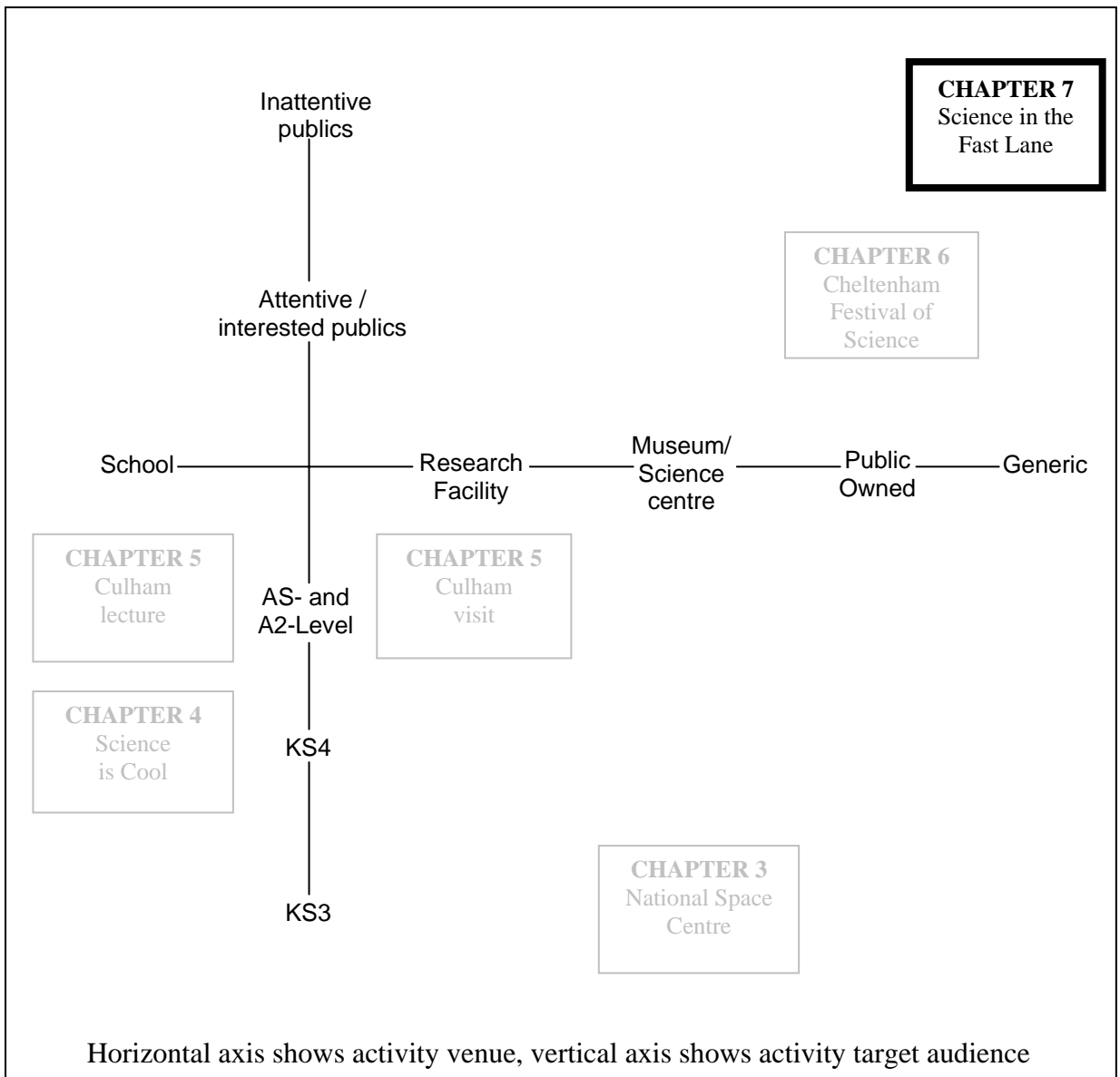


*Chapter 7*



**EVALUATION OF THE IMPACT OF AN ACTIVITY IN A  
GENERIC VENUE ON 'INATTENTIVE' PUBLICS**

**Research axes**



Chapter 7 considers an activity that was delivered in a generic venue: a motorway service station. The activity included a show involving science tricks, distribution of activity packs, a quiz competition and a website. Data were collected using interviews, questionnaires and observation. The activity successfully engaged a wide range of travellers at service stations, including some people without a pre-existing interest in science.

## **7.1 INTRODUCTION**

### **7.1.1 Why generic venues?**

The science festival evaluated in Chapter 6 was the first study in this thesis with an adult primary target audience. Adults had free choice over whether to attend the festival and most events within it carried a charge. The results of the study showed that festivalgoers were likely to have a pre-existing interest in science, be well educated and from a higher socio-economic group. Some critics may claim that such an event, whose audiences consist primarily of ‘science-attentive’ or ‘science-interested’ publics (Miller, 1999), is ‘preaching to the converted’; indeed this is a common criticism of science communication activities.

Reaching ‘inattentive’ groups, that is, those without a pre-existing interest in science, and encouraging their engagement has been the source of much effort on the part of the science communication community. A number of approaches are considered good practice in this area (Rasekoala, 2003) including the definition of target groups, promotion of inclusiveness and ownership, employment of appropriate role models, linking with existing programmes and networks, and outreach. Activities held in generic venues centre on the idea that the activity brings science to members of the public in spaces they use regularly, such as shopping centres, bars, supermarkets and motorway service stations (Burnet, 2002). All publics visit such venues, so there is potential to reach a far broader audience than more traditional science communication activities.

### 7.1.2 Examples of generic venues activities

Activities in generic venues work best when they are held in a venue where people are likely to be, and where people experience significant '*dwell time*' (Burnet 2002), that is, where they have the time available to engage with the activity. Many generic venues projects are not innovative in the nature of their format; they simply take an existing activity to a new venue with the aim of reaching new audiences.

One of the most well-known examples of science communication activities held in generic venues are Cafés Scientifiques, a movement which started in the UK in 1998 in Leeds and now includes events in 30 towns and cities in the UK, and a number in Europe. The idea came from the French Cafés Philosophiques (Dallas, 1999), and the format typically includes a half hour presentation from a scientist followed by informal discussion held in a café, restaurant or bar. The concept is simple, the opportunity to discuss science in a relaxing and convivial atmosphere has proved popular and audiences are usually large. Indeed, the system is expanding, and Cafés Scientifiques in new towns and cities continue to be organised. The concept has now been developed to include junior Cafés Scientifiques (Gilmore-Stewart, 2004). However, although the venue for such events could be described as a generic one, the audience at such activities have usually visited the venue to participate in the activity, which is advertised beforehand. For this reason, the audience at a Café Scientifique event are unlikely to hold a similar profile of attitudes towards science than the regular venue clientele.

Another generic venues initiative was the '*K-Zone*'. Funded by the Wellcome Trust, it was an interactive exhibition about health issues that toured a number of generic

venues, including doctors' waiting rooms, youth clubs and even nightclubs. The success of the pilot in reaching 15-24 year-olds was helped by placing the exhibits in locations popular with the target audience. Nightclubs and youth clubs were particularly successful (Evaluation Associates, 1998). Other successful generic venues projects have included '*Check-Out Science*', a quiz about typical supermarket products, and '*Pub Genius*', a mixture of science tricks and quiz questions aimed at drinkers in pubs (Graphic Science, 2005).

### **7.1.3 The '*Science in the Fast Lane*' project**

The present study evaluates the impact of an activity held in a generic venue; in this case motorway service stations. '*Science in the Fast Lane*' was a pilot project funded by The Committee on the Public Understanding of Science (COPUS) and the Institute of Physics (IoP), targeting families stopping at motorway service stations. It was delivered by the Graphic Science Unit, a science communication consultancy based at the University of the West of England, Bristol. The activity involved erecting a demonstration area at a motorway service station and performing a show consisting of simple yet engaging science tricks, which audience members were then able to reproduce at home. Activity packs were also prepared and distributed to children, with the aim of providing entertainment for long car journeys, and for the adults there was a quiz with a £200 prize. In addition, a website was set up, providing information on how to recreate the tricks, and to offer a forum for discussion of issues raised by the event.

The aim of the project was to encourage a wide audience from all backgrounds to think about the science around them when they travel by car and to explore issues

that arise from the application of science in society. It was also intended that the activity would encourage audiences to associate science with helping to solve the problem of keeping travellers occupied on long car journeys. Another aim was to produce a transferable resource in order that the event could be duplicated in any motorway service station. The primary target audience was families, but it was hoped that the event would also appeal to young adults travelling in groups. The event was delivered on three separate occasions, from 10am until 3pm, at three different service stations in southwest England. The activity was evaluated on two of the three days.

#### **7.1.4 The science tricks**

Permission for each event was organised in advanced with service station management. In each service station the Graphic Science team erected a stall consisting of a table for the tricks, backed by a colourful display screen bearing a '*Science in the Fast Lane*' banner. A member of the Graphic Science team, Professor Frank Burnet, acted as a Master of Ceremonies and performed the science tricks, gathering a crowd using a microphone and a public address system playing popular music. The tricks performed included: balloon kebab – piercing an inflated balloon with a wooden skewer without bursting it; Alka-Seltzer bomb – exploding a film can using water and an Alka-Seltzer tablet; spinning eggs – using the motion of an egg to determine whether it is cooked or not; lifting lemon – using burning matches to raise the water level in an upturned glass placed in a dish of water on which a lemon slice floats; lager lamp – motion of nuts and raisins in a carbonated liquid; obedient propeller – translation of vibration into rotational motion. The activity packs, or 'goody bags', were aimed at children, but were also given out to

other age groups when they requested them. Typical contents of the packs included pens, stickers, sliding puzzles, magnifying rulers, Science Year activities, chemical lights and activity sheets. They were distributed by members of the Graphic Science team. The quiz was aimed at adults, and consisted of a set of multiple choice questions whose answers highlighted issues associated with car travel, like pollution and the flora and fauna found (and not found) on motorway verges. Entrants could either complete the quiz at the service station and hand it back to a member of the team, or complete it at home and return it by post. Either way, completed quiz sheets were entered into a draw to win a £200 prize.

*'Science in the Fast Lane'* toured three motorway service stations during one week in August 2002. The researcher was present on two of the three dates.

## **7.2 METHODOLOGY**

The project was evaluated against the aims described in Section 7.1.3. The event consisted of three different components (science tricks, activity packs and quiz) and it was important to examine the impact of the components separately, as well as assessing the effectiveness of the event as a whole. Five evaluation methods were used. Firstly, face-to-face structured interviews were conducted on two of the three delivery days to evaluate the science tricks. Secondly, questionnaire items were added to the quiz sheets to gather evaluative data. Thirdly, a feedback area was added to the website. Fourthly, observational data were collected by the evaluator on the two days the activity was visited. Finally, media coverage was tracked.

### **7.2.1 Structured interviews**

Interviewing was chosen as the main methodology in order to minimise the sample bias that often occurs with questionnaire-based surveys. The interviews were carried out at random, as opposed to aiming to fill a quota of ages, genders and demographic groups. Only people who stopped to watch the science tricks were interviewed. The interview schedules included both closed- and open-form items, with a view to determining the entertainment and educational value of the tricks and whether the show had an effect on the audience's attitude towards science. In addition, issues to do with the design of the event, e.g. length of show were explored, and audience demographic data were collected.

### **7.2.2 Questionnaire items**

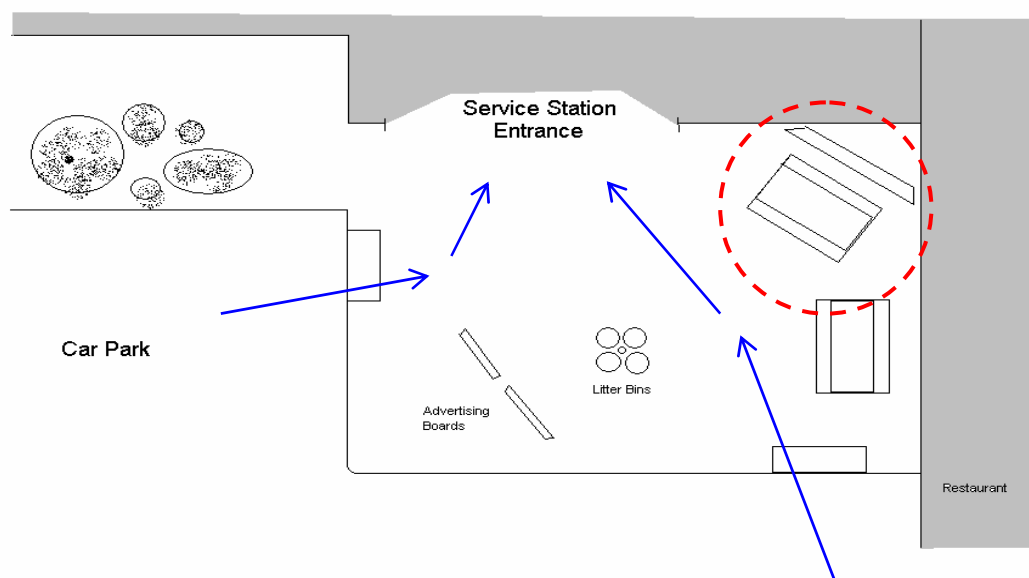
Space on the quiz sheet was limited, so only a few questionnaire items were included. These were designed to judge the response to the activity packs and collected demographic data from quiz entrants. A copy of the evaluation materials is given in Appendix 7.1.

## 7.3 RESULTS

### 7.3.1 Observations from Gordano Services

The first delivery day was a weekday so the service station was not as busy as would have been expected at the weekend. The physical arrangement of the activity area is shown in Figure 7.1. The stand (circled) was set up, using a display board and a picnic table, outside the main entrance to the service station. The arrows denote the flow of human traffic past the stall.

*Figure 7.1* Arrangement of activity area



The presenter sought the attention of travellers by approaching them and offering to show them a science trick. Due to the location of the stand, people were passing by and the presenter had only a short time to approach them with the demonstrations. He targeted mainly young children and used the balloon kebab trick to gain their attention. However, once a few people had gathered around the stand, it became easier to attract an audience, and adult family members engaged with the event via the children who were taking part. The other method for drawing attention to the

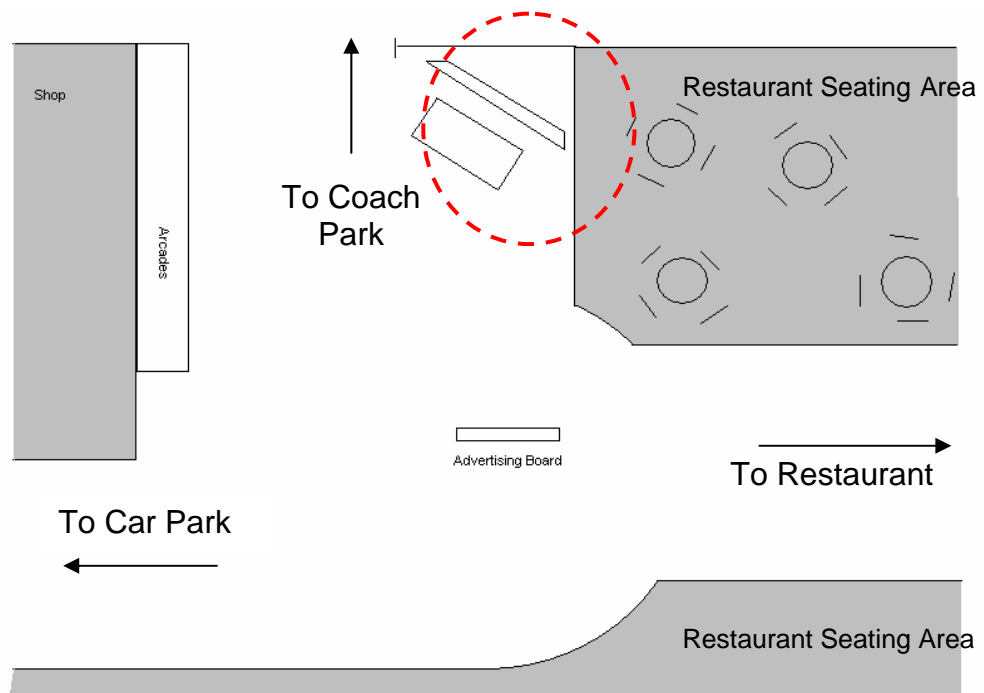
stand was by distributing the activity packs. When the children stopped to be given an activity pack on the way into the service station they were encouraged to visit the stand later to watch a science trick. This approach was effective, as on the way into the services many people were hungry, thirsty or in need of the lavatory. After refreshing themselves, they were more likely to stop and engage with the activity before continuing their journey.

200 activity packs (including quiz sheets) were distributed during the course of the day, including a number to service station staff who requested them for younger relatives.

### **7.3.2 Observations from Exeter Services**

There was rain forecast on this day so the stall was set up inside the service station, adjacent to the restaurant area. A diagram of the layout of the area in which the stand was situated is given in Figure 7.2.

**Figure 7.2** Arrangement of activity area



The event dynamic at this location was completely different to that at the previous venue. Because the stand was located in an area where people were more static, audience members had a chance to witness the activity before deciding whether or not to engage. This resulted in members of the public approaching the stand, rather than the presenter approaching members of the public. The event worked better where the stand was located at a *‘lingering point’*, as opposed to the *‘thoroughfare point’* where the stand was erected at Gordano.

The second event was held on a Friday, so the service station was full of people travelling to holiday destinations. This led to large audiences of up to approximately 30 people at a time, which served to encourage interest from other people in the service station.

Because of the stand location, the presenter was not approaching children with the tricks. Consequently, there was not the impression that the event was aimed solely at children. Possibly for this reason, many older people engaged with the activity. Children were, however, still the main audience for the event; adults tended to think that the presenter was selling something. One adult commented

*“[the presenter] needs to dress more jazzy – [he is] blending against the background and looks like a salesman” (45+ female)*

On this day 250 activity packs, each containing a quiz sheet, were distributed. Because there was seating for the restaurants nearby, many people had the opportunity to complete the quiz there and then, especially as pens and pencils were provided in the activity packs. There was an excellent response to the quiz with over 70 of the quiz sheets returned, a far higher number than was anticipated.

No observer was present for the event at Newport. 150 activity packs containing quiz sheets were distributed.

### 7.3.3 The study cohort

The study cohort is described in Figure 7.3.

*Figure 7.3 The study cohort*

Sample	n	Gender (%)		Age (n)				
		Male	Female	Under 16	16-24	25-34	35-44	45+
Gordano	20	67	33	14	0	1	3	2
Exeter	22	55	45	16	0	1	0	5
Total interviews	42	60	40	30	0	2	3	7
Quiz questionnaire	81	64	36	30	9	11	16	15

Interestingly, a number of over-45s, who were not the anticipated target audience, engaged with the event. There were a larger percentage of the over-45 age group in the audience at the Exeter event because of the stand's location near to the coach park. All of the over-45's interviewed on this day were on a coach trip with friends or family, and welcomed the activity packs to keep them entertained on the journey, or to pass on to younger family members. The 16-24 age group are represented in the quiz sample, but not the interview sample. This could be due to the larger size of the quiz sample, or perhaps young people in this age group were less keen on the more open engagement with the science tricks. Both the interview and quiz sample appear to be male-dominated.

#### **7.3.4 Pre-existing attitudes towards science**

Of the 42 interviews conducted over the two days, 24 people felt they either '*quite liked*' or '*really liked*' science, with nine feeling they '*didn't like* [science] *much*' or '*really didn't like*' it. This indicates that members of the 'science-attentive', 'science-interested' and 'residual' publics were represented in the event audience.

#### **7.3.5 Opinions of the activity**

##### **Opinions of the science tricks (*'the show'*)**

When asked what they thought of the show, nobody described it as '*boring*' or '*very boring*'; it is assumed that the people who had this opinion would not have stayed around to watch the tricks, and therefore would not have been interviewed this is likely to have introduced a bias towards those who found the show interesting. A large majority (93%) of respondents described the show as '*interesting*', with 63% describing it as '*very interesting*'. All (100%) of the interviewees agreed that the

show was a fun way to learn about science. This shows an overwhelmingly positive response to the science tricks from those who watched them.

Almost all of the interview respondents felt that the show was about the right length (88%) and that the science was at about the right level (90%). This probably reflects the experience of the team who designed the activity. All of the science tricks were popular, and different individuals and age groups had different favourites. For example, the under-16 age group were most likely to cite the egg trick as their least favourite, while older audience members found it much more interesting. This is probably due to the fact that children and young people are not likely to have experienced the problem of remembering which eggs they have and have not boiled, and so this was not grounded in world experience. Younger audiences were more interested in the Alka-Seltzer bomb and the balloon kebab, as these were easy to reproduce and had an element of *'danger'*; they included piercing and explosions.

### **Opinions of the activity packs**

The activity packs were popular with respondents. Of the 81 people who returned quiz sheets, 36 had picked them up, and all of them (100%) described the activity pack as *'interesting'*, with 39% saying it was *'very interesting'*. When asked why they liked the packs, some of the responses were as follows:

*"Because they had loads of goodies!"* (9-year-old male)

*"Lots of interesting things to do"* (8-year-old female)

*"On a long travel to Devon. Quite bored, I like science when its fun and it'll be a good read and will help me at school"* (12-year-old male)

At least for the young male who gave the last comment, science appears to have been used to solve the problem of boredom on long car journeys, which was one of the project objectives.

### **7.3.6 Project website**

The project aimed to encourage its audiences to explore issues related to the application of modern technology in society. The project website was designed to facilitate this discussion, although it received few visits, probably due to lack of publicity. Some attempts to start such a discussion on the website forum were made by the project team, but received little response. The website was publicised on the event stand, and the web address printed on the quiz sheets and other project materials. However, in order to sustain a reasonable number of visits, websites must be highly publicised, and the project budget could not accommodate this.

### **7.3.7 Opinions of the project aims**

During the interviews, audience members were asked what they thought the aim of the event was, and whether they thought it had been fulfilled. Some of the responses were as follows:

*"To make people more aware and think about science"* (35-44 male)

*"To show science can be fun and not boring"* (35-44 female)

A large proportion of the responses included the terms *'aware'*, or *'think about'* in relation to science. Indeed, raising awareness of the science around people when they travel by car was one of the project aims. However none of the respondents recognised that the science being presented to them in the show was related to car

travel, although the quiz questions were clearly related. However, not everyone who watched the show participated in the quiz, so this may need to be given greater emphasis in the future.

### **7.3.8 Cognitive impact**

Interviewees were asked how much science they felt that they had learned from the show. Three-quarters of respondents (76%) felt they had learned at least ‘*some*’ science from the show, with 40% claiming they had learned ‘*a lot*’ of science. Only one respondent said that he had learned no science. Considering few respondents spent more than 15 minutes watching the tricks, this activity appears to have significant educational value.

### **7.3.9 Affective impact**

Nearly two thirds of people interviewed (64%) said that the event had changed the way they felt about science, and all but one of these people said that they liked science more having seen the tricks. When asked why, some of the responses were:

*“He [the presenter] is more fun than a teacher, and I’m not in school!”* (11-year-old female)

*“It seems more fun and exciting”* (11-year-old male)

*“It made me more aware – I didn’t do much science at school”*  
(over 45 male)

The first comment is indicative of the negative attitudes towards ‘school science’ described in Chapter 1.

### **7.3.10 Activity media coverage**

The event generated local newspaper and radio coverage. The radio coverage had the greatest impact, as the interview was broadcast in the area on the morning of the first delivery day. Several audience members commented that they had heard about the event on the radio and decided to come along.

## **7.4 DISCUSSION**

The *Science in the Fast Lane* project ran smoothly with good organisation and no major problems. There was a positive response to the event both from interviewees and quiz entrants. The activity packs were popular, all 600 were distributed over the course of the three days. The event appeared to succeed in making people more aware about science facts in general. However, it appears that greater emphasis on where the science covered fitted in with car travel is needed. In future it is suggested that when explaining the science behind the tricks, more time is taken to show how the phenomena demonstrated are related to car travel. It may also be worthwhile to incorporate into the stand backdrop a poster explaining that the science tricks are relevant to car journeys. This may then encourage the audience members to ask questions about how the science relates to car travel, thereby stimulating a discussion.

The activity appeared to succeed in engaging its primary target audience, bored children on car journeys. It also seemed to interest a range of other groups, including senior citizens on coach trips, service station staff and army cadets. The fact that the *Science in the Fast Lane* event incorporates different types of activity helped it reach different audiences. For example, the 16-24 year-olds who seemed unlikely to take

part in the science tricks were still interested in the quiz. The activities were initially targeted at different age groups, but this was not borne out in those who participated, for example plenty of older audience members were interested in the show, and many children completed the quiz. This indicates that it may not have been sufficiently emphasised that the quiz was aimed at adults. Unfortunately, some of the children who attempted it may have found it discouraging because the questions were above their ability. It would be helpful if there was a message at the top of the quiz sheet explaining that it was aimed at an older age group, or advising children to seek help from an adult.

The generic venue of the service station appeared to work well. Service stations are often dull places, and enjoyable activity was a welcome distraction for travellers. The location of the *Science in the Fast Lane* stand was important. There was a great deal of difference in the number of people who stopped to watch the tricks and complete the quiz when the stand was located at a '*lingering point*' (Exeter), as opposed to a '*thoroughfare point*' (Gordano). The day of the week the event was held on made a difference to the number of people who participated. The service stations are busiest on Fridays and at weekends, as this is when many people choose, or have the opportunity, to travel for recreational (rather than business) purposes.

The *Science in the Fast Lane* website was not considered successful in promoting discussion of issues related to the event. This might have been due to the time of year of the event; many young people may only have internet access at school or college, so would not be able to visit the website during holiday times. Even if young people

have internet access at home, many people who participated in the event were travelling to a holiday destination, where they are unlikely to use a computer.

Generally, the activity appeared to have a high level of cognitive and affective impact on those who engaged with it. By using a generic venue, the project engaged a number of individuals who did not have a pre-existing interest in science, and may therefore be unlikely to attend an event such as Cheltenham Festival of Science.

## *Appendix 7.1*

### Data collection materials

- Interview schedule
- Questions included on quiz sheet

## Science in the Fast Lane – Interview Questionnaire

We are interested in your thoughts about today's event. The interview will take 3-4 minutes and will help us plan future events.

Did you see the show?

Yes

No

What did you think of the *Science in the Fast Lane* show?

Very  
Interesting

Quite  
Interesting

Neither  
Interesting  
nor Boring

Quite  
Boring

Very  
Boring

What did you think about the *length* of the show?

Much Too  
Long

Too  
Long

About  
Right

Too  
Short

Much Too  
Short

What did you think about the *Science* in the show?

Much Too  
Easy

Too  
Easy

About the  
Right Level

Too  
Difficult

Much Too  
Difficult

Did you think the show was a *fun way* to learn some Science?

Strongly  
Agree

Agree

Neither  
Agree nor  
Disagree

Disagree

Strongly  
Disagree

*How much* Science did you learn from the show?

A Lot

Some

A Little

None

How did you *feel* about Science before today?

Really  
Liked

Quite  
Liked

Neither  
Liked nor  
Disliked

Didn't Like  
Much

Really  
Didn't Like

Do you think that today's event has *changed* your attitude towards Science?

Yes

No

If so, in what way and why?

What do you think the *aim* of this event is?

Has the aim been fulfilled?

Yes

No

What did you think of the show and why?

What was your *favourite* part of the show and why?



***Quiz sheet questions***

Age:

Under 25

25-34

35-44

45+

(please state age).....

Sex:

Male

Female

If you picked up a ***goody bag***, what did you think of the activities?

Very Interesting

Interesting

Boring

Very Boring

Please tell us why: