



GraphicScience

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BBSRC Great British Bioscience Festival Evaluation

January 2015

Executive summary

“British scientists are great!! Thank you for bringing the festival to Bethnal Green. All of us had a great time. Please come every year!! Asif (35) Jakiko (38) Aska(8) Rumi (4)”

Visitor postcard feedback

The Great British Bioscience Festival was a bustling, energetic event that was very much appreciated by its local audience.

Its location in Bethnal Green was effective in engaging with a new audience in an area with high levels of social and economic deprivation and the event revealed a considerable appetite for this type of activity.

Visitors left feeling engaged and enthused by bioscience, with new knowledge and a greater understanding of science and how science works. They also left with a greater awareness of BBSRC.

Researchers exhibiting at the festival reported an uplifting experience that improved their communication skills, made them more interested in public engagement and reinvigorated them regarding the value of their own work.

The Great British Bioscience Festival has shown a clear desire for high quality engagement with contemporary bioscience and researchers for groups who are typically underserved by this type of opportunity. These groups are often seen as a difficult to engage with, but the festival has demonstrated a successful way of doing so.

Both researchers and visitors would like to be offered more frequent opportunities of this kind.

As one visitor put it:

“3 days in 20 years is not enough, we want to learn more.

Thank you!

Alicia”

Visitor postcard feedback

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Introduction

The Great British Bioscience Festival took place between 14th and 16th November 2014 in Bethnal Green, East London as an event to mark BBSRC's 20th anniversary. It comprised exhibition stands from 19 different research groups representing the breadth of BBSRC-funded bioscience research.

The festival's aims and objectives were:

- Aim: To overcome barriers to access to contemporary bioscience and scientists for underserved audiences
 - Objective: Run a 3-day festival in Tower Hamlets involving researchers from 19 different research groups
 - Objective: Achieve visitor numbers of at least 500/day, including at least 500 school pupils on the first day of the festival
 - Objective: Host approximately even numbers of primary and secondary school visitors
 - Objective: Host more than half of adult and family visitors from Tower Hamlets and neighbouring boroughs
 - Objective: Reflect the ethnic diversity of Tower Hamlets in visitors attending
- Aim: To generate support for biosciences
 - Objective: Visitors understand the reasons for the festival taking place
 - Objective: Visitors experience positive engagement with researchers
 - Objective: Visitors experience positive engagement with the activities at the exhibition
 - Objective: Visitors demonstrate increased enthusiasm for biosciences after attending
- Aim: To develop researchers' experience and confidence in public engagement
 - Objective: Researchers report more confidence talking to the public about their research
 - Objective: Researchers report feeling more positive about the value of their research
 - Objective: Researchers report increased insight into the public's perceptions and concerns about their research

Background information regarding Bethnal Green and Tower Hamlets

Bethnal Green is an ethnically diverse area with significant levels of economic and social deprivation situated in the borough of Tower Hamlets.

Tower Hamlets is home to the largest Bangladeshi origin population in UK. According to the 2011 census, 43% of the borough's population was born outside of the UK (this is about average for inner London), of which 15% born in Bangladesh. 31% of the population is white British.

The borough also has significant populations of people of Chinese, Spanish, French, Italian, Somali and Australian origin.

The 2010 English indices of deprivation study ranked Tower Hamlets as the 7th most deprived local authority district in England. Neighbouring boroughs of Hackney and Newham also featured in the top 6. The index uses seven domains to gauge deprivation levels. Tower Hamlets scores relatively well in the education and skills domain. Only 13% of people fall into the most deprived 20% compared to 35-100% for the other measures of deprivation.

Evaluation methodology

Data was collected using the following methods:

- Self-completion questionnaire for school pupils and children visiting the festival
- Self-completion questionnaire for general visitors to the festival
- Postcards asking visitors to share their hopes and concerns regarding biosciences
- Interactive posters to collect data on visitors' home location, enjoyment of the festival and views on bioscience more generally (these were used on Saturday and Sunday only).
- Post-event online survey of exhibitors
- Telephone interviews/follow-up questionnaires with teachers
- Observations
- Visitor number monitoring (conducted by BBSRC staff)

The following data was collected

- 130 visitors completed questionnaires
- 84 visitors completed children's feedback forms
- 70 exhibitors shared their feedback via online questionnaires
- 8 teachers returned feedback either by telephone or by email
- 39 visitors left feedback on postcards
- At least 500 people left feedback via interactive posters

Evaluation findings

Aim: To overcome barriers to access to contemporary bioscience and scientists for underserved audiences

Observations

The festival was well attended throughout and the atmosphere full of energy and enthusiasm. A lot of visitors expressed heart-felt appreciation that this opportunity had been brought to their door step. There was an enormous local appetite for it and feedback clearly indicated that they wanted more.

Based purely on observation, there was a slight shift in ethnicity and demographics of attendees over the course of the three days. We perceived an increase in the proportion of local people attending on Sunday relative to Saturday and anecdotally attribute a good part of this to active word of mouth promotion of the festival in the area. For example, one visitor claimed that a neighbour had been knocking on every door in her street and recommending that people should go to the festival.

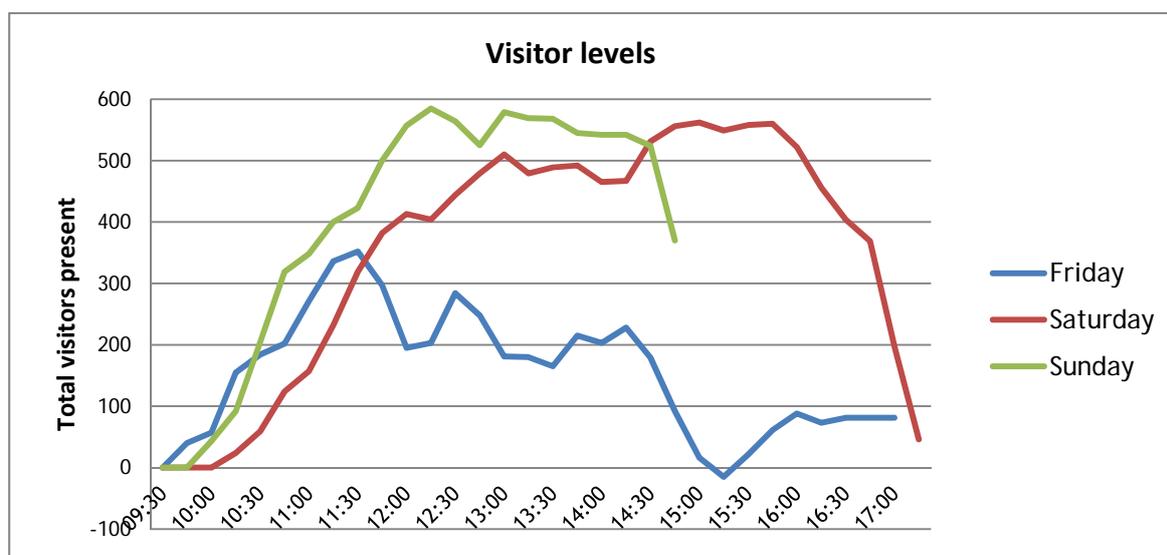
“I live around the corner and everyone is talking about it. We’re telling everyone about it”

Festival visitor, Sunday

Many returned to the festival on both days and wished they could have spent more time at the festival.

Visitor numbers

The exhibition was well attended - over 6500 visitors came in total over the three days. This was more than four times the minimum number specified in the festival’s original objectives. The high attendance meant that at times some stands did not have the capacity to engage with all visitors. However, although some exhibitors mentioned this as a difficulty, there was no indication from visitors that this detracted from their experience.



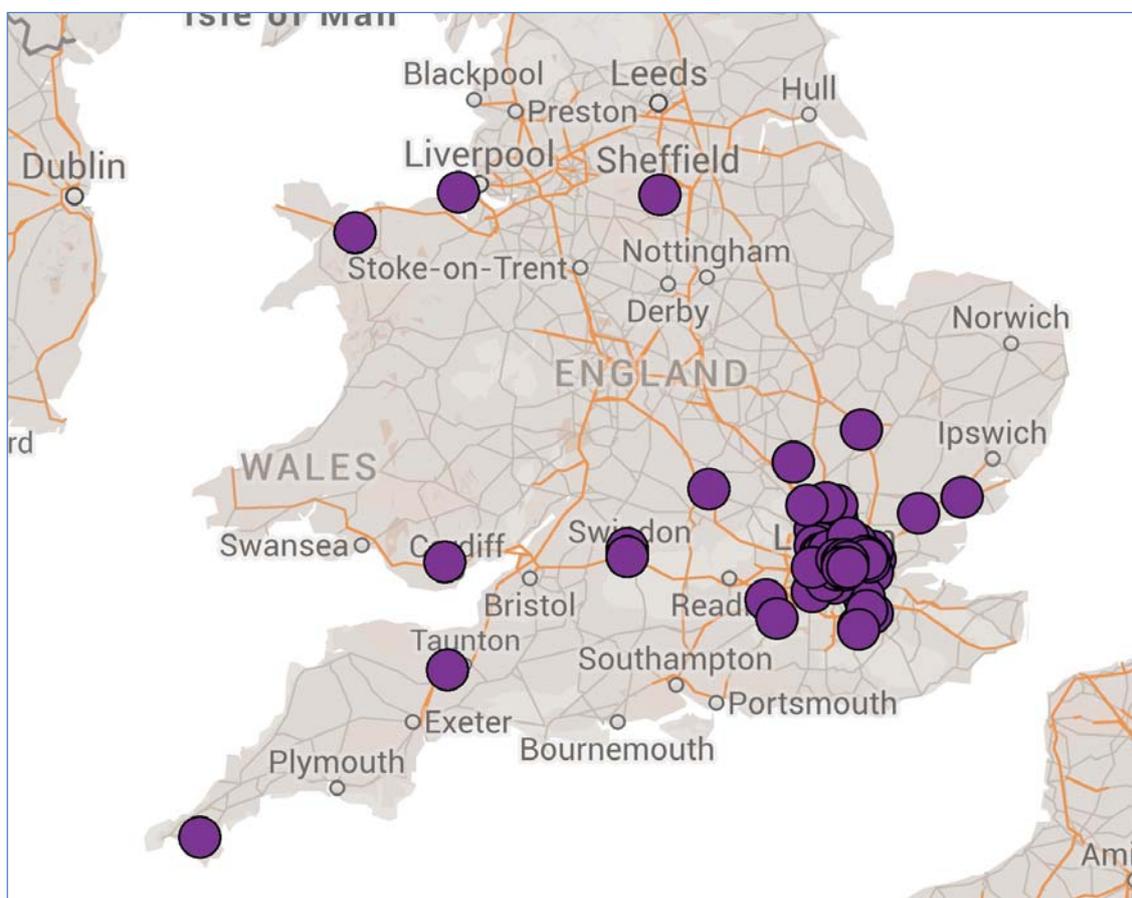
Graph of attendance numbers over the three days of the festival (figures from door monitoring by BBSSRC).

Where did visitors travel from?

Data on where visitors travelled from was collected as the first half of postcodes on feedback forms and via a set of maps onto which visitors could add stickers to mark the location of their home.

Both the survey and the maps indicate that the majority of visitors were from Greater London and the surrounding areas. A large proportion were from Tower Hamlets and neighbouring boroughs.

Although this data suggests that the festival did not quite meet its objective of attracting over half of visitors from Tower Hamlets, it was successful in gathering a local audience. Over half of visitors were from Tower Hamlets and neighbouring boroughs, many of which have a similar socioeconomic profile to Tower Hamlets itself.



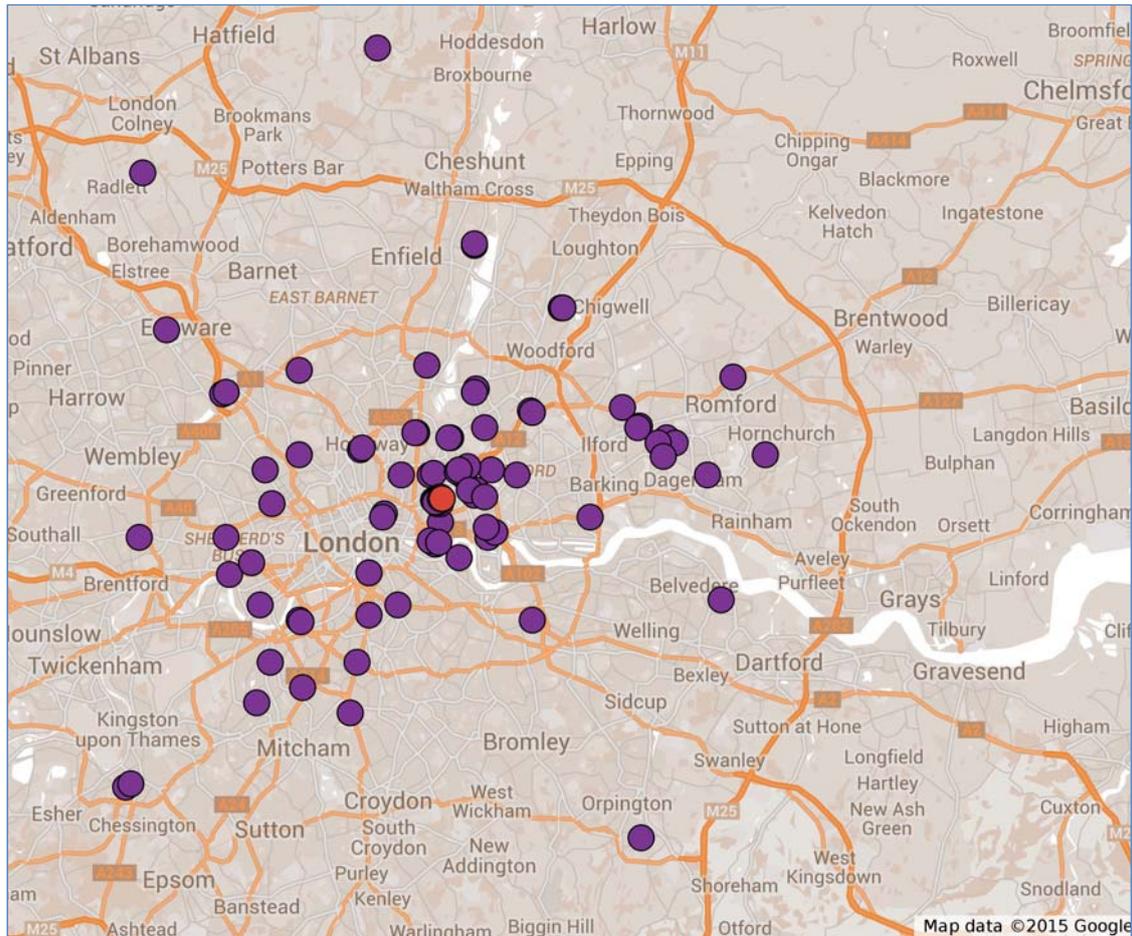
Map showing the postcode distribution of survey respondents

- 59% of survey respondents were from Greater London
- A further 15% were from outer London
- 25% of respondents were from other parts of the country (comments left on the forms and the stated locations suggest that a proportion of these had a link to the exhibition)



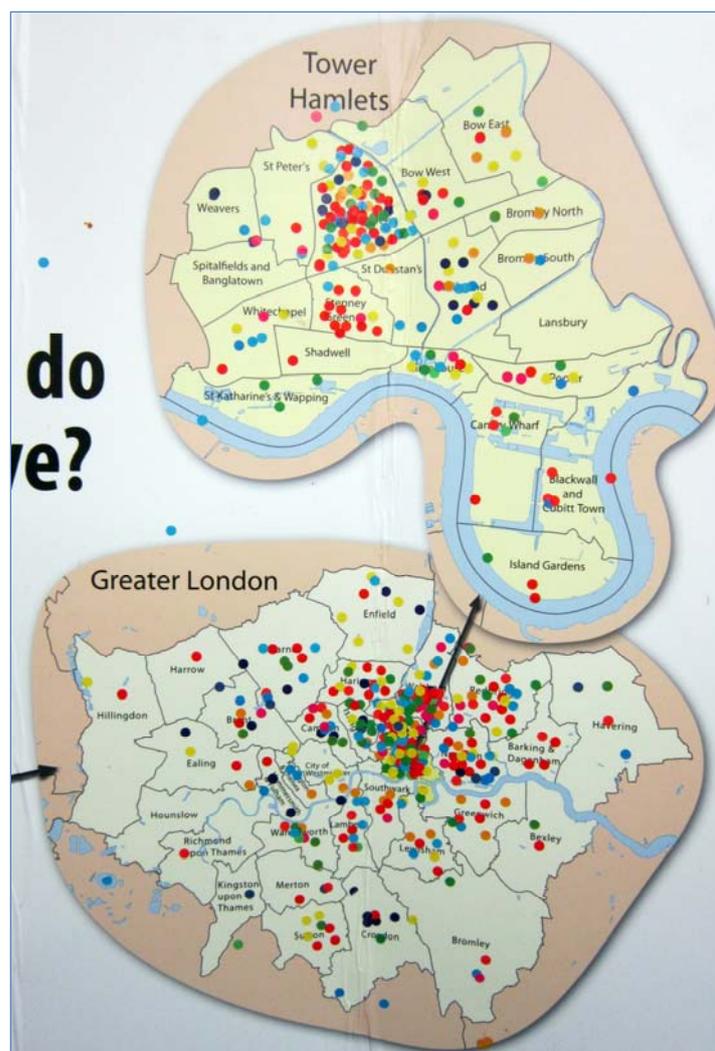
Where do you live? UK map showing distribution of stickers added by festival visitors
Note: The stickers on the Scottish islands do not reflect the presence of visitors from these islands. They were observed being added by playful visitors.

- The vast majority of stickers placed on the map of the UK were in and around London. By the end of the third day of the festival, several layers of stickers had built up over the London area.
- A proportion of the stickers placed outside the London area correlate with the origins of exhibitors and others linked to the festival.



Map showing distribution of survey response postcodes in the London area

- 28% of survey respondents gave postcodes in Tower Hamlets
- 12% of survey respondents were from Bethnal Green itself
- 13% of respondents were from areas bordering Bethnal Green
- In total 35% of respondents gave East London postcodes



Where do you live? Detail maps of London and the borough of Tower Hamlets showing stickers added by visitors

- A combined count of stickers from the two detail maps of London show that 44% of visitors came from Tower Hamlets.
- Within the detail map of Tower Hamlets, 39% of dots were placed in Bethnal Green (15% of the two London detail maps combined).
- Approximately a quarter of visitors came from boroughs to the North and East of Tower Hamlets.
- Both data capture methods show a predominance of visitors from east London.

Audience ethnicity

- 71% of survey respondents overall gave their ethnicity as white/white British (29% indicated BME ethnicity)
- 47% of respondents from Bethnal Green were from BME backgrounds (n=15)
- 38% of respondents from all Tower Hamlets postcodes were from BME backgrounds

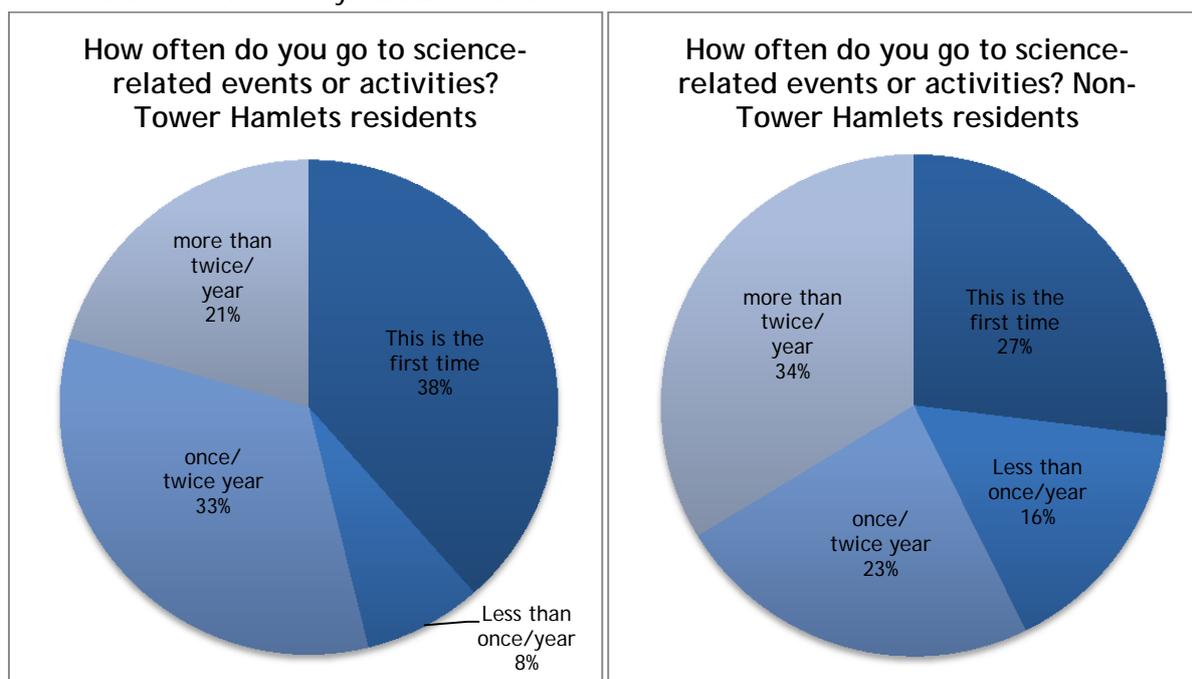
According to 2011 national census data, 53% of Bethnal Green residents and 54% of residents of Tower Hamlets as a whole are BME.

Responses via feedback forms give a reasonable approximation of the ethnic make-up of festival visitors as well as where visitors had come from. However, based on our observations, we would suggest that BME groups are under-represented in this sample. Response rates for self-completion questionnaires in the health sector are considerably lower for BME groups than for the white population, sometimes by more than 10%. It is possible that this is also a factor for this survey.

The maps of London and the UK, onto which visitors were invited to place a sticker marking where they had come from, show a much stronger presence of visitors from Tower Hamlets and the east of London than the surveys. These interactive feedback mechanisms were very popular and we believe they give a more truthful picture of the origin of visitors. However, some caution is required in interpreting them since some visitors placed stickers on more than one scale of map and a few added stickers in remote places purely for their own amusement.

Audience experience of science events

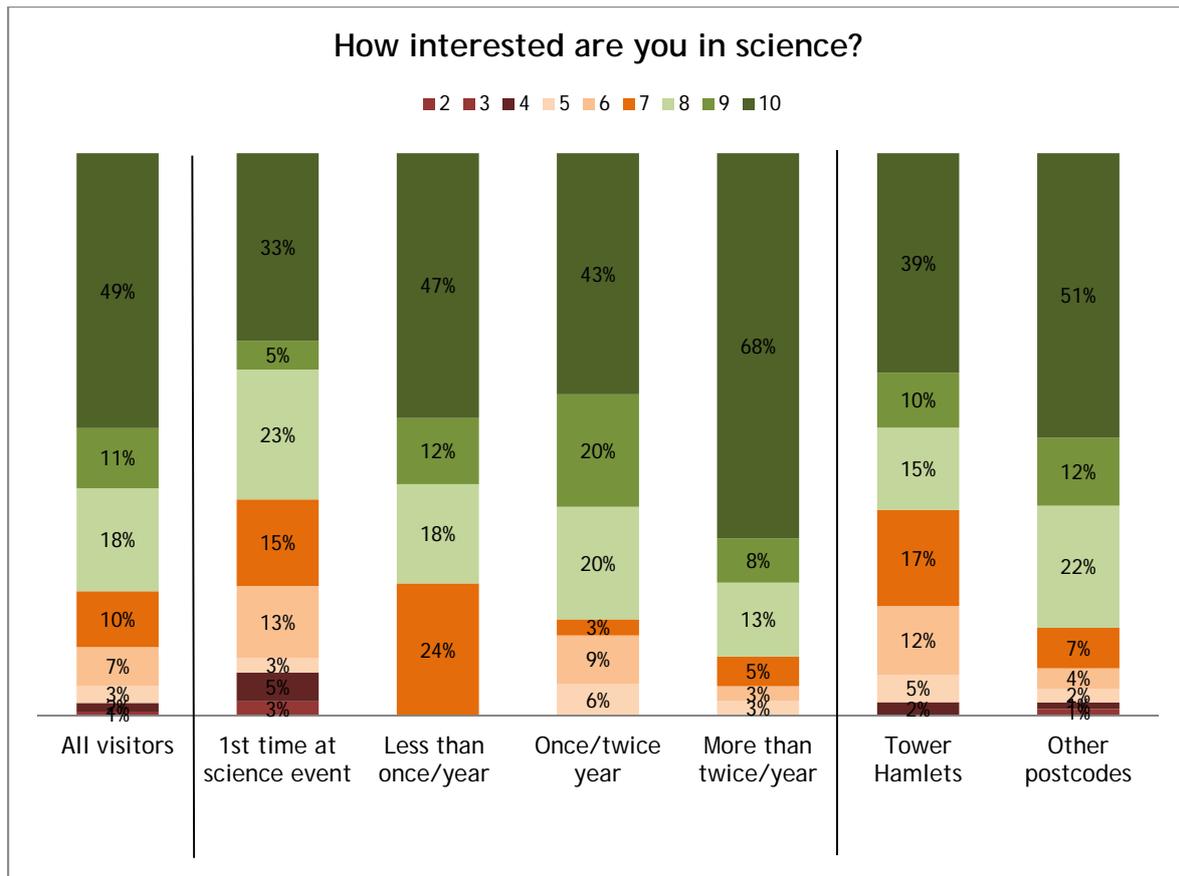
- 30% of all questionnaire respondents stated that the festival was the first science event they had attended.
- 38% of respondents from Tower Hamlets stated that the festival was the first science event they had attended.



Interest in science

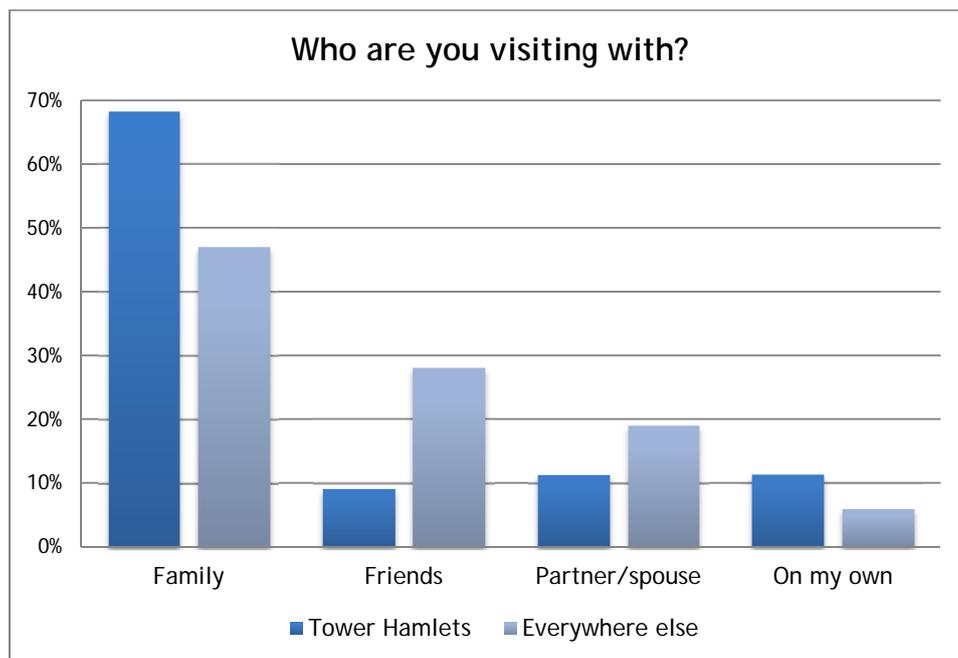
Overall, the vast majority of visitors expressed a high degree of interest in science. On a scale of 1(not at all interested)-10(very interested), 49% scored their interest as 10/10 and only 13% scored 6 or below.

- Visitors who were attending a science event for the first time were less interested in science than the most frequent attendees (8, 9 or 10/10 = 62% vs 89%).
- Visitors from Tower Hamlets gave lower scores for their interest in science than those from elsewhere (8, 9 or 10/10 = 63% vs 84%)



Visitor group types

- 68% of visitors from Tower Hamlets were from family groups compared to 47% of visitors from outside the Borough
- 11% of visitors from Tower Hamlets attended alone, compared to 6% from outside the Borough



Conclusion

The Festival was successful in engaging with a significant proportion of people who had never been to a science event before. It was also successful in engaging with a high proportion of families in the Bethnal Green area. Visitors from the area broadly reflected the ethnic diversity of the area. Although data collected suggests that the festival did not quite reach the target of 50% of visitors from Tower Hamlets, a majority did come from east London. Total visitor numbers were over four-times higher than the minimum set out in the objectives.

School groups

Groups from 13 state schools visited the festival, 7 were primary schools and 6 were secondary schools. All but two of the schools were from Tower Hamlets. The schools' OFSTED reports were Outstanding for five of the schools and Good for four of the schools. Three require improvement and one was rated inadequate and was in special measures at the time of the visit. One of the visiting schools was a secondary school for boys with educational and behavioural difficulties.

70% of schools rated high for take-up of free school meals, the remainder rated medium (data on free school meals was not available for three schools).

English was not the first language for between 19% and 100% of pupils at the schools. Average proportion across all visiting schools where English was not the first language was 70%.

Attendance at the festival was booked for 579 pupils in total. Just under two thirds of these were primary aged (KS2). Most school visits took place on Friday 14th November. One group attended on Saturday 15th November.

Teacher feedback

Teachers were invited to give feedback via email or through a telephone interview. Eight responded.

In general, teachers had decided to take pupils to the festival as an enrichment experience. They wanted their pupils to meet scientists and gain inspiration/aspiration for their own lives. They wanted students to experience that science is real and done by real people, not just a subject in school. For older pupils, they wanted to expose them to different career options.

They did not necessarily know what to expect from the festival and feedback gave the impression that it was seen as a nice, easy, local thing to do on a Friday.

Teachers had not anticipated any particular links to the curriculum. However, most did find aspects of the festival with useful links to the curriculum whether at KS2 or more advanced levels.

All teachers who gave feedback felt that the material at the exhibition was appropriately pitched to be accessible to their pupils. Some also noted favourably that the pupils were challenged and extended by what they encountered.

“Pleased that the exhibits started at simple levels, but with so much depth that there was always something to draw them in, and latch on to. Even if they did not come away with full comprehension of what the exhibitors were looking into – they were still certainly accessible on some level, they could appreciate what each exhibit was about.”

KS3 Teacher

The workbooks received a mixed reception. Some groups based their visit around the contents of the workbook while others did not make use of them at all. The groups that did use them thought they were good. Some teachers thought they might use parts of them in future.

Teachers said that their pupils really enjoyed their visit and that it had resulted in some increase in engagement and enthusiasm for bioscience in their pupils.

“Already had a couple of situations in class where we have asked questions, and pupils have been saying ‘well at the festival we learnt this’ or ‘we were told this’, so yes. I think if we did something similar again we would prepare them a bit more. I think some of the pupils, the younger pupils were perhaps a little nervous talking to adults that they didn’t know, we should have exposed them to the exhibits to get them warmed up and into the swing of things.”

KS3 Teacher

The experience compared very favourably to other informal science education events

“This was really interesting – when we went to science museum, they found it a bit overpowering, they saw a film and then we went to the galleries, at which point they were getting restless and tired, so big. This was great, it was very contained so straight away they were engaged and talking to people. Also the freebies, they were given something as soon as they walked through the door, so straight away they were happy, engaged, they loved it.”

KS2 Teacher

“It compared very well, definitely put it in the top. It was great that it was very specific, you go on some excursions, and unless you book a session, they can be quite vague. However, the pupils could understand how this fitted in directly with what they were doing in the classroom. I think that with the calibre of the organisation, and the scientists that they could speak with certainly increased the value.”

KS3 Teacher

In general, teachers had not set aside classroom time to prepare or follow up the visit, though some wished they had. Two teachers also mentioned the value of the visit and of being able to talk to researchers to them personally.

“It was so interesting personally talking to the researchers but I know that the students were really engaged and thoroughly enjoyed it!”

KS4 Teacher

“In addition, as a classroom teacher I benefitted from resources/leaflets and ideas for my teaching.”

KS4 Teacher

All teachers who gave feedback were positive about the experience overall.

“The researchers were really good, yes all of the ones that we met really took time to speak with the students, really took time to explain what they had. They were really approachable, I was really impressed with everyone on the stands that we went to, even some of the ones that could have turned the students off, because they involved things that we are not studying, straight away, as soon as people started talking from those stands, they were really engaging with the students. Very impressed with the people we met.”

KS2 Teacher

“Simply this was a really amazing opportunity for the children, I have been teaching for over ten years now, and it’s the first thing that I can say, with relation to science, that this was really brilliant and we could really use more of that. So, thank you and bring on the next one - I would definitely spread the word to get involved.”

KS2 Teacher

Conclusion

The festival successfully recruited and effectively engaged with schools from the local area. Teachers’ feedback indicated that it was a good experience and compared very favourably with other informal science learning opportunities. There was interest from teachers in having access to more high-quality local science events.

The event hosted approximately the number of school pupils originally intended, but had less success in recruiting secondary students than primary schools.

Teachers gave the impression that they had not anticipated anything particularly special and that if they had realised how good it was going to be, they would have made more of it. In future, it may be worth considering greater input into helping teachers with preparation and follow-up of visits. However, given the premium on teacher and lesson time, take-up of these opportunities might be limited.

Two teachers also mentioned the usefulness and interest of the event for themselves as well as their pupils. For similar events in future, it may be good to include some sort of opportunity for teachers’ continuing professional development, for example a twilight session at the exhibition.

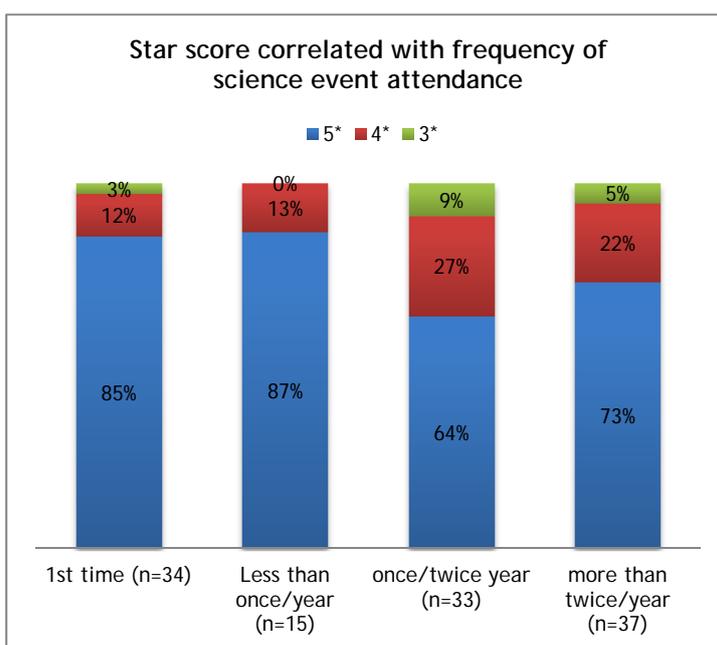
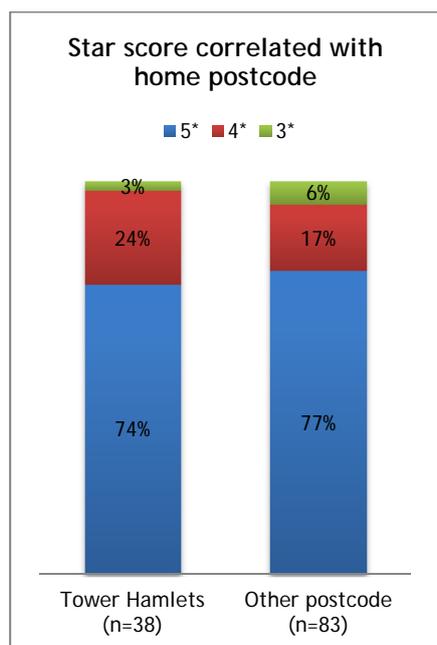
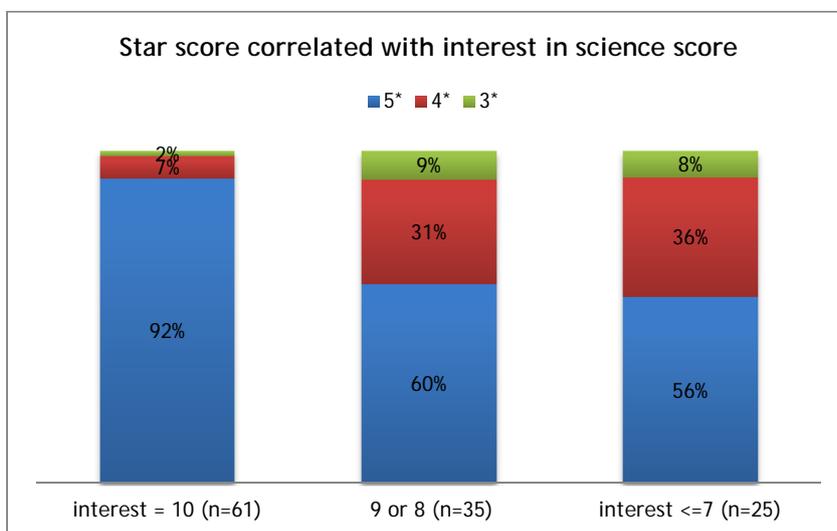
Aim 2: To generate support for biosciences

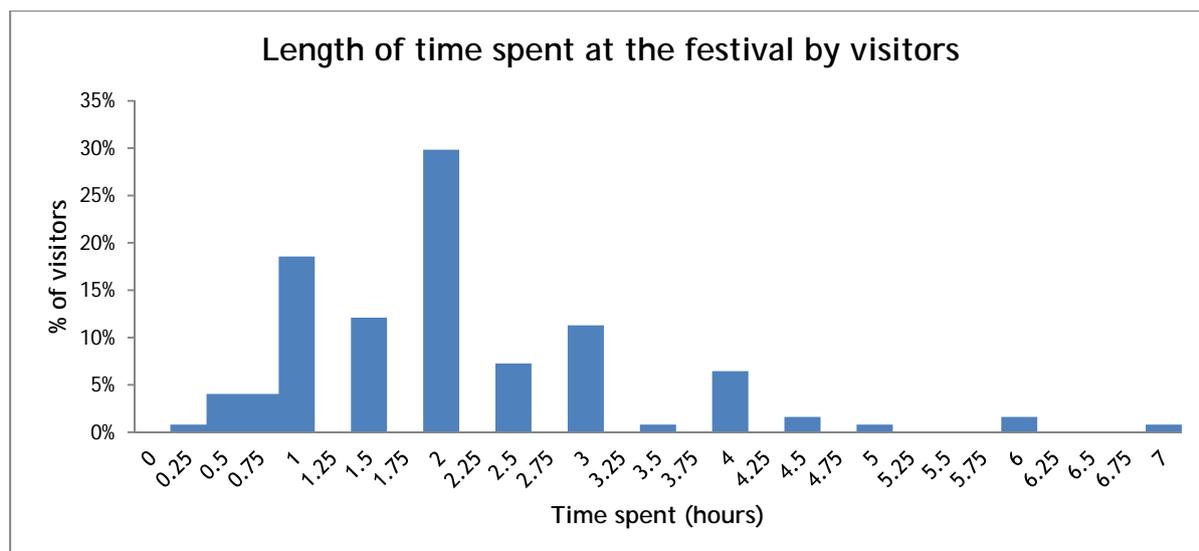
Overall event rating

Survey respondents were asked to mark the festival out of five stars.

The event scored highly. 79% of respondents gave 5 stars and 19% gave 4 stars. 5% gave 3 stars. No-one gave a score of less than three.

- The festival scored highly with everyone, but there was some variation between groups. Visitors from Tower Hamlets were slightly more likely to give 4/5 than other groups.
- Visitors with a high level of interest in science tended to give higher scores than those with a lower level of interest.
- Less frequent visitors to science events gave higher scores on average than more frequent visitors to science events.

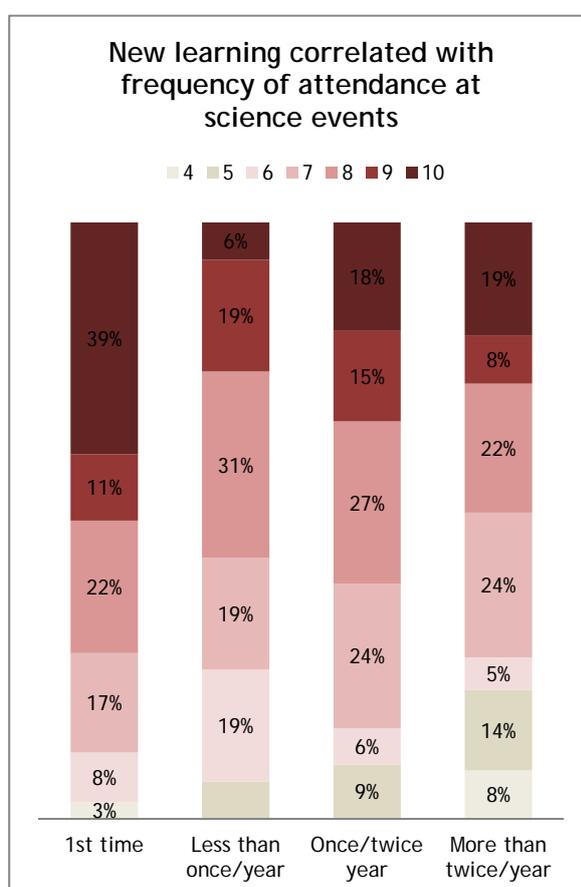
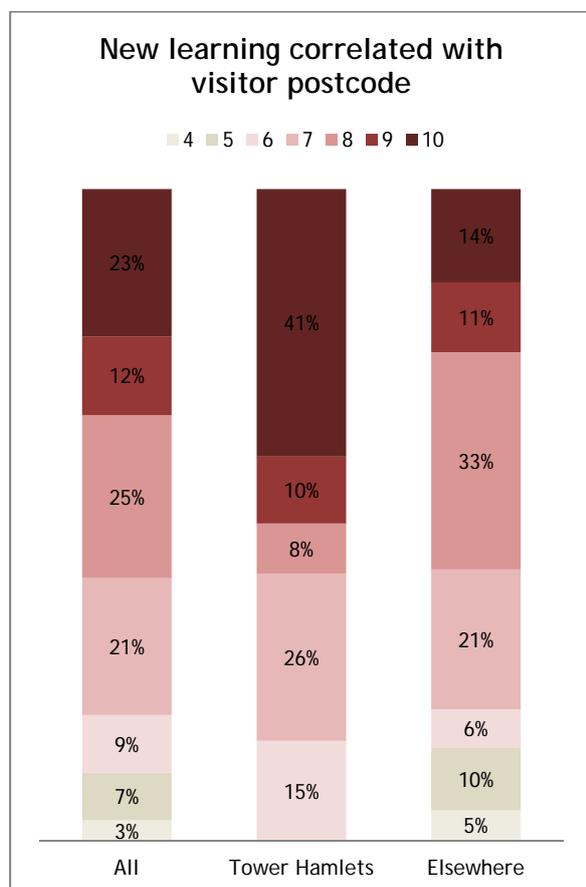




How much did visitors learn?

Visitors were invited to score how much they learned that was new from 1 (nothing new) to 10 (all new)

- 65% of visitors scored 8 or more in response to this question. Visitors from Tower Hamlets scored this higher on average than visitors from outside the borough.
- First-time attendees at science events gave higher scores than more frequent attendees.



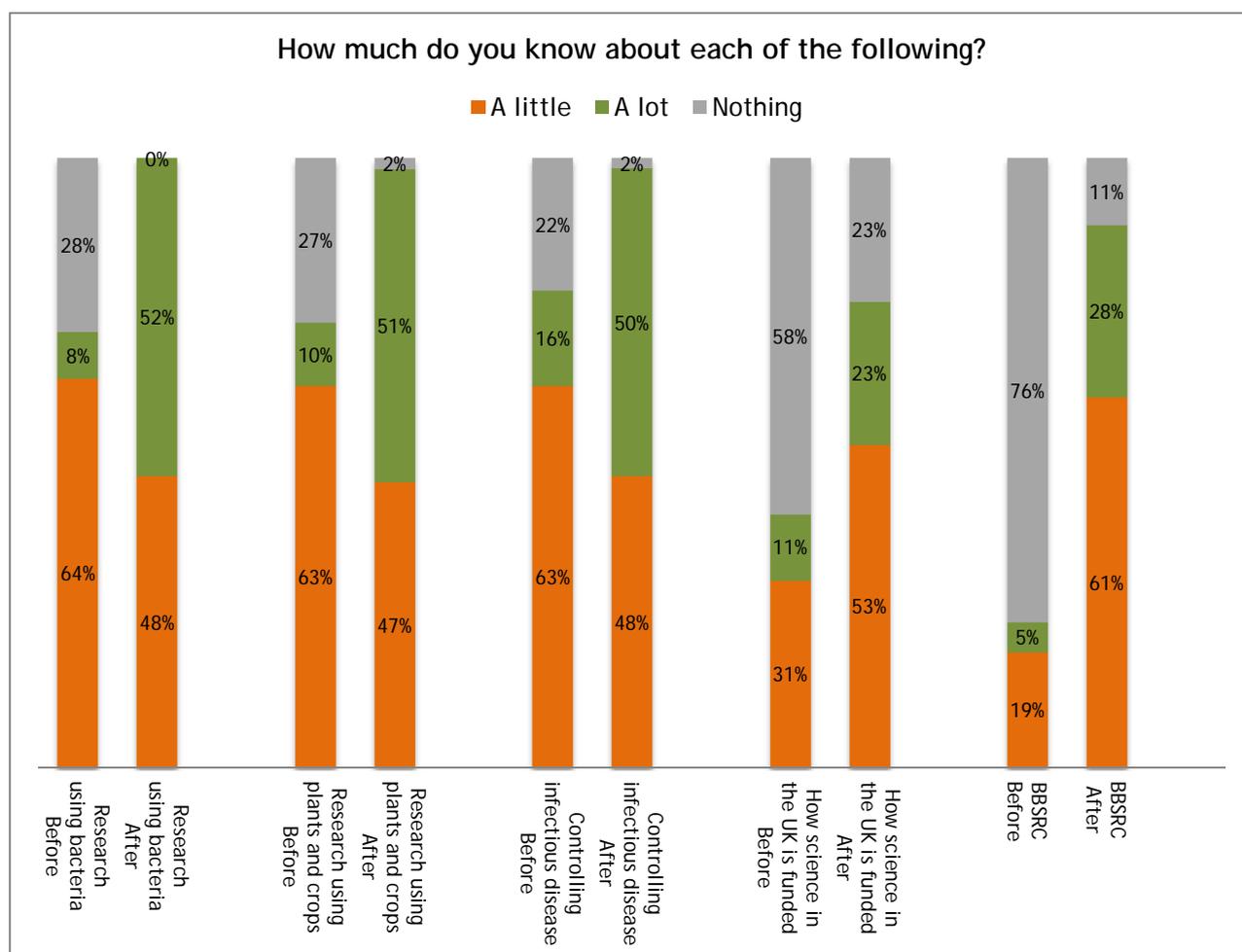
What did visitors learn most about?

For the purposes of the self-completion questionnaire, the research presented at the exhibition was split into three broad categories - research using bacteria, research using plants and crops and controlling infectious disease - and survey respondents were asked to rate their knowledge of each of these areas on a three point scale (nothing, a little, a lot) before and after their visit. They were also asked how much they knew about how science in the UK is funded and about BBSRC.

Prior knowledge was similar across the three research areas selected. Around a quarter of visitors said they knew nothing about each area and around 63% said they knew a little.

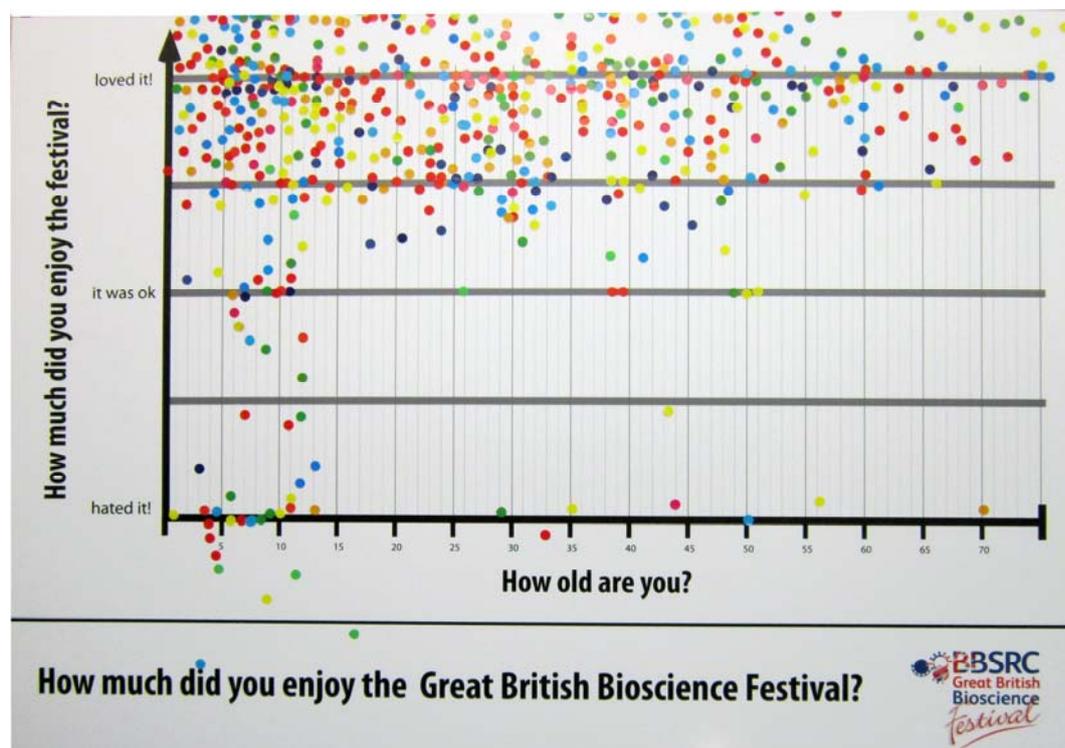
Visiting the festival improved their knowledge in all three areas. Around 50% said they knew a lot about each of the three areas at the end of their visit, though someone did also make the point that although they knew a lot more than before, it still was not “a lot”.

Unsurprisingly, initial levels of knowledge about research funding and the BBSRC were much lower. 58% of respondents stated that they knew nothing about research funding and 78% that they knew nothing about BBSRC. After visiting, 89% stated that they knew a little or a lot about BBSRC. 76% stated that they knew a little or a lot about how research is funded.



Did visitors enjoy the festival?

Visitors on Saturday and Sunday were invited to rate how much they enjoyed the festival in relation to their age by adding a sticker to a large printed chart (see image below). This poster does not include data from school groups (and others) who visited on Friday.



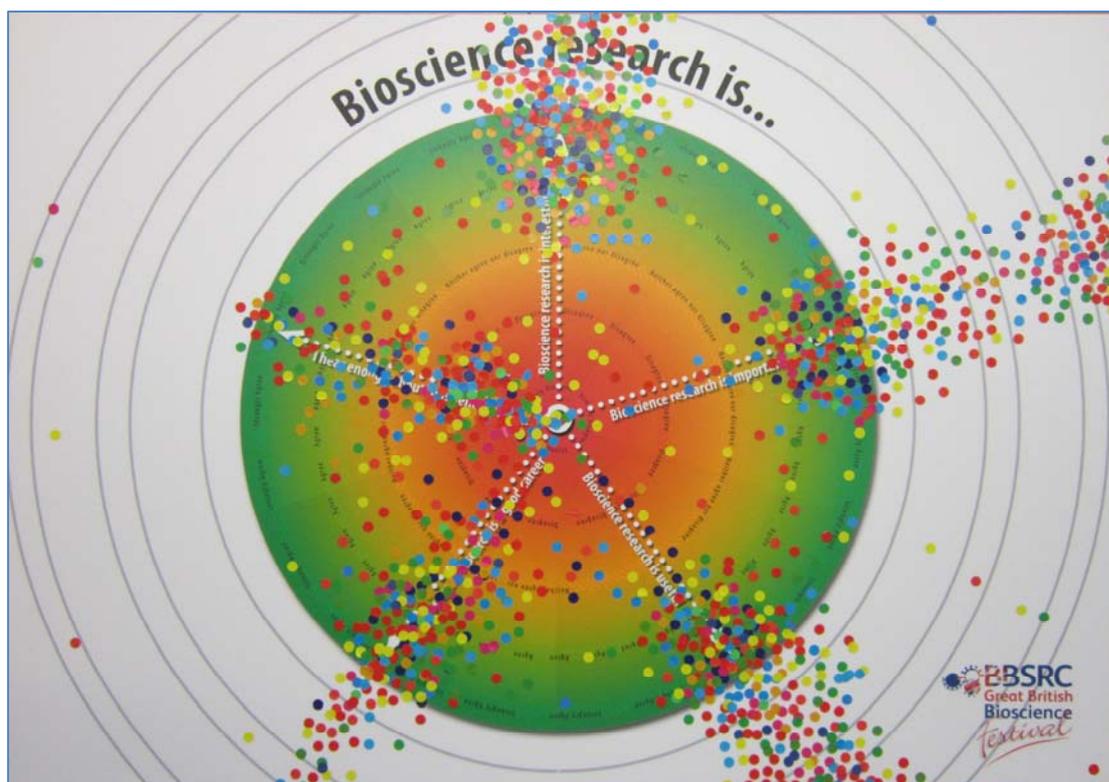
It can be seen from the image of the resulting feedback that the response was generally positive. It should be noted that some younger children had difficulty reaching high enough up the poster to accurately indicate their level of enjoyment but wanted to add their sticker anyway and that some of the very low scores at five years and under are a result of this.

Even with the factor of small children not being able to reach taken into account, there was greater variation in responses on the enjoyment chart for those aged between 7 and 14 compared to other groups.

Results collected from children via feedback forms present a more consistent and positive picture. From feedback forms returned from children in year 8 and below, 89% gave the festival 5 stars and 8% gave it 4 stars. 93% thought that it was better than school. Respondents were generally enthusiastic about science as a whole. 93% of respondents indicated that they liked science lessons, 45% thought they definitely would like to do a job that used science and 45% thought they might.

What did visitors think of bioscience research?

Visitors to the festival were invited to share their views on bioscience research by adding a sticker to a radar chart which contained five statements.



Radar chart showing stickers added by visitors

Questions ordered clockwise starting at 12 o'clock are:

- Bioscience research is interesting
- Bioscience research is important
- Bioscience research is useful
- Bioscience research is a good career
- I hear enough about bioscience research

There was a high degree of consensus about the first three statements, with all but a few stickers being placed in the positive section of the chart and a large proportion of stickers (possibly half or more) being placed beyond the bounds of the chart on the positive end of the scale.

Responses regarding whether bioscience research is a good career were more varied. Although responses were generally on the positive end of the scale, there was a larger proportion of negative responses and stickers were less likely to be placed beyond the positive end of the scale.

Visitors generally disagreed with the final statement "I hear enough about bioscience research". The chart layout did not have the scope for stickers to be placed off the negative end of the chart so there was no opportunity for exaggerated responses. The largest clusters of stickers were positioned to disagree or strongly disagree. There was also a smaller cluster who "neither agree nor disagree" and some spreading into the "agree" and "agree strongly" regions.

Other feedback

Visitors were invited to leave feedback on double-sided postcards. On one side was printed “After visiting the Great British Bioscience Festival I feel positive about...” and on the other “After visiting the Great British Bioscience Festival I feel negative about...”

Only a minority of the comments written on these cards referred to any of the science or research being showcased at the festival, these tended to reflect general positivity about biosciences. More often, people used them to say how much they enjoyed the festival and how much they would like it to happen again.

Of the 35 postcards returned which contained comments relevant to the festival, 12 had requests for the festival to return.

“This whole event! Superb! Superb! PLEASE do it again! PLEASE!!! I spoke to 3 inspirational scientists about: 1) bacteria and the search for new antibiotics. 2) bovine tuberculosis and vaccinating badgers. 3) bees and how they find the flowers and then get to the same kind of flower to pollinate. THANK YOU SO MUCH!!! Wish I could have spent more time here!”

Visitor postcard feedback

“I love science & my sister hated science until today because of this festival. Thank you.”

Visitor postcard feedback

“Doing this festival has helped me think about all kinds of things. Would love to come again. Please set this up again.”

Visitor postcard feedback

Conclusion

There was a high level of energy and positivity around the event as a whole and visitors really enjoyed it and learned from it. Visitors left the event feeling very favourable towards bioscience research and its value and usefulness. The Festival was also successful in raising the profile of BBSRC and UK bioscience to visitors. The festival was particularly effective at engaging with audiences that typically have less access to this type of activity.

Aim 3: To develop researchers' experience and confidence in public engagement

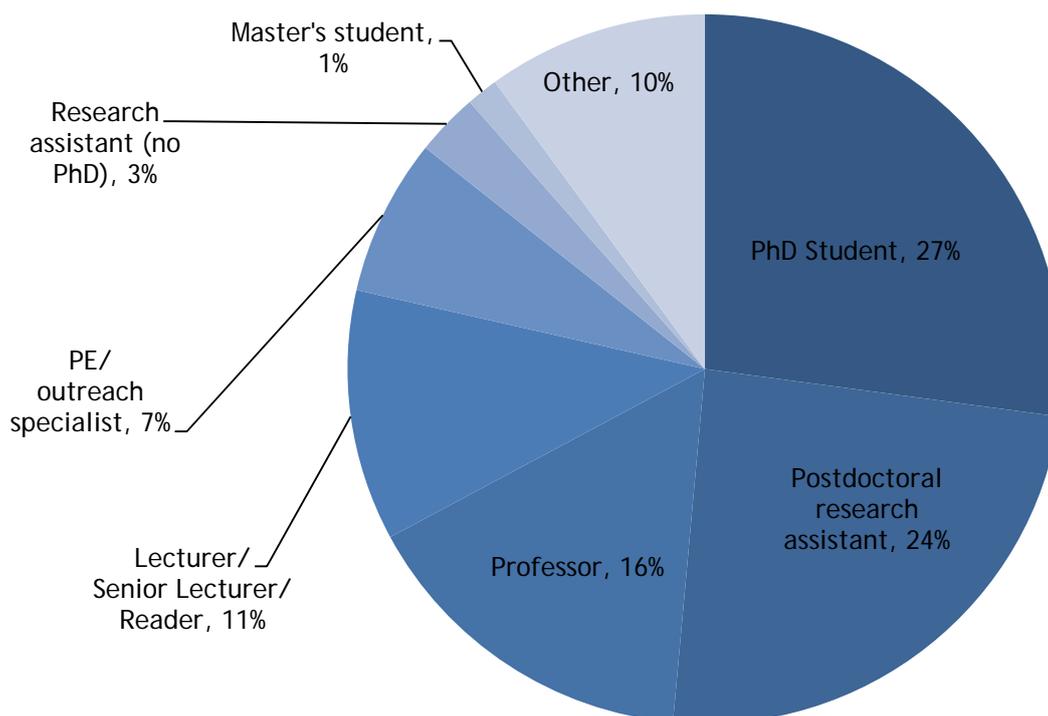
Who were the exhibitors?

Exhibitor home institutions

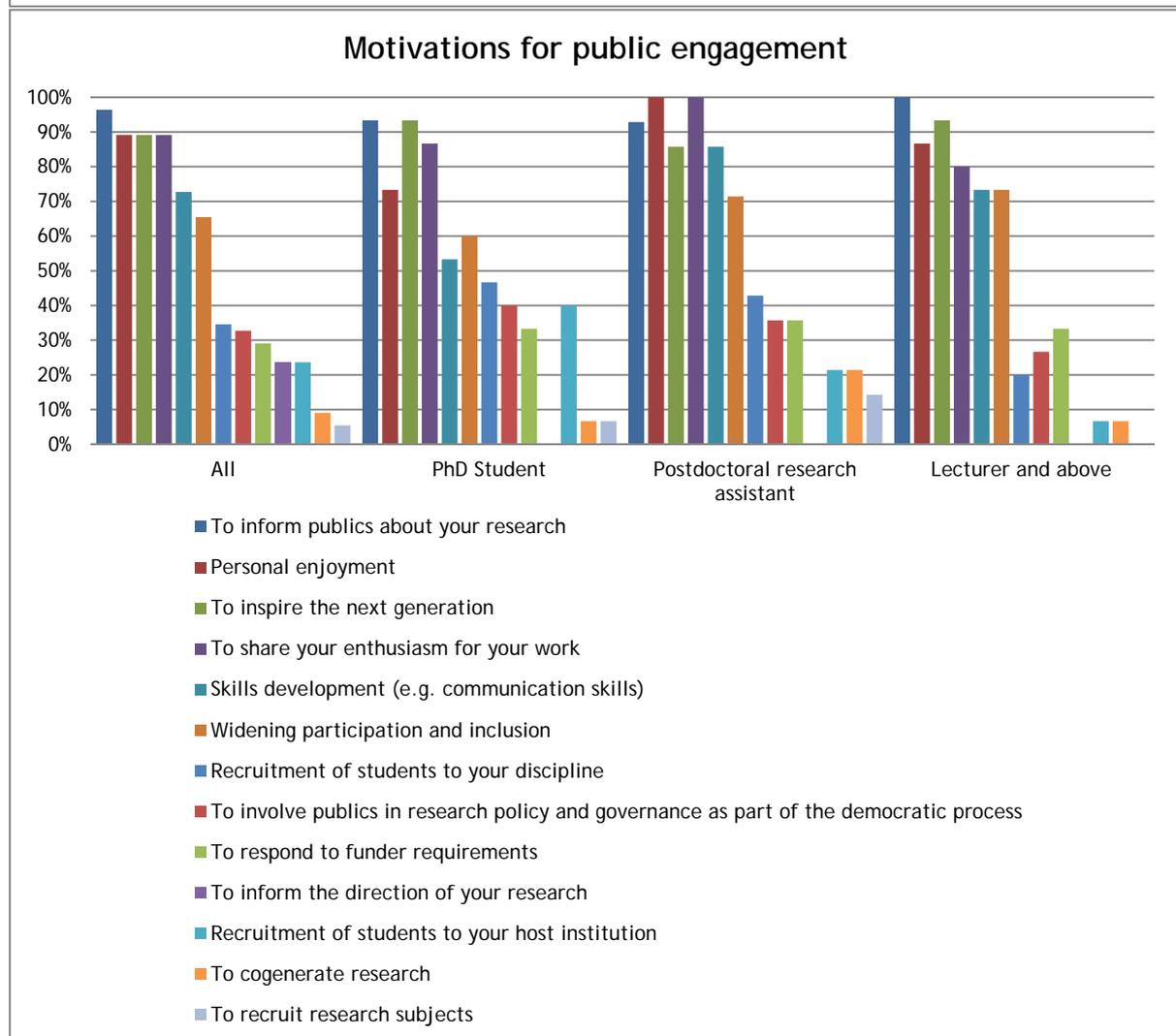
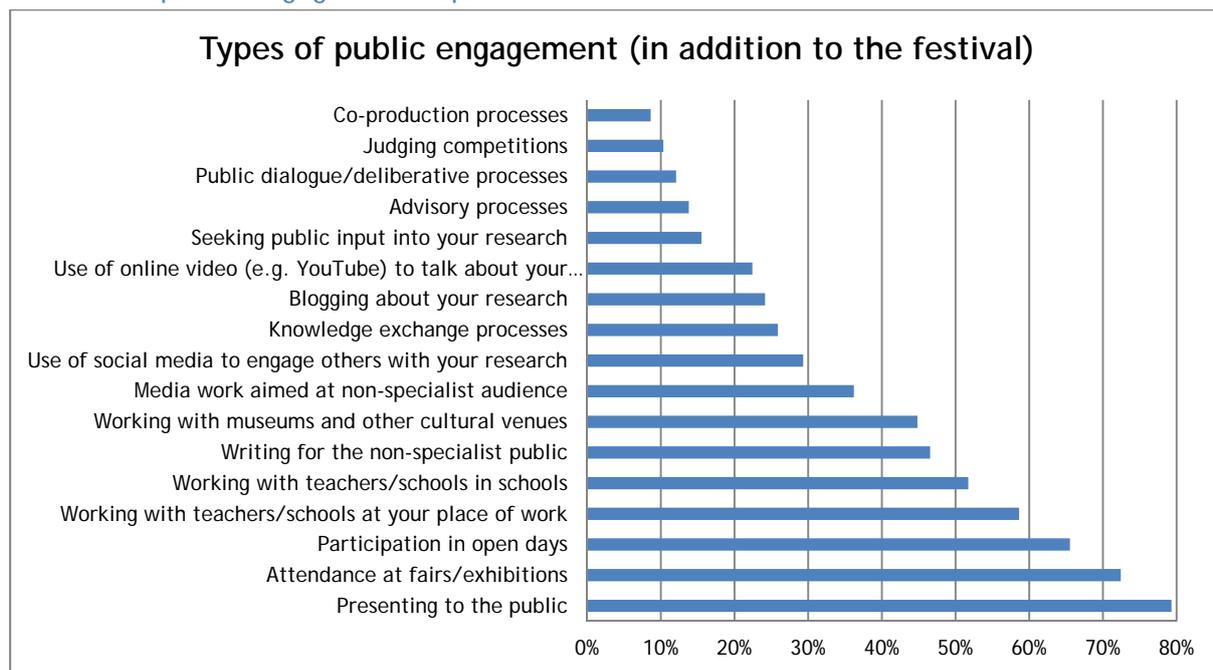
- 89% of exhibitors were based at universities
- 10% were based at research institutes
- One was based at the Zoological Society
- 86% of exhibitors were research active.

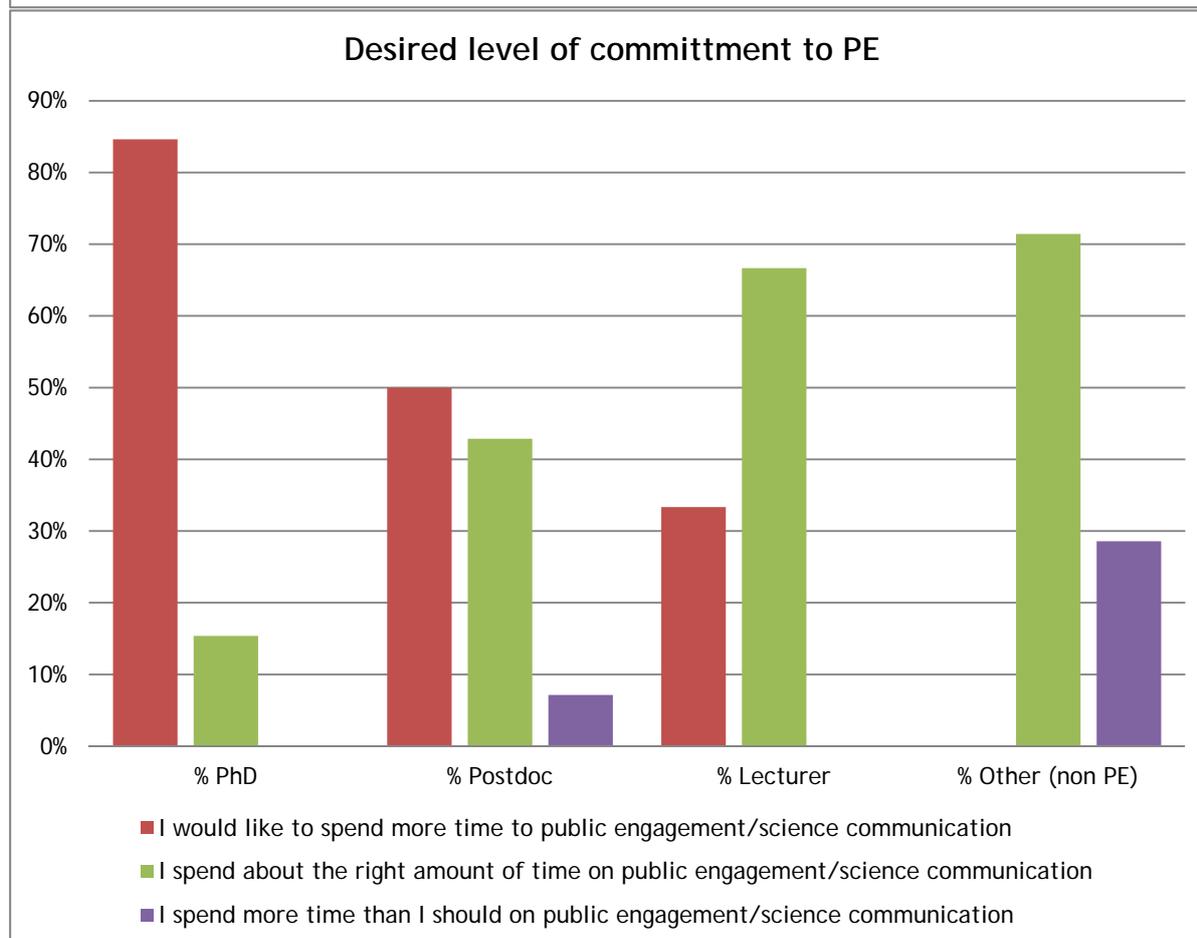
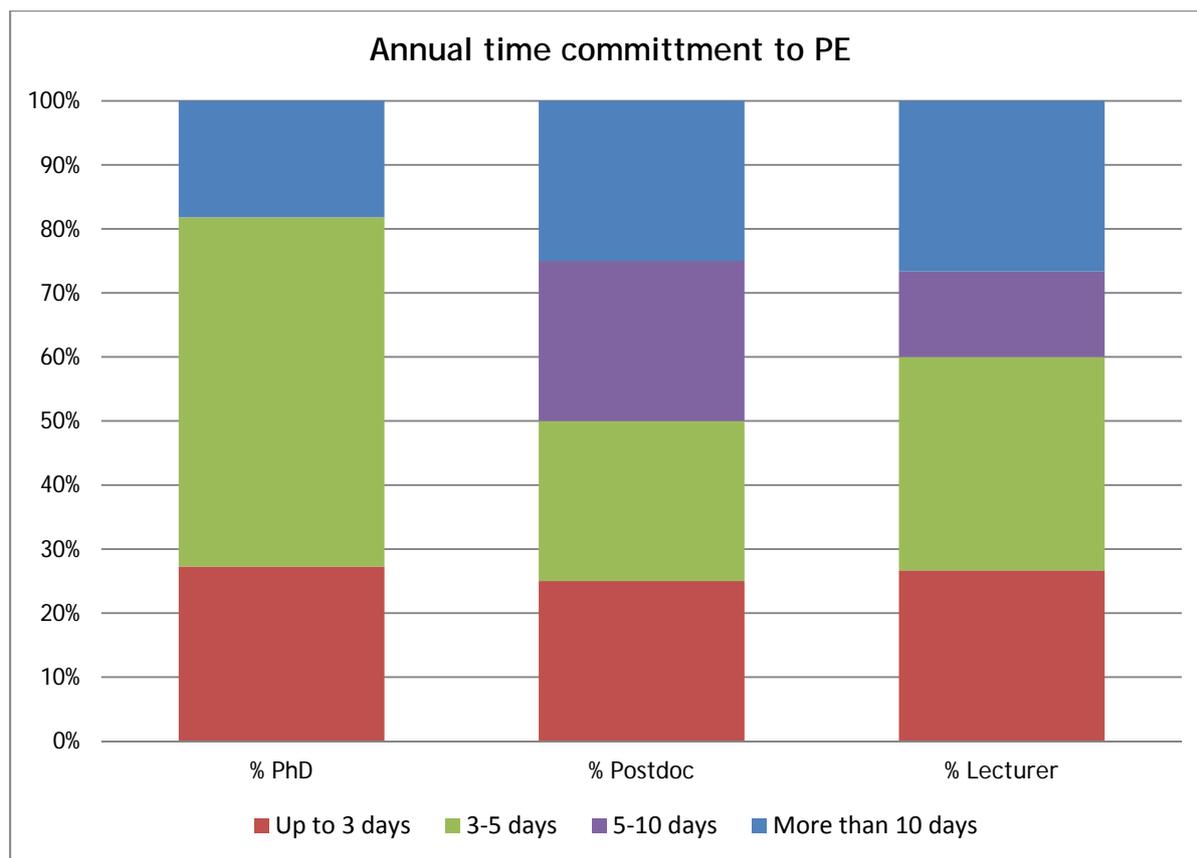
Exhibitor career stages

- 27% PhD students
- 24% Postdoctoral research assistants
- 16% Professors
- 11% Lecturers/senior lecturers/readers
- 5% were Public engagement specialists



Exhibitors' public engagement experience





What were researcher's experiences at the festival?



Most exhibitors were talking about research that was closely related to their own field. 72% estimated that their own research was at least 70% related to their exhibition stand's subject.

How confident are researchers in talking to the public about their work?

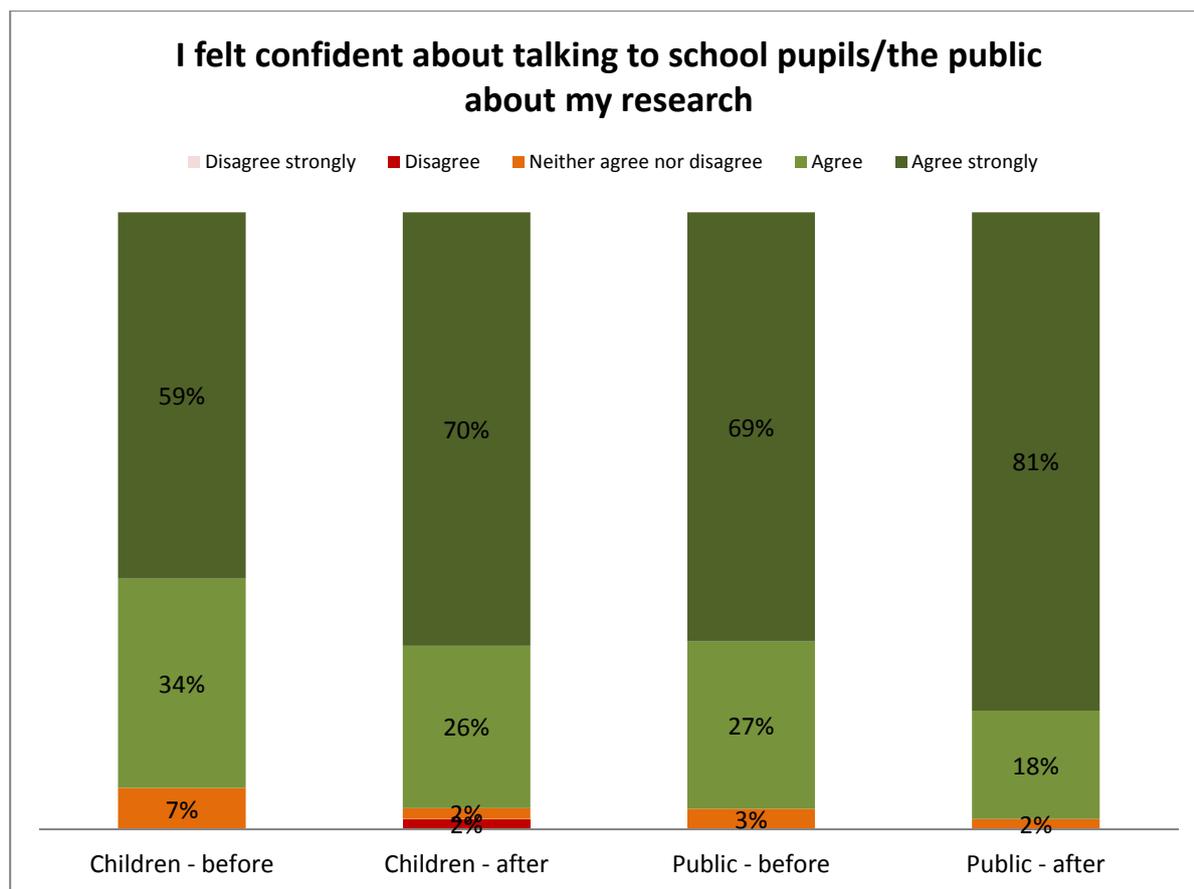
Exhibitors already felt very confident about talking both to children and to the public about their research before the festival. Confidence talking to the general public was higher than for children.

Over 90% either agreed or strongly agreed with the statements:

- Before taking part in the Great British Bioscience Festival, I felt confident about talking to school pupils about my research (93% agree or agree strongly)
- Before taking part in the Great British Bioscience Festival, I felt confident talking to members of the public about my research (96% agree or agree strongly)

Overall confidence increased slightly as a result of taking part in the festival.

- After the Great British Bioscience Festival, I felt confident talking to school pupils about my research (97% agree or agree strongly)
- After the Great British Bioscience Festival, I feel confident talking to members of the public about my research (98% agree or agree strongly)



What impact did participation in the festival have on researchers' feelings about their own practice?

In order to gather exhibitors' reflections on the impact of attending the event on them and their insights into public perceptions, survey respondents were a series of open questions. Responses to these questions were then analysed to identify emerging themes.

Survey question: Reflecting on your experiences over the festival, what influence (if any) do you think interacting with the public might have on your professional practice (e.g. your personal motivations regarding research, how you communicate your research, research questions and the direction of the research itself)?

Many respondents mentioned that they were already advocates of public engagement and several stated that it already had an important role in their research. In general, exhibitors did not consider that their interactions with the public would have a direct influence on their research, although this was the case for a few.

For example, visitors occasionally asked questions for which the answer was not yet known that would be worth investigating and the importance of the public voice in determining national policy was also stated.

"Already I work for a research team that is driven by patient benefits, if it's not useful to them, it's not useful. Public opinion is very important us, for us they will become the end user - if they don't want to use it, what's the point of making it."

Exhibitor survey response - PhD student

"I feel more motivated for my future research. I think it will help me keep my experimental work more on track with patient application."

Exhibitor survey response - PhD student

More common, however, were descriptions of improved communication skills both with the public and for the benefit of the research itself, and expressions of increased interest or enthusiasm in their own work.

"Explaining the research to public increased my motivations regarding research. It also inspired me to simplify my research idea and link all the information together as if I am going to explain it to the public, then start to do the research in a scientific way which made it more enjoyable for me."

Exhibitor survey response - PhD student

"It will mostly have influence on my personal motivation, but I think it will also make me think more clearly about my future grant applications because I am more able now to visualise and imagine the conversations I might have with people justifying the research."

Exhibitor survey response - Professor

"It's also made me realise the depth of the support there is for our area of work in Miscanthus and I feel less like an isolated little scientist in a lab now and more that we are working on an area which benefits or ultimately will benefit everyone."

Exhibitor survey response - Postdoctoral research assistant

"Importance of sharing research direction with public was wonderful and taking young adults and the next generations [is] critical for UK science"

Exhibitor survey response - Professor

What impact has participation in the festival had on researchers' understanding of the public's perceptions and concerns about research?

Survey question: In the conversations you had with members of the public, was there anything unexpected or surprising?

A fifth of responses to this question stated that they had not found anything unexpected or surprising about their interactions.

Almost a quarter of responses received refer to surprise at the high level of knowledge of the public.

"Many of the school children knew more than I would have expected and were more open to ideas than I would have thought."

Exhibitor survey response - PhD student

"The public are generally well informed about some aspects of science in particular areas that are related to them e.g. health."

Exhibitor survey response - Research manager

However 16% also express surprise at a public lack of knowledge.

"I am always surprised how poor the general level of scientific knowledge is in the general public. Despite this I was please and surprised by the appetite for science shown and general positivity."

Exhibitor survey response - Professor

The same proportion mentioned that the public ask interesting questions.

"I was surprised at how questioning they were - some people were very in depth."

Exhibitor survey response - PhD student

Five respondents encountered people who held views that were opposed to the work being presented. These included creationists, a number of people who were opposed to vaccinations and someone who claimed that aliens periodically visit Earth to harvest humans for food.

"There were some creationists attending the fair, which surprised me that they had decided to come along to the festival. However, in general positive and inclusive interactions were had, with differing viewpoints acknowledged."

Exhibitor survey response - Postdoctoral research assistant

Exhibitors also remarked on the high level of enthusiasm of visitors

"They were much more enthusiastic than I anticipated. I'm used to a certain amount of enthusiasm, but the individuals who attended Bethnal Green were extremely enthusiastic."

Exhibitor survey response - Postdoctoral research assistant

"I was surprised that people came back again - people came back to our stand the day after they had visited it to share their knowledge. The level of excitement was brilliant"

Exhibitor survey response - Senior Lecturer

They expressed some surprise regarding people's attitudes to GM

"I was surprised by how many people were accepting of both bioenergy and GM. That is not the mentality that is portrayed in the media. The one thing that did surprise me and I believe it is something that as scientists that we need to address, and that is the fact the most people have no idea about how new varieties of crops are created. Most believe when I spoke of new crops that they were created by GM, most were surprisingly ok about that fact but did not understand how we breed plants to make new plants. I think the plant breeders and the BBSRC should work hard to make this clear to the public to make them realise how important it is. Many believe the oats that we grow are natural varieties, they have no understanding of domestication in plant species."

Exhibitor survey response - Postdoctoral research assistant

Other areas that occurred in a number of responses were: interest in scientists and science jobs; and the level of public support for research.

Survey question: Were there any areas of your work that members of the public you spoke to were uncomfortable with?

In general, exhibitors did not think that visitors were uncomfortable with any aspects of their research. Researchers approached topics such as GM and use of animals in research with sensitivity and mentioned conversations where members of the public expressed concerns, but overall they found people to be supportive and felt confident dealing with tricky questions.

"None were encountered - all very positive (even about GM)"

Exhibitor survey response - Professor

"Not really. Expected some controversy over our use of GM bacteria, but didn't experience any"

Exhibitor survey response - Professor

"Uncomfortable is probably too strong a word, but the strongest concerns were voiced about GM plants and whether the radiation of the CT scanners harms the plants."

Exhibitor survey response - Postdoctoral research assistant

"No all were very supportive baring one person who though that plant breeding was unnatural, that we were forcing combinations that would not occur in nature."

Exhibitor survey response - Postdoctoral research assistant

Survey question: Were there areas of your research where you felt the public were particularly supportive or approving?

Exhibitors perceived visitors to be very supportive of what they were doing in general. Unsurprisingly, applications of research were often identified as areas where visitors were particularly approving.

"We were presenting genetic modification as one aspect of our research and I was surprised that the public were so supportive of the use of this technology. We presented the applications of GM technology, all of which were to bring benefits to health, the public were keen to see it brought to market."

Exhibitor survey response - Lecturer

"Yes, many people commented on how exciting the finding of a 'new sense' in bees is and that it shows that there are other and quite different ways on how animals perceive the world and the environment they live in compared to us humans. Especially the adults really liked the idea that our findings might help us to better understand the collapse of the bee populations and maybe even combat it."

Exhibitor survey response - Postdoctoral research assistant

"All the areas of our research were highly supported as food and fuel and the environment are all topics everyone can understand and engage in conversation about. However they were particularly supportive of the Miscanthus biomass crop work."

Exhibitor survey response - Postdoctoral research assistant

Survey question: What was the most rewarding part of your experience at the Great British Bioscience Festival?

The enthusiasm of visitors, and the exhibitors' reaction to this was frequently referred to. Exhibitors also made reference to how high-quality the engagement was and how much they enjoyed engaging with such a diverse audience.

"The sense of excitement that families had when science was explained to them in terms they could easily understand gave me a real buzz."

Exhibitor survey response - Postdoctoral research assistant

"The number and enthusiasm of the visitors, who were nearly all keen to learn and have a go. Seeing the researchers on our team really get stuck into public engagement and being so enthusiastic about it during and after."

Exhibitor survey response - Public engagement specialist

"Finding out that the public were actually interested and supportive of science research. It gave me a lift to see people taking a genuine interest in my research, and also what the department is doing. Although we were all exhausted by the end we all felt uplifted by our interactions with the public."

Exhibitor survey response - Postdoctoral research assistant

Several exhibitors mentioned the pleasure of seeing visitors explaining what they learned to other visitors.

"Having children tell me and others how you catch worm infection. A six year old boy listened to me, took my props and went and told others about the infection in perfect detail. Two little girls about 6 and 8 came to my stand two days running to tell me what they remembered about the infection. The discussions and engagement were brilliant."

Exhibitor survey response -Senior lecturer

"students' satisfaction after they contributed to the dialog with their previously gained knowledge"

Exhibitor survey response - PhD student

Survey question: What was the most challenging part of your experience at the Great British Bioscience Festival?

The challenges exhibitors highlighted were physical and logistical rather than intellectual. The most common response was how intense and tiring exhibiting had been. There were a few complaints about logistics during the preparation and set up and some comments about the challenges of coping with the swell of visitors. But overall, exhibitors continued to point out that the festival had been a very rewarding experience.

Conclusion

Researchers expressed enjoyment and positivity regarding the event organisation and their participation. Many were already active in public engagement and confident in engaging with the public. Exhibitors valued the opportunity to engage with a different audience and many had their appetite for public engagement and for their own research stimulated. They were enthused by their experiences and many expressed a desire for BBSRC to run similar initiatives in other parts of the country in the future.

Areas for improvement

All feedback indicates that the festival was very successful. A few minor issues were raised and are reported here to help inform any future initiatives of this kind.

Although BBSRC had made good efforts to take into account cultural sensitivities, some things were overlooked.

- There was no area set aside for prayer and people were observed stopping to pray in the middle of the exhibition
- The use of antibacterial alcohol gel by some exhibitors had caused mild concern
- One research group identified that the part of their exhibit on human fertilisation was inappropriate for the audience. The team involved addressed this.
- One teacher expressed slight confusion over the use of “No Photo” stickers - they had brought their own, and noticed that the venue had supplied them, but were unsure about how to get them.
- The same teacher also mentioned that one group were giving out sweets and not all members were sure about who they were suitable for (vegetarian/halal etc).

Many people loved the cake provided by the WI, but some complained that there was not enough variety of catering.

It was also impossible to know whether it was safe to eat for someone with nut allergy.