

SHOW ME THE WAY TO GO HOME : DESIGNING FOR INCLUSION

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ABSTRACT

Public transport providers are still struggling to come to terms with the implications of Commonwealth and State Anti-Discrimination legislation. These are pushing them towards “universal design” principles rather than special facilities for people with disabilities. Debate tends to focus on the options for allowing people in wheelchairs to access buses, trams and trains, but the wheelchair-bound represent just one point in a multi-dimensional spectrum of disability. Few transport operators are themselves so afflicted, and this may encourage a “them and us” attitude. This paper suggests, without wishing to belittle the difficulties faced by those with disabilities, that it may be useful to adopt the caricature “Saturday night drunk” as the design passenger, rather than (or as well as) the wheelchair traveller. There are many types of disability, which tend to consolidate in the self-inflicted condition in which the intoxicated attempt to travel and function. Most if not all of these disabilities have significant implications for the design of public transport and pedestrian facilities. Addressing them would go a long way towards debugging a transport system for a large number of sober travellers afflicted with subsets of the drunk’s difficulties. Failure to address them will reinforce the widespread image of public transport as the system for those with no other choice, or a least-worst way of making a limited number of unavoidable trips. The paper provides a practical checklist of these conditions and hence system features to be developed or avoided.

1 INTRODUCTION

This conference asks, in relation to future transport, “what is, or what will be, the “bug” in the system?”.

Clearly this can be interpreted in many different ways, as was presumably the intention. This paper considers public transport systems. These are universally supported by transport strategies in major urban areas in Australia, with most having explicit or implicit targets to increase public transport use. The Integrated Regional Transport Plan for South East Queensland calls for public transport’s mode share to increase from 7.5% to 10.5% by 2011. The Metropolitan Transport Strategy for Perth aims to lift public transport’s mode share from the 1991 6.4% to 12.5% by 2029 (compared with a fall to 4.8% which is expected under a “business as usual” scenario). Other cities, e g Sydney, express their targets as reductions in growth in vehicle travel, with an increase in public transport use implicit rather than explicit.

One way or another, public transport is expected to raise its game. Yet the general public remain fairly united in their reluctance to change their travel habits, except where public transport represents the least-worst option (e g on commuter routes to city centres).

It is, unfortunately, remarkably easy to deter public transport passengers, even when large sums of money are being spent on new infrastructure. The detail has to be right as well as the basic structure.

There is no such thing as an “average passenger”. Each is an individual with his or her own characteristics and values. The “user-friendliness” of public transport systems is often assessed by the ease or otherwise with which wheelchair users can access vehicles and infrastructure. This is a necessary condition but not a sufficient one.

A bug is something that makes a system unusable. This paper is an aid to debugging public transport. It draws together some separate strands of work in which I have been involved to suggest a different test – a highly informal but very practical test - of the friendliness of public transport systems for their users. In short, I suggest that auditing the system from a drunk’s point of view may be as informative, and more comprehensive, than from that of the wheelchair-bound.

The allusion in the title of the paper should now be apparent.

2 BUGS IN THE SYSTEM

The decision-making process to make a car trip is a fairly simple one. To make an equivalent trip by public transport, the number of issues which require a positive response is more wide-ranging, as suggested in **Table 1**. The 22 factors listed in the public transport column are by no means exhaustive and the wrong answer to any one of them is capable of aborting the trip.

Car Travel	Public Transport Travel
<ul style="list-style-type: none"> ◆ Is a car available ? ◆ Do I know the route ? <p><i>and maybe, in some circumstances,</i></p> <ul style="list-style-type: none"> ◆ Do I need to refuel the car ? ◆ Where can I park ? 	<ul style="list-style-type: none"> ◆ Do I know enough to answer the following questions ? ◆ Can I get near enough to where I want to go by public transport ? ◆ Can I get there near enough to the time I want to be there ?

Car Travel	Public Transport Travel
<ul style="list-style-type: none"> ◆ What does the parking cost ? ◆ Is it possible or worthwhile to avoid paying for parking by leaving the car somewhere less convenient ? 	<ul style="list-style-type: none"> ◆ Where do I go to catch it ? ◆ How long will it take me to get to where I catch it ? ◆ Is the service likely to be late (or, worse,early) ◆ What happens if I miss it ? ◆ Will it be difficult for me to enter or leave the vehicle ? ◆ Will there be room for me on it ? ◆ Will I get a seat ? ◆ Do I have to change (with some of the above then repeated) ? ◆ How inconvenient is the interchange ? ◆ What does the trip cost ? ◆ How do I pay ? ◆ How long does it take ? ◆ How near to my destination will it take me ? ◆ Will I know when to get off ? ◆ How long will the final bit of the trip take me ? ◆ Is the system safe, secure, clean, comfortable, weatherproof etc ? ◆ How do I cope with my bags, children, luggage etc ? ◆ How do I get back (ie all of the above, I n reverse) ? ◆ Is my information still current ?

Table 1 : Travel decision-making sequences for car users and public transport users

Source : Kilsby (4)

It is distressingly common to find public transport initiatives where a lot of things have been done well, and sometimes at no small expense, but because of one missing link in the chain, the overall effect falls well below the potential effect.

One of the underlying causes of this tends to be a reluctance to recognise public transport users as real people, with a huge range of physical capabilities, attitudes, knowledge and personal foibles. Older people are one group of users for whom this is often evident. With the general ageing of populations in developed countries, they are becoming increasingly vocal and their public transport needs are being considered more carefully (see for instance Kilsby & Lee-Williams (3)). The call is for services that are adequate (ie sufficient in quantity), appropriate (ie going places where the people want to go), affordable and accessible (ie understandable services using vehicles that can readily be boarded).

But older people do not, in general , want to be treated as a special group with special needs. They want recognition that they exist, and accommodation within the design of services that are intended to be for the use of the whole community. A similar wish emanates from those with disabilities.

At the 1997 International Conference on Transport and Mobility for the Elderly and Disabled, held in Perth, this theme of “universal design” came through very strongly. Exclusion of potential users through unfriendly design features is an unnecessary bug in the system, when it is often as much effort to produce an excluding design as it would be to produce an including one.

Before going on to look at ways in which this might come about, this paper looks at the prevalence of potentially vulnerable transport users in the population.

3 PREVALENCE AND RANGE OF VULNERABILITY

About 18% of the Australian population were reported to be disabled in 1993, and 14% were reported to be also handicapped. A disability was defined as one or more selected limitations, restrictions or impairments which had lasted, or was likely to last, for six months or more. A handicap was defined as resulting from a disability which limits a person’s ability to perform certain tasks associated with daily living. **Table 2** gives an overview of the extent of disability and handicap in the Australian population in 1993.

Class	1993 Numbers	Percentage	Handicap Category	1993 Numbers
Population	17,593,000	100%		
Disabled	3,176,700	18%		
Handicapped	2,500,200	14.2%	Mental Disorders	291,200
			mental psychoses	63,900
			other mental disorders	227,300
			Physical Disorders	1,803,300
			eye and adnexa	91,300
			ear/mastoid process	212,600
			nervous system	154,000
			circulation	235,300
			respiration	215,900
			arthritis	439,900
			other musculoskeletal	316,200
			head injury/stroke	53,000
			all other	85,100
		Handicap Severity:	Profound	419,000
			Severe	301,100
			Moderate	455,500
			Mild	941,800
			Not determined	382,000

Table 2 Disabling conditions in the Australian population 1993

Source : Australian Bureau of Statistics, summarised in Downie (2)

Age can be another indicator of vulnerability in users of transport systems – both for younger and older people, with both categories together accounting for a substantial proportion of the population irrespective of disability.

4 FORMAL APPROACHES

One way of ensuring that vulnerable users are not marginalised from access to public transport is to formally regulate for necessary things to be done.

The *Disability Discrimination Act* was passed by Federal Parliament in October 1992 and became operational in March 1993. It includes a broad definition of what constitutes disability. This is complemented by State-based legislation, for instance the *Equal Opportunities Act 1995* in Victoria which prohibits discrimination on the grounds of various attributes. Section (24)(ii) of this Act then provides that :

A person must not discriminate against another person –

- (a) by refusing to provide goods or services to the other person ;*
- (b) in the terms on which goods or services are provided to the other person ;*
- (c) in the manner in which the goods and services are provided to the other person.*

There has been a general desire by governments, the transport industry and user groups to plan an acceptable way forward under such requirements. This followed early testing of the legislation and events such as a large number of new buses on order in Adelaide being deemed to violate the provisions of the Acts by not being wheelchair-accessible.

Draft Accessibility Standards have been developed, although at the time of writing they have yet to be endorsed by the Commonwealth Attorney General.

In April 1999 State Ministers of Transport, as the Australian Transport Council, signed an agreement to convert most public transport systems in Australia to full accessibility within twenty years. (School buses, charter services and ferries in open waters are excluded). Again, this agreement has yet to be ratified by the Commonwealth and the clock does not start ticking until it has been (and the standards legally endorsed). However in at least some States, decision-making is taking place as if the agreement was fully in force.

The emphasis in the standards is on physical design for specific conditions, e g confinement in wheelchairs, and effectively designs will be considered to be “universal” if they meet these specified conditions.

5 A DIFFERENT APPROACH

The relatively formal approaches listed above are, to repeat a phrase used earlier, necessary but not sufficient to ensure the accessibility (in the broadest sense) of a public transport system. In some cases it may even tend to foster a “them and us” attitude on the part of the providers, as few operators themselves and the minority of their patrons will be personally afflicted by the conditions which the draft standards are designed to protect.

Further, this regulatory approach may be counter-productive in cases where the attitude moves from “we have to do this because the regulations say so” to “we don’t have to do this because the regulations don’t say so”. There was a hint of this in Senator Ron Boswell’s address, as Parliamentary

Secretary to the Commonwealth Minister for Transport and Regional Services, to the Australasian Bus and Coach Conference in Melbourne earlier this year :

“Compliance [with the standards] will be a complete legal defence to a complaint under the Act on issues covered by the standards”. (Boswell (1))

From the point of view of outcomes, these standards can probably be regarded as minimum standards and it will require a voluntarily positive attitude on the part of transport suppliers to do better. There are many examples where this is happening – for instance Busways (in Blacktown, Western Sydney) has been prominent in developing its services towards greater accessibility ahead of the requirements of legislation.

Such action requires pragmatic experience of what is involved, as well as technical conformance. A manifestation of this, heard many years ago from a Canadian consultant, was the “30% rule”. This suggested that public transport systems be designed in the expectation that :

- ◆ 30% of the users will be mobility impaired
- ◆ 30% will be burdened by luggage, shopping, children or whatever
- ◆ 30% will be older people
- ◆ 30% will be functionally illiterate

These categories are not, of course, mutually exclusive. In the same spirit, I offer a practical rule of thumb to give a rough-and-ready test of the friendliness or otherwise of a public transport system to its users. Rather than focussing on those in wheelchairs, as the formal approaches tend to do, consider a drunken traveller as a design passenger and audit the system from his/her point of view.

The self-inflicted and temporary condition in which the inebriated attempt to travel encapsulates a large range of impairments, which are also to be found in less comprehensive mixtures in the regular travelling population :

- ◆ physical impairments
- ◆ sensory impairments
- ◆ intellectual impairments
- ◆ social impairments.

These are reviewed in more detail in the following section. I recognise that members of the medical profession might quarrel with my categorisation, for instance wishing to distinguish neurological, psychiatric and other groups of conditions separately. That is not the point of this paper.

This approach should not be taken to imply acceptance that drunken people are desirable public transport passengers, except in the sense that it is preferable to find them in a bus or a train rather than behind the wheel of a car. Clearly there are major issues of amenity and safety raised by the presence of such people on public transport, especially where children may also be travelling. In some places and at some times of day (or night), this type of passenger may represent a significant market for public transport operators and they usually tailor their services and procedures accordingly.

However I am not recommending development of this niche market ! Rather, my rule of thumb should be applied in the spirit that if a system is designed so that even drunks can cope with it, it may reasonably be expected that it will be convenient for a lot of other people too.

6 REVIEW OF IMPAIRMENTS AND FEATURES TO BE AVOIDED

The main categories of impairment were identified above. In each of the main categories, a number of specific conditions can be identified. Each of these has the propensity to be particularly aggravated by specific deficiencies, if they exist, in a public transport system. Moreover, others in the population share these specific conditions and on a less voluntary basis, and there are also vulnerable to the same deficiencies. The great merit, if that is the right word, of the caricature drunk as an informal auditing metric is the large concatenation of conditions associated with him (the caricature is usually male) – plus the fact that it is perhaps easier for the able-bodied to imagine themselves inebriated than to imagine themselves permanently suffering these conditions. Some people may even be able to recall direct experience from at least once or twice in their lives.

The following set of tables uses this yardstick to identify a range of specific features to be avoided. In most cases it is as easy to design them out, if one is aware of their impact, as it is to inadvertently design them in. This would be a big step towards “universal design”, if everyone responsible for the state of the public transport system were to take these issues into consideration automatically. I remember being impressed on being told that in Amsterdam, a city of cyclists, there was only one cycling specialist in the city’s traffic department – because every traffic engineer in their daily doings made allowance for cyclists as a matter of course. My hope would be the same attitude among public transport planners towards people with impairments.

Table 3 looks at physical impairments. **Table 4** covers sensory impairments, and **Table 5** intellectual impairments. There are also social impairments, as reviewed in **Table 6**. While this review does not pretend to be exhaustive, it does also suggest – in **Table 7** - a few conditions not associated with inebriation which, in the same spirit, point to further features to be avoided.

Impairment	Features to be avoided	Condition also applies to
Proneness to nausea	Excessive vibration or movement, absence of toilet facilities	Those affected by motion sickness
Poor mobility, low motor control	Steps, rough surfaces	The arthritic, sports-injured, wheelchair users
Poor hand-eye co-ordination	Requirement to tender exact change, items to be inserted in slots	Some with nervous disorders
Poor bladder control	Absence of toilet facilities	The incontinent
Low strength or stamina	Long walk distances, movements requiring force	The frail

Table 3 Physical impairments sometimes associated with inebriated travellers

Impairment	Features to be avoided	Condition also applies to
Poor vision	Unclear signage, complex and/or small wording, unmarked edges.	Partially sighted people, some diabetics, the colour-blind
Poor hearing	Unclear and/or unrepeated announcements.	The hard of hearing
Insensitivity to pain	Sharp protuberances.	Some medical conditions

Table 4 Sensory impairments sometimes associated with inebriated travellers

Impairment	Features to be avoided	Condition also applies to
Poor judgement of distance/speed	Person-vehicle conflict	Younger children
Low reasoning powers	Complex instructions, need for quick reactions	Intellectually handicapped people
Loss of concentration or short term memory	Absence of visual clues as to environment	Incipient Alzheimers sufferers and others with memory defects
Psychotic tendencies	Provocation	Some mentally ill

Table 5 Intellectual impairments sometimes associated with inebriated travellers

Impairment	Features to be avoided	Condition also applies to
Travel at times of low demand	Early termination of services and/or connections	Adolescents, night workers
Vulnerability to assault or theft	Absence of surveillance	Older people, women

Table 6 Social impairments sometimes associated with inebriated travellers

Impairment	Features to be avoided	Condition applies to
More extreme versions of any of the items in Tables 2 to 5	As per Tables 2 to 5	Wheelchair users, the blind, deaf, frail etc
Impedimenta	Lack of in-vehicle storage	People with infants, strollers, luggage, bicycles, shopping bags or other bulky items.
Unfamiliarity	Any system features which assume implicit knowledge on the part of the passenger	Visitors, infrequent public transport users

Table 7 Further conditions not particularly associated with inebriated travellers

7 CONCLUSION

Constraint on the growth of private motor vehicle travel is universally recognised as a desirable strategic goal for transport. There are many ways of achieving this, and a necessary (but not sufficient) strategy component is invariably targeting greater utilisation of public transport. To this end much public investment in new or revived public transport systems has taken place, especially in the decade recently concluded.

Facilities available for general public use must recognise the wide range of characteristics of individual members of the public. The more that design can increase the range of conditions supportable by general facilities, the less the need for special services. It is more a question of social attitudes to those with specific needs than one of economics, although economic factors virtually guarantee that completely universal design is unattainable.

Standards have been developed as reference tools to assess whether public transport systems can be “officially” regarded as accessible.

To encourage more automatic consideration of features friendly to the impaired, this paper has suggested a highly informal but quite practical supplementary approach which allows a “quick and dirty” audit both of existing facilities and new designs. This calls for estimation of the ease or otherwise of use when drunk.

This is suggestion not to increase the likelihood that the system will prove attractive to drunks and lead to greater patronage from them, but to pick up a range of features which could also affect :

- ◆ those affected by motion sickness
- ◆ the arthritic, the sports-injured, wheelchair users
- ◆ some with nervous disorders
- ◆ the incontinent
- ◆ the frail
- ◆ partially sighted people, some diabetics, the colour-blind
- ◆ the hard of hearing
- ◆ younger children
- ◆ intellectually handicapped people

- ◆ incipient Alzheimers sufferers and others with memory defects
- ◆ some mentally ill
- ◆ adolescents, night workers
- ◆ older people, women

In total, this is quite a large segment of the population for whom our public transport systems can, to an extent, be debugged by this suggested informal technique.

REFERENCES

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