NORMATIVE SURVEYS TO DETERMINE END-USER PERCEPTIONS OF PUBLIC TRANSPORT INTERCHANGES

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ABSTRACT

The way in which the users of a Public Transport Interchange (PTI) perceive their environment is of the greatest importance in determining the ideal PTI. In order to gain insight into the perceptions of PTI end-users, a survey was done by means of the descriptive survey method and personal interviews.

The aforementioned end-users needed to be classified in distinct groups due to the fact that each group has different perspectives and needs with regards to a PTI. These groups consisted of passengers, transport operators, informal traders and formal traders.

Six destination PTIs with different socio-economic settings in Cape Town were chosen for the survey. Destination PTIs were chosen because they are characterised by a higher concentration and diversity of activities, which means that more can be learnt from them with regards to the performance successes or failures of public transport interchanges.

A total of 1 696 respondents represented the sample population for this survey. These comprised of 1 055 passengers, 289 transport operators, 203 informal traders and 149 formal traders.

This paper will describe in detail the survey process that was followed; the numerous obstacles encountered and highlight some unexpected findings.

1. INTRODUCTION

Public Transport Interchanges (PTIs) do not adequately perform their fundamental functions in the operation of livable cities. It is argued that a reason for this is that most of the opportunities a PTI can offer are lost, mainly because, these opportunities were never recognised (in the planning stages) as contributing to a positive urban living environment.

This problem stems from the fact that no performance requirements exist explicitly to identify good and bad practice in Public Transport Interchange development. A lack of performance measuring tools has resulted in the present situation where limited information is available to guide the planning, upgrade and development of PTIs.

In pursuit of determining the relevant performance requirements a comprehensive understanding of a positive urban living environment in the context of PTIs was essential.

For this reason the following four reference sources were found to be relevant:

- The relevant administrative and legislative context,
- Historical and contemporary literature and theory on urban performance,
- National and international precedent studies and
- Public opinion through a series of personal surveys.

This paper will give a detailed account of the last of the four sources. The process followed to determine the opinion of users and preliminary findings would hopefully present the reader with some insight to the end-user perspective.

2. THE NORMATIVE SURVEY PROCESS

2.1 Purpose of the Surveys

The primary purpose of the surveys was to determine the perceptions of PTI users regarding the public transport interchange environment and by doing this, to understand the existing performance failures from their perspectives. It is important to include this in the process of planning, in order that informed decisions can be made which are based on actual end-user views and experiences.

2.2 Methodology

The descriptive survey method and personal interviews were used to gain tangible information from the users of the interchanges.

Leedy (1980: 97) defines the descriptive survey method or (normative survey method) as a process through which the data is collected by the researcher using observations. The first step in the survey, namely to identify the different groups of end-users, was undertaken by using this method. The actual collection of data from the different end-user groups was done by using a structured questionnaire. The method of administering the questionnaire was the face-to-face personal interview.

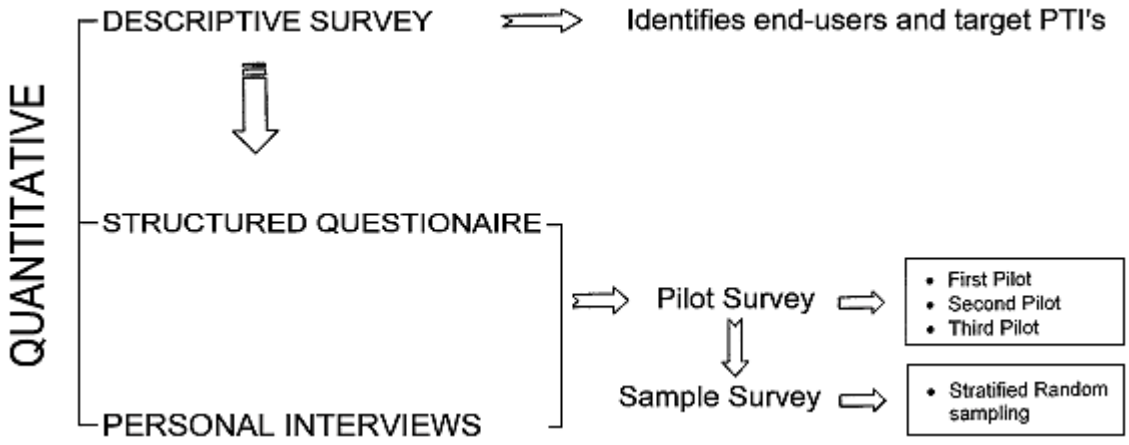

Figure 1. Survey methodology and activities.

The same method was used for the pilot surveys as well as for the sample surveys. Although other methods such as on-site observations, telephonic surveys, post cards and focus groups were considered, the face-to-face personal interview showed itself to be most effective and appropriate in terms of the desired information viz. personal feedback. Although this is acknowledged as one of the most time-consuming methods, it seemed clear that the critical importance of this information to the study warranted the time and money spent on this exercise.

A further reason for using the face-to-face personal interview combined with a structured questionnaire was to maintain sample integrity by using a method, which encourages the highest possible response rate from the sample population members.

2.2.1 End-User Groups

Four groups of end-users were identified through a process of personal observations to be:

- Passengers (Inter-peak, daily or occasional)
- Transport operators (bus and taxi drivers)
- Informal traders (both legal and illegal)
- Formal traders (shops surrounding the PTI)

Each one of the above groups was presumed as having different perspectives and needs with regard to PTIs. This warranted different questionnaires being designed for each end-user group. Refer to *Appendix 1* for an example of the passenger questionnaire.

2.2.2 The Questionnaire and Pilot Studies

Certain elements that were repeatedly mentioned in relevant literature, as contributing to the quality of interchange environments suggested the questionnaire be divided in three main categories namely:

- Safety and security.
- Interchange facilities.
- Pedestrian movement.

Seeing as most of the respondents did not enjoy high literacy levels, it was decided to make the questions as simple and understandable possible. For this reason a combination of *open and closed questions* was used, with the majority being closed questions. Open questions at the end of the questionnaire allowed for the capture of any comments that might be made outside the structure of the closed questions.

Although it is generally accepted that a *face-to-face interview* does not have to be restricted by the number of response categories (Sudman & Blair, 1998), it was found with the pilot studies that three alternatives are the maximum the relevant respondents could handle with ease and clear understanding. For this reason the YES – MAYBE / SOMETIMES – NO alternatives were presented in the questionnaire.

Three pilot studies were undertaken under *field conditions* to test the questionnaire and the interview style that was needed to obtain the best results. The first pilot study's aim was to test the clarity of the questions. The data that was gathered from this exercise was, however, discarded because of the fact that the questionnaire changed dramatically after the first pilot study when it became evident that the questions needed to be much simpler in language as well as understanding.

The interviewers had some difficulty in convincing people on their way to work to stop in the interchange precinct to answer questions. For this reason the first and second pilot study (that was focused on passengers and undertaken in the am and pm peak) were done while travelling with the respondents on the different public transport modes (*on-board surveys*). Again, problems were encountered especially with elderly males who were reluctant to participate. Although this method of on-board surveys was not considered for the sample survey, mainly because of the logistics involved and for security reasons, it was thought to be a good way of testing the questionnaire in view of the fact that no-one's trip was interrupted.

The third pilot study focused on the rest of the end-users and was done at only one PTI, namely Claremont. The actual method of *"randomly" intercepting* respondents was tested. Language seemed to be the major obstacle especially amongst the informal traders because of the fact that the

majority were not South African. An interpreter was used, but again the questionnaire had to be adapted and simplified seeing as an interpreter is not always readily available. The method seemed to be successful with very few respondents approached, not willing to participate.

2.2.3 Sample Size

Determining an appropriate sample size is inevitably somewhat problematic despite the rule: "the larger the sample, the better". Having regard to the practicalities associated with surveys of this nature, this rule might well not be applicable. The Current Public Transport Record (City of Cape Town, Directorate: Transport, Roads and Storm Water, 2002: disk 2) confirms this with the following: "Unfortunately there are no straightforward and objective answers to the calculation of sample size."

On account of the survey being done through personal interviews, which is extremely time consuming, labour intensive and expensive; the sample size needed to be practical and manageable, but still have a level of acceptability and be logically and statistically defensible. For these reasons, numerous interviews with professional researchers and statisticians were conducted to determine an acceptable sample size. Through this process, a 0.25% - 1% sample size for passengers was found to be representative for a normative study such as this.

This resulted in a total of 1 696 interviews being conducted, comprising of 1 055 passengers, 289 operators, 203 informal traders and 149 formal traders at six PTIs in the Cape Metropolitan area.

2.3 The Survey and its Challenges

The surveys were done over a period of three months (June – August 2003) right in the heart of the Cape winter. Because of funding and logistical reasons, another time during the year was not an option, which resulted in five surveys being postponed because of rain.

One of the major problems was that of safety. Most of the surveys were undertaken with the local police's partial co-operation (a patrol car would drive pass the PTI while the survey was underway), but no formal protection could be expected from them for obvious reasons. PTI managers were also briefed on the surveys and cooperated by informing the PTI security personnel, traders and operators.

Two incidents of shootings occurred while busy with surveys at Cape Town station deck and Claremont PTI.

Suitable days of the week for surveys were a further challenge. Initially, attempts were made to do surveys on Fridays, but it was quite clear that Fridays did not represent normal travel patterns. Informal traders and shopkeepers were also reluctant to answer questions because of the fact that Fridays are the busiest day of the week. This resulted in Tuesdays, Wednesdays and Thursdays being chosen as representative days.

2.4 Data Analysis

The data needed to be prepared for analysis before the actual analysis could take place. This was done by following four steps suggested by Sudman and Blair (1998) namely, to first physically inspect the data, secondly to code data sets, thirdly to enter the data and finally to check the data for any out-of-range results and re-checking those questionnaires.

Data analysis was done with the help of Microsoft Access. Data was analysed for each target PTI and as a combination of all the PTIs so that a comparison between a specific PTI and the average for all the PTIs would be possible. This was found to be especially useful for the PTI managers to identify problem areas at their specific PTI.

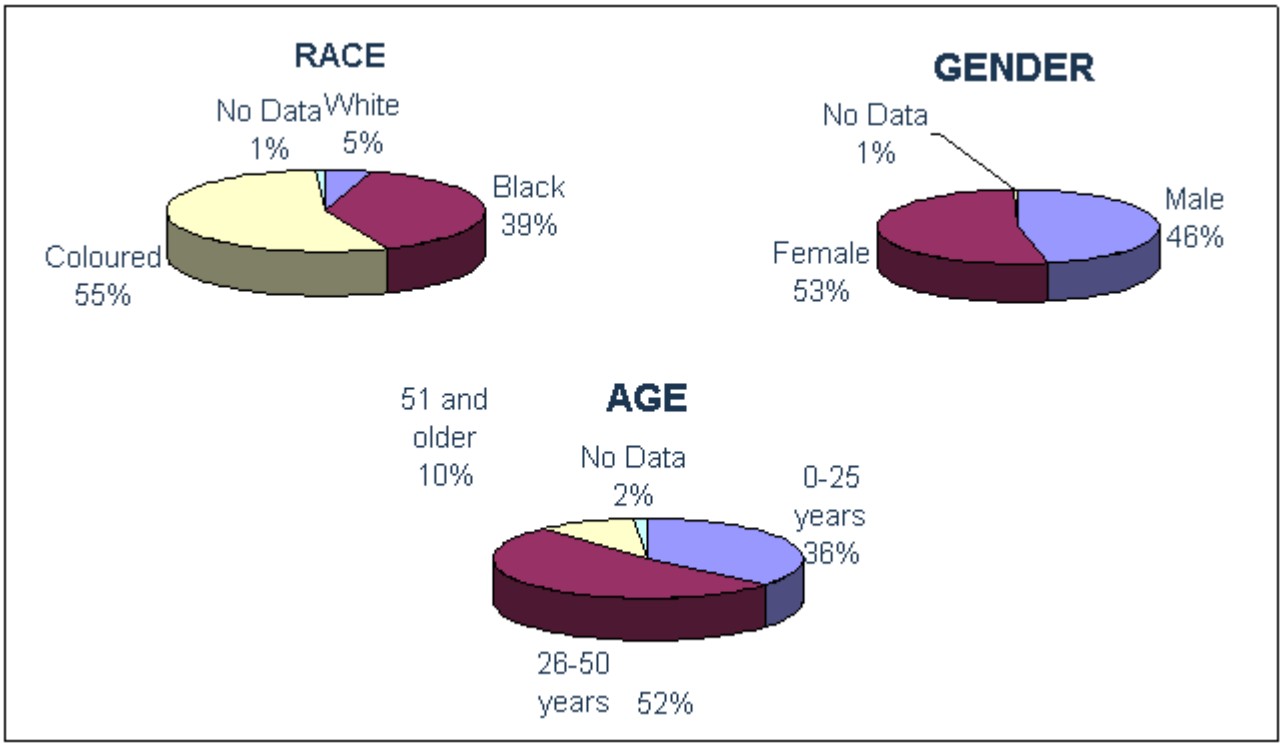

Figure 2. Demographic information of the sample population (passengers).

3. PRELIMINARY FINDINGS

The preliminary results revealed a number of inclination of which only the most important are summarised under each questionnaire category. Please note that although information is available for each target PTI, the analysis that follows is a reflection of the combined results of all the survey data and only for the passenger group, unless otherwise stated.

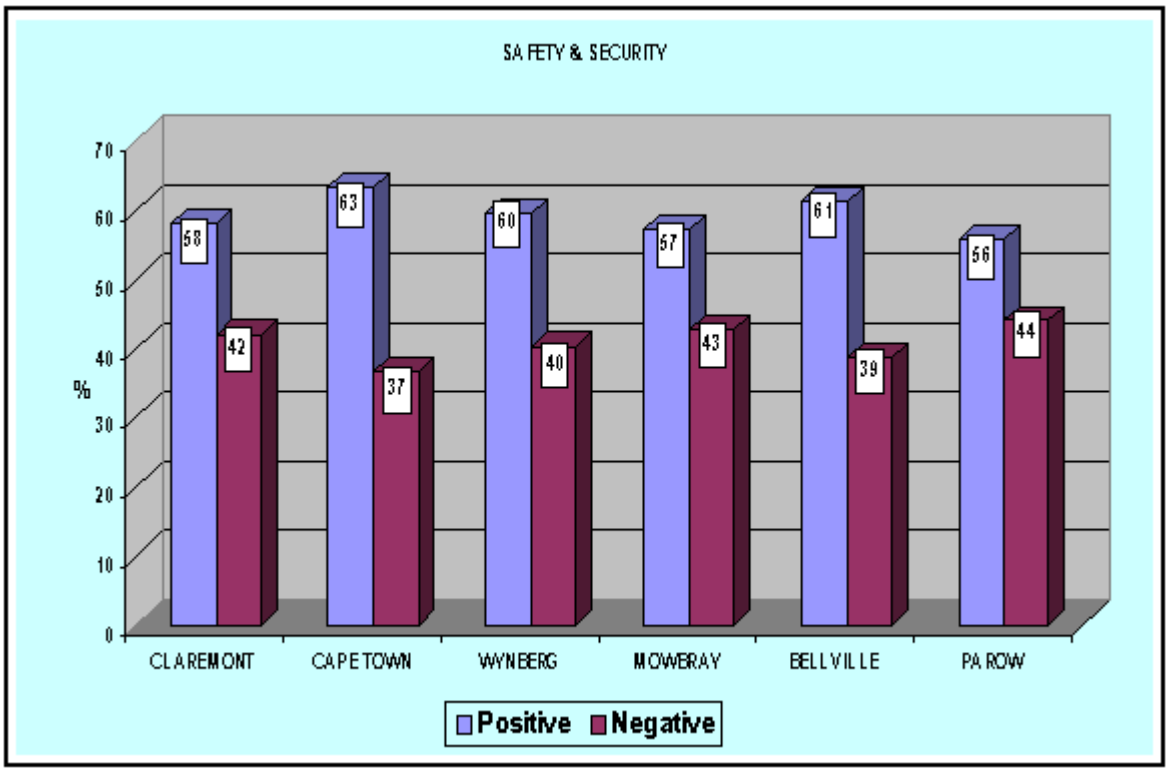

Figure 3. Passenger responses to the safety and security section of the questionnaire.

3.1 Safety and Security

As can be seen from figure 3, no significant differences exist in responses regarding safety and security when comparing the six surveyed PTIs. It should be noted that this was found to be in contrast with the responses to the open-ended question at the bottom of the questionnaire where respondents had the opportunity to comment in general and almost 30% of respondents (see figure 7) highlighted safety issues as a major concern.

3.2 Interchange Facilities

Claremont PTI has the highest dissatisfaction rate of 70%, followed by Wynberg, Parow and Bellville. The latter (Bellville) was found to be quite surprising seeing as this PTI recently went through an extensive upgraded process.

Development plans for Claremont PTI is in the process to be finalised, which will hopefully result in a more positive attitude from passengers regarding interchange facilities in the near future.

Mowbray and Cape Town was the only PTIs where passengers felt positive about the facilities although not with an overwhelming percentage.

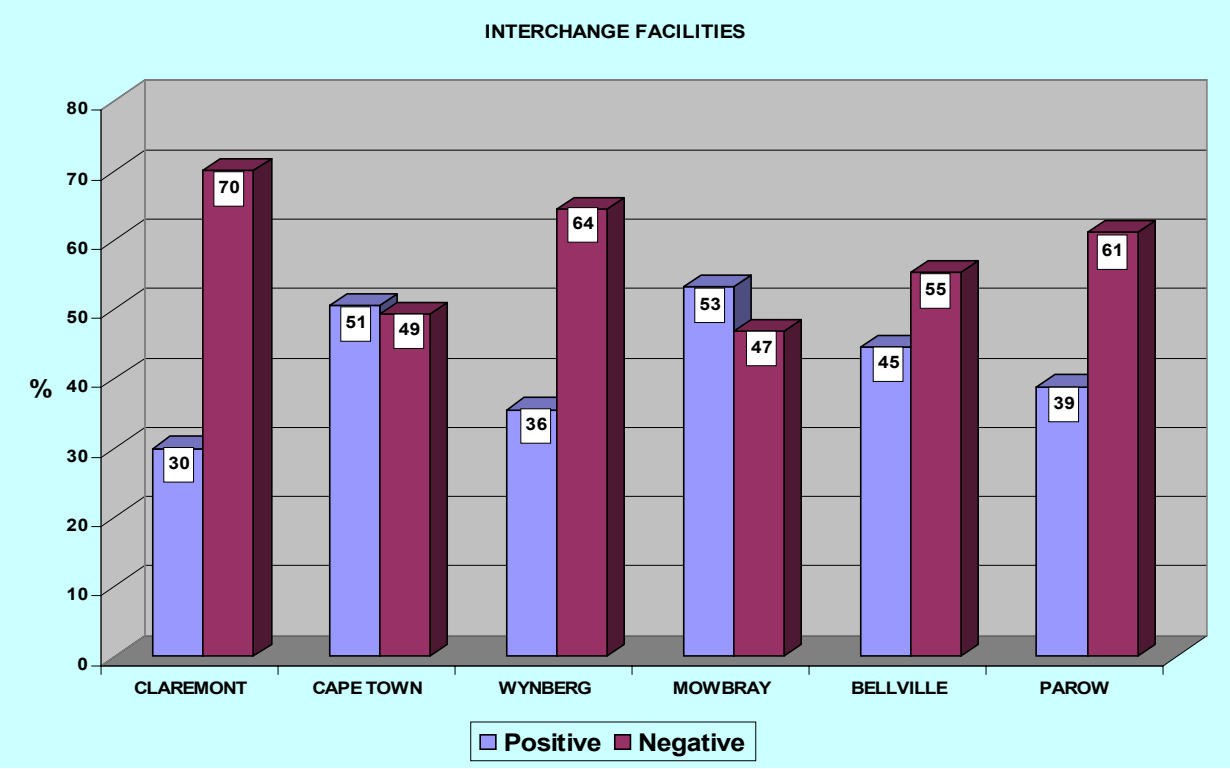

Figure 4. Passenger responses to the interchange facilities section of the questionnaire.

3.3 Pedestrian Environment

Again, Claremont, Parow and Wynberg have the highest dissatisfaction rates. The negative pedestrian environment was confirmed with personal observations which highlighted many areas of conflict with vehicles, a general lack of designated pedestrian walkways and very little, if any, maintenance and cleaning. These, as well as seating and shelter, were the reasons cited most often during the interviews.

Only passengers at Mowbray PTI showed a positive inclination regarding the pedestrian environment. It should be noted that Mowbray is an upgraded PTI and one of the smaller ones with regards to daily passenger numbers.

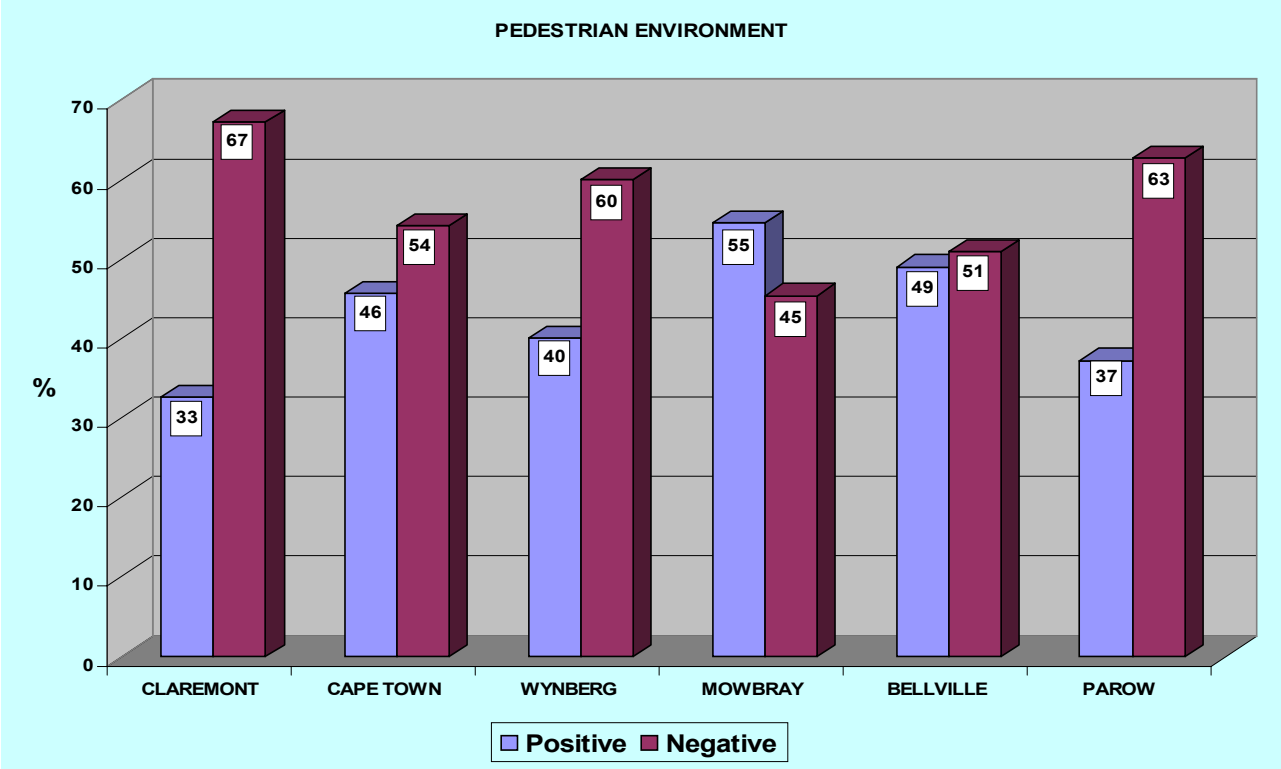

Figure 5. How passengers experience the pedestrian environment.

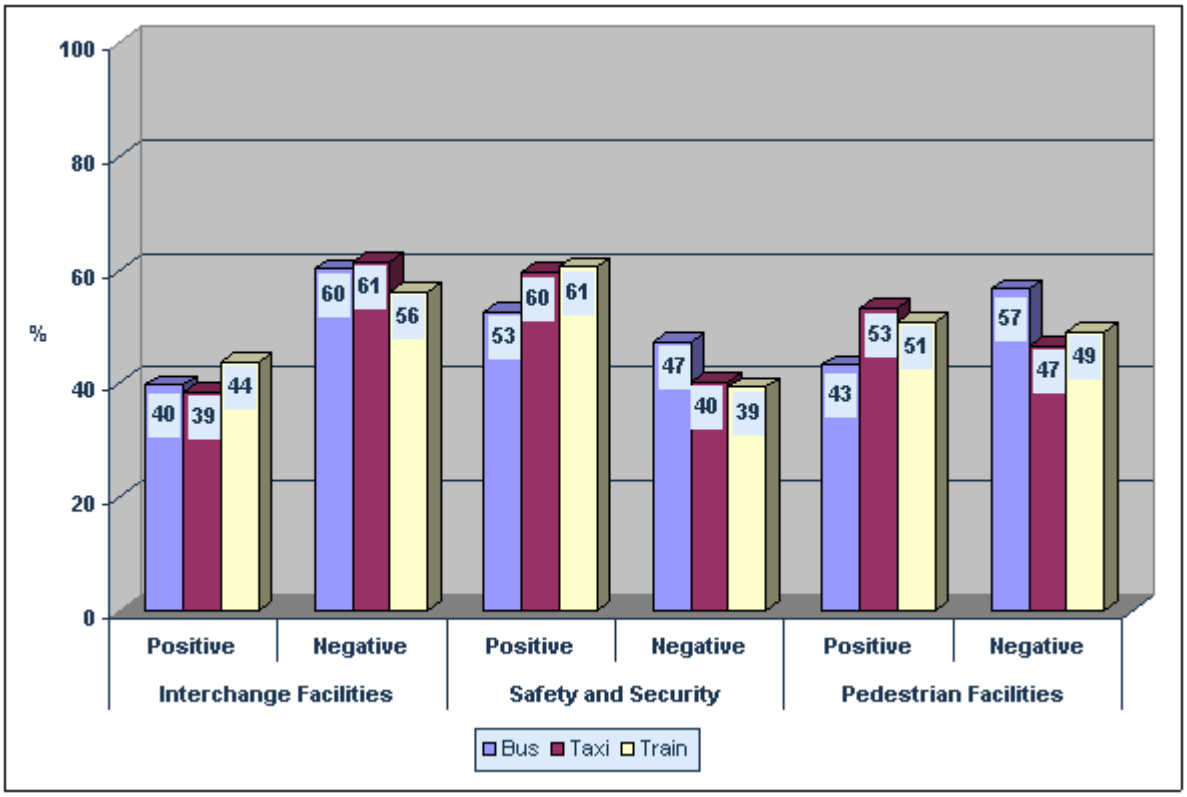

Figure 6. Overall passenger perceptions per mode (all PTIs).

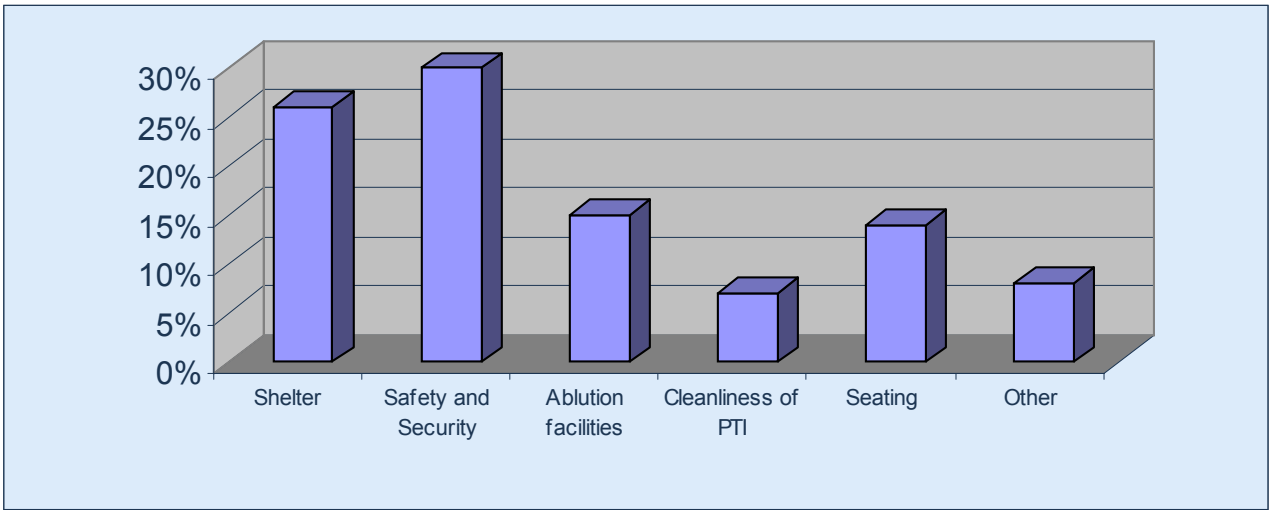

Figure 7. Main concerns as identified by the passenger end-user group.

4. CONCLUSION

The end-users made it clear from their perspective what is needed in order for a PTI to be a positive environment. The basic comforts and conveniences of people (such as shelter, seating, cleanliness) were found to be the major determining factors regarding the quality of a space. Seeing as the end-users cannot easily comment on higher order issues such as uniqueness, complexity, quality of place, permeability to name just a few, the questionnaire attempted to highlight practical, ground level concerns.

Other contributing factors to a positive environment that were highlighted by the end-users were safety and security. These are important elements in fact confirmed in the planning and design literature and theory, suggesting that the extent to which people fully utilise and appreciate the qualities of these spaces, depends on how safe they feel in a space.

Public Transport Interchanges certainly have the potential to develop into positive elements of a city. Whether this will materialise is largely dependant on the seriousness with which role players regard the input of the end-users themselves, and implement the implicit proposals of these inputs. In the present political climate, participation of the public has become a firmly entrenched principle in the process of planning.

5. REFERENCES

[1] City of Cape Town. Directorate: Transport, Roads and Storm Water. 2002. Current Public Transport Record. [Compact discs].

[2] Leedy, P.D. 1980. Practical Research: Planning and Design 2nd Edition. New York: MacMillan Publishing Co.

[3] Sudman, S. & Blair, E. 1998. Marketing Research: a Problem-solving Approach. Boston: McGraw-Hill.

Appendix 1

HOW DO PASSENGERS EXPERIENCE PUBLIC TRANSPORT INTERCHANGES?

GENDER	RACE	AGE	MODE
Male ☐	White ☐	0 - 25 years ☐	Train ☐
Female ☐	Black ☐	26 - 50 years ☐	Bus ☐
	Coloured ☐	51 and older ☐	Taxi ☐

INTERCHANGE:

DATE: ... AUGUST 2003

TIME: .....

	QUESTIONS	YES	OKAY / SOMETIMES	NO
1	What is the purpose of your trip (E.g. work, school, shopping, etc.)			
2	**Safety and Security**			
2.1	Do you feel safe when:			
	(a) Buying something from the informal traders?			
	(b) Buying from the shops adjacent to the interchange?			
	(c) Walking around?			
	(d) Crossing the road?			
2.2	Have you ever been robbed at the interchange?			
2.3	Are there: (a) Visible policing / security officers at the interchange?			
	(b) Are they effective?			
3	**Interchange Facilities**			
3.1	Do you know which facilities are available at the interchange? E.g. Toilets, police, ticket offices, information booth.			
3.2	Is the interchange user-friendly for vulnerable groups of people? E.g. Aged, Women, Children, Disabled.			
3.3	Are the following satisfactory in the interchange?			
	(a) Ablution blocks / Toilets			
	(b) Lighting			
	(c) Seating			
	(d) Shelters			
	(e) General Cleanliness			
4	**Pedestrian Movement**			
4.1	Do you feel that there is enough walking space? E.g. Is the pavement wide enough to walk on.			
4.2	Do the Informal Traders restrict your movements?			
4.3	When walking do you frequently come across any of the following: Puddles, potholes, slippery surfaces etc.?			
5	**General**			
5.1	Do you use the interchange for:			
	(a) Commuting only			
	(b) Waiting for trains, taxi's or buses			
	(c) Buying goods from Formal Shops at the PTI			
	(d) Buying goods from Informal Traders at the PTI			
5.2	Is there anything that you would like to change at the interchange?			
Comments				

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BIOGRAPHY

Belinda Verster is a lecturer in the Department: Town and Regional Planning and is in the final stages of her M.Tech degree. Her field of study is Public Transport Interchanges and their impact in the creation of Positive Urban Environments. She has established a research team in the past year, comprising of 2 M.Tech, 1 B.Tech, and 4 Third year students.

Through these initiatives research activities have now started to take on prominence in the department.