money costs are excluded from the project remit, it is felt that they cannot be completely ignored for two reasons. First, existing values must already be influenced or distorted by the non-treatment of quality attributes, if they are important. Secondly, it may be the case that some element of time, money, or perhaps safety acts as a 'context' variable influencing the importance of quality variables.

The research is based on a re-examination of a number of qualitative data sets, typically in the form of tape-recorded interviews and transcripts, where travellers have talked explicitly about the wide variety of different journey attributes which are of importance to them. Around thirty projects of this form have been carried out at TSU in the last fifteen years which have produced relevant information of this form and of these seven were in a form which were convenient for analysis and particularly relevant to the project. Further details are given in the Appendix.

Qualitative research is essentially small scale work based on an unstructured and flexible interviewing approach. It is designed to probe fully into how and why people feel and act in the way that they do, without making a series of prior assumptions as to what factors are likely to be important. In summary, qualitative research can serve four distinct purposes:-

- It can play a useful role in its own right where the research aim is to uncover a range of variables.
- It can avoid some of the shortcomings of structured questionnaires by providing deeper insights into particular aspects of attitudes and behaviour.
- It provides the basis for developing the structured questionnaires necessary for aggregating data.
- It provides a means for respondents to influence the content of the study and the relative emphasis to be given to each subject.

1.4 Methodology

The interview records have been used to:-

- Identify as many quality attributes, as perceived by users of different modes of transport, as possible and hence to provide evidence for sources of variation.
- Identify possible insights into the way in which travellers value, weight or trade-off these attributes against each other and against the time and money costs of travelling.

Although the sources of this information had not intended originally to focus on travellers' perceptions of quality aspects of a journey, it was thought that discussions about people's lifestyle and travel behaviour would nevertheless provide some indication of subjective notions on this issue.

The analysis covered all possible modes of travel including cycling and walking, since it was perceived that the balance of quality attributes would be different for different modes and that some attributes would be important for some modes and not for others.

Rather than using a prompt list to guide analysis, as in other qualitative studies, a deliberate policy to allow the data sources to drive the collection of the results was followed. When a possible quality attribute was identified in an interview, it was extracted according to the terms of both the attribute itself and also the context within which it had been quoted by the traveller. Sources can be identified by the key provided in the Appendix.

From the analysis and grouping of quotes, the conceptual subheadings could then emerge. Occasionally, however, it became clear that although a particular word was being used, it was being done so in an unusual way, and so the quote was reclassified according to the concept it elicited.

For example, the semantics of a word as used by respondents showed variation across modes. One such example occurred with the use of "reliability". With respect to motorcar use, this word explained how likely the car was to breakdown or fail to start in the morning. For a bus, it tends to mean, however, some amalgam of how likely the bus was to arrive, how close it was to expected time, and in addition, all the things stated for a car.

Consequently, the researchers have allowed the context to establish the concept being evoked, and have constructed attributes and attributed quotes on this basis rather than the crude incidence of key-words. Hence, the categories constructed for this research refer to logical rather than psychological phenomena, and in the example above, "reliability" has been applied only to those events which cause a bus to fail to run at all.

1.5 Structure of the Report

The traveller, as an individual decision maker, was the largest theoretical influence on the writing of this report. The priorities of decision making in mode-choice led to a structure framed around two principal questions. The first stage of the individual's decision-making process is postulated to take the form of an elimination round to establish by which modes a particular journey could be undertaken, given the traveller's practical circumstances. Subsequent to the identification of mode options, follows concern for which of the options is most desirable way. Hence, factors are implicated in these decisions as 'core' and 'peripheral' considerations.

Clearly, core factors affect individual mode choice over and above preference and may even prevent travel altogether under extreme circumstances. But, once the effective options have

been isolated, a whole range of factors pertaining to the nature of the various modes will become important. These will continue to include all the core considerations, as these will have quality implications in addition to their powers of veto.

It seems possible to classify quality attributes in three ways according to whether they affect the logistical attractiveness of the mode, the travel environment, or whether they result from the unique psychological orientation of the potential traveller:-

- The factors of logistical attraction together approximate the idea of convenience and all affect the practical nature of the trip. Furthermore, they are all objective in the sense that they are quantifiable, using at least a nominal scale, in terms of time, money, or frequency.
- The features of the travel environment tend, essentially, to be those mainly subjective factors which govern the ideas of pleasantness and comfort that the traveller experiences. They may be subdivided into quality of the vehicle factors; both structural and atmospheric, quality of the termini factors, and in-trip opportunities. Their quality will result from the activities of the service provider and the behaviour of fellow travellers. Although subjective, these factors depend primarily on the provision of an appropriate infrastructure.
- Allowance must be made for important unsystematic and potentially illogical individual attitudinal factors. This implies that mode-choice as determined by the analyst might be completely contradicted on the basis of some single, deeply held perception, belief, or psychological need; the source of which is self-in-society rather than the relative value of modes as utilitarian transport. One such factor might be the status value of arriving in an expensive quality car rather than by bus.

Not only are individuals' psychological orientations expected to be highly influential, they are themselves derived from different dispositions and experiences. Physical, biological factors such as age, sex and fitness should alter the weighting to be placed upon factors such as ride quality, security and the need to interchange. Similarly, socioeconomic factors such as wealth and type of employment alter the importance of cost and punctuality.

Most importantly, the fundamental individual variation in personality and experience; perhaps possessing an inherent component, can be expected to alter the relative importance of factors for a given situation. The extrovert might be far less concerned by an overcrowded carriage than an introvert, whilst the impatient may give scant regard for comfort as long as the bus is fast, reliable and punctual.

2. ELICITATION OF ‘CORE’ FACTORS INFLUENCING THE CHOICE-SET

2.1 Introduction

The aim of this research has been to identify how travellers perceive and evaluate those factors which contribute to the quality of a journey. As suggested above, the first of these tasks, led to the identification of differences in the names applied to particular conceptual influences in quality.

Following the exploration of perceptual concerns, the evaluation of the importance of the designated attributes for travellers took the form of considering individual variation in needs and identifying possible trade-offs between attributes, including between time and money attributes, not dealt with in the earlier section.

All factors are seen as primarily affecting mode choice at the pre-trip planning stage. Rarely does the traveller have the opportunity to switch mode with ease following the commencement of the trip, as this respondent was painfully aware:-

“One of the most frustrating things on that train journey to London was just being stood there and thinking there’s absolutely nothing I can do about it [train delay]. I’m stuck. I haven’t got a car here that I can just get into and get on with it [the journey].” BAT145

Instead of precipitating immediate remedial action, such experiences are stored at varying levels of consciousness and accessed during the next preplanning event, where they are combined with knowledge of the current prevailing opportunities and circumstances.

Certain key attributes are able to determine the traveller’s range of mode-choice purely by their state, and without regard to other factors. However, such examples refer to situations in which a particular traveller considered an option impossible, rather than unattractive. Under certain extreme circumstances it is envisaged that such attributes could render a journey impossible by affecting all available modes.

To clarify; elimination factors make travelling from A to B using mode M impossible for a particular individual P to undertake, given the situations of A and B, the attributes of M, and if P perceives that a significant risk of failing to achieve the trip goal exists.

2.2 Compatibility of Service with Objectives

2.2.1 Timings

Although examples in which travel was made impossible were rare, perhaps due to the extent of car ownership, reported experiences of respondents feeling constricted in their choice of real

alternatives were common. The key basis of choice here is the availability of modes that the traveller is physically able to use in the essential time span for the trip. Private transportation is often the only available method, for example, for this man's necessarily early departure time:-

"I need to be at work at ten to five and the first bus is about ten past five. I would have to get up even earlier if I went by bike." SY235

Consequently, he travels to work by car. The woman who gave the following quote explained that her husband faced a similar problem:-

"It would be very difficult for him to get to work [without a motor vehicle], the odd hours he works. There is a direct service, actually, but it doesn't leave early enough, and doesn't quite coincide with the start of his shifts." SY297

A similar effect results from the reverse situation in which the necessary departure time, given the total time required for travel, is perceived as unreasonably early. This may be due to low frequency of service, or low speed combined with the need to interchange. Consequently, the mode involved acquires a disutility of time weighting at the place of departure:-

"Wednesday, I go to Trent Poly. in Nottingham. I leave at 7.15; drive there. The train wouldn't get me there in time, doesn't get there 'til after nine." SY297

The train clearly has a strong deterrent attached. In the absence of an alternative mode, would catching an earlier train have been possible? Or, would the choice of a nearer institution have been necessary?

2.2.2 Location

For these women, options were reduced by living away from a public transport route:-

"There were no shops... The nearest shop was two miles away; you had to either walk, pedal, or get a taxi." BAT224

"The nearest playschool was in Middleton Cheney, this was about 4.5 miles from Greatworth, and you can't do that without a car." BAT8

Similarly, for this woman, the lack of public transport had prevented a home move:-

"If I did move to Bloxham, I would always have needed another car. I couldn't have got into town without it. At least here I can; I can even walk into town if I am desperate." SS

The absence of public transport services evidently creates an inertia effect due to people adopting coping strategies which then makes the introduction of such services harder:-

"They don't seem to put any services in, until people have found some way round it; using their cars." BAT108

2.2.3 Encumbrance

Other trips by public transport, notably buses, seem to be vetoed because the traveller is encumbered by large or bulky baggage, or children, or both. In each case mode-switching has occurred:-

“I used to catch the bus [before having access to a car]; only when the older one was able to walk, though. Then I could carry the baby in the sling.” SS

“I couldn’t do a big shop using the bus. The type of place it [supermarket] is, you have to go in once a week and buy the week’s shopping.” SY286

“I started using it [bus] when [child] was just old enough to crawl aboard, and [then] I could get the buggy on. But, I mean, it’s so convenient, the stop’s just at the end of the road here. But then I had [second child], and of course, you can’t manage two children by yourself on the bus.” BAT9

Clearly, the mobility of parents with children is generally an issue, even for walking:-

“When I had one child, I used to go down to Banbury once or twice a week... ..but with two I’d never do that... ..so much hassle getting the buggy into shops and pushing it back up the hill.” BAT9

2.2.4 Access to Private Motor Transport

However, motor cars cannot be seen as the inevitable solution to mobility difficulties. It seems obvious, but needs to be underlined, that many individuals have either not passed a driving test, or for some reason are unable to be competent drivers. Women in particular seem to experience concerns over safety. The following woman seems to have been permanently intimidated against becoming a driver:-

“I wanted to learn at one point, but when we had the car accident I lost my nerve you see... ..I lost my baby in that accident, so, since then, I’ve always been nervous. People like me shouldn’t be on the road really; driving, not if they’re nervous.” SS

The converse to such difficulties is the increase in travel which follows passing the driving test:-

“I was out like a light. I’m not usually in much. I go out visiting my relations, you know.” BAT109

The qualification of a novel driver could also influence the effective mode choice of other members of the family:-

“...if I was able to drive, I’d be able to take him [to work] and then have the car during the day. And if he had the motorbike going, he’d probably use that for work, rather than the car.” BAT217

2.2.5 Weather

Finally, the weather can have the ability to reduce effective mode choice. In the following case the man was a habitual car user due to the deterrents of travel time and interchange experienced using the train, except under extra-ordinary weather conditions:-

“If you go by car round the motorway it takes 20 minutes, if you go by bus it takes over an hour. It’s useful to live near a railway station; I use the train when it snows in the winter... Walked down.” SY286

2.3 Security

Not only must a particular mode be physically possible to use, but it must be secure enough for a particular individual undertaking a particular journey to use with confidence. This becomes easily undermined if there are perceived to be high risks to personal security, or even a small risk of a more serious type of assault. The prime example is, perhaps, the female who drives around an urban area rather than walk or use public transport, which, in most cases, requires some walk at the end of the journey stage. One respondent discussed her car use in the following quote:-

“I use it to do the shopping, and at nights; going out to do babysitting, for instance. I don’t like to go walking in the dark.” BAT22N

Another individual reported that security concerns had made some journeys completely impossible: leading to reduced travel following termination of car ownership:-

“When I had the car I used to go out on my own later; go to a friend’s house, just get in the car and drive home; no problems. Now, I’m more restricted.” TC19

Parental concern for children is also important. This mother linked security to darkness rather than mode *per se*:-

“In summer they use the buses all the time, but... winter, we tend to take over; with the car.” SY297

2.4 Information

A further perceptively mediated core factor concerns individual feelings as to whether they are sufficiently provided with information to undertake a journey by a particular mode; confident both of departure and arrival times and places of interchange. Factors which undermine confidence that a journey is actually possible by a certain mode may rule out its use despite it being, in fact, practical in every way:-

“I wouldn’t know how to get from Sutton up to the hospital. I don’t know where I could find out how, or who would tell me.” BIT15

Consumers can even be unaware of the full range of services available to them:-

“My sister waited one and a half hours for a red bus... let all the white ones by... didn’t know she could use them.” TC46

“I’m frightened to go on those minibuses because I don’t know where they are going. I thought they were private.” EN24

“How many people I wonder, don’t get on them because they don’t know what they are. I don’t know what they are and where they are going. They stop, but I don’t get on them because I’m not sure what they are, how much you pay, or who owns them.” EN24

Or, the public may be confused by some minor, unadvertised change:-

“You don’t expect a coach to be a bus.” TC46

2.5 Safety

Quite how close safety is to the forefront of people’s decision making is unclear. For the modes within the scope of this study, cycling was shown to be effectively deterred by lack of safe facilities:-

“One thing I would like to see is a special cycle-way. The kids are interested in cycling and my husband was going to buy a bike so we could all go out cycling, but we were worried about riding in traffic.” SY286

And, concerning private motor transport, motorcycles were of unsurprising concern:-

“I had a scooter when I first came down here... I used it for work, and to go about a bit, but I had to give that up because of the wet roads, and bad weather, and

that. I thought, 'This is bloody slippery, I'm getting on a bit too much for this'."

BAT200

Although sensitive to events that occurred just prior to the various survey points, differences between the various modes' perceived safety seem large. Coaches receive more than their fair share of criticism. This is perhaps due to perceptions concerning their high motorway speed and large size combined with the hazards of motorway driving, dangers over which the passenger has ceded control. This idea of risk can be summarised hence:-

"You only need one car to pull out in front of you." IC

Such a view might be sufficient to deter travel.

3. LOGISTICAL FACTORS INFLUENCING CHOICES

3.1 Introduction

Many travellers like to feel that they have a mode choice option, either between private and public transport alternatives or between public transport services. Merely using the mode of one's preference, rather than the mode available, may have quality implications independent of the actual quality of the hypothesised systems.

Logically, greater choice of mode should lead to a better fit with needs, and hence greater satisfaction with a journey. Generally, choice does seem to be identified as a good thing, whilst lack of choice leads to feelings, often voiced by female respondents, of being "cut-off":-

"I hate not being able to feel that there's a car outside the door that I can leap into if I want to." SS

Such comments were not exclusively concerned with car ownership, as is evident from this woman's concern for rail access:-

"I mean, to get a train, there [Carterton], you had to go right into Oxford... ..I felt really cut off." BAT2

Logistical considerations can be divided into time-dependent factors; speed, frequency and delay and punctuality, whilst the need to interchange and proximity are partially time dependent, and cost, reliability, and the number of individuals travelling are time independent.

3.2 Frequency

Various thresholds of frequency seem to be perceived such as a minimum level required for a service provision worthy of consideration. The following level of provision led to a move into an urban area:-

"At the time we left there was only one bus into Banbury a day; one in and one out; eight-thirty and five-thirty, which means that without [private] transport you were absolutely stuck. We had to go six miles to see a doctor. Well, the village got to be such that you could only afford to be ill on a Wednesday morning between eleven and half past. In the last few years he didn't come into the village at all. Our next door neighbour... He had to take a day off work, a full day... catch the eight -thirty bus come into Banbury for a nine-fifteen appointment. He had two teeth out, and he was walking about the town then, wasting time, until five in the evening." BAT248

Another threshold marks out the frequency at which accurate customer planning is required. At the highest frequencies, perhaps five to ten minutely, missing one service is usually unimportant, but missing an hourly service highlights the inflexibility of the system:-

“Well, you have to time it better, I think. Because living on Withycombe Drive, if I missed one, I had only another ten minutes or so to wait. If I miss one here, I’ve another half hour to wait. And it makes quite a difference, that. To me, anyway, because it means you’ve got to perhaps rush that little bit extra, in case, because that’s half an hour wasted.” BAT219

Travellers without a privately owned vehicle, dependent on public transport, tend to perceive that the quality of their journeys (and of public transport in general) increases if the number of services, or service frequency available to them creates a flexible travelling environment, i.e. an environment which is not practically restrictive. Clearly, individual variation alters the threshold at which this occurs; according to people’s varying personality factors and differing travel needs.

However, the expected pattern of “the more the better” did emerge:-

“Our own bus service, we’re very lucky because we’ve got a dual bus service... We’re in the middle of the route so we can get a bus to town every fifteen minutes and they have brought in a returns fare system so you can save a bit of money.” BAT158

Also unsurprisingly, cutbacks were universally disliked:-

“And they’ve just cut the services back on this estate. They used to be every half hour and they’re every hour now. That makes them less appealing.” BAT22n

In particular, reduction in frequency below a certain threshold can require an unacceptably long time-allowance if the traveller is to guarantee arriving for appointments:-

“Well it was nice to have a half-hourly one. It means that if you have an appointment at, sort of, quarter-to-ten, you could get the twenty-past-nine bus. But now, if it’s only at five-to-nine or five-to-ten, you’re really going to be wasting time aren’t you.”

Some individuals, at least, would seem to have a comparatively low threshold for scheduled waiting times:-

“Say, I want to go to a movie with my friends and I take the bus. After twenty minutes wait at the stop, do you expect me to enjoy it? I’d better take a taxi then, whenever I can afford that, of course.” EN21

A problem related to frequency is that of bunching. Users find it particularly hard to understand how it can occur, and tend to place the blame entirely on poor management:-

“You wait at the bus stop for about twenty minutes and then three come along. Well, you think that if they’d planned that a bit better, you wouldn’t have to wait so long.” SS

3.3 Delay and Punctuality

For private transport, this factor referred to how far a journey took the time expected, where expectation was derived from some logical approach, for example, the time a given journey took the last time it was made, or how long journeys on a particular type of road, of a certain length typically take. This attribute has a great effect on a driver’s perception of the quality of a journey. It is an attribute which causes extreme frustration for many drivers:-

“It doesn’t bother me: driving ‘round Birmingham. It doesn’t bother me at all, but if you get stuck in the traffic that’s the frustrating time that you could scream; it’s just bumper to bumper.” SS

One component of this frustration is the inefficient use of personal resources:-

“I can’t stand the traffic making me waste an hour when it could easily waste half an hour, I find it very frustrating.” SS

One respondent linked the failure to be punctual to adverse weather conditions, either due to greater mechanical breakdowns or to the greater experience of discomfort on such occasions:-

“The only thing that you can’t rely on is that the bus is going to be on time. This is the only thing, especially cold mornings and bad mornings.” SS

Certainly, delays under such conditions may have a higher value of time:-

“Being in winter, and being cold, every minute was like treble times as long.”
OPO16

3.4 Reliability

Reliability is an issue for private transport, but breakdowns affect only one individual or a family. Hence, they have a lower profile than delay caused by motorway jams or major permanent way failure on the railways. However, it can be a significant factor in a rural area:-

“It was essential that we had a good car: I mean a reliable car. In that area you depend on it so much. It’s so bleak in that area, there’s the snow in winter, the digging out, and so on...” BAT248

Furthermore, there is at least a perception that regular use of one’s car maximises its reliability. This man was involved in a car-pooling arrangement. Concerns for the reliability of his unused car were an unanticipated negative aspect:-

“If I don’t use the car in the evenings, which I don’t, only rarely, the car’s stuck in the garage for two weeks... And of course the car gets cold and damp, and difficult to start, after.” BAT108p

For public transport, punctuality refers to accuracy and reliability and is used as a measure of how many services indicated on the timetable were actually available for use.

Total vehicle failure on the interurban trip is particularly catastrophic. The private motorist may have breakdown insurance which limits the full anguish to that of delay. The traveller by public transport must wait for a replacement vehicle. Are coaches particularly prone to breakdown? Are support services in such an event less effective?:-

“They [coaches] kept breaking down whenever I travelled. I said, ‘no more’.” IC

“That’s the trouble with the trains. My wife uses them and they are unreliable; because they may not turn up. When one does turn up you have all the backlog of people. ...It isn’t reliable because the rolling stock is so old.” SS

These quotes suggest reliability may be a more serious issue for long haul operators as their services are in close competition with the private car, whilst on the intra-urban journey, buses have increasing advantages as car access is reduced. However, the problem of lack of bus capacity on short-distance services seems to be a particular cause of frustration, as the traveller can see the bus arriving, discover it shows the desired number, and perhaps it is on time, but then is suffered the annoyance and disappointment of watching it sail straight through the stop:-

“The worst feature was going past stops on a full bus, with all the people who wanted to get on [left standing at the later stops]. People who go to a bus stop, although you expect to wait, expect to get on the bus when it comes.” SY286

3.5 Need to Interchange

Public transport is seen as unattractive because customers are often forced to travel long distances out of the direct route to affect an interchange. This has at least a psychological effect and usually has an actual cost in time delay:-

“It was near enough impossible to get from Ratley to Leamington by bus. You had to change buses three times... ..That used to take me two and three-quarter hours.” BAT248

Interchange seems to be another particular problem for the rail system. The following quotes are also critical but are not explicit as to what the penalty of interchange really is. Reactions are not entirely logical; perhaps A to B via London might be quicker than driving directly from A to B under certain circumstances, but it seems that the traveller required to interchange derives the perception that the service is operating despite them rather than for them:-

“I’ve gone off trains. They never seem to go to the right destination. For instance, I’ve got a meeting in a fortnight in Poole, but I shall drive because last time, coming back from there, I ended up in London. That’s happened twice, so I think trains and me just don’t agree somehow.” BAT

“If I was taking the kids to the dentist, I’d have to, like, take two buses. There’d be one to Sutton and then one to the surgery. That would be about forty minutes, when by car it should only take fifteen at the most.” BIT14

“The train often requires connections. This can cause problems. The coach is usually direct.” IC100

Coaches tend to have this advantage on the intercity route but the trade-off is that subsequent legs of the journey, perhaps to an outlying town, will favour the train over the coach.

Travellers describe interchange between public transport services or modes as having an impact on the free-flowing nature of a journey. This could be improved by more seamless interchanges as time is clearly one factor, but another is effort and the ambient conditions:-

“You have to walk almost 500 metres from Ac. to L. Sq to change to the bus to P. This is awful with all this smog around, but if I had to take the trolley bus, instead of walking that is, it takes more time than to walk all the way through.” EN22

The obtaining and using of relevant information is another problem:-

“Unless you’ve got a car, it is a bit of a problem to get anywhere. You really have to figure out what you’re going to do. As I say, its easy enough to catch a bus into town, but then you’ve got to find out what the times are to Coventry, to Liverpool, or something like that... ..work out how to get there and come back, that’s usually the problem. You’d have to work your journeys out wouldn’t you?” BAT200

Improvements in the provision of information may have reduced the deterrent experienced by this last respondent, but it would seem that interchange can have financial disincentives as well:-

“The journey from work was a two stage bus trip, it meant changing, which meant they weren’t financially very usable.” BAT22n

3.6 Possibility of Parking

Although only applicable to car use, comments of the following kind are so common as to highlight the impact upon mode-choice:-

“I use the bus and train all the time although I have got a car, but there’s nowhere to park where I have to go to work” BAT

Cost would seem to be a disproportionately important contributor to the perception of what is acceptable parking:-

“It’s expensive to park... I do begrudge paying the money. Twenty pence every time you stop is quite a lot.” SS

Compared with other costs of motoring, the latter amount seems minor, even allowing for ten years of inflation. Similarly:-

“Solihull is absolutely diabolical for parking. You begrudge having to pay the 35p to park.” SS

Also, the difficulty and time spent are regular concerns:-

“I do find that this parking is a bit of a business, not here perhaps as much as hunting to find a multi-park if you get through the town, after say ten-thirty in the morning. There’s no parking in the centre you see. So you’ve got to find somewhere else to park, then come back into town to do what you want to do.” BAT53

3.7 Immediacy/Proximity to Termini

The principal concerns here are the speed and ease with which the main element of the journey can be commenced after leaving the exact point of departure, and how close the transport mode can take one to the final destination. For the motorist in the initial phase, this usually requires only un-garaging the car or walking down the drive. This is an area in which public transport finds competition difficult. As this man explains:-

“Convenience is the thing, isn’t it? Why do people use the car? Because you jump out of the house, jump into the car and go wherever quickly.” SS

“I wouldn’t entertain using public transport at all because my car’s on the doorstep and that’s what it’s there for: to be used. Anyway, I wouldn’t have a clue how to get there by public transport.” BIT15

However, in a situation of high level provision of multi-mode public transport, a similar effect may occur:-

“If the bus is there you get on it; otherwise you might take an alternative tube route.” TC15

One mother saw immediate access to a car as a kind of ‘insurance’ policy. This can be described as a need to ensure basic mobility for her family in the community:-

“The only thing that worries me [about being without a car] is if I have to take the kids down to the doctor, say, or somebody wasn’t well.” SS

For the traveller by public transport, the use of another mode or walking significant distances might be required before access to the principal system is possible. Travellers using the train perhaps have a higher threshold of tolerance due to greater distance travelled at a higher speed. However, for shorter journeys, the walk was a deterrent for this man:-

“It’s a good step from Dore to Totley station up here... The walking distance puts me off”. SY274

Distance from the terminal of destination is also important:-

“Main time I use the bus is when going into town. It’s not worth going and paying a lot to park... It’s irritating because the area where the bus stops in town is not the area I want to shop in.” SY286

“My use of public transport would depend very much on how close it would get me to where I’m going, whether I could get a taxi or whatever. But it’s never occurred yet.” EN108

However, it appears the initial, outward stage of the journey seems to have a perceptual weighting factor. Car parking is an obvious disadvantage for the arriving motorist, but instant access seems to be the crux of the car’s “convenience” in the following argument:-

“People will suffer the frustrations of driving, like congestion and parking for the convenience. And, they will even suffer the cost of running a vehicle, it must be an arm and a leg.” SS

In comparison with coach stations, railway stations were often rated as better-sited for access:-

“All major railway stations are in distinct locations. That’s important when you go somewhere new. Coach stations are often hidden in some back street.” IC21

Part of the decision to use a car seems to be merely whether it is parked in the drive or not. One obvious cause is the ratio of fixed to trip costs:-

“What is the use of spending £10,000 on a car, just to get on a bus?” EN43

3.8 Opportunist Mode-Switching

This issue is closely related to that of proximity, as it usually refers to the ‘doorstep’ availability of a car. In particular, respondents reported switching to or from walking purely on the basis of whether their spouse had taken the family car for work reasons that day. These car journeys can be seen in one sense as ‘unnecessary’ as in this case following the disposal of one of two cars:-

“Well, [husband] was taking one to work, and I was taking the other, but now, I take it take it to work and he walks.” SS

The following example characterises the effect of a car becoming available for the first time:-

“Actually, I’ve got very lazy. Don’t seem to walk anywhere now! Used to walk; take [the children] to school and up to town.” SS

The phenomenon of the company car is important in this respect. It seems, usually, either to replace the self-owned car or relegate the latter to the status of second car. Under these circumstances it is typically at the disposal of the spouse:-

“My husband left the RAF and joined IBM, who gave him a company car. So that’s why we had two. [Before,] if I went to Banbury, I always used to walk, walk everywhere and we used to do late night shopping [by car].” SS

3.9 Family Group Travel

For a number of reasons, car transport becomes preferable if a group such as the family are travelling together, as revealed by quotes such as the following:-

“The effect of the children has been to make us more dependent on the car.” SD203

Clearly, part of this reason is likely to be reduced cost per person by car:-

“If I wanted to go into Birmingham with my family, if I went on the bus I would have to pay for four people, whereas, if I drive into Birmingham, I just pay for one lot of petrol.”

Occasionally, public transport can benefit from joint trips, for reasons of desired companionship:-

“Well if I go down with you [wife], I’d use the bus, yes. But, by myself, I use the scooter.” BAT207

4. THE TRAVEL ENVIRONMENT

4.1 Access, Space, Luggage and Overcrowding

Access was suggested earlier to effectively prevent the use of some modes by certain individuals. As a discomfort, it can also affect mode choice. The following example reveals a subtle differentiation of ostensibly quite similar modes:-

“With a coach you can take your time to get up those steps. And it’s a different ride from the bus. Some buses do provide a special step.” BAT72

Hence, ease of access is dependent upon the design of the public transport vehicle, and it features in the mentionings of those travellers who generally have more difficulty than most when travelling by public transport. These include the physically infirm and mothers with small children and prams. The following excerpt shows the importance of public transport employees. This and earlier quotes have indicated shortcomings in their quality:-

“I prefer to walk than go on that bus because it’s so difficult getting up them steps with the pram, the little one, and the shopping, and the driver never helps. Sometimes I might be lucky and get someone on the bus to help but not very often.”

Pregnancy and the paraphernalia of transporting babies seems to have precipitated car purchase in more than one case of those studied. It is debatable whether the following amounts to an effective restriction on mode choice or a strong motivating factor within decision making:-

“I needed a car to get to and from clinics. I couldn’t walk as much as I used to and it was going to be much easier, with the arrival of the new baby, to put the baby in the car, and go places.”

Further to this are the practical difficulties of coping with the needs of a young family whilst negotiating public transport. Flexibility becomes increasingly important, and also perhaps privacy:-

“Well, it’s such a convenience with the car, and children; imagine changing nappies on the train; it’d be awful.” BAT108p

Similarly, it remains unclear how far carrying difficulties in general are absolute deterrents and how far discomforts. One husband highlighted this grey area by explaining that:-

“Very often [my wife has] come from shopping with shopping bags and pushchair and the bus drivers and conductors have seen her struggling. I don’t like the idea of [her] struggling on the buses so I always try to take her; one of the reasons why she would like to learn to drive.” SY203

This husband sees himself in the protective role with respect to his wife, to be fulfilled either by driving her himself or ‘delegating’ responsibility to the security of a car.

Regarding long distance coach travel, a peculiar set of attitudes were uncovered. Some saw the coach as advantageous because help was received with loading:-

“Coach drivers look after the luggage for you. No worries. By contrast, if you go back twenty years, with the trains, whenever you got off there was a porter to carry your luggage, but you can forget that now. It’s a thing of the past. It’s bad enough to find out where the train goes from, let alone get somebody to carry your luggage.” IC103

“Luggage? No problems on a coach. It’s all looked after by the driver.” IC106

Others complained of an unseemly scrum to load luggage and then to compete for seats:-

“One of the reasons I gave up travelling on coaches is that you have to fight, literally, to get on. And quite often, this happened to me twice, my luggage has gone to Liverpool because I put my case in the boot and there wasn’t a seat on the coach.” IC23

Space considers whether people feel comfortable in a vehicle, even when they do not consider it to be exceeding its design capacity. Buses may have a credibility problem:-

“I think they’re [buses] cold and I don’t like them because they’re cold. And you’re always well cramped up. You’re not so cramped up on a train as you are on a bus.”

Trains have a particular advantage in this respect over the other modes, due to the possibility to move around. Also, except under conditions of overcrowding, the allocation of space is usually generous. This would seem to be behind this woman’s preference for rail over coach:-

“An eleven hour journey by coach with a baby is no joke. No thank you.”

Similarly, for the elderly:-

“As you get older you prefer the freedom and choice of the train.”

And even for this young male student:-

“I can always have a good sleep [by train], but on the coach my head keeps banging on the window. You’re so close to somebody else on a coach.”

Crowding of course refers mainly to the notorious problems associated with commuter trains. The length of the typical journey may make this particularly unacceptable:-

“Yesterday morning as I say, we were all packed into the guard’s van, but if there was ‘x’ amount of carriages where everybody could sit down, that makes it a pleasant journey. You’re more conscious of going to that car park, jumping on the train, because you know you’re going to have a pleasant journey into work, not stand there for fifteen to twenty minutes, packed like sardines thinking; ‘Oh God, I wish I hadn’t come on this damn train...’”

More simply:-

“You just hope you get a seat.”

The BR reservation system emerged as problematic:-

“Reserving a train is no answer, since people pull off those white cards.”

However, a subset of rail users are prepared to stand on a train to take advantage of its speed, rather than travel by coach with almost a guaranteed seat. Similarly, others tolerate some inconvenience as the price of avoiding a ‘reservation-only’ scheme which would remove some of the freedom of travel.

However, this was the more usual response:-

“At least on a coach you are assured of a seat.” IC95

“You are guaranteed a seat. It might not be on the first one, but they’ll always put another one on. This is very important especially if you are a stranger like me. If you are travelling on your own, I think it’s going to be quite a factor.” IC104

“You can stand for 3-4 hours on a train. You’ve a far better chance of having a guaranteed seat on a coach.” IC103

“You’re guaranteed a seat which is not always true of the train. It’s diabolical to have to stand at a such a price.” IC105

But, was this the exception that proves the rule?

“The [coach] journey to Leeds was crowded and I had to stand all the way. It was badly heated and in a disgusting condition.” IC106

4.2 Relationship to Fellow Passengers

In some areas, stricter controls on smoking in public transport have reduced the conflict between smokers and abstainers. However, it would seem from the following evidence that a particular problem remains for buses and coaches:-

“Smoking is not well segregated on coaches.” IC88

“[Smoke] irritates me intensely, even sitting downstairs I’m sometimes aware of the stale smell.” SY286

“You buy it [car] because it is something you want, to go driving. I hate bloody buses, somebody coughing their guts out over me, smoking like a bloody trooper, like, I don’t smoke, I don’t particularly want to sit there with everybody fagging away.” EN44

And, not unexpectedly, certain groups offend others:-

“School kids... The language that comes out; a load of yobs swinging around and gobbing out the windows. I don’t agree with that, I wouldn’t take my baby on it.” OPO36

“Outwards was all right, but on the return; it was so crowded, lots of children shouting and fighting. Never again.” SS

Security concerns, this time with respect to fellow passengers, again were a serious issue. Interestingly, all the examples here refer to problems using buses:-

“I’d rather stand downstairs than go upstairs.” OPO36

“It’s nerve-racking on the bus at night. No way I’d go upstairs on a bus. I sit by the driver.” OPO36

“At eleven o’clock at night, do you go and speak to some total stranger on a bus?” EN55

Of the systems of public transport, rail apparently has a major advantage as it enables passengers, on most extant stock, to relocate carriages to avoid an unpleasant experience:-

“That’s the beauty of a train. If you get someone and he starts playing heavy music you can go to a different carriage.” SS

But it also has a drawback:-

“The coach is relaxing. It’s lovely. You just sit back. I hate all this walking about and slamming of doors.” IC96

Contact with other travellers can be “too close for comfort”:-

“There’s more privacy on a coach, compared with the open seating in trains.”
IC100

“Sitting at a table looking across at people is awful.” IC105

In addition to the intrusion into privacy which public transport cannot avoid, sometimes conflict between passengers’ desired travelling environment causes an explicit reason for preferring travelling by private means:-

“I have found, sitting next to some people on a coach, they’ve got bags under their feet because they can’t get them up on the rack and that’s very annoying and also the ventilation, it gets very hot and if you then want to open the window at the top everybody else objects, saying they’ll get cold.” IC89

4.3 Quality of Vehicle Ride

The quality of ride is a comfort attribute incorporating the variables of smoothness of ride, efficiency of the suspension, comfort of the seats and, for public modes, the skill of the driver.

Perhaps to a surprising degree, buses face comfort problems which result from their need to make continual scheduled stops, as well as cope with the discontinuity of urban traffic:-

“The only thing I don’t like about going on the bus to Birmingham is it’s stop, start, stop, start.” SS

“I prefer going on the train to Birmingham because there’s not so much of that stopping and starting as there is on the buses.”

Suspension may also be to blame for excessive “jerkiness”:-

“Those front seats; they’re death traps, man!” OPO35

Coaches tend to be criticised for lacking leg-room, whilst reclining seats are advantageous:-

“Comfort is pretty good on coaches except for the leg-room. The seats recline so they’re better than train seats.” IC98

“The last time going up to Edinburgh we had a beautiful coach... It was relaxing like the aircraft seats, you could recline them, there was a toilet and the stops were o.k. [for refreshment].” IC105

“Leg-room is the main deficiency.” IC100

But, again, public transport employees may make all the difference:-

“Those City bus drivers are really bad. They don’t wait for you to sit down before starting off and then they go so fast ‘cos they’re racing against other drivers. I don’t use those buses anymore because of that.”

“With your shopping and a pushchair and a child of four, they don’t give you chance to sit down.” OPO35

4.4 Quality and Cleanliness of Vehicle, Decor and Fittings

For this bus traveller, the interior state of the vehicle fell below some minimum standard of acceptability:-

“I got on the buses and there was graffiti everywhere. It was horrifying, not just graffiti but the seats were ripped and all sorts of things.” SS

Apart from the obvious loss of comfort, due in this case to the ripped seats, vandalism contributes to the perception of low status and the lack of confidence and respect with which public transport is viewed. Also, poor maintenance can create rather unexpected problems:-

“There’s only one thing I’ve got to say about the buses in Sheffield; and that’s, ‘they’re scruffy’; the outsides. I know that people are employed to clean them but they always seem to look so dirty. The insides are all right but you can’t see through the lower windows. I don’t like to go downstairs even though I’ve given up smoking”. SS

Here, the behaviour of other passengers and dirtiness have conspired to give this woman an unpleasant trip. She seems also to be concerned with the status aspect of being seen in a less than smart vehicle and her practical need to see where she is.

Toilets on trains were prone to criticism.

4.5 Protection From Adverse Weather Conditions

It is important not to under-rate this issue in a country with weather so varied and changeable as Great Britain. One of the advantages of the car, except whilst walking to and from surface car-parks, is its ability to protect from both precipitation and low temperature. This man discussed mode switching with this in mind:-

“Sometimes I’ll go on the bike... not very often; depends on the weather. Usually I do take the car.” SS

The other highly weather-dependent mode is of course walking, with an affect on the mode switched from:-

“I got buses home from where I was working, most days when my husband couldn’t pick me up, unless it was a really nice day for walking.” SS

From the public transport perspective, two issues are at stake; firstly, how far it is possible to minimise exposure at termini, and secondly, how far the artificial climate within the vehicle meets with customer approval:-

“I think the level of discomfort is far greater on a bus than on a train, even on a cold train, it doesn’t quite reach your feet.” SS

4.6 Quality of In-Transit Information

Public transport users appeared far from satisfied with the service information provided by operators, particularly bus operators. Users suggest that their journeys would run much more smoothly if the operators provided accurate information:-

“I think the buses in the main are great, but I wish they had a bit more information on them or on a board next to them.”

“It may say ‘Solihull’ on the front of the bus, but it may be going a different route to the one you want.” EN20

The particular area of failing seems to be when an interchange is required:-

“They [the tubes] tell you all about interchange. It would be easier if the buses had that. If it said you can catch the 22, 26, 24 it would be a lot more helpful. Those signs like they’ve got on the Picadilly Line; the easiest thing about them all is that they’re all a different colour.”

“If they had information on interconnecting services on the bus, you know, on buses or at bus stops, it would save you a lot of hassle. You’d just get on the bus and get off the bus at the stop where you’d catch another bus for wherever you were going.”

“It’s very frightening if you have got to get somewhere fairly quickly on the bus and you don’t know which one to get on. That worries me. I think, ‘God, I’ve got to get there in an hour, where the hell do I catch this bloody bus’.”

However, quantity is not the only issue, it needs to be easily accessible; to groups such as tourists:-

“There should be a bureau, ‘phone number or something, probably better than a Mickey Mouse timetable that don’t work.” SS

“The writing is so small it takes you half an hour to look at it first ‘cos you’ve got to figure out the day and the bus, you know. And then there’s the 24 hour

clock. The writing should be at least double the size so that people can see it and then understand it more.” SS

“How the hell do they work it out? If there’s a timetable, if it’s not smashed..., how do they decipher whether to wait or not? I mean, it’s an impossible situation. You need a big thing with unbreakable glass or whatever, in the English language, with the twelve hour clock.” EN20

For motorists, information is particularly important for travellers in unfamiliar areas:-

“I mean the motorway is great, it has a great big sign and it says the next mile, which gives you sixty seconds roughly to take it in. Some of these areas, there is a sign stuck there, nine times out of ten it is obscured by something else, so you can’t see. Roads signs: you know you are looking for a road like, the local lads have been round there and transformed it into something totally different. It is stuck on its side and you are trying to slow down and there is someone up your backside. I do not think there is any easy way of finding your way, the only thing you can rely on is the A to Z, but there again, you can’t afford to buy one for every city centre you visit.” SS

Unfamiliar city centres can create frustration and stress:-

“You’re told you can’t turn left, and then you can’t turn right. It’s especially bad when you are going to an area you are not sure of. Birmingham is a classic for producing one-way systems and not telling anybody. All of a sudden you have got this big arrow that says ‘this way’ and you want to go that way. God help anybody who has never been there. They wouldn’t stand a chance.”

4.7 Enjoyment of In-Transit Activities

Clearly, the driver of a vehicle should be unoccupied in other respects, except perhaps by conversation or background music. However the passengers of private cars and public transport may have, to a greater or lesser degree, varied in-trip requirements and needs. It can be seen that such demands will increase with length of journey and might be irrelevant for the short, urban bus journey. However, less tangible modal benefits of this type do exist, such as the chance to relax:-

“I ask myself, now, why I used the car in the past for silly trips like to town and back. I can go to town [by bus] from almost outside my house be dropped in the middle of town, do whatever I want to do, get a bus and go back almost to my house... The buses do give you the opportunity to relax. You let whoever it is drive to where you want to go, get off and get back on again.” SS

“I mean when you’re in the traffic in a car you’re wound up. You’re totally at ease on a bus sort of thing. All you’re thinking about is the time that it gets there.” SS

Those travelling a substantial distance will need to obtain refreshment, use toilet facilities, and perhaps rest or sleep. The professional passenger might wish to work, others; to read or be entertained by audio and video media. The view may also be significant. This is one area in which public transport is extremely advantageous to those who consider these attributes to be important. The visual attractiveness of the route is able to influence travel plans. Motor-car users often discuss 'taking the scenic route' and quality also seems to be significant to the walk mode. However, such considerations are also relevant for buses and trains:-

"Being able to look out of the window... making the transition between different places and different parts of your day, whereas, if you are leaving home and then driving to work, your mind's concentrating all the time. Whereas, you get the chance to relax between, when you go by bus. Somebody else is doing it for you." BIT15

"I think we've got better scenery on the bus." IC99

"You can see great stretches of the countryside from a train as far as the horizon, which for me is a great pleasure." SS

For example the opportunity to continue with a busy life:-

"It's a question of whether you can put the time in which you travel to use. I read, for example, often work, and I find it hard to do that on the coach, but easy on the train." SS

"I haven't really used buses for five or six years. Mind you if I use the train, I do find it quite good. I do use it to go from Birmingham to London for business because on the train I can always sit down and read or do some work or something on the way to the appointment." EN108

The presence of a buffet on a train was seen as a benefit, but if it was absent passengers provided for themselves. The worst situation was an advertised buffet which failed to materialise:-

"It's nice to have buffet facilities, but it's very expensive. But coaches have no facilities and it's important to have these on a long journey." SS

But, others were more concerned with keeping ticket prices low:-

"It's cheap to travel [by coach]; the refreshments are a bonus." IC96

Toilets are considered essential:-

"They're very cramped on coaches, but it's very important to know they're there." IC98

“It’s critical to stop for all passengers regularly, no less than 1-2 hours, or have a toilet on the coach.” IC106

But, some coach passengers did speak highly of the facilities:-

“I love them [coaches]: I sleep. The new ones; they are lovely. They’ve got television.” IC95

Although not exclusively an in-transit activity, the consumption of alcohol has ramifications to mode choice; owing to the need to be under the legal blood-alcohol level when driving, even some time after consumption. This is, of course, an issue that has been viewed more seriously in recent years. For some, the opportunity to drink alcohol during or before a trip is a relatively high priority:-

“So it’s not worth it [going by car], if we’re going out for a drink, then, because we’ve got the bus. Otherwise it means that somebody has to [not] drink so much.” SY297

4.8 Quality of Termini

Station quality, both for trains and buses, can have an impact on travellers’ perception of other quality attributes. It is only possible to describe the attitude of many coach users to coach stations as one of hate:-

“It’s terrible at Digbeth, if you go on holiday and you catch a coach it’s like a huge cattle market. As soon as the buses and coaches come in everyone dives; you don’t know where you are going, you just go in with the crowd.” SS

“No complaints about coaches, but I do object to the facilities, especially Digbeth.” IC104

“I think there is a major difference when you look at coach stations. If you look at the one here in Leeds; you’ve got to stand outside waiting for the coach. If you sit inside the waiting room sometimes they don’t announce that the coach has come and there’s no room to stand where you go to book the tickets so you have to stand outside in the cold.” IC94

“Leeds is awfully organised; the strongest wins.” IC105

“Leeds leaves a lot to be desired; it’s too cramped and passengers get pushed around.” IC92

Coach stations seem to have poor availability of information:-

“I think it’s incredible at major coach stations that you have to ask inspectors where coaches go from. There should be a large departure board just like in the railway station.” IC82

“Well it’s like anything else in coach use. You have to know what you’re doing; to be an expert to survive the ordeal.” IC81

The equivalent consideration for the motorist would be the quality of car park amenities, which as suggested earlier seems to be dominated by concern for cost. Presumably, security is also important, especially for at risk groups.

4.9 Appreciation of Service Staff and Ease of Payment

These interactions have important connections with the issues of access to vehicles, security, and the availability of information. Staff quality and behaviour has a powerful effect on subjective, and perhaps subconscious, evaluation of the transport system at the pre-trip planning stage. The individual who provided the following quote claimed to be sufficiently sensitive to detect variation in time:-

“There’s a definite change in BR’s attitude since they had the course for all their people and the adverts on television.” SS

Staff contribute generally to minimising the degree of stress which passengers experience in the course of their passage through the terminus and inside the vehicle. Such a role is especially important in situations of one person operation (OPO); for example, easing the practical difficulties of loading:-

“When there are conductors they always help.” SS

“The old buses used to help you on with the pushchair.” SS

For this woman, confidence in the driver’s professionalism was instilled by the effective supervision of refreshment stops:-

“The drivers always come and check everyone is back on the coach. That’s good for peace of mind.” IC100

Similar opportunities exist for those responsible for controlling the seating on a crowded train. British Rail would seem to be partially responsible for the confusion surrounding the use of vacant first class accommodation by second class passengers under conditions of overcrowding. This practice is seen as very necessary by passengers, but is thought to depend too much on the whims of particular staff:-

“I don’t think it ought to be left to the individual to wriggle round and persuade any particular guard... they challenge you. That’s not very comfortable.” IC

Merely having access to a 'person' rather than an 'official' improves a journey:-

"You used to get to know the conductors... It makes for a bit of feeling on the bus." SS

Coach staff were often complimented for their service and manner. They benefit perhaps from closer proximity to the passengers; creating a more intimate relationship to the guard walking up and down a train:-

"I find I like the personal touch of the coach." IC105

"[Drivers of coaches] are so nice, they always talk to you." IC102

However, exceptions to the typical standard clearly exist:-

"The driving staff can be rude." IC104

Particularly in the area of information provision, bad experiences seem to create significant memories. It is unclear, however, how far they are associated with the 'human nature' of the member of staff, and how far they are used to label the mode itself:-

"A man in the enquiry office would put Hitler to shame." IC83

"They are really rude on coaches and at coach stations. I sometimes wonder whether you should bother asking: why not just take your pick of the coaches and see what happens?" SS

The method of payment of fares has become controversial, mainly due to the introduction of OPO, which sometimes requires the payment of the fare with exact coinage. Also, the customer is placed under intimidatory pressure by being in a queue of people, who are, perhaps, fully conversant with the system:-

"Well, buses, I've never liked buses, and with this sort of pay-as-you-enter you've got to know your fare, and you've got to sort of have it ready, and know where you are getting off." SS

"Sometimes early in the morning I've got on a bus and I haven't got any change. I've even been turned off twice because I didn't have the change." TC22

The loss of bus conductors was usually lamented, and for reasons in addition to problems with fare-payment:-

"That was the best, the conductors and conductresses, I think; on the buses. They'd give you your ticket and your change." SS

The pricing policy of British Rail is seen at best as esoteric; this university student was confused by the calculation of fares:-

“You always seem to pay a different fare. It varies between £15 to £20 to Glasgow.” IC2

The automation of payments and the issuing of multi-trip cards were basically seen as a good thing as long as restrictions upon use were not excessively complicated and procurement of cards not unreasonably difficult:-

“Somebody strikes every few months, or you may have the station closed for a bomb scare or something; it was a real nuisance before [when paying cash], if anything did go wrong with the system.” TC15

“My children used to do very well with candy bars, because I used to have to keep going in to change pounds for the bus.” TC22

“It saves you carrying around your money with you.” TC22

“With the tubes it saves you queuing up to buy a ticket. In the West End the queues can be phenomenal.” TC22

“I think in London, on the tubes, it is a really good idea: You’ve got a computer thing and you press in, like; ‘child’, ‘adult’, ‘return’, ‘single’, your destination... You know... And it’ll show you how much you’ve got to pay. You pay, and it’ll give you a ticket. And you put, like, a quid in, and you press ‘60p’ and it gives you your change.” SS

For motorists, payments for fuel and tolls are relevant, especially given the possible implementation of road pricing. Furthermore, methods of payment for parking have become more diverse. Arrangements in Brighton and Bath now require motorists to obtain books of parking vouchers from retail outlets such as newsagents, self-cancel them and display them on the vehicle.

5. TRAVELLERS' ATTITUDINAL MOTIVATION

5.1 Past Experience of Mode

This is the process by which past trip ratings influence present decision making. If stress, displeasure, or satisfaction has accrued then it will either directly or unconsciously influence behaviour. The following respondent succinctly described the penalty faced by public transport operators who fail to provide a high quality service:-

“The first time a person decides to go on the train; if it’s not a pleasant experience, it’ll be the last time he takes it.” SS

“I travelled once on a coach and I swore, ‘never again’ and that’s just why I go on the train.” SS

“The problem I’ve had with trains is that every single time the connection was late... ..and when you’re not absolutely tied using the train, ‘cos you’ve got a car; it only has to happen once and you think, ‘well blow this: I’ll take the car next time’, because the journey was a complete disaster and I felt awful when I got there. I said, ‘That’s the last time I do that’.” BAT145

Clearly, experiences lead to firmly fixed attitudes and then to habitual behaviour; both then require a significant motivation before change.

5.2 Traveller Confidence in the System

Although related to lacks in information, there is an issue of perception beyond this. Even if the quality of information is good, the system may still intimidate. Implicit evidence sometimes suggests travellers can doubt their ability to successfully operate the system. For example, for park-and-ride schemes, the biggest deterrent to use would seem to be ‘fear of the unknown’:-

“I’ve always been aware of park-and-ride but I thought that it was probably more trouble than it’s worth, until I went with a girlfriend and she did it, then I realised how easy it was.” BAT

In this case, suspicion was aroused by the need to interchange. The passenger felt she was not using the system optimally:-

“Last time coming back from there, I ended up in London. That’s happened twice, so I think trains and me just don’t agree somehow.” BAT

Women, though rarely men, will admit to being insufficiently confident to consider driving as a mode-choice option:-

“People like me shouldn’t be on the road really; driving, not if they’re nervous.”
SS

5.3 Self-Perception and Concern with Image

Social standing and wealth, as well as traits of a user’s personality are without doubt inferred, without regard for appropriateness, from an individual’s choice of transport. Most stereotypes are readily accessible to all members of our society. Although cars have typically been used as demonstrations of material success and power, the new spirit of environmental ‘ostentatious awareness’ means that, for certain groups, being seen as a user of public or non-polluting forms of transport is an increasingly positive stereotype. This seemed to be the motivation behind the following train trips:-

“I went to London on the train a few weeks ago thinking I’ll be socially responsible.” SS

“I believe in principle in public transport, efficient public transport that’s good enough for people to rely on. But it’s a sort of vicious circle isn’t it, because public transport declines as money isn’t put into it, people get cars so they’ve got an alternative and it [public transport] goes downhill... It’s a shame.” SS

Clearly, attracting more habitual users to public transport will only come at the price of improvements; in particular to reliability and punctuality.

For those without a driving licence, public transport may have the positive association of providing the ability to travel with independence:-

“I usually have to use the bus. I’m that type of person that’s pretty independent. I can make my own way; I don’t have to rely on people to give me lifts.” SY673

“My husband sometimes says he will pick me up with the shopping, but I usually get the bus instead; it’s so convenient. The bus is just at the bottom of the road...
...I like to be independent using the buses.” SS

However, it was unclear how far this quote represents preference and how far rationalisation of a situation with little alternative.

5.4 The Perception of the Car as Essential

Whilst there is a lot of truth in the idea that the car is an essential for living in a modern industrialised society, it is worthwhile exploring the degree to which this has become ingrained in individual perceptions. This person appears resigned to providing whatever is necessary for maintaining a vehicle:-

“Obviously it’s [motoring has] got a lot more expensive. It’s just one of those things you don’t worry about.” BAT

This has clear implications for attempts to encourage mode-switching from cars by increasing costs. There also seems to be strong inertia to car ownership; it has the appearance of being habitual. This woman appreciated the difference between herself and the dependence of her car-owning friends:-

“I think if I’d been used to having a car [I would have one now]: I mean, a lot of my friends had cars when they were single; they tended to keep them.” SS

Once the decision had been made to become a car-owner, replacement purchases can often be made automatically, in the sense that the advantages of car ownership are not fully and objectively reassessed:-

“I had a car when I left school, and I’ve never had a week or more without a car in the last... ..I’m 34 now... .. 17 years. So I say ‘I could do without it’, but then, I might curse and blow; might not last a week without it! Even though we don’t do much with it, just pop over to town, and go to the allotment, and for a pint now and again. But, once you’ve had it, that’s it.” BAT108p

5.5 Concern for Personal Fitness

Several individuals commented that their self-perception of being an active person, or one needing to maintain personal fitness, influenced the number of walk and cycle mode trips made. There is evidence to suggest that buses in particular were the victims of such mode-switching due to their frequent stopping and potential wait-time; both reduce the potential time saving that might be expected by their greater speed. However, motivation for walking or cycling often requires either self-discipline or necessity; due to the lack of an alternative mode:-

“I might get a bike one day, for the exercise.” BAT108

“I do say this about exercise; it’s good for you, and you’re inclined to get dependent on a car once you’ve got it.” SY274

“When [the car is] there I do tend to use it... ..[My husband] would probably buy a motorbike but I’d never get any exercise... ..Whereas, if I have to walk I quite enjoy it, but it’s just the thought of getting out and walking”. SS

It seems natural to minimise effort wherever possible, to most individuals, and the availability of a car can be a determining factor.

5.6 Need For Control

Many individuals apparently possess a seemingly innate need to feel in control of their immediate destiny, even when the actual result is an illusion of control. There can be few regularly occurring situations in which the individual is so powerless as being trapped between motorway junctions in a stationary, bumper-to-bumper, multi-mile jam; without even the legal possibility to stop the car and walk away from it. This frustration may arise from the driver's perception that they are no longer in control of their journey, that they can no longer go to where they want to go, at a time that they want and at the rate that they would prefer. Many of the reasons for choosing to use the car rather than public transport are removed in this situation:-

“It is frustrating. You try to control your life, do what you want to do, and if you are stuck in a traffic jam there is nothing you can do. You just have to sit there.”
UDS24

5.7 The Enjoyment Provided by Operating Private Transport

Psychological motivation seems to intrude on transport mode-choice from a deep, non-rational level. Although a few individuals do look at cars as one of a range of means available to them to get efficiently from one place to another, for society taken as a whole, the attachment to the car, as a material object, is far greater than might be expected. The subjective experience of pleasure reported by some drivers of motorised vehicles, and to a lesser extent, cyclists, seems to derive from some esoteric and hitherto unidentified drive which is apparently most efficiently satisfied by driving, or even being a passenger in a car. This maybe the result of emotional arousal caused by the effect of acceleration, cornering, and the rate of arrival of sensory stimulation at speed on the central nervous system. Consequently the effect of driving may be likened to that of a drug:-

“I like driving and it doesn't bore me. When I can drive fast I do it, but when there's traffic I don't complain.” EN12

However, it would seem that much of what people say of their journeys by car is negative. Straightforwardly, dissatisfaction is bound to result from purchasing one's way, expensively, into a system which then appears to fail to work properly. Moreover, an additional explanation might be nothing to do with mundane travel and efficiency, but the failure to provide the emotional excitement and satisfaction that was thought to have been purchased. Consider, for example, the negative effect of driving on mood:-

“How many people get up in the morning; they are in a really good mood and then they get to work having gone through all the traffic and they have met 'x' amount of 'divvies' on the road and they get into the office and they want to punch somebody.” UDS23

“You have got to concentrate that much, and as Steve said; on other drivers all the while: it takes all the pleasure out of driving. It's as bad as sitting in the

office and trying to take in an important document; it's just hard work with high concentration. There has been many a time when I am driving along the road when all of a sudden I have noticed I am gripping the steering wheel... like that." SS

This motorist explained well the stress experienced in driving to work:-

"There has been times in just going into work when I have gone in and I have sat down and I am uptight purely because of half hour traffic into work, and I have to sit down and unwind for five minutes before I can actually start. I mean, along the distance, I find it is probably not so bad because the same things have happened spread out over a period of time. Certainly, short journeys in busy areas put a lot of stress on, or they can do. I think a lot of it depends on the type of person." SS

Some individuals reported for themselves, at least, that enjoyment had declined with their age. It is however unclear how far this effect results from selective memory:-

"You used to be able to get in the car and just have a quiet ride round, but now you just can't do that anymore. We used to, very often; get the car out on a Sunday afternoon or something, and just have a quiet ride around. But now you can't do that anymore, there's no enjoyment any more. If you go anywhere on a day trip, you spend 50% of your day just travelling. If anything the journeys are taking longer today with the traffic, even if you're on a good road." BAT7

"It's terrible it's no fun anymore. It used to be, but not now. There are too many cars on the roads and there are too many people using the car for short journeys." UDS23

"Don't do as much private motoring. I find it a bit of a bind; everybody's pushing you on the roads now... You can't go for a private drive." BAT201

Evidently, much of this detraction seems to be a direct result of increased traffic, particularly in city centres, due to the near inevitability of encountering delay:-

"I love driving, although I hate driving in the usually congested city centre." EN105

Perhaps, however, the ideal conditions exist just frequently enough to maintain the desire as one that can reasonably be entertained:-

"Once you get up past Manchester and Liverpool, driving does become more enjoyable, because the roads are not so busy. They are not so packed with other vehicles and you can relax a bit." UDS23

Allied to this feeling of enjoyment is the often cited value of independence the car brings. In one mother's words, concerning her daughters:-

“I'd like them both to learn to drive, because I think it makes them independent.”

SS

However, the true meaning of this reference is unclear; the costs of learning to drive and maintaining a vehicle can often restrict the full range of opportunities that can be exploited. The presentation of the car as providing independence is usually made with respect to adolescents that have recently learned to drive and are able to make evening visits without needing parental assistance. It seems that the car has become such a symbol of what it means to be an adult that expectations have been reversed: The ability to drive is now seen as an essential part of maturation.

6. PERSONAL INFLUENCING FACTORS

The criterion for inclusion of a factor in this study was the virtue of having been identified as being of real consideration to someone in a unique situation, and hence was not because a factor is necessarily commonplace in responses or of particularly overwhelming importance. Nonetheless, some of those selected clearly are. By consequence of this procedure, the factors are not equally applicable to all individuals, and some are not relevant at all to certain groups. The following section seeks to redress this balance by isolating some of the dimensions of variation which individuals show, and by highlighting those areas shown to be of particular concern.

6.1 Biophysical Characteristics

6.1.1 Sex

Although it would be incorrect to characterise security as irrelevant to men, especially given that young men show the highest rates of violent deaths and assaults, but it is a firm pattern that women publicly perceive and consider the threat of violence as being of far greater concern than men, and do so in a routine and automatic way. This problem is particularly intensified at night in the absence of car access.

6.1.2 Age

Generally, older people tend to mention the need for comfort and facilities such as toilets and refreshments more often. In particular, help with boarding public transport is valued, as is the guarantee of a seat.

Retired people often report a desire to maintain car ownership as long as possible for reasons of otherwise reduced mobility. However, they also show more favourable attitudes to public transport. This might be for a number of reasons. Firstly, they have lived through a period of our history in which public transport was more widely accepted, necessary, and used. They also have more time and fewer timed activities. They may also be grateful to be able to cede the responsibility of coping with increasingly complex traffic conditions to a professional driver, and finally; their car access is likely to be less than average, due to lower rates of ownership, licence holding, or health problems.

Older people showed greater concern for the speed of public transport, although people of many age groups reported coaches as excessively fast. This may be a result of having more time, or having slower reflexes themselves, causing them to doubt others' abilities. Also, it may be an effect of the increase of transport speed with time. The desire for travel to be carried out in a calmer way was encapsulated by this man's feelings:-

“I had a scooter when I first came down here... ...I thought, ‘this is bloody slippery, I’m getting on a bit too much for this.’” BAT200

At the other end of the scale, both safety and security are important issues for young children travelling alone. Cycling is seen as particularly hazardous. In general, car use is increased by the need to ferry children in hours of darkness or in unreliable areas.

Several parents and grandparents reported that giving a child the opportunity to experience a mode of public transport might influence the mode-choice for an incidental trip in its favour.

6.1.3 Reduced Mobility

Although sometimes a feature of age, disability is also highly significant to mode-choice. Under some circumstances, a car is seen as the best solution, making a major difference to their quality of life:-

“I wouldn’t get rid of the car altogether: well, I couldn’t. Because, as I say, I’m disabled, so I’ve got to have it. I couldn’t get very far without it you see...
...Having a car means I’m not so disabled, if you see what I mean, it’s more like if I was a fit person.” SS

“The car is convenient but just because we’ve got bad limbs. If not we’d walk it I think, and it would certainly be quicker; with the traffic you see. By the time you’ve taken your car in and paid for a parking ticket and your fuel, petrol and wear and tear on the car, it’d never be worth it.” SS

Trains can also be valued for their interior space, and also buses, if equipped with special loading facilities.

6.2 Activity and Socio-economic Factors

6.2.1 Wealth

The car remains perhaps the most ostentatious symbol of wealth and success in our society. The need to create the right image in business circles or simply to conform with one’s self-perception cannot be overlooked as influences on transport choices.

However, where public transport is the chosen mode, it implies cost might not be the important factor it is for less well-off users, and that comfort or speed might correspondingly be prioritised.

6.2.2 Nature of Employment

As suggested above, car use is often implicated in working life. A company car may be on offer, or a car may be essential for effective functioning. However, employment also affects transport choices in more subtle ways. It may make punctuality or speed extremely important, and the resultant stress from delay more intense:-

“Especially when the clock is ticking on you. You have got an appointment at 11 o’clock and you are stuck and you can see the hand moving around, closer and closer and you know there is absolutely nothing you can do. You are stuck; you can’t turn left, you can’t turn right, you can’t go anywhere.” ENT8

For this reason, the car may not always be preferred. Work time lost in transit may be offset by using public transport or a chauffeur. Another important factor is the required earliness of departure not usually important to other users.

Employment will also tend to increase relative wealth and hence increase travel, particularly by the more expensive modes.

6.2.3 Housekeeping and Child-care

Both the carriage of shopping and the transport of children are frequent causes of concern for those dependent upon public transport to enable these tasks. Buses bore the brunt of this criticism, perhaps due to their more frequent use compared with trains. Such problems are often intensified within the household orientated towards car-use, as it is typically absent during the working day.

6.3 Personality Traits

The history of psychology is full of attempts to elucidate factors or traits of personality which can be used to a greater or lesser degree to characterise individuals within a population. Whilst these attempts have not been altogether successful, and are generally treated with public suspicion, nobody seriously doubts that these dimensions of variation exist, and that they show, to some extent, stability through time.

In a general sense, these will affect the degree of concern an individual has for quality, and more specifically, how far each separate component is important. For example the impatient person can be expected to show greater concern with punctuality, but it may be the more nervous character that experiences greater stress from the delay. The extrovert may see travelling by public transport as a chance to interact with others, whilst the introvert may seek the most private mode available.

The above argument is an approach to personality variables which tacitly accepts that they can be reliably predicted. Whilst this is not without its uses, it does ignore a major essential of attitude and belief formation; it can be unsystematic and non-rational:-

“When we go to Coventry, we go on the bus or the train, it’s just a matter of how we feel... ..the bus is convenient because we get it just round the corner here, on the main road opposite the hospital... ..The bus is fairly cheap, cheaper than the train, well it used to be anyway, because you can get a 99p ticket that lets you travel anywhere.” BAT68

Unless the respondent is keeping something back, the main component of decision-making here would seem to be whim. The need for varied experience should not be ignored.

Perhaps more than anywhere else, car parking behaviour shows evidence of habit and irrationality:-

“I am very lucky when I am parking, like. You say you can drive around forever sometimes: I am very lucky or very patient. I always find a space somewhere, so I would rather take the car.” SS

This woman’s explanation of her husband’s attitudes emphasise the essential individual difference in response:-

“I don’t take the car into town because it’s much simpler to get the bus, because of the parking. Philip doesn’t like travelling on the bus. If there’s a choice he’d rather walk than go on the bus, but that’s his personal choice.” BAT214

7. TRADE-OFFS AND MODE-SWITCHES

The nature and types of conversation that were analysed has meant that the full information on trade-offs has not emerged. However there is some indication that the trade-offs are a result of the interaction between mode characteristics and between mode and individual characteristics.

7.1 Core Variables

Almost by definition, trade-offs are perceived not to be possible with the core decision making variables, except perhaps for cases of individuals risking security-threatening situations or struggling with baggage under extreme circumstances, when ordinarily the trip would not be made. Also, uncertainty of information is not an absolute construct, hence it can be seen that journeys might not be made when the penalties of mistake are high, but trade-offs between information and other quality variables might be made under other circumstances.

7.1.1 Compatibility of Service: Use of Walk Mode

The perceived constraint on this mode is usually far greater than its 'provision' dictates. The effort and time required for walking are psychologically loaded factors in the calculation, so respondents report walking as an absolute impossibility rather than simply an unattractive one. This is probably due to both the effort and time involved:-

“Well the only other way you can get there is walk and that means starting out at least an hour before you've got to start working.” BAT214

7.1.2 Compatibility of Service: Ease of Carriage of Goods

For shopping trips, the incentive to drive into the city centre is a powerful one, despite the congested conditions:-

“...When I go into town I sometimes take the car to the station and jump on the train. But I certainly don't like buses, and I have used the train but I prefer to drive myself. You know... I think it's easier, because if you go shopping in Birmingham and you've got sort of... ..I don't go often because I don't like the trains anyway, so I steer clear of them at the moment. And so I go for a purpose... So if I'm going to get a lot of shopping, I want to be able to, sort of, to do so much that I would go back to the car, drop off the first load, and I can carry on in comfort. Whereas, if you rely on public transport, you sort of walk round all bundled up with a fair lot, and then you've got to get back to the station and then you've got to get on the train and it's just a nuisance, and it's why I would prefer to drive myself.” BAT

7.2 Information and Preference

Modes can be ruled out of use, despite being the ideal for the trip, by uncertainty:-

“You know, I don’t like walking too much, and often on my way home I think; ‘well, do I catch the last bus to my house or do I walk?’, because you don’t know whether the buses are running on time. If you knew they came every hour, and I knew to the minute when they were coming, at least then I would know whether or not I had missed it, and walk the rest of the way, or whether I should wait at the stop because I knew it had not arrived yet.” SS

Here walking was seen as undesirable and the result of a trade-off with poor knowledge of the bus service. Buses seem, to a peculiar degree, to be able to generate demand in a market which is normally fairly size constant. Here, better information would have made the difference between using the bus and other modes:-

“I did get a taxi the other week; I wasn’t sure what times the buses ran, so I just got a taxi. We shared a taxi with some other people and it was just the same [price each] as going by bus.” BAT53

“The trouble is, there are so many sightseeing tours; London Transport type buses, that you don’t know what it is when it comes along the road now. You think; ‘do I stop this one or don’t I?’... That’s why I travel mostly by tube.” TC46

7.3 Peripheral Variables

7.3.1 Cost and General Quality of a Journey

As a mode, rail travel was typically seen as a potentially pleasant way to travel, but an expensive one, especially for the poor quality service sometimes experienced. Some respondents would never have used it anyway; reaffirming the influence of fare pricing on mode-choice. However this man exemplified a substantive group of opinion:-

“If they [BR], only charged about £2 more than the coach, they’d fill up all their trains.” IC83

In fact, for long distance travel, generally, but not universally, coaches were seen as cheaper than, but offering an inferior ride to the train:-

“As long as you can put up with the discomfort you get the coach.” IC91

In short, coaches were more often seen as the poor person’s choice for the long distance journey. Cost was the single most important parameter for many coach customers, although other types of user existed.

7.3.2 Cost and Security

Use of taxis occurs in situations in which bus or walk modes are possible, but security is thought to be a problem:-

“It’s getting a bit dodgy in town, late at night. I’d sooner pay the extra [by taxi] knowing I’m going to get to my destination rather than finishing up at the Hallamshire [Hospital].” SY673

7.3.3 Distance and General Quality of a Journey

Distance was not included as a separate factor for this study, because it is unclear quite what is being indicated by the use of the word; whether it is perceived independently of travel time is very doubtful. It would seem to be a modifier for other more complex perceptions of quality, rather than being rated positively or negatively itself:-

“I usually walk [into town] rather than go by bus, because, by the time you’ve walked to the school you’re halfway to the town anyway. Then coming back I take the bus with all the shopping.” SS

It would seem that the outward journey represents a disproportionate cost in terms of waiting time or money for the given distance. Or, perhaps the disincentive to walk in terms of effort might now have dropped below a critical threshold. However, on the return journey the threshold for walking to be preferred is raised by heavy shopping and the greater distance travelled for a given waiting time.

7.3.4 Relative Safety

This would appear to be a real decision making factor for a group of people. Trains are usually perceived as relatively safe:-

“[Safety is] the primary thing with railways isn’t it? That comes first, every time, whereas coaches; it’s been shown that with the cost cutting... Anyway, things were very lax at one time.” SS

Coaches have a safety-image problem:-

“Even if you did train the drivers of the buses [to a higher standard], for instance, there would still be a certain risk from other drivers on the road.” SS

“The coach journey seems very fast, I’m surprised. I’m a bit scared sometimes. I don’t know how it compares with rail.” IC95

However opinion does vary:-

“I prefer coaches because they don’t go as fast as trains. The publicity about the crashes last year was ridiculous.” IC97

This is clearly an area in which public opinion is concerned but in which perception plays a large role leading to wide differences between individual interpretations and beliefs.

7.3.5 Frequency and Wait Time

Although public transport is not capable of matching the complete flexibility of the car, given high frequency and, perhaps the presence of other advantages, such differences can become negligible and practically irrelevant:-

“At the corner of the road now I can get three different buses, so, I mean, it’s not worth getting the car out and driving.” SS

It would seem that buses are prone to experience loss of patronage, due to mode-switching, in urban areas if service frequency is low over short distance routes. Under these circumstances, walking may be perceived, on average, to be quicker:-

“On occasions before we had two cars, I’ve gone to school on the bus, but invariably missed the bus coming home. I’ve sometimes walked rather than wait half-an-hour for another bus.” SY286

“They’ve cut down the buses. I mean they was very frequent, they were two an hour... ..they were three an hour when they first started. There’s only one an hour now which isn’t too bad I suppose, but you can walk down town in 20 minutes... ..and it ain’t a bad walk.” BAT

Frequency and Information

Interestingly, frequency can be seen negatively in a confusing, low information situation:-

“One bus an hour is more reliable than all these thundering about; you don’t know where you are.” TC60

7.3.6 Punctuality and Travel Time

For public modes this dimension is concerned with the degree to which those services that are provided run within the limits of the timetable. Failure to do so attracts predictable criticism, and the following quote suggests sufficient motivation for mode-switching:-

“I don’t have much patience for waiting. I find that by the time you’ve waited for them... ..Their time keeping isn’t really all that good... ..You could have walked another three stops down the road anyway.” BAT22n

In this case the benefits in saved effort and time accrued by bus travel were sufficiently marginal to be overcome by the reduction in time saving and uncertainty related stress.

Punctuality and Departure Time

As a minimum, customers must make allowance for unpredictability in their schedules:-

“You think, ‘well, I’ve got to be there for ten past’, but you don’t know how accurate the buses are going into town, so you have to set off an extra half hour earlier to make sure you get there on time.” BAT

Punctuality and Information Provision

Sometimes customer response to an unexplained incident may be inappropriate to the situation, leading to intensified annoyance:-

“I really hate the buses. There’s nothing worse than waiting for a bus and it doesn’t come, so you decide to walk and it comes two minutes later, when you’re between stops... They’re never on time.”

Punctuality and Security

A significant part of concern for security results from punctuality. One bus user identified this as her prime concern:-

“The timing of the bus is more important than anything so you’re not hanging around the bus stop.” BAT

Punctuality and General Quality

Keeping people waiting has a very powerful negative effect on their current surroundings. Would the platforms be remembered as draughty if the train had been on time?

“I went to London on the train a few weeks ago, thinking I’d be socially responsible, but I mean, by the time I’d got back I was so cheesed off; standing on draughty platforms waiting for trains to decide to turn up, I swore never again.” BAT145

7.3.7 Delay and Travel Time

Private vehicle owners will use public transport if they perceive that doing so increases the convenience of a particular journey:-

“If I’m going into Birmingham, I’ll use the train which takes exactly twenty minutes. It takes much longer in the car.”

Public transport might be able to reduce journey time, cause less stress than driving (particularly on congested roads) or omit the need to park. For example, some travellers saw avoiding motorway delays as a priority, and were prepared for some rail problems to avoid the road network:-

“The train can be delayed, but that is less of a problem than the constant digging up of the M1.” IC22

However, a subtle result of the greater likelihood of coach hold-ups was the view that coach delays should be treated with greater tolerance:-

“You expect it to be clear all the way, on the train.” IC86

Delay, Information Provision and Resultant Stress

In an environment of poor information, lateness causes both uncertainty and unpredictability. This is intertwined with the issue of control:-

“I think if you have some information, like, it [the hold-up] is a breakdown, then you know that it will eventually be moved. If it is road works you know that you could be stuck for absolutely ages. So, if you know what is ahead of you, you can think, ‘well, okay, it is an accident, I will sit here because it will be cleared soon.’ At least then you have the option of what to do.” UDS26

“I was stuck in a ten mile tailback once out of Stratford going back down Oxford way and nobody knew why we were all sitting there. We just sat there for two hours, it was ridiculous.” UDS26

“On a train you haven’t a clue why you’re held up. No one comes round and explains... if you’re held up on a bus you would instantly know why.” IC98

7.3.8 Reliability and Wait Time

Although buses are now often seen as the realistic mode of transport for the city centre, they should not consider their market an entirely captive one:-

“Sometimes you’ve got to wait and the bus is full, and you wait, wait for ages... ..especially Christmas time... ..you might just decide to walk, you see.” SS

Reliability is also an essential requirement for park-and-ride schemes. Motorists are prepared to experiment. If they find a high quality trip, this may lead to the persuasion of other car owning friends to use the facility as well. If, however, they cede control of their journeys to a public transport system, but the trip is poor quality, they then feel the trust they endowed has been exploited. For many, the trade-off between parking difficulties, coping with congestion, and reliability, or some other factor, will then be weighted in their memories in favour of the car. Hence, there may be no repeat trial.

7.3.9 Interchange, Wait time and Fare Cost

Two trade-off issues occur here. Firstly, mode switching is likely if for a modest fare increase greater satisfaction and value for money can be achieved; for example:-

“Another place is Hertfordshire; get the taxi to station, train to London, taxi and train to Wore, taxi from Wore to Puckbridge. It takes nearly a day and it’s only an hour and a quarter by road. Actually, door to door by taxi, it’s only three pounds more than by train so we’ll do that next time.” BAT170

Above, the idea of time value is integrated with interchange, which includes a transfer between modes. Similarly:-

“At eleven o’clock at night when you want to get a bus, I mean forget it you know. You can’t get a bus at that time of night. You might be able to get two buses somehow but you’re going to wait about an hour for them. I’d prefer to jump in a taxi for four pounds.” EN19

Secondly, interchange can sometimes involve additional costs in comparison with a journey of equivalent length without interchange. This may be seen as unreasonable:-

“The journey from work was a two stage bus trip, it meant changing, which meant they weren’t financially very usable.” BAT22n

The need to interchange within a journey can affect its acceptable distance:-

“I wouldn’t go any further [to work] than I do now; about four miles. If I go by bus I have to leave at ten-past-seven, and get there about ten-to-eight... It’s not so much the journey as waiting for the buses... There are no through routes.” SS

7.3.10 Parking: Costs and the Flexibility of the Car

Often, although motor car use is desired for its convenience value, parking difficulties are often a deterrent as a result of costs, both in terms of effort and expense, if these are more influential:-

“Main time I use the bus is when going into town. It’s not worth going and paying a lot to park... It’s irritating because the area where the bus stops in town is not the area I want to shop in.” SY286

“Solihull is absolutely diabolical for parking. You begrudge having to pay the 35p to park. My husband sometimes says he will pick me up with the shopping, but I usually get the bus instead, it’s so convenient. The bus is just at the bottom of the road... ...I like to be independent using the buses.” SS

“...20p everywhere you go. It’s the minimum, you see, you have to pay it. So, I would go in more often by car, and I strongly object to that [being prevented].” BAT218

However, sometimes the car is not seen as the most desirable mode in terms of flexibility:-

“The other advantage is that if I go shopping on my bike, I can get round all the shops more quickly than if I go by car. If one shop is at one end of town, another

at the other, it might mean re-parking, rather than walking between. But the bike takes me from one end to the other, so the bike is a sort of advantage. It's much quicker to shop for small items on the bike. The disadvantage is the lack of security outside the stores." BAT33

The lack of free or employer-provided parking would seem to be a strong check on car use:-

"If it's free parking, we'd go by car." SY297

"I wouldn't drive to work in the city centre by car if I hadn't a free parking space offered by the company I work for." EN105

"I use the bus and the train all the time although I have got a car. But there's nowhere to park where I have to go to work." SS

"If I worked in Sheffield Council, I would probably use the bus, I wouldn't get a car park pass; there's not much parking." SY297

Parking and Vehicle Security

The lack of security of his parked vehicle was a sufficient deterrent for use to one motorist:-

"When he's at Darnell on nights he uses the bus because otherwise it means leaving his car in town, which he won't do." SY693

Park-and-ride: Interchange Costs

These schemes are growing in number and popularity. The uninitiated believe that the costs of interchange will be equivalent to, or higher than attempting to find city centre parking. One individual admitted her initial suspicion:-

"The only time I use a bus is when I go to Oxford, because then I use the park-and-ride... ..I always thought, 'Oh, it's probably more trouble than its worth'." BAT8

One respondent felt that if he was motivated sufficiently to avoid driving to the city centre he would probably get the bus the whole way:-

"I'd catch a bus from the start. It wouldn't be worth wasting petrol money to get to the edge of town and not be able to complete your journey." EN135

7.3.11 Proximity to Terminal as a Proportion of a Journey

The importance of costs such as waiting time, for example at a bus stop, were shown to be related to features of the journey as a whole. If access to the system cannot be obtained before a certain proportion of the journey is undertaken then the trade-off shows less benefit:-

“ Well we haven’t really got a convenient bus service, not for us. The nearest bus stop is [description] and by the time you’ve done that you’re half-way into town anyway.” BAT158

Proximity, Immediacy and Car Cost

The spontaneous potential of car journeys comes at a great premium. It is this real quality that approaches the advertiser’s ideal of freedom. Once on the road, of course, the initial savings from immediate travel may be lost in delay, and the issue of control casts doubt on what the ‘freedom of motoring’ might mean:-

“People will suffer the frustrations of driving like congestion and parking for the convenience. And, they will even suffer the cost of running a vehicle, it must be an arm and a leg.” SS

Proximity to Terminal and Delay

An ironic result of the siting of coach stations in city centres for maximum accessibility is the resultant delay caused by road congestion. This is clearly an advantage of the rail system, which avoids this trade-off:-

“In fact, I do think the most scandalous aspect of coach services is the service in and out of the capital. You’d think we’d have some sort of transport policy which wouldn’t stick the coach station right in the city centre adding 40 minutes plus to people’s journeys.” IC82

A solution to this problem would seem to be near intractable for coaches, barring major changes in general traffic policy, as most individuals favour central access. Reductions in delay might be sought by introducing more bus lanes and priorities.

7.3.12 Access and Generalised Cost of Car Use

Even when the costs of motoring are realised, and the advantages are considered to be poor value for money, there are still circumstances under which use is desirable:-

“The car is convenient, but just because we’ve got bad limbs. If not, we’d walk it, I think. And it would certainly be quicker, with the traffic you see. By the time you’ve taken your car in and paid for a parking ticket and your fuel, petrol, and wear and tear on the car, it’d never be worth it.” SS

Overcrowding and Pleasantness

The following quote suggests that for at least one man, the failure to provide reasonable passenger capacity has the power to multiply other more minor shortcomings:-

“Yesterday morning as I say, we were all packed into the guard’s van, but if there was ‘x’ amount of carriages where everybody could sit down, that makes it a pleasant journey, you’re more conscious of going to that car park, jumping on the train, because you know you’re going to have a pleasant journey into work, not stand there for fifteen to twenty minutes, packed like sardines thinking, ‘oh God, I wish I hadn’t come on this damn train’...” SS

Similarly, a cumulative, and perhaps multiplicative, effect of lack of seating, high cost and a dirty carriage can lead to general resentment of the service provided. In the following example, cost alone would probably have been tolerated, and perhaps both dirt and cost:-

“I have stood in trains from Leeds to Scarborough paying twice as much as the coach in a dirty carriage. The coach guarantees a seat.” IC91

7.3.13 Vehicle Ride and Distance: Cars

Interestingly, cars are not automatically seen as comfortable, especially over distance:-

“Driving can be a bind but the quality of the vehicle you are driving goes a long way to helping you relax... ..and being much more comfortable; not like when I first had a car. I used to drive down to the South; by the time you got out, your back had gone. I feel I can go to Newcastle and back in day now and it is quite comfortable.” SS

7.3.14 Cleanliness of Vehicle and Comfort

Certainly the trade-off value of a dirty vehicle seems to be higher than might be expected, detracting from the value of the surroundings:-

“It’s not much good having comfort if you are sat in a load of filth on a train; you don’t notice the comfort.” IC91

7.3.15 In-transit Information and Cost

Information provision emerged as one of the most important factors to journey quality identified by this project. This man explicitly rated it as more important than cost in his priorities:-

“Unless you’re on a tight budget you don’t really need to know what the cost of journeys is. It’s nice to know, but you don’t really need it. What you do need to know is where to get on it, what time to get on it, what time it stops, what you connect with and where is the connection.” SS

7.3.16 Control, Congestion and Behavioural Response

When encountering negative trip events such as congestion, the motorist will counter loss of control and stress-inducing frustration with attempts to restore quality. Two important findings are that for some people, frustration may not be entirely negative, and that for others, maintaining 'control' over congestion avoids the even more unpleasant feeling of helplessness:-

“The difference between being in a bus and in the car is that in the car you're in control so you've got a right to be impatient because you are in control and you want to get somewhere, whatever. When you're on the bus you're not in control of what the bus does, so being impatient doesn't do anything. You just have to sit there and say 'oh well there's a jam'.” SS

This is explained by the way the respondent above implies that being in the position to lose control in some way provides catharsis for frustration accrued from the congestion. This is somewhat in contradiction to the more common view of congestion leading to stress which cannot then be easily released in the office environment.

Most motorists will be familiar with the lane-changing and bumper-to-bumper inching tactics of motorway hold-ups. A similar response is the detour. The common intent behind these can be identified as keeping the car moving:-

“I enjoy driving, but, like Leo, I would prefer to keep the car moving. I hate to be stuck in a jam and I get very impatient. And I tend to see a lot of silly driving if I am at that stage, particularly. If I was in an area that I know then I would certainly slip around the back of the jams, just to keep the car moving, even if you do go out of your way.” SS

In particular, frustration seems to lessen if the driver is able to try another route, even if the overall distance travelled is greater. Such is the strength of trade-off that motion, even if it is very slow, or adds distance to the journey, seems to be accepted without concern; drivers feel a need to keep moving, above all else:-

“I think as long as you are moving... no matter what speed; it is when you come to a stationary halt you start to get frustrated, even if you go 5 mph and you are going slowly along, and you can see that you are eventually going to get away from it, it's great. I like to keep moving, it's when I am stuck there, and you keep looking at your watch, and it's inch by inch, it's a bit like these films with the Italian drivers with the banging on the roofs and jumping up. If I am moving, I am fine, and I know that I will be getting to go where I want to go.” SS

However, extra distance is not the only cost that will be incurred to avoid traffic. Time spent in traffic queues has such a high value in costing the quality of a journey that it is worth more than travel time itself:-

“If I see traffic ahead and if I’m on a road where I can go another way, yes I would choose it, because I’d rather be driving even though it might take me longer, than sit there thinking, ‘I’m just stuck’. At the end of the day the traffic might move off quite quickly and I’ve put another five minutes on, but I feel I’ve got there quickly because I’ve moved all the time.” SS

The avoidance behaviour of individuals caught in jams should be of concern to traffic planners. The need for drivers to be occupied is perhaps comparable to the inability of many children to ‘sit still’ upon demand. Traffic delay can be seen as a 20th Century phenomenon for which we are not psychologically equipped:-

“If I can avoid it, I will, but I don’t mind. I would rather do an extra three miles driving than be stuck for ten minutes doing nothing.” SS

Some see congestion as something of a challenge; a chance to out-smart other less wily drivers, and hence gain some quality enhancement akin to entertainment from the delay:-

“I don’t like sitting in traffic and there are all sorts of little back routes that I might take... I have a good idea of these different roads, but if I don’t know the road and think it’s in the right direction then I’ll go down it because I know that at the end of the day, I could probably find my way out.” EN104

“If I’m sitting in a jam and see someone turning off and then see two or three other cars going the same way then I’ll follow them thinking; ‘I’ll be on a winner here’.” UDS25

There is apparently a component of pleasure in an uncongested situation in addition to the absence of frustration or stress:-

“To avoid traffic and start-stop again, I often use local roads. I don’t think I gain much from these deviations, but it seems to me that, psychologically, I travelled more comfortably.” EN16

However, some drivers have developed more passive ‘coping strategies’. They may accrue lower losses of quality from congestion because they have lower expectations. Or, the enjoyment value of driving may be less important; their lives being more fulfilled in other areas:-

“Congestion doesn’t bother me. I’ll just sit it out. It’s pointless getting irritated, because you can’t do anything about it.” EN104

“I have learned not to be anxious, because when I see a queue of 55 metres I know there is nothing I can do.” EN12

An alternative explanation might be based on personality differences. Such individuals might wish for minimal effort and risk, and hence stay put. Others may be more logical, and calculate

likely benefits more accurately, or they may be more experienced, and so know the alternatives to be less efficient:-

“There really is no point worrying about it when you know you’re not going to get there any faster.” UDS25

This man was concerned with reaching an optimal solution and was prepared to be flexible to do so:-

“I believe I have a time loss by traffic conditions; I try to avoid driving at peak hours.” EN12

The other approach is for the traveller to make a trade-off between control, effort and stress costs. Here, getting the bus or train reduces flexibility, but overall quality gains under the prevailing conditions:-

“I tend to catch the train now more because it’s easier to get to work and back sort of thing. Easier than the traffic at nine in the morning and having to find somewhere to park. Driving into town in my car, I like the fact that I can stop anywhere that I want to before town, but in the mornings I can’t stand the traffic jams. The traffic is just hectic then: It’s chock-a-block. You just don’t move. I mean you don’t move on the bus, but at least you haven’t got the hassle of stopping and starting and changing your gear up and down all the time.” SS

7.3.17 Control, Congestion and Information

Route changing responses to avoid congestion can occur by some individuals even if the driver has little, or no, certainty of the validity of the second route. Again, the value of stationary time is traded against the risk of prolonged journey time, due to uncertainty:-

“I’ve been stuck up cul-de-sacs before, and eventually I’ve sort of back-tracked completely, and got back into the traffic again because I’ve been completely lost. But, basically, I think it’s worth doing, I think, simply to keep moving.” EN10

“It’s trial and error really, simply because you get caught in traffic at one stage. I mean I’d see someone wearing the same school uniform as my daughter and I’d think ‘they know where they are going’.” EN10

“I prefer moving than sitting there even if finding your way around the jam takes as long as it does to sit through it. If I am actually moving I feel as if I am getting somewhere rather than just sitting there and thinking ‘oh bloody hell’.” UDS25

More generally though, information is important to those left in the jam. Information is understandably important in contributing to the feeling of control, or at least awareness of immediate destiny:-

“It can be frustrating, if you’re stuck behind a lorry or something large so that you can’t see what’s going on. I don’t like that. I don’t mind if I’m stuck behind other cars because you can see what’s going on, but to be stuck behind a lorry or something large, that’s frustrating.” EN11

This would suggest that loss of control might be greater when using a railway system; the workings of which are mysterious to the majority of the public, than the road system which is fairly self-explanatory. Furthermore, one can usually see some distance forward on the road, but by train the view is usually restricted to lateral directions, enhancing the feelings of isolation from the critical events.

8. CONCLUSIONS

8.1 Quality Variables Have A Significant Response-Determining Role

The strong pattern which emerges from this study is that, whilst individuals may often be predictable in their responses to travel experiences, they may also show a surprising degree of deflection from such expectations by less critical features of the travel environment.

Cognitive dissonance may operate in the formation or reinforcement of either negative or favourable opinions; which may then be held with strong conviction. Rationalisation of travel behaviour may then occur to reinforce earlier perceptions, or earlier perceptions may even be reinterpreted to accord with current experience and behaviour. The need to have a coherent view of the world has often been shown to be more important than practical considerations: in this case, the need to travel with maximum efficiency:-

“Digbeth is the worst coach station in the world. It sets the whole journey off on a bad note.” IC90

8.2 Quality Constraints on Travel

A few high power core factors possessed the ability to reduce the number of degrees of freedom possessed by a planned trip. Cost, access to transport of sufficient speed and appropriate departure time are obvious examples of such. The scope of this structure may also extend to confidence in reliability and punctuality in extreme cases. Also, however, the decision not to travel may be made following fears about personal security; in the dark, in poor weather conditions, or in a particular area. Lack of information can also render a journey sufficiently uncertain so as to represent an unacceptable risk: for example, of arriving ineffectually late or being stranded in a strange place, unable to make the return trip.

Of the quality variables, logistical factors seem to be more easily discussed due to their objective nature, and trade-offs were often explicit and acknowledged by the respondents. Generally they were the more influential concerns for travel behaviour, and although environmental factors can often have the far reaching impact suggested above; they operate more subtly. Personal factors can influence either kind but tend to place restrictive circumstances on practical considerations.

More specifically, certain factors emerged as being of particular importance to quality. Perhaps most significant was that of quality of information. It can make a trip possible, improve its quality and limit the impact of problems with punctuality, delay and reliability. One exceptional relationship is held with frequency, which, as it increases, renders information about arrival times less essential.

Information could be rated as more important than cost under some circumstances. Usually, however, cost was reaffirmed as a principal over-riding variable with regard to all factors.

8.3 Constraints on Specific User-Groups

Security during travel has perhaps been a factor of under-rated importance in assessing journey quality. Although perceptions tend to exaggerate actual incidence, this does not prevent security being a major concern and influence upon large sub-groups of travellers, and of some importance to all. The solution is usually seen as being the ownership of a private car.

In contrast, safety seems to be an influential issue only for those on two wheels or with a particular disposition, or following a particular experience. The latter fears usually concern public transport; despite its relative safety.

For the motorist, the biggest concern is probably congestion, and this is also the greatest influence on journey quality by this mode. However, the greatest causes of mode switching are parking related. Both cost and difficulty can be powerful deterrents to car use.

In contrast, immediacy and spontaneity of access, and the minimising of effort are powerful and essentially psychological desires. The former saves the effort of pre-planning whilst the latter saves the effort of walking to the stop, or to the destination. It is not difficult to imagine how these motivations might be useful in an environment of natural selection, but today create alarm for the concerns of public health, road congestion and environmental pollution.

Transport strategists who consider the interchangeability of transport modes but fail to allow for the importance placed on 'the pleasure of motoring' by private drivers are certain to make poor predictions about mode-loyalty. Currently, the most popular plan to influence this balance is to use a system of road-pricing. However, in terms of costs, the increase needed to alter behaviour by significant numbers of motorists may be extremely high according to the responses reported here: indeed, perhaps far greater in extent than a level that would be politically acceptable.

Instead, the provision of viable alternatives is a necessary (but not sufficient) condition for reducing car use, and it must be sufficiently attractive to offset the loss of quality with reduced travel pleasure and control. Changes may only be possible by the alteration of attitudes, which without major precipitating factors is very unlikely to occur in the short-term. These might include reducing the effective provision for the motorcar by legislation, or making increased motoring costs impossible to ignore, whilst gaining cross-party support for the measure.

For public transport, important influences were greater in number; reliability, delay, the need to interchange, overcrowding and ease of access. Trains emerged with a particular credibility problem as they are seen as a luxury mode of travel. Coach quality problems are to an extent accepted as the risk factor built into economy travel, but train failures undermine the essential reason for their use in the first place; speed, comfort and efficiency. Nonetheless, although reliability, punctuality and overcrowding problems have detracted from this view, for long distance travel the train still represents, to most people the most inherently 'civilised' way to travel. This man used the coach due to cost but felt:-

“A train journey can be a pleasure whereas with the coach it’s just a question of getting there.” IC81

Access problems showed a similar essence to security worries. They affect all modes of transport, including walking, but the motor car is seen as the best practical solution. The principal concern groups are also near overlapping.

8.4 Quality Variables: Assessments Are Subjective and Contradictory

As expected, different individuals often reported mutually contradictory expectations, attitudes or behaviour associated with the same quality factor. Generally, however, it would seem that stress is the key product of incompatibilities between desired and real quality. Perhaps this is one reason why stress is useful as a concept, but very hard to identify with any certainty in practice; high speed motorway driving offers satisfaction for the desire of excitement to some, but unnecessary risk to others.

For this project, the journey has been envisaged as referring to a trip taken by an individual for a particular purpose. Its quality derives from the perceptual evaluation of past and present experience, according to both logical rules and problems, and the needs of motivational drives. Consequently, although evaluations of quality and related behavioural responses will typically be within the range generally accepted as rational, they will not necessarily follow the expectations of a model created for a logical cost-maximising person. This is not least due to the fact that individuals anticipate quality benefits derived exclusively from exercising the control they have over their own behaviour, not behaviour co-ordinated on a collective basis which might lead to greater benefit for all individuals using the system.

9 IMPLICATIONS FOR DEMAND ANALYSIS

We consider here the implications of the work for two questions; first, the incorporation of quality factors in models of the demand for travel, and secondly, possible new research projects which would take understanding of the issues further.

9.1 Incorporation of Quality Factors in Values of Time or Specific Constants

The models of travel currently used by the Department of Transport for forecasting demand make use of generalised cost; a linear combination of the 'cost-like' attributes of a journey that can be seen as representing, in total, a measure of the disutility of travel (and hence, implicitly, to be subtracted from the utility of making the journey, which is not explicitly measured), acting as the basis for the choice about whether to make the journey, when, and how. Generalised cost as conventionally defined comprises two components; time and money, each with a weight representing its relative contribution to the total utility. The ratio of those weights defines the value of time in money terms or the value of money in time terms.

The duration of a journey is in principle as clearly defined and exactly measured as the money cost of a journey. However, there is a practice in some but not all models to divide the time component into different 'types' of time, each with a different weight or disutility. The different types are defined by the activities in progress, e.g. one minute spent walking is thought to have greater disutility than one minute spent riding. There is sometimes a thought that such weights also take account of the fact that peoples' perception of passing time is different from the clock reality, e.g. the perceived time spent waiting for a bus, which is also given a higher disutility in such models, is found empirically to be consistently greater than the actual time.

Therefore the time value, as well as accounting for the 'pure' value of time due to the possibility of using it for other, preferred, activities, has been used to incorporate elements derived from other factors such as the effort, stress, unpleasantness or tiresomeness of the conditions of the journey.

In addition to the separation of time spent in different activities, some but not all models also include in the generalised cost a constant term, different for each mode, but thought to account for those deterrent factors for that mode whose disutility is not proportional to their duration.

In principle, this structure appears to offer a completely comprehensive choice of model locations to 'place' the quality factors in a demand equation. The quality factors whose importance depends on their duration can be incorporated by the requisite number of different 'types of time', each with its own weight. The quality factors whose importance does not depend on duration can be incorporated into the constant term, with a series of different mode-specific, journey-specific, location-specific, circumstance-specific or ambient environment-specific constant terms.

The necessary conditions for such implementation are that for each quality factor of importance, one should have empirically derived rules for measuring its intensity or level in specific circumstances, and converting that intensity into an effect on the constant term or an effect on the value of time.

In our view the apparent logical completeness of ‘everything is either time dependent or constant’ may not be the most useful or appropriate way of improving the modelling of quality factors. There are two **additional** locations in a demand model which should be considered.

9.2 Incorporation of Quality Factors as Direct Influences.

First, no demand model is ever based exclusively on generalised cost. Every model has a wider range of factors expected to influence demand, which are more convenient to represent not as ‘costs’ but as distinct independent variables; incorporated either as direct influences on demand or by segmentation of the population. Such influences include car ownership or availability, income, occupational status, age, sex, season ticket ownership, journey purpose, type or location of residence (inner city, suburban, rural etc) and disability.

By extension, it would be possible to make empirical estimates, for example, of the elasticity of demand with respect to the probability of getting a seat, or the proportion of late arrivals, or the variance of journey times, or to identify people with disabilities or heavy shopping or children as **separate market segments** each with their own demand equation. This procedure needs rather less information than the full incorporation into generalised cost (i.e. the same information from measurement of the scale of the stimulus and its empirical effect on demand, but less information on the trade-off between such factors and money or time). By the same token, the procedure would provide less information on the economic valuation of alternatives. In terms of estimating demand, and hence commercial viability, it may be as good or better.

9.3 Incorporation of Quality Factors in New Generalised Cost Components

There is no fundamental property of money and time that says these are the only possible sorts of cost, though they may have been the most important ones. Indeed, the use of different ‘types of time’ seems to suggest that time is being used as a proxy for something else, which may receive better treatment separately. This has been the reasoning behind suggestions, for example, that a broader definition of generalised cost might be ‘money plus time plus effort’, or ‘money plus time plus stress’. In such a case, one would seek to measure, for a journey, the amount of effort (typically in units of energy expenditure), or the amount of stress (typically using psycho-physiological indicators such as heart rate, galvanic skin response or stress hormone secretion) associated with walking, driving, carrying luggage, and waiting for an unreliable service, etc.: A single trade-off then results between effort and time, stress and money etc. depending on their various disutilities, rather than multiple trade-offs between all the different factors which cause the effort or stress to vary.

At this point, we address what seems to us to be a confusion derived from the fact that effort and stress are inherently **experienced** over time, and therefore their expenditure can be expressed in terms of units per unit time. In this case, does this not imply that such factors are collinear with time and can be, indeed have to be, treated as ‘types of time’? We argue that this is not the case. Consider the expenditure of money; this is also spent over time, and it would be possible to say, for any journey, what the rate of expenditure per unit of time was, and therefore specify different ‘types of time’ according to high or low rates of expenditure. The reason why this is never done is because the money cost of a journey, although often closely correlated with the time cost, is **capable** of independent variation. Indeed, the whole existence of values of time depends upon circumstances in which it is possible to choose between a higher rate of time or money expenditure. Time and money are correlated but independent variables.

The same is true for time and effort. Walking up an escalator takes less time, but more effort, than simply standing. Arriving early for a train takes more time, but increases the probability of getting a seat, so saves on effort or stress. Travelling first class takes more money, the same time, but reduces the stress of the journey.

Under circumstances in which these other costs are spent over time, but at a rate which can vary, to incorporate them in the time term can demand such an escalating number of categories of different types of time that the procedure rapidly gets out of control.

9.4 Consideration of Appropriate Treatment for Specific Quality Factors

It must be recognised that a very large number of quality factors have been identified in this report, and under **any** modelling procedure the same basic research problems arise of devising scales and measurement procedures for each of them and finding suitable contexts for measuring their effects on demand. This is common to all four different locations for their incorporation in a forecasting equation.

The discussion above suggests that one of the factors which usefully distinguishes the specific treatment appropriate for each quality attribute is how ‘distant’ it is from the time component. At one extreme, we would have attributes which are experienced over time in an unvarying way, and whose importance is dependent only on duration. At the other extreme, we would have attributes whose duration is of minimal importance; some of which may have a fixed intensity, and others which vary in importance for other reasons.

It is clear that there is a continuum here, and the classes distinguished below blur and overlap.

9.4.1 Factors which are completely time dependent

First we note some quality attributes whose natural units of measurement seem to be time itself. The best example of this seems to be the variability of travel time. There are also those elements especially of public transport journeys which derive from the discreteness of timetables (including in the limit the non-availability of services at some times of day). In these

cases, it is likely that an extension of the treatment of time in the conventional definition of generalised cost would be the most appropriate procedure.

9.4.2 Factors whose importance depends on duration, but can vary in intensity

Here we consider, especially, attributes related to discomfort, such as warmth, ambient conditions, and the amount of personal space available (elbow and knee room). It is likely that the importance of these to the traveller is monotonically related to duration; the longer the journey, the more important the factor. However there are two barriers to direct incorporation as a series of different types of time with different values. First, the importance, though monotonic with time, may not be linear. Thus, for a non-smoker, a longer period in a smoky atmosphere is worse than a shorter period, but there is a very high psychological discomfort during the first few minutes, then a period of tolerable unpleasantness, and later, possibly a period of intolerable physical discomfort.

Secondly, warmth, for example, is not a binary variable ('warm' versus 'non-warm') but a continuous variable where every temperature could have a different utility or disutility. Here there is not only non-linearity, but the relationship is not even monotonic; too cold and too hot would both have high disutilities of duration. Another example is that aspect of the motivation for walking and cycling related to objectives of physical fitness, where up to a point a longer journey may be preferred to a shorter one, but then fatigue or boredom sets in and additional time is unwanted.

In these cases we expect to find a strong relationship between the importance of an attribute and the duration for which it is experienced, but the relationship does not lend itself very well to treatment as a value of time.

9.4.3 Factors which have the nature of needs whose probability is time dependent.

There is a class of attributes which are not in themselves time related, but are more likely to become important the longer the journey lasts. In some cases these may be seen as specific events; e.g. the need for a toilet, or the need for a meal. In other cases there are those aspects of vehicle or system design which make it easy to carry out other activities, such as sleeping or reading.

It is clear that the longer the duration of the journey, the more important is the provision of facilities to cater for such needs, possibly with some sorts of threshold effects. In the same way, the longer a journey, the more likely it is that there will be an accident. It is not clear that the value people accord to such attributes is time related, and this remains a subject for research.

9.4.4 Factors whose importance is weakly related to duration

In the research we have identified a number of factors where the issue of duration does not seem to be primary (though it still has some impact). For some people, the example of smoking described above would fit here; there would be a resistance to travelling in smoky conditions at all.

One class of attributes where such conditions apply is the aspects which are felt most strongly at the beginning and end of journeys, and interchanges. Examples include having to handle heavy luggage and other encumbrances, the ambient weather conditions (especially in the case of very severe weather), the cleanliness of facilities, and the existence of a perceived security risk, e.g. travel in the dark, waiting at threatening bus stops, or whilst parking in underground car parks. In all these cases, while a longer duration of the experience would be disliked, it is the existence of the problem which is important. In modelling terms, the factor would enter into **both** the fixed and variable components of generalised cost.

9.4.5 Factors which are not time dependent

Some of the quality aspects mentioned seem to require a treatment where duration is of little or no significance. These seem especially to include those attributes which are closely related to the attitudes of the traveller, such as the image and status of different sorts of vehicle or the system as a whole, the properties of control (including the ability to change one's mind, flexibility, independence, and the enjoyment of task fulfilment). In addition to control is the factor of perceived politeness and helpfulness of staff.

For an entirely different reason, aspects which constrain physical access to a system are clearly also not time dependent; these include vehicle and terminal design. Softer versions of such constraints include the arrangements for paying, the complexity of using a system (for example the likelihood of getting lost, and of extricating oneself from such difficulties), and the quality and type of information provided before and during a journey.

9.5 A Possible Research Strategy

This preliminary survey of quality attributes, making use of existing data; much of which was collected for reasons other than such a study, gives considerable support to the proposition that such attributes are **important, complex, large in number, and disparate**. Furthermore, it suggests traveller evaluation is far **less homogenous and unidirectional** regarding quality, than when considering time or money costs. Quality is subject to more substantive influence by personality variables and marked differences between in-trip needs, say between a mother and child on a shopping trip and a long-distance business traveller.

9.5.1 Short-listing

We do not judge that our own study, or our understanding of the results of the literature survey carried out separately by MVA and ITS, gives a clear guidance at this stage for short-listing a few of the many attributes as being of most importance to influencing behaviour. Our preference would be that the first stages in a new empirical research programme founded on these preliminary studies would proceed on a broad front.

Our judgement is that new surveys would be worthwhile. One approach would be based on the qualitative methods used here, but aimed specifically at the relative importance of quality attributes, rather than making use of inferences drawn from surveys carried out for other

purposes. Another approach would be to use more structured quantitative methods with larger sample sizes, but applied closely to **specific transport contexts and/or specific user groups**; chosen because of their policy importance and inviting travellers' own judgements about which of the wide range of quality factors are of importance to them, and in what way. A combination of these methods would strengthen the basis for short-listing some attributes for much closer study and evaluation.

We accept that an alternative procedure for short-listing would be to make a policy decision, according to which quality attributes are actively being considered in applications for public funding. The present study may help to define the terms and range of such a study, but the decision is dominated by the immediacy of policy needs. We also recognise (but would not propose) a view which short-listed aspects for closer study by reference to the ease of incorporating them in the currently used forecasting procedures.

9.5.2 Measurement

It follows from our argument that we would not propose a measurement strategy constructed too closely around the existing components of generalised cost. For the short-listed aspects, we see the research tasks, in very general terms, being as follows:-

- a) The development of a system of measurement units specifically appropriate for each factor.
- b) The identification of a measurement context and survey instrument, again specifically directed at the attribute, and capable of handling a variety of different levels and intensities.
- c) Its incorporation into forecasting models by reference to the most appropriate of the four locations mentioned, namely in the constant term, as a new value of time, within a new component of generalised cost, or as an independent or segmentation variable outside generalised cost.

APPENDIX: TSU SOURCE MATERIAL

The code numbers by quotations refer to the study in which the interviews were originally reported, though there is in some cases an overlap of material. The main sources were as follows, together with in each case a reference in which sample sizes, methodology, etc. are outlined:

- BAT:** (Banbury Activity/Travel Survey). Dix, M.C.; Survey Documentation of the 1983 follow-up to the 1976 Banbury Activity/Travel Survey, TSU ref 216, 1983.
- SY:** (South Yorkshire Household Interviews) Goodwin P.B., J.M. Bailey, R.H. Brisbourne, M.I. Clarke, J.R. Donnison, T.E. Render and G.K. Whiteley; Subsidised Public Transport and the Demand for Travel, Oxford Studies in Transport, Gower, Aldershot, 1983.
- OPO:** (Group Discussions on One-Person Operation of Buses in London). Goodwin, P.B.; One Person Operation of Buses in London, TSU ref 287, 1985.
- IC:** (Interviews with Rail and Coach Inter-City Travellers). Kilvington, R. and E. Forsyth; Inter-City Rail and Coach Mode Choice Study, TSU ref 339, 1986. (RESTRICTED)
- TC:** (Interviews on Travel Card Use in London). Jones, P.M.; Attitudes, Behaviour and Responses of Travel Card Holders in London, TSU ref 405, 1987.
- UDS:** (Interviews with Car Drivers Related to Driver Stress). Bates, J., C. Davies, P. Goodwin, F. Kenny, A. Parkes and J. Richardson; Uncertainty and Driver Stress: A Review, TSU ref 545, 1990.
- EN:** (Interviews on the Impact of Information Provision, for DRIVE Project 'EURONETT') EURONETT Deliverable 9, Evaluating User Responses on New European Transport Technologies: Results of the Qualitative Surveys, DRIVE Project V1025.
- SS:** (Secondary Sources). Quotations from a selection of around twenty other projects, collated for comparative purposes in subsequent reports.