

Manchester Bus Posters

Evaluation Report

Final

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1. Introduction

1.1 Background

To reach a teenage (14 to 17 years old) audience, the Institute of Physics ran a poster campaign using six different designs of poster. The posters appeared on buses and in bus stops around Manchester in October and November 2007. The posters were also published on the Institute's public website www.physics.org

1.2 Posters' objectives

The main messages of the campaign were:

1. Physics is driven by curiosity
2. Physics is accessible to all
3. Physics is in everything around us
4. Physics will help make a difference in the future

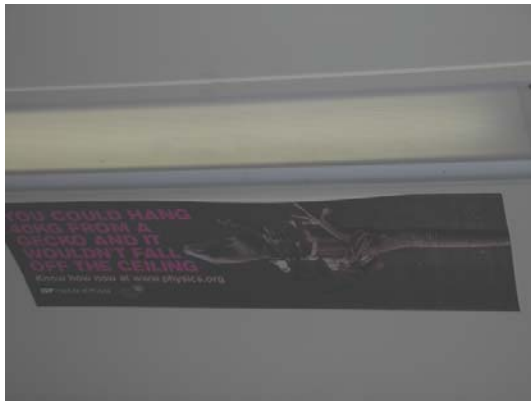
1.3 The scope of this report

This report details the findings of all strands of the evaluation, which assessed the project against its aims. It used a mixture of quantitative and qualitative surveys to address the following questions:

1. Did the project effectively meet its key objectives?
2. What was the cognitive (understanding) and affective (attitudinal) impact of the posters on the target audience (14 to 17 year olds)?
3. How and why did the impacts of the different poster designs differ?
4. Did the posters represent appropriate media for communication of the project messages?
5. What lessons/good practices are there from this project that would be of use to future campaigns/practitioners?

1.4 Examples of posters





2. The Evaluation

2.1 Methodology

There were several strands to the methodology:

In-campaign Bus Survey - The evaluator travelled on buses for six days during the campaign and conducted interviews with people who were in line of sight of the posters both on buses and at and near bus stops and other street sites where the posters were displayed. As many of the interviewees as possible were selected to be in the target 14 to 17 years age group. A total of 142 interviews were conducted on weekdays and Saturdays from 25 to 27 October and 1 to 3 November 2007.

Post-campaign Bus Survey - The evaluator travelled on buses for 2 days after the campaign (30 November and 1 December 2007) and conducted interviews on buses, at bus stops and other places (e.g. near bus stops, other street sites) where people were in line of sight of the posters. As many of the interviewees as possible were selected to be in the target 14 to 17 years age group. A total of 51 interviews were conducted.

On-line survey - An on-line survey was used to obtain additional opinions about the posters from people who visit www.physics.org. The people completing this survey had not necessarily have seen the posters in-situ. A total of 121 on-line surveys were completed.

The subjects for the Bus surveys were self-selecting on the basis of their availability and willingness to speak to the evaluator. It was challenging to find sufficient interviewees in the target age group. The subjects for the on-line survey were self-selecting based on their willingness to complete the survey. All data were collated and entered into spreadsheets for analysis.

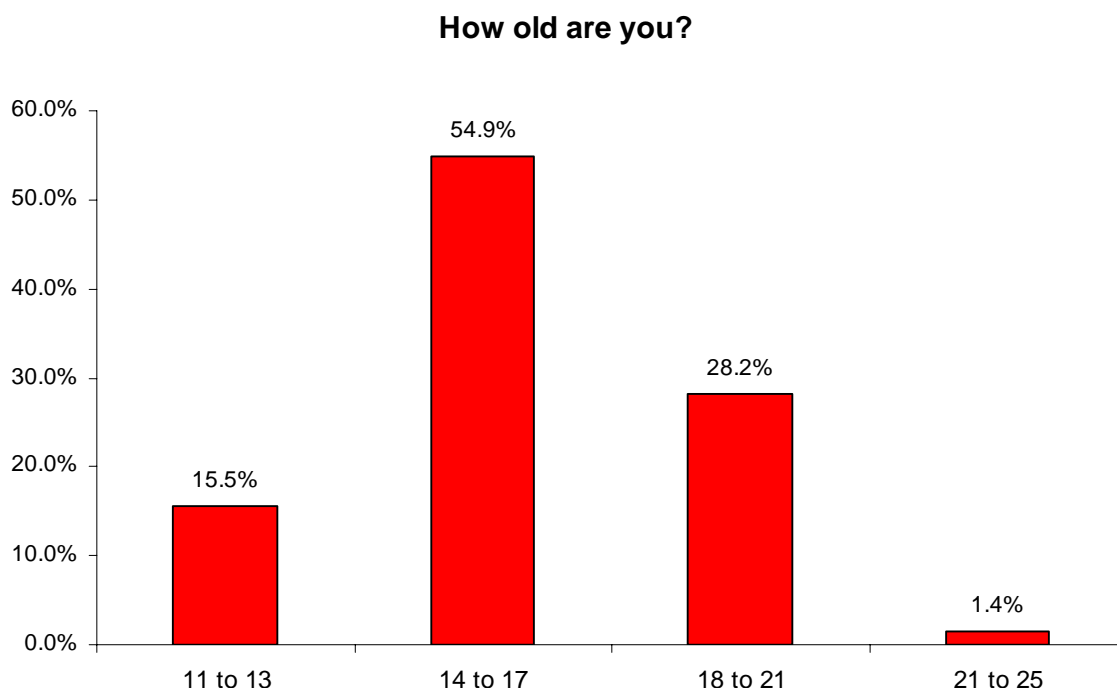
3. Evaluation findings

3.1 In-project survey

This section describes the findings of the surveys conducted during the four-week period when the posters were displayed on buses (c.400 window or ceiling sites) and at 20 bus stops in Manchester.

3.1.1 Age

The sample of 142 was selected randomly from amongst passengers of approximately the target age group sitting in line of sight of the posters. The age distribution within the sample is shown below.



The posters were targeted at 14-17 year olds, which is the predominant age group in the sample. Many of the on-bus posters were found on routes in the University area used by undergraduates. This is reflected in the number of 18 to 21 year olds in the sample.

3.1.2 Gender

Overall, females are slightly better represented in the sample with 80 (56.3%) respondents. The number of male respondents was 62 (43.7%).

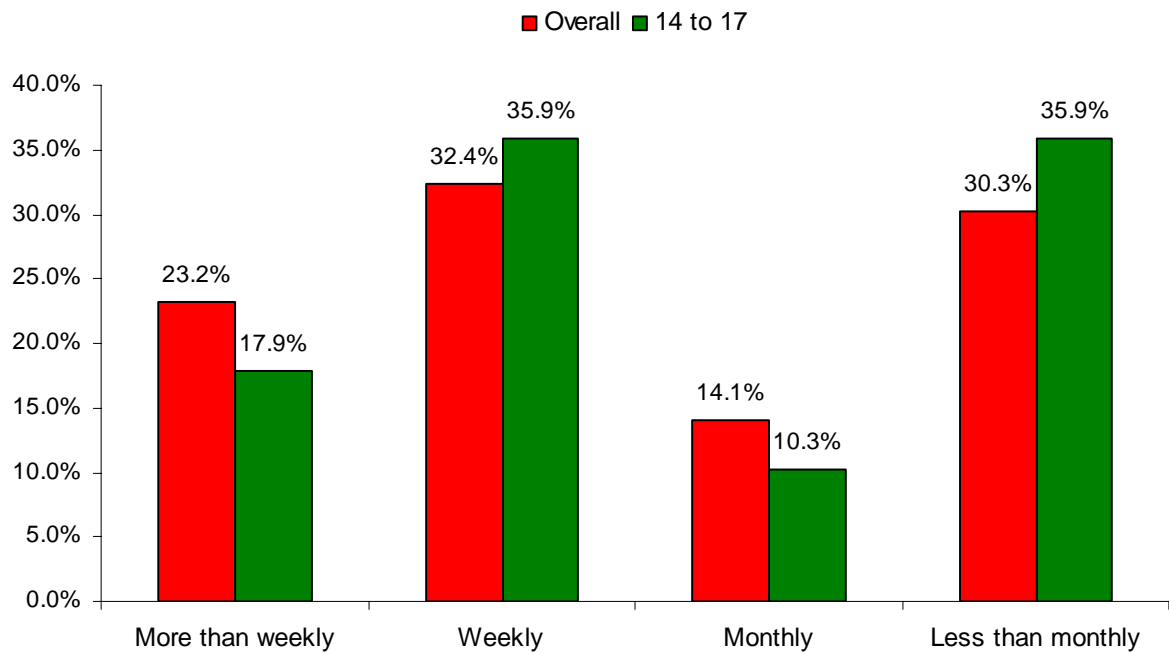
In the target group of 14 to 17 years the balance was more even at 40 females (51.3%) and 38 males (48.7%).

3.1.3 Travel habits

A majority of respondents (69.7%) use public buses monthly or more often. In the target age group the percentage of respondents using buses monthly or more often was slightly lower at 64.1%. It should be noted that those interviewed in sight of posters at bus stops or tram stops need not necessarily have been bus users, which could partly account for the significant number who use buses less than monthly.

The following graph compares the overall responses with those in the target group.

Travel Habits (Overall n=142 and Target Group n=78)



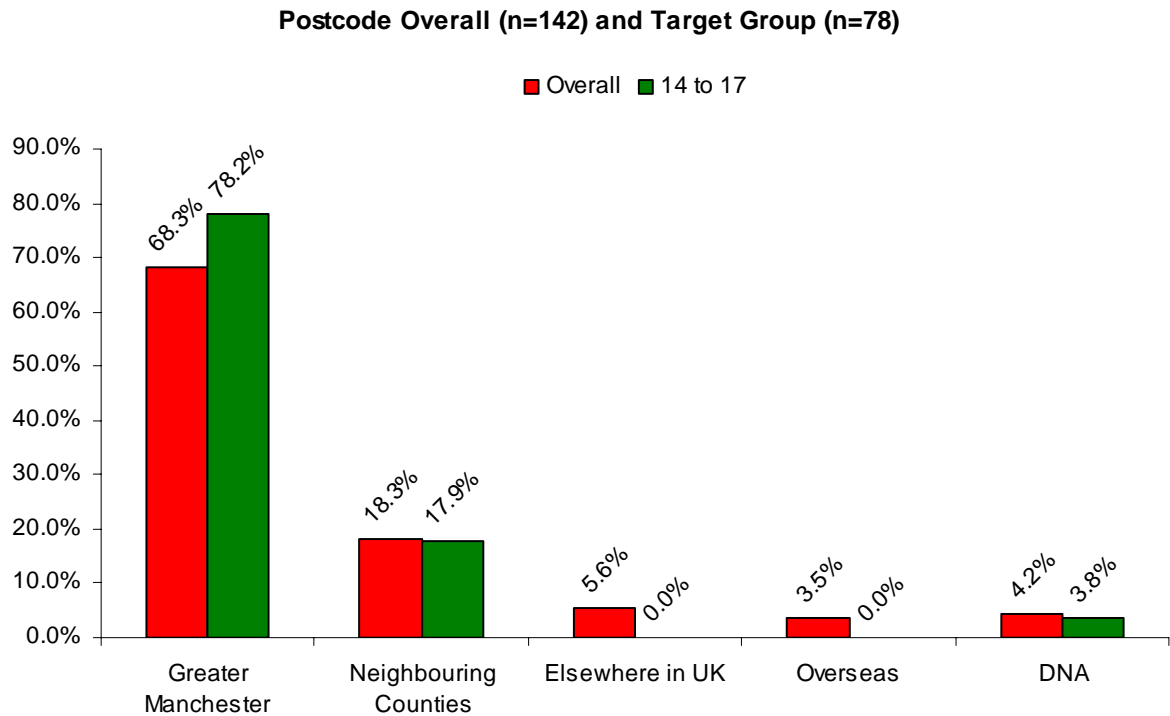
Respondents were asked to explain their answers. The most common reasons are shown below.

Most Common Explanations for Travel Habits

Frequency of travel	Overall	14 to 17 Group
> weekly	<ul style="list-style-type: none"> • University • College 	<ul style="list-style-type: none"> • School • Hobby (e.g. sport, music or dance class)
Weekly	<ul style="list-style-type: none"> • Shopping • College 	<ul style="list-style-type: none"> • Meet friends • Visit city centre
Monthly	<ul style="list-style-type: none"> • Shopping • Visit friends 	<ul style="list-style-type: none"> • Meet friends • Go shopping in city centre
< monthly	<ul style="list-style-type: none"> • I prefer the tram/train • I don't need to use buses more often 	<ul style="list-style-type: none"> • I don't like buses (too scruffy, old) • I get lifts

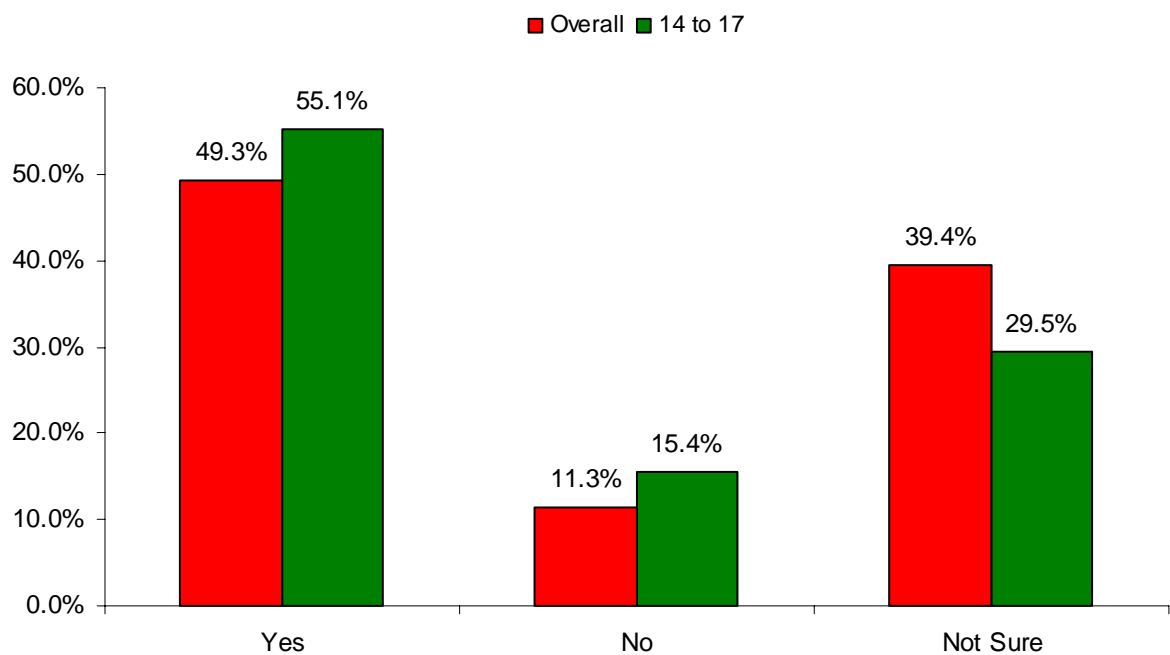
3.1.4 Home location

Most respondents (68.3%) had a Greater Manchester post code. The most common post codes both overall and in the target age group (78.2%) were M20, SK4 and M23. None of the respondents in the target group who gave their postcode came from outside Greater Manchester or neighbouring counties.



3.1.5 Attitude towards science

Do you like science? (overall n=142, target group n=78)

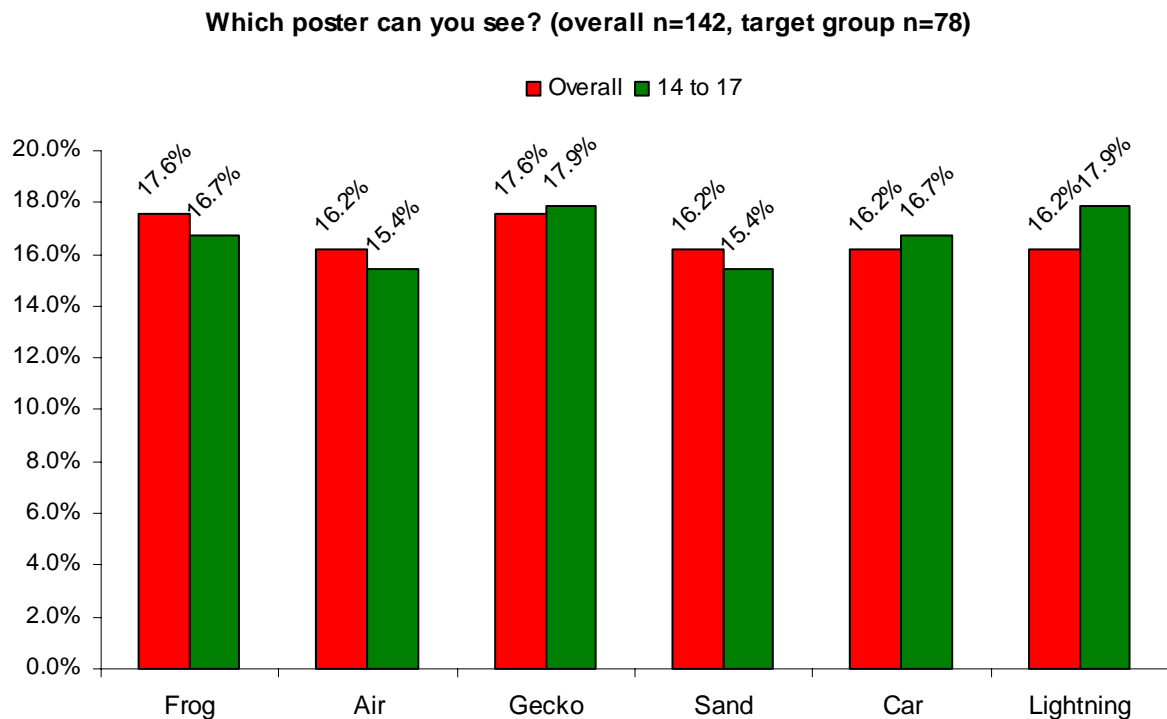


Of the whole sample, 49.3% said they liked science. This figure was 55.1% in the target age group. The most common reasons for this given by the target age group included 'It is interesting'; 'I like doing experiments'; and 'It is ever-changing, unlike some subjects'.

Most of the respondents within the target age group who answered 'not sure' said it was because only some parts of science were interesting and/or enjoyable. When prompted, they variously described their less-favoured parts of science as 'boring', 'confusing' or 'too much about theory'.

Those respondents who answered no said it was because science is 'boring' or too difficult to understand'.

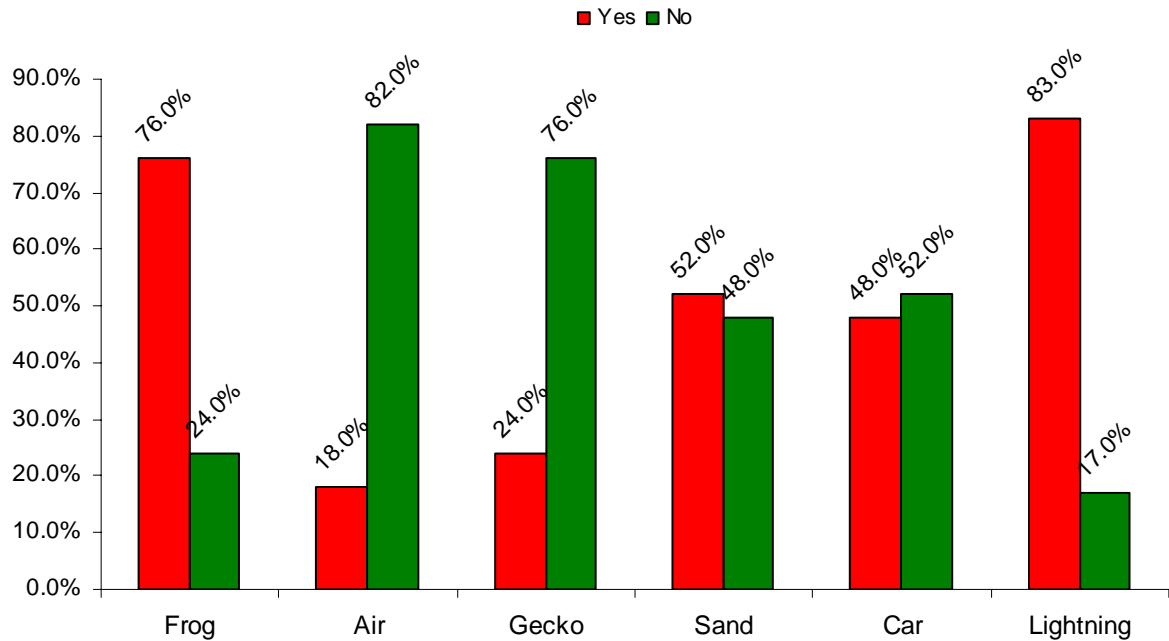
3.1.6 Which poster?



In cases where respondents could see more than one poster (e.g. where there were two or more different designs on the windows of one bus), only the design of the nearest poster was used for the survey. Both overall and within the target group, the respondents viewing each design were well balanced in terms of numbers and gender.

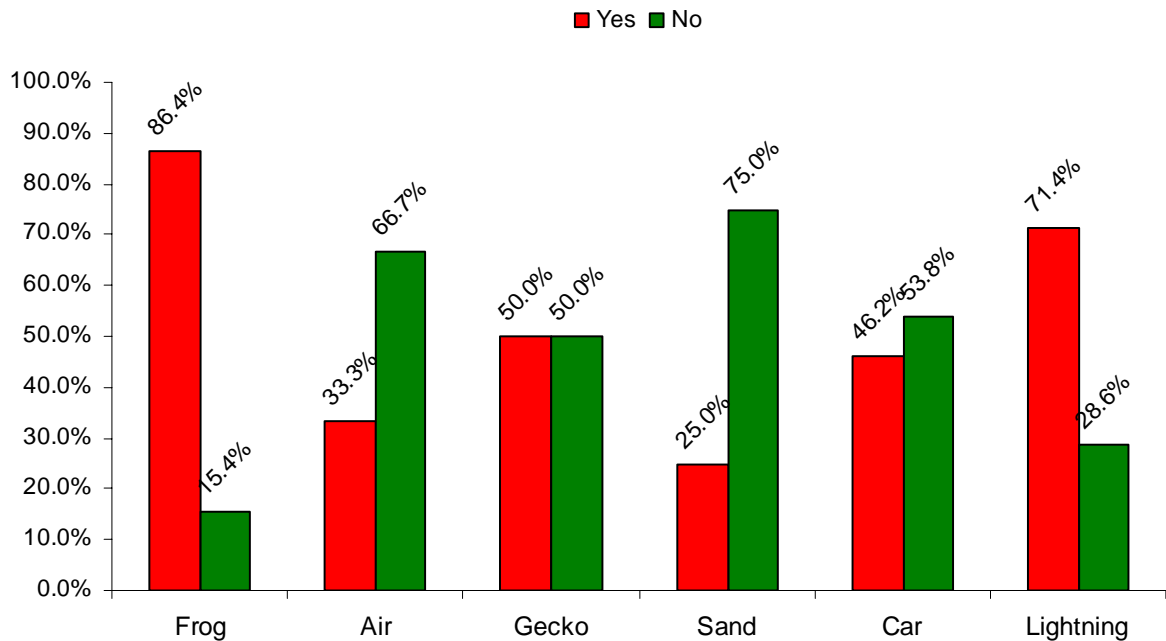
3.1.7 Approval of posters

Is there anything you like about this poster? (overall n=142)



Overall, the most popular design was Lightning, with 83.0% of respondents who saw that poster liking some aspect of it. The least popular was Air, with 18.0% approving. The response was split towards Sand and Car. The Car design was more liked by males and the Frog design was more liked by females. In all other cases there was no difference in the responses from different genders.

Is there anything you like about this poster? (target group n=78)



Within the target group the most popular design was Frog, with 86% of respondents liking something about it. The least popular was Sand, with 25% approving. The response was split equally towards 'Gecko'. In this case, typical qualifying statements for not liking this design were 'it is dull-looking'; 'it would be better if the colours were brighter'. The main reason for

liking this design was the fact it described, with typical comments being 'Its really interesting' and 'it made me think'. The Car design was more popular with males than females. In all other cases there was no difference in the responses of different gender.

3.1.8 Popular and unpopular aspects of posters

Reactions to particular posters designs showed a great deal of variance. This section describes the most liked and least liked aspects of each design. Respondents were asked to indicate which of the following aspects they liked least or most: the picture, the fact, the graphics, nothing or other (which they were asked to explain).

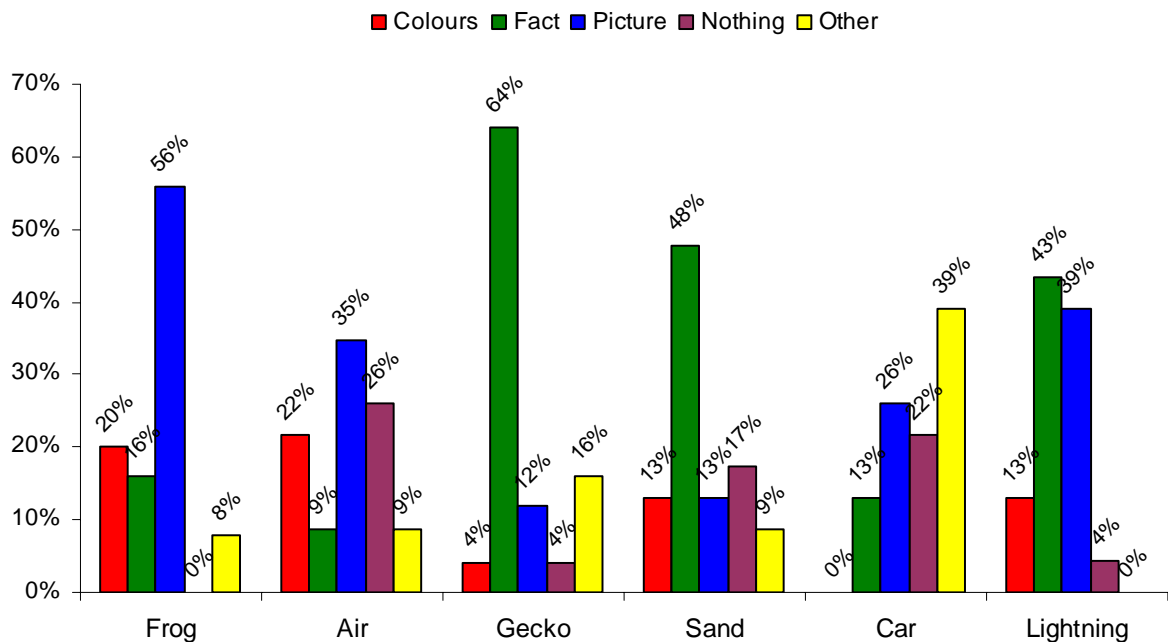
3.1.8.1 Popular Aspects

The following graph shows the total sample's answers to the question 'what do you like most about this poster'. The percentages are calculated from the numbers of respondents for each design which in the overall sample were:

- Frog n=25
- Air n=23
- Gecko n=25
- Sand n=23
- Car n=23
- Lightning n=23

For example, 14 respondents (56% of 25) chose the picture as their most liked aspect of the 'Frog' design.

What do you like most about this poster? (overall n=142)



Overall responses indicated that the Frog design was the only one where 'nothing' was not selected as the most liked aspect, i.e. every respondent found something to like about this design poster.

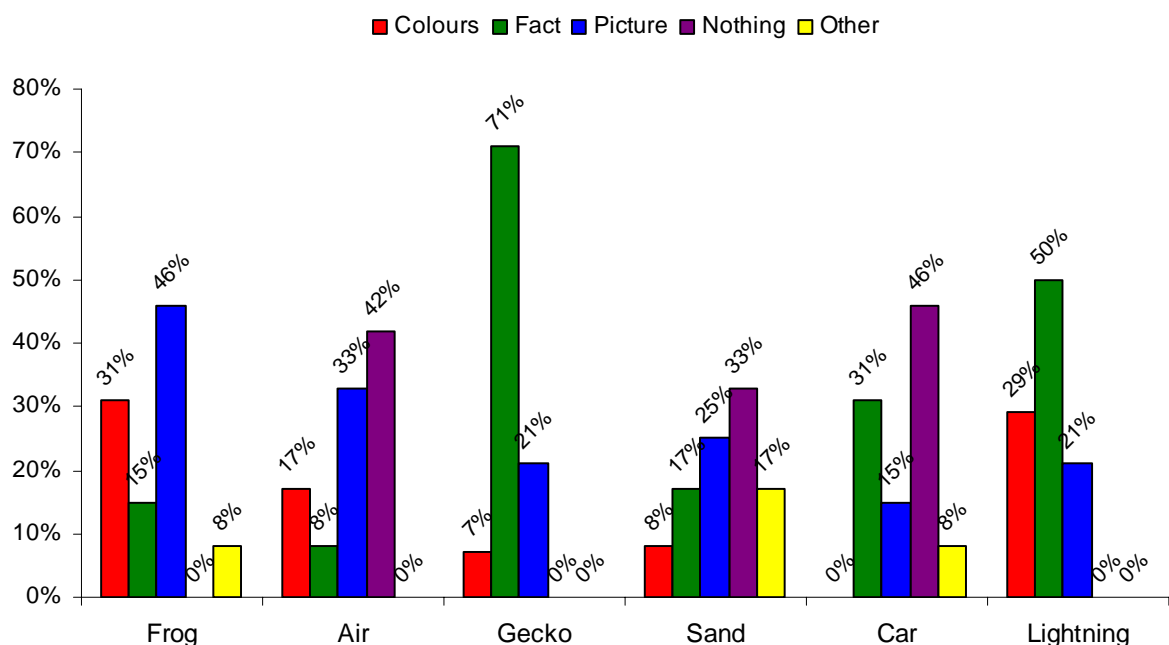
Opinions were most divided about the Air and Car designs. In the case of the Car design only females indicated that they found 'nothing' to like about the design. Respondents indicated that the most common 'other' aspect to like about the Car design was the fact it was about 'cars' or 'computers or computing'.

The fact was the most popular aspect for three designs – Gecko, Sand and Lightning.

The following graph shows the target age group's answers to the question 'what do you like most about this poster'. The percentages are calculated from the numbers of respondents for each design which in the overall sample were:

- Frog n=13
- Air n=12
- Gecko n=14
- Sand n=12
- Car n=13
- Lightning n=14

What do you like most about this poster? (target group n=78)



For Frog, Gecko and Lightning, every respondent in the target age group indicated that they found some aspect to like about the posters. Some respondents in the target age group indicated that there was 'nothing' that they liked about three of the designs: Air, Sand and Car. In all three cases this was the most common response.

For the Car design, all the target age group respondents who responded 'nothing' were female and all those who indicated that the 'fact' was their most-liked aspect were male. For all other cases there were no gender differences.

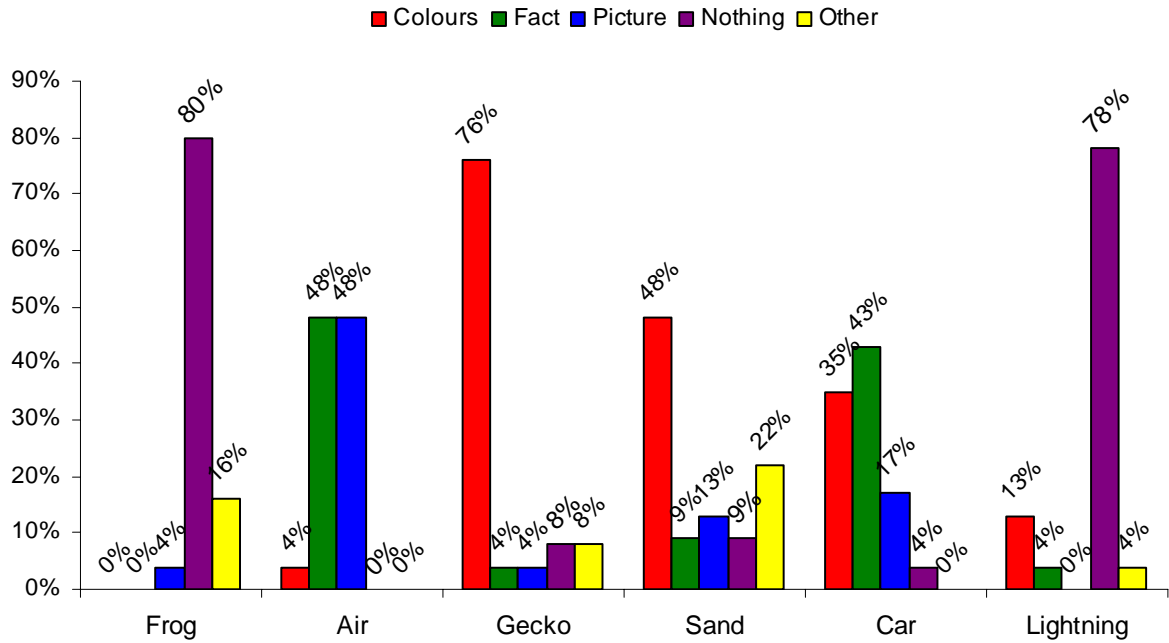
For two of the designs – Gecko and Lightning – respondents in the target age group indicated that the 'fact' was the most liked aspect. The reasons given differed, with 'a cool fact' or 'it made me think' the most common reason given for Gecko and 'its about something everyday' or 'everyone makes toast and will like this design' given for Lightning.

For the Frog design, target age group respondents selected 'picture' as the most popular aspect, which may reflect the bright, eye-catching nature of that particular design.

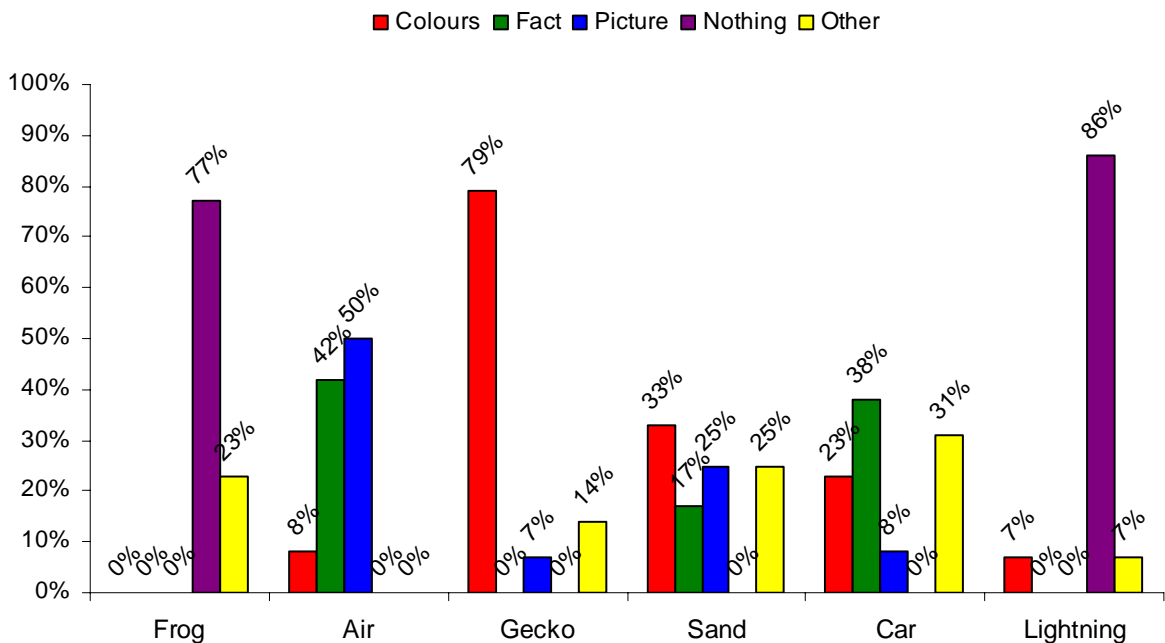
3.1.8.2 Unpopular Aspects

The following graphs show the overall sample and target age group's answers to the question 'what do you like least about this poster'. The percentages are calculated from the numbers of respondents for each design which are the same as in the previous section.

What do you like least about this poster? (overall n=142)



What do you like least about this poster? (target group n=78)



The overall and target age group responses about the least popular aspects of posters reflect the responses to the most popular aspects, with both the Car and Sand designs having the highest number of aspects that were disliked. The Frog design was universally popular, especially within the target group.

The 'other' reasons given by the target age group for disliking the Frog design were 'I don't like frogs' and 'the black graphics are boring'.

The reasons given by the target age group for disliking the Lightning design related to the colour of the toaster and the frightening and destructive nature of lightning.

3.1.9 Target Age Group Comments about Different Designs

Frog

The picture for Frog was the most-liked aspect, with comments such as 'It is bright and colourful'; 'It grabs your attention'; 'I like the colourful picture and background'; and 'I laughed when I read it'. The most common response for the least liked aspect of this poster was 'Nothing'. Some respondents cited the graphics as least liked, all saying that 'black is boring' or 'they should be red'.

Air

The picture was both the most and least liked (joint with the fact) aspect of this poster. Respondents who said they liked the picture most made comments such as 'I like how the people are wearing what looks like cars as clothes' and 'It's weird picture which made me look at it'. Those who disliked the picture commented 'The picture is odd'; 'They look strange'; 'It's not funny'. The fact was commonly described as 'Difficult to understand' or 'Not very clear'.

Gecko

The fact was the most liked aspect of this poster. Comments included 'It is interesting'; 'I'd like to try that with a Gecko'; and 'It makes you stop and think'. There were also a number of respondents who said 'Nothing' was their most liked aspect. The picture was by some margin the least liked aspect of this poster with comments such as 'The colours are dull'; 'The picture is boring'; 'It does not stand out or grab your attention'.

Sand

The fact was the most liked aspect of this poster. Comments included 'It grabs attention'; 'It was something I did not know before'; 'I can use this fact in school'. The most common response for the least liked aspect was 'Nothing'. However some respondents cited the picture describing it as 'a bit dull' or 'not very exciting'.

N.B. Several commentators on science communication have questioned whether space has the same appeal to younger generations who did not witness the 'space race' or 'Star Wars'.

Car

This poster drew the most mixed response. The fact was marginally the least liked aspect, with comments ranging from 'Not interesting' to 'Cars – Yuk'. 'Nothing' was the most popular liked aspect. However those who said they liked something about the poster referenced the fact that they like cars.

Lightning

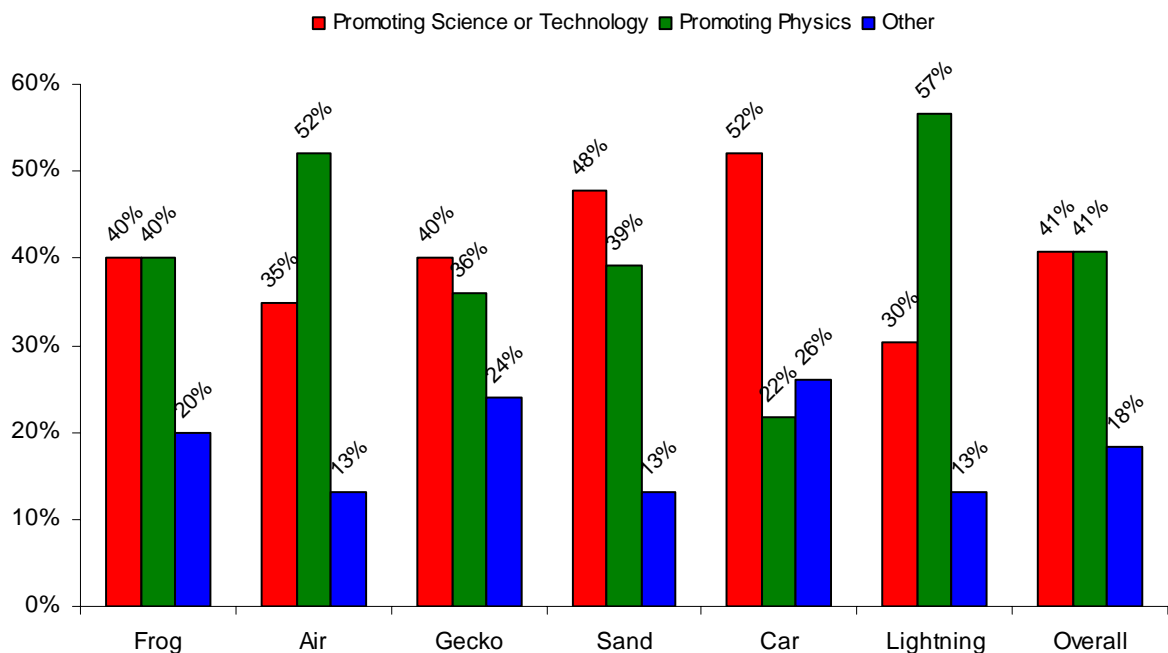
The poster was liked by most respondents, with 'Nothing' being the most common least liked aspect. Respondents were divided as to which aspect they liked most. Those who liked the fact best described it as 'Fun'; 'Relevant to me – I like toast'; and 'Something everyone would be interested in'. Those who liked the picture said 'It is colourful'; 'I love the toaster'; 'It stands out because of the colour of the toaster and the pink'.

The most common 'other' responses given for the least liked aspect of all the posters mentioned that the posters were 'peeling off' or 'looked scruffy because the corners are peeling back'. This only occurred on buses (see pictures below).



3.1.10 Interpretation of posters

What is the message of this poster? (overall n=142)

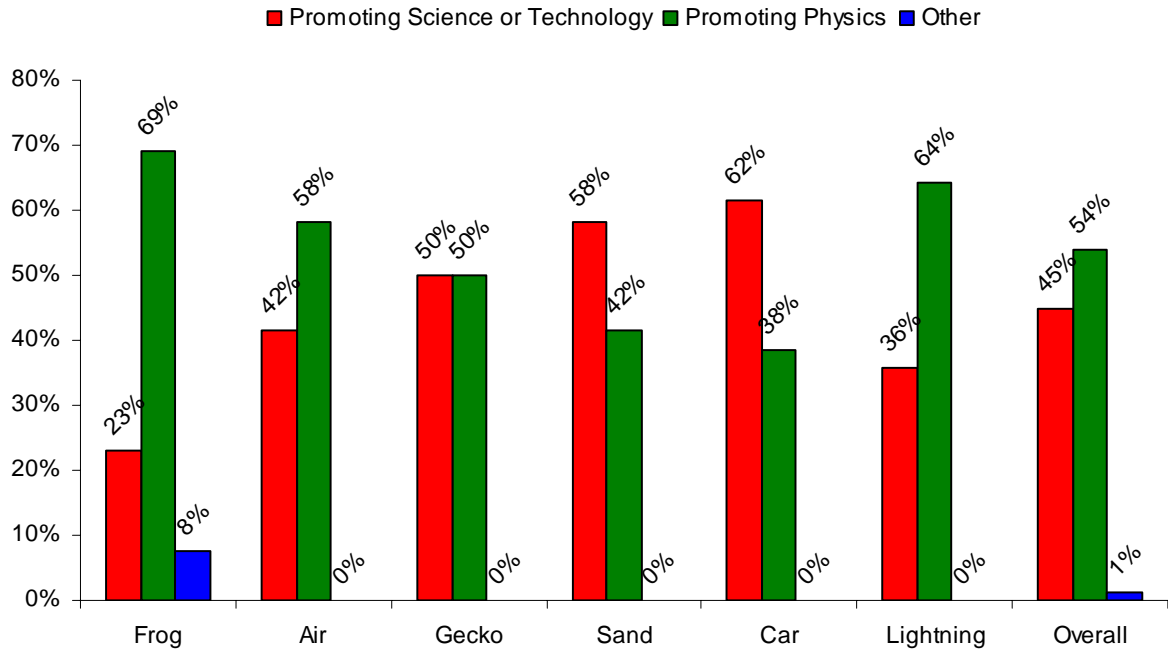


Overall, 41% of respondents thought that the posters were promoting Science and Technology and 41% thought they were promoting physics. Many of the responses in the 'Science or Technology' category referred to the Science Festival logo on the posters. Similarly many in the 'Physics' category mentioned the Institute of Physics logo i.e. the presence of the words 'science' and 'physics' on the posters appear to have influenced respondents.

The Car and Sand designs were the most successful at promoting Science or Technology. The Air and Lightning posters were the most successful at promoting Physics.

The high level of responses in the 'Other' category for Car may reflect the mixed response to this design which is referred to in section 3.1.8 above. Almost all of the responses in the 'Other' category were references to cars and the advances made in car technology.

What is the message? (target age group n=78)



In the target age group, 54% of respondents thought the posters were promoting Physics and 45% thought they were promoting science or technology. The individual who responded 'other' for the Frog design answered 'promoting cruelty to frogs'.

Frog and Lightning were the most successful design at promoting physics with 69% and 64% ratings respectively. They were also the most popular designs within the target age group (see section 3.1.8).

Car and Sand were the least successful at promoting physics to the target group (42% and 38% respectively). They also met with the most mixed response from the target group in terms of their likes and dislikes.

3.1.11 Target Age Group Respondents Thoughts about Physics

When time allowed, a number (22) of survey respondents aged 14 to 17 were asked what they understand about Physics. This seemed to be a difficult question for them to answer and so they were prompted by asking what would make it easier for them to define Physics. Many of their observations referred to how Physics is taught at school. A representative sample of their comments is given below.

What is physics?:

'Physics is about forces and matter.'

"Physics is about what things are made of."

"It is about stuff and how it reacts in different ways."

"I think it is about matter and what everything in the world is made of."

'It is very difficult to say exactly what physics is. It is the science of stuff.'

'It is the most difficult science to understand. I can't really say what it is – perhaps it's about what everything is made of.'

'Everything we do is about physics, but I can't really say what it is.'

What would make it easier for you to define physics?:

'Physics has an image problem. It needs better methods of teaching - instead of copying from text books. With a better image I'd be more interested in working out what it is about'.

'If physics was more noticeably relevant to everyday life, and there were more obvious careers in physics, I would have more interest in it'.

'Physics needs more funny pictures and pieces of writing. It is incredibly complicated so making it funny makes it easier to understand.'

'We need to do more hands-on things to understand what physics is.'

'You need to make us understand how physics has an impact and effect on our lives. Then we could tell you what it means.'

'I like the idea of posters – you should send them to schools as we could use them in classes.'

'Physics must be made less about writing and more about doing experiments if you want us to like it.'

'You should advertise physics on television to help us understand and enjoy it.'

'How about a good magazine about physics in everyday life to help us know what it is and does. I can't explain it and I do it at school.'

'Come to our school and tell us what physics is using fun facts and everyday life.'

'You should take a person through a whole day and tell them how physics affects everything they do in that day. Then we might understand. It could be a good TV programme.'

'We need more experiments to make work at school more fun.'

'The poster is good, but it does not say what physics is. You should explain that as well as try and say what it does.'

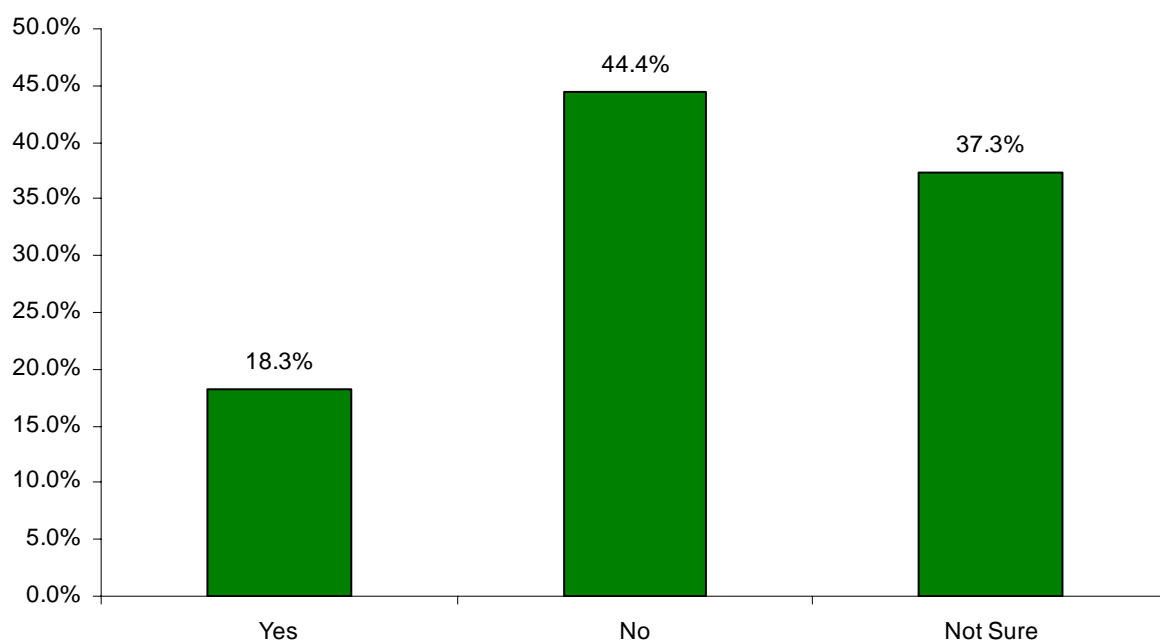
'Physics is hard to explain. It is too difficult to do in a few words on one poster.'

3.2 Website activity

3.2.1 Response to posters

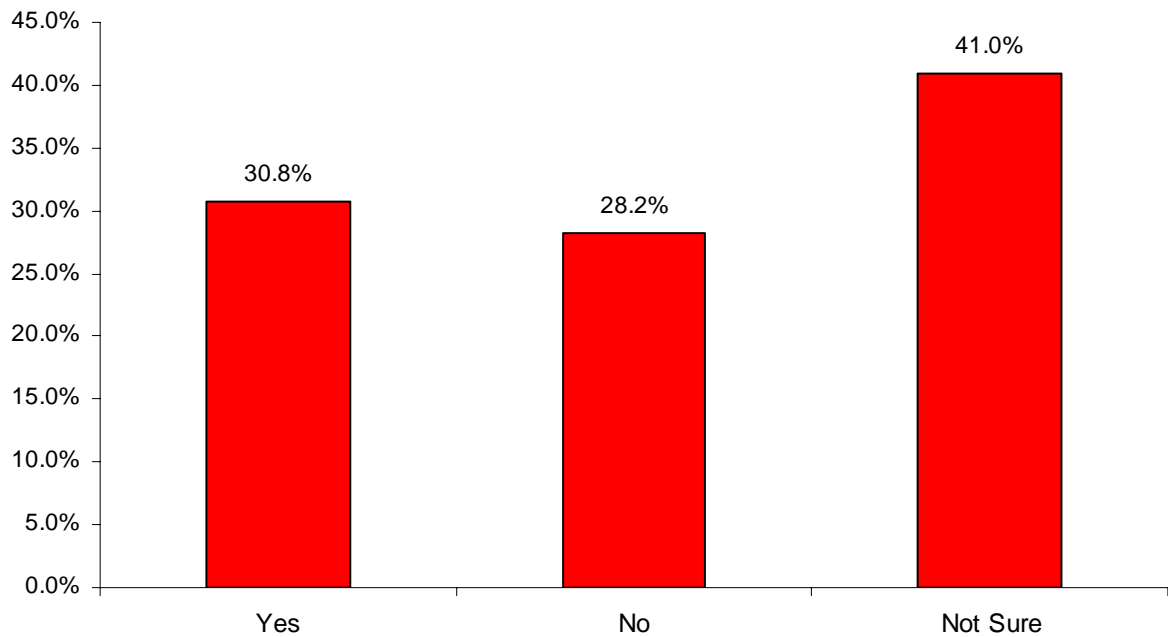
Respondents to the in-project survey were asked if, as a result of seeing a poster, they would visit the Institute of Physics public website physics.org

Would you visit physics.org? (overall n=142)



26 respondents said they definitely would visit the website. A majority of respondents answered 'No' or 'Not sure'. The most common reason given for answering no was 'not interested' or 'I would forget the website address'. Not remembering the website was also the most common reason given for answering 'not sure' with many respondents saying they could want to look at the site but might forget the address by the time they got off the bus.

Would you visit physics.org? (target group n=78)



Of the 26 respondents who said they would visit the website, 24 (96% of those who said yes) were in the target age group. The most common reason given by respondents in the target age group for answering 'not sure' was relevance to homework or school project, with the implication being that the site would be used if the respondents thought it would help with their school work.

3.2.2 Website survey

A short survey ran on physics.org throughout the period of the poster campaign and in the following weeks. A total of 121 people completed the survey. They were asked why they were visiting the site and 9 respondents (7.4%) indicated it was because they had seen the posters on buses or at bus stops.

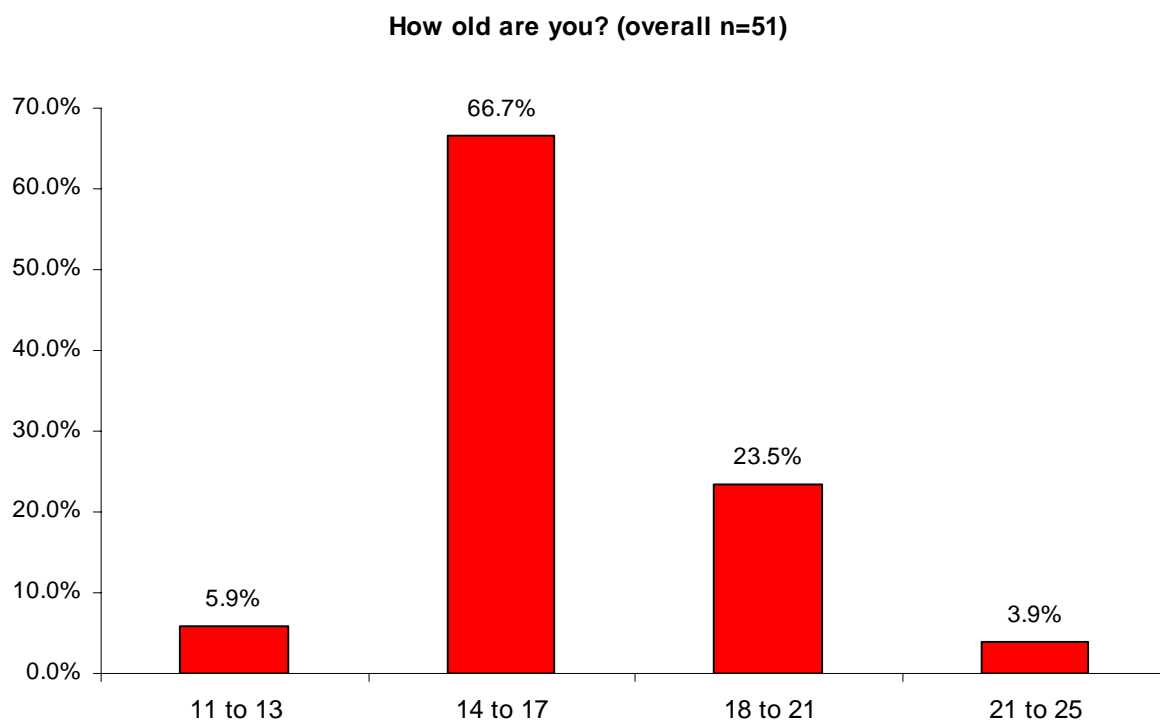
A majority of respondents (44, 36.4%) had found the site through StumbleUpon, a webbrowser plug-in that allows users to 'stumble upon' sites based on their interests. Thirty respondents (24.8%) had previously visited physics.org

Three of the respondents who had seen the posters were aged under 18 i.e. were in the target age group. The remainder were aged over 36. Eight respondents indicated the first part of their postcodes. Seven were located in Greater Manchester and one in Hampshire.

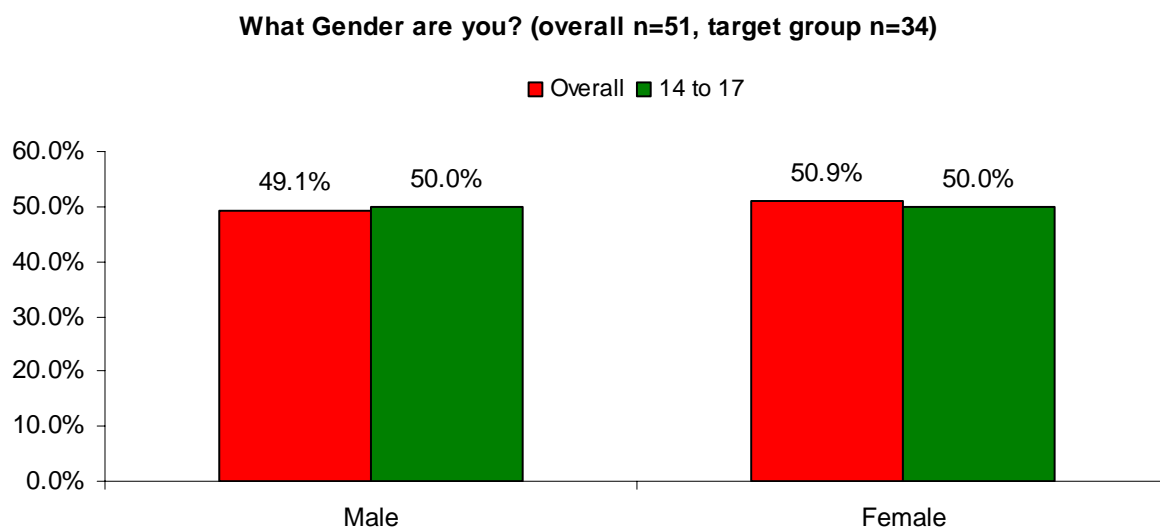
3.3 Post-project survey

3.3.1 Age

The dominant age group in the survey sample was the target of 14 to 17 year olds. 34 out of 51 respondents (66.7%) were in the target age group.



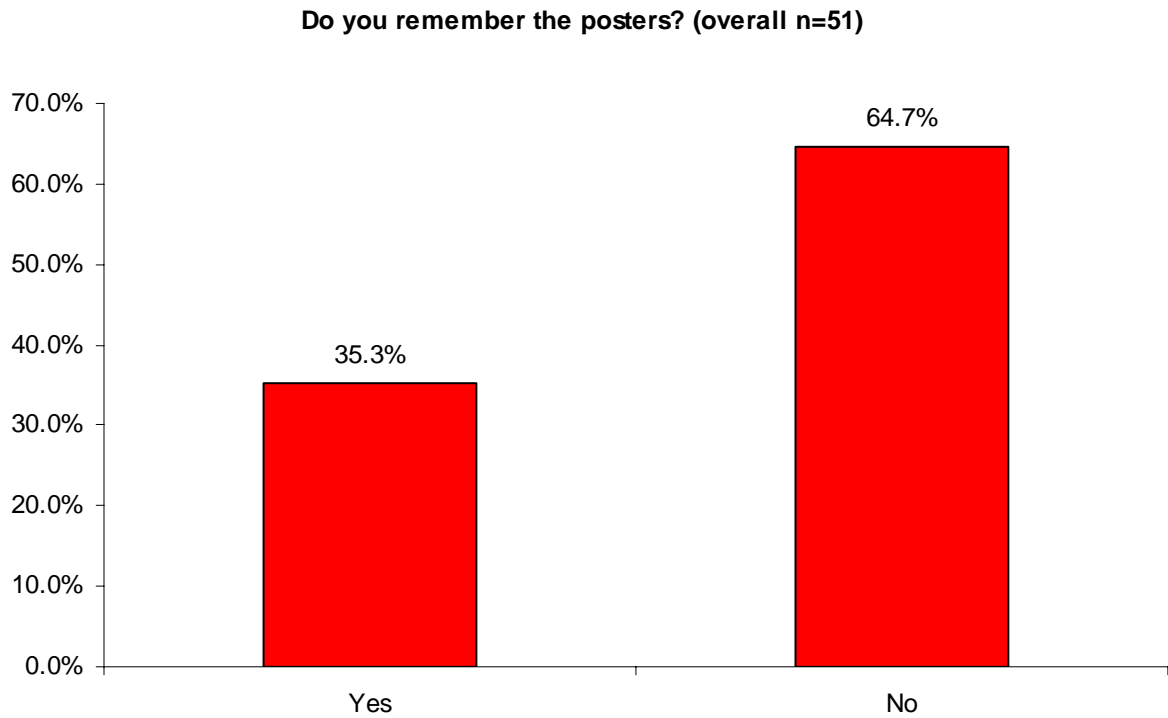
3.3.2 Gender



In the target age group the genders of respondents were equally balanced with 17 males and 17 females.

3.3.3 Memory of posters

Respondents were asked if they remembered the posters. A printed sheet showing photographs of all six designs was used as a prompt. In the overall sample, a majority of respondents (64.7% of the post-campaign survey sample of 51) did not remember the posters. When asked why they thought this might be, the most common response was 'I don't look at posters on buses – they are boring'. Another popular comment was 'The exciting posters for films and DVDs are on the outsides of buses'. In reference to the posters at bus stops several respondents said the city centre is very busy and congested making it difficult for the posters to stand out and be noticed.

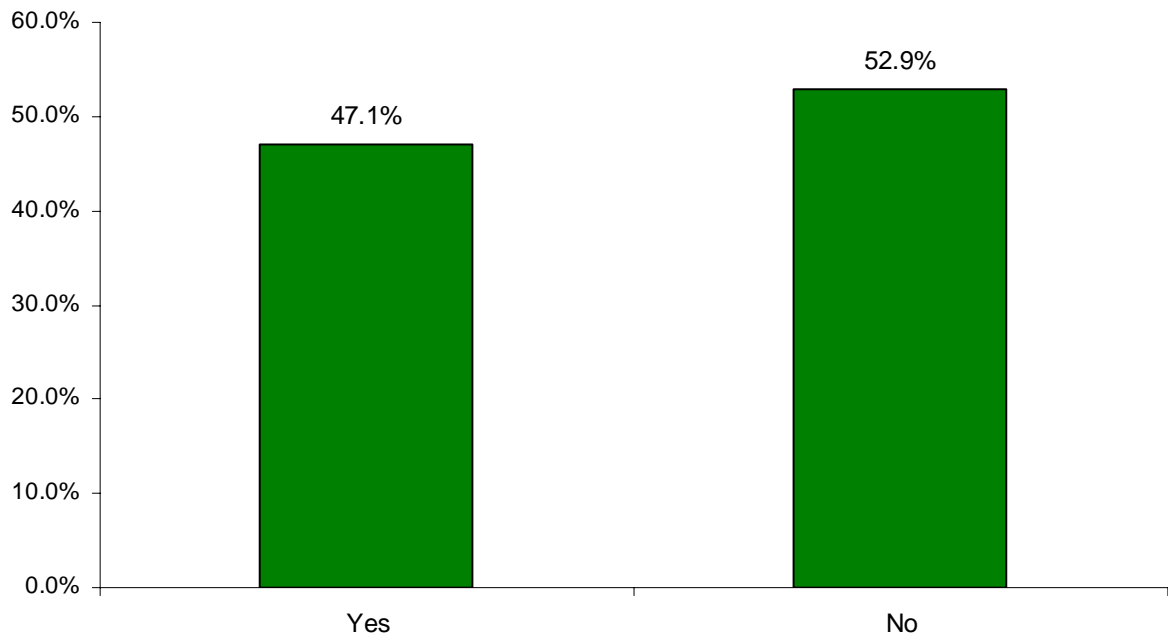


The 18 respondents (35.3% of the overall post-campaign sample) who remembered the posters mentioned four designs – Frog, Sand, Gecko and Lightning. These are the designs that met with the highest approval ratings during the in-project survey – see section 3.1.8.

Everyone who remembered the posters said they recalled something about the facts as well as remembering what the poster looked like. Thirteen said they liked science anyway and 12 said they had told a friend or teacher about the posters.

16 of the 18 respondents (89% of those who said yes they remembered the posters) were in the target age group.

Do you remember the posters? (target group n=34)



Memory of the posters was greater in the target age group, with 16 respondents (47.1% of the target age group post-campaign sample) recalling the posters. The Frog, Gecko, Car and Lightning designs were mentioned specifically.

Three respondents said the posters should be up for a longer time period to help people remember them. They were of the opinion that longer exposure would help their recall.

12 respondents suggested the posters should be put in other places to help reinforce the message. Suggestions included cinemas, shops and cafes. 8 respondents said it would be good if the subject could be matched to locations e.g. the Lightning poster in a cafe or the Car poster in the cinema when a car film was being screened.

3.3.4 Visits to website

Three (5.9%) of the post-project respondents said they had already visited the website. Sixteen (31.4%) said they definitely would or might visit in the future, with the main reason being to help with homework or school projects. The most common response from the 15 (29.4%) respondents who said they would not visit was a lack of interest in the subject.

The three respondents who had visited the site were all in the target age group as were the majority (13, 81% of those who indicated they would visit) who said they intended to visit in the future.

The comments of the respondents who had visited the site are given below. It should be noted that these are likely to be positive as the respondents were sufficiently interested to visit and explore the site.

(Male aged 15) "I wanted to find out more. I liked looking further and the fact there was more to read which would help with my school work. The posters should say that if you visit the site you'll find stuff to help you with school work. The experiments to do yourself were also good."

(Female aged 14) "The website is good because it is filled with lots of colours and simple options to choose from. It is not too confusing. It gives basic facts that relate to the pictures. The text was broken into chunks which made it easier to spot what you're interested in."

(Male aged 14) "The information on some of the links was a bit long and I lost interest. The site was well designed and easy to use and the posters were well designed. Even though they were about science they got my attention."

4. Conclusions

- The target audience for the posters was represented on buses and at or near to the bus stops and other street sites chosen for the posters. The evaluator observed more 18 to 21 year olds than 14 to 17 year olds but was able to identify sufficient interviewees in the target age group.
- 11% of interviewees during the project said they did not like science, with a majority of 49% indicating that they did like it or were unsure. In the latter case this was usually because they liked only certain parts of science. In the target age group the percentage liking science was higher at 55%.
- The majority in-project survey respondents came from three postcodes in greater Manchester – M20, SK4 and M23. M20 and SK4 are described by the National Office of Statistics as having 'higher than average proportions of degree educated people' at 43.6% and 30.2% respectively.
- Two poster designs – Frog and Lightning – received the highest overall approval rating with 76% and 83% of those who saw these posters indicating there was something they liked about the designs. These were also the most popular designs in the target age group with 86% and 71% find some aspect to like about Frog and Lightning respectively.
- Overall, the most attractive feature of each poster varied across the designs. The 'fact' was selected as the most popular feature for Gecko, Sand and Lightning. The 'picture' was selected as the most popular feature for Frog, Air and Car. When 'picture' was chosen, bright or attractive colours were given as reasons. Only one design – Gecko – recorded responses of 'Nothing' as the most liked feature. In the target age group the 'fact' was the most liked feature of Gecko and Lightning; the picture was the most liked aspect of Frog; and nothing was most popular for Air, Sand and Car.
- The least attractive aspects of the posters referred to lack of excitement or dull colours. In one case – Air – the picture was found by some respondents to be difficult to understand.
- The Car design met with the most mixed response, with many respondents citing their like or dislike of cars as the reason for their response.
- Respondents in the target age group were generally most positive towards the posters, with higher percentages than overall indicating that they understood that the posters were communicating physics.
- Overall 82% of respondents thought the posters were 'promoting science and technology' or 'promoting physics'. The Lightning and Air designs were thought most likely to be 'promoting physics'. Only one respondent in the target age group thought the posters were doing something other than promoting physics or science and technology. The target group thought the Frog and Lightning designs were thought most likely by the target age group to be 'promoting physics'.

- Respondents in the target age group found it difficult to say what they understand about physics. There were many suggestions about how to make it more interesting or relevant to everyday life. The posters were considered to have helped in the latter respect.
- Post-project recall of the posters was greater in the target age group than in the overall sample, with 88% of those who recalled the posters being in that age group. In the overall sample, the Frog, Gecko, Sand and Lightning designs were mentioned specifically. Respondents in the target group and overall sample suggested that the posters should be put in other places to help reinforce the message. Suggestions included cinemas, shops and cafes.
- The posters did attract visitors to physics.org including some in the target 14 to 17 age group. The majority of visitors to the site during the period of the survey were introduced to it via StumbleUpon. Several respondents to the in project survey indicated that they would not remember the website address even if they wanted to visit it. Respondents in the target age group commented positively about the website.
- Respondents in the target age group had visited physics.org meaning the campaign had been effective in achieving this aim. Those who has visited the site commented positively about it.

The campaign can be said to be partly successful in achieving its messages:

- Physics is driven by curiosity
- Physics is accessible to all
- Physics is in everything around us
- Physics will help make a difference in the future

The first three messages have been communicated by the posters as evidenced by the fact they were mentioned by respondents. No respondents mentioned physics making a difference in the future.

5. Recommendations

Consider repeating the poster campaign with the following enhancements:

- Piloting within the target age group to determine the most effective designs and locations for posters. It may be possible to create a greater impact with fewer designs in a wider range of locations.
- Extending geographic coverage to increase impact out side the immediate area. This particularly important as the target age group is not particularly mobile.
- Placing posters in other environments visited by the target age group during their leisure time, e.g. shops, cafes, cinemas
- Actively stating messages about physics and the future on posters if this is an important message.
- Informing teachers that a poster campaign is running so that they can encourage students to look for posters/ and or incorporate the posters into lessons.