

Evaluation of the *perspectives* scheme 2003 - 2008



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Notes

The BA (British Association for the Advancement of Science) rebranded as the British Science Association in January 2009. Therefore all past finalists refer to the organisation as the BA in comments.

All percentages in this report have been rounded and may not add to one hundred.

1 Summary of key findings and recommendations

Key Finding	Recommendations
Many of the current objectives are addressed by the nature of the scheme. They are not specific or measurable enough	Form new objectives that set specific achievement targets
Training at workshops is very highly rated by finalists	Continue to collect feedback and maintain high standards
New features of 2008 are popular and useful for target skills	Make shopping centre exhibit and hustings at the x-change a fixture of the scheme
Finalists want to have more contact with the public	Care taken with venue choice and timing should be continued by organisers. Also more targeted publicity for the scheme and manage finalist's expectations at training stage
Networking and media are unintended impacts of the scheme and of great value to finalists	More emphasis when advertising and at training stage
The link to the festival is highly valued, some finalists feel they could do more at the event	Explore possibility of having finalists do more at the festival, consider making these activities optional so finalists can choose what to pursue. Ask finalists for suggestions on extra activities.
<i>perspectives</i> has a much wider audience than the teenagers targeted in the project aims, this is valued by finalists	Review the most suitable target audience for <i>perspectives</i> with consideration of other public engagement schemes
Follow-up public engagement scheme requested by a number of finalists	Review if there is a need for a formal follow-up scheme or if there are others that already fulfil this.
Finalists want to be informed about further public engagement opportunities	Current drive to collect work and personal emails should be continued. Consider sending out a newsletter at regular intervals. Perhaps also useful to collect brief autobiographies from finalists including their interest that would be useful in database

2.1 *perspectives*

Researchers are increasingly being asked to communicate the ethical and social issues that arise from their work to a lay audience. However, there are few opportunities for researchers at the beginning of their careers to develop their skills in discussing the social implications of their research with the general public. Postgraduate and postdoctoral scientists, engineers and social scientists funded by one of the UK research councils can explore the social and ethical implications of their research by entering *perspectives* – a poster session with a difference.

The scheme is funded by Research Councils UK (RCUK), the strategic partnership of the UK's seven Research Councils. Over its seven year lifetime it has enjoyed increases in scale and profile. 36 finalists are chosen annually and spend one day in London for a training workshop before preparing a poster on their work and exhibiting it at the British Science Festival (<http://www.britishsciencefestival.org>). Here they use their poster as a means of engaging the public in conversation and can then gauge their views and understanding of the research. Poster topics have been extremely varied – from the gulfstream to GM crops and autism to nanoscience.

2.2 Objectives

The objectives of the scheme have remained unchanged from the outset.

- To encourage researchers, at an early stage in their careers, to articulate their research in a social framework by exploring the ethical, social, economic and other societal implications of their work.
- To train researchers in visual and verbal communication.
- To provide an opportunity for researchers to publicise and promote their work.
- To encourage researchers to engage with a public audience and with teenagers as career models.
- To encourage scientists and engineers to visit the British Science Festival.

Scientists are increasingly striving to engage the public at the early stages of research¹. It is to the detriment of their own domain for scientists not to continue these efforts; failure to engage the public with new work can be disastrous for scientific progress and dialogue, as seen in the case of GM crops. By encouraging researchers to explore the visions, assumptions and uncertainties of their research at an early stage it is hoped this will become embedded in their scientific practice and they will be better equipped to participate in meaningful public discussions throughout their career.

Although the objectives capture the main aims and spirit of the scheme they are not specific or measurable enough. In fact many of them are addressed simply by the nature of the scheme and so do not require assessment against its outcomes. It is therefore recommended, that the objectives herein be adopted as the aims of the scheme and more suitable objectives formed with specific achievement targets. This will enhance the operation of the scheme and create a framework for subsequent evaluations.

¹Wilsdon, J. and Willis, R. (2004) See-through science. *Why public engagement needs to move upstream*, London: Demos

3.1 Evaluation process

Central to maintaining the scheme as a useful means of engaging early career scientists with the societal implications of their work is a thoughtful and thorough evaluation process. Each year the short term outcomes of the scheme are evaluated. This always encompasses the input of the participants and has also variably involved canvassing judges and public visitors to the poster exhibition.

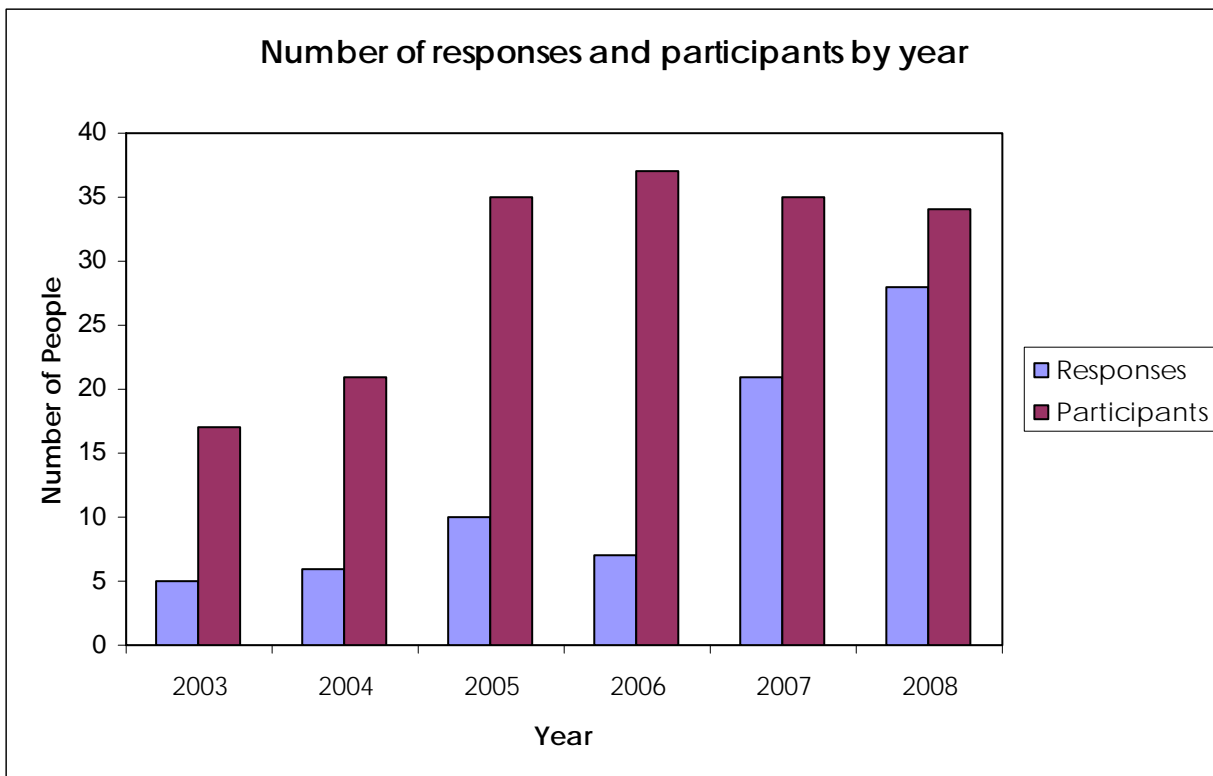
This study has been carried out in order to determine, over its lifetime, if the scheme is achieving its stated aims and whether these are beneficial for the British Science Association, the sponsors, the public and the participants. Herein annual evaluations will be briefly reviewed and the results of an overall evaluation presented; giving an overview of outcomes and effects throughout the duration of the scheme. It is intended that this overall evaluation targets areas not covered by the previous evaluations, with little focus on technical details of the scheme. Instead past participants were asked about the long term impacts of the scheme on themselves, their careers, colleagues and institutions. It was hoped that finalists will, preceding and subsequent to *perspectives*, have experienced other schemes and new situations in their careers which will allow them to assess the scheme from a new point of view.

The evaluation process was comprised of two stages; a questionnaire and a follow-up focus group to further explore comments. This report amalgamates content from these in order to examine the delivery of the scheme, its short-term impacts and, lastly, its long-term impacts.

In order to keep the evaluation as objective as possible, it was conducted by a British Science Association intern (Catherine Scullion) who had never been involved in the perspectives scheme. Support was offered by the Science and Society team and an external evaluation consultant (Laura Grant) was also contracted to help shape the evaluation questions, conduct the focus group and review the final report.

3.2 Questionnaire

In order to reach as many past finalists as possible for the long term evaluation, a questionnaire was designed and emailed to all those for whom a current contact address had been found. An internet search was used to find possible contact details for the 179 past finalists; email addresses for 141 were found. The questionnaire was online and open for 2 weeks with 2 reminders being sent out. A total of 63 responses were received; a 45% response rate. This method was the most accurate available but may incur sampling bias as those no longer in a field that makes use of the internet and anyone who has changed their name will not have been found.



The graph shows a bias in response number towards later years. This is not surprising as most participants are PhD students or early post docs and are likely to change institute within a few years. More recent finalists may also feel more engaged with the scheme and therefore more likely to reply.

The questionnaire contained a mix of closed questions (to allow for quantitative analysis) and open questions (in order to gather qualitative data). Responses received to qualitative questions were divided into themes for analysis purposes, in these cases comments could be placed in more than one theme if they included multiple topics.

3.3 Phone Interview

Thoughts of one finalist from 2003 were collected by phone interview as requested by the finalist. They were unable to attend the focus group but wanted to contribute.

3.4 Focus group

A focus group was held at the British Science Association head office in London on the evening of 2nd July 2009. Four past finalists participated; one from 2004, two from 2005 and one from 2008. Through mind maps and conversation they were asked to consider the impact of the scheme on themselves, how it related to other schemes available to young researchers and what the British Science Association could do to help finalists get maximum benefit from their participation.

It is important to note that participation in the focus group was self selecting by finalists. Perhaps as a consequence of this all participants had undertaken substantial further public engagement work and saw *perspectives* as a major influence to, and facilitator for, this. Therefore, although their contributions to the evaluation are valid, they should not be seen as representative of all past finalists.

4.1 Annual evaluations

The scheme was first piloted in 2003; since this time it has enjoyed increase in size and exposure and been continuously adjusted in response to annual feedback. Over its lifetime the scheme has increased in size (17 finalists in 2003 to 36 in 2007, 2008). Applicant numbers have also increased with a high of 82 in 2007 rewarding an increased marketing drive by RCUK and the British Science Association.

The scheme is a precocious one: since its inception there has been a general increase in young researchers being encouraged to consider the societal impacts of their research, and take on the challenge of public engagement as an integral part of being a scientific researcher. This is reflected in RCUK forming a dedicated Science in Society unit in 2005 and the Wellcome Trust opening the Wellcome Collection in 2007, in order to encourage public access to science. Over the years that *perspectives* has been running, overall 90% of finalists expressed enjoyment of the scheme and 71% felt that they would continue with such work following participation in *perspectives*.

The scheme has also proven to be reactive and flexible in nature; feedback has been used to constantly improve the judging process and workshops; new introductions have included having the finalists participate in the x-change and BACKchat at the British Science Festival, and displaying the posters at non-festival venues. The scheme has also adapted to the inclusion of social scientific researchers and commissioned the making of a promotional video to explain the premise and purpose of the scheme to visitors of the exhibition.

The main problems reported in annual evaluations are a lack of visitors to the poster exhibition and issues with the judging process. The former is difficult to address due to the festival changing venue every year. However the Science in Society team is continuously looking for ways to improve exhibition positioning and attendance with increased publicity and has trialled events for schools. Having the finalists exhibit in a shopping centre and speak at the festival x-change were successfully piloted in 2008, having very positive feedback from finalists. Further suggestions and possibilities to improve attendance will be outlined later in this report.

4.2 The x-change

Speaking at the x-change requires finalists to describe their work in an engaging way in just 2 minutes in a bar; a challenge that participants thoroughly enjoyed. At the shopping centre, feedback showed that the finalists appreciated the challenge of engaging people who did not have the purpose of visiting a scientific exhibition, and spreading word about the festival to a wider audience.

4.3 Judging

Each year the opinions of the judges on the scheme are surveyed. There is some degree of focus on the finer points of the judging process and also some discussion of the scheme in general. The vast majority of judges agree that the scheme is a good way of enabling young researchers to explore wider issues surrounding their research areas. Suggestions on timing and other judging constraints from both judges and finalists have been incorporated and have raised satisfaction levels with the judging process over the lifetime of the scheme.

In the 2005 evaluation the opinions of members of the public who visited the exhibition were surveyed. The audience was found to be highly educated; all to at least degree

level, and many with a post-graduate qualification. The majority of visitors enjoyed the event with words such as 'fun,' 'challenging' and 'informative' commonly used to describe their conversations with researchers.

"An excellent event to push ideas out into the public."

"It was nice to get a different perspective!"

4.4 Training workshops

The workshops have been consistently rated very highly by finalists for the information and skills they provide. However they are still constantly adjusted according to the annual feedback.

"I think it should be a condition of all RCUK grants that researchers attend a training day like the one we had – this would increase the effectiveness of dissemination enormously!"

"It was really eye-opening to see my field from the perspective of someone who has no prior knowledge. The BA staff were very approachable. Overall, a really useful day."

Broadly speaking, over the lifetime of the scheme the finalists have entered with aims mirroring those of *perspectives*. This is a reflection on effective marketing of the scheme and, more importantly, on its close links with the goals of early career researchers. Many participants also highlight the aims of the scheme in detailing what they most enjoyed about it.

5.1 Value for money

The main overheads of the scheme, including accommodation and travel for finalists, are covered by RCUK funding. The scheme also receives a number of in-kind contributions with judges giving of their time for free and the poster display venue being excellent value by way of the scheme's operation by the British Science Association. Additionally many of the participants have heard about the scheme through word of mouth or e-mail communications from their research council; advertising methods that represent excellent value for money.

6.1 Discussion

This discussion refers to comments made in the e-survey sent to all past finalists and in the focus group.

6.2 Scheme delivery

This section intends to assess the technical operation of the scheme. However it avoids precise details of the workshops and judging process, which are all available in annual evaluations.

Science Festival link

All respondents felt that the link with the British Science Festival adds value to *perspectives* (76% a great deal, 24% a little). Many expressed the feeling that the scheme wouldn't work without the link to the festival. This aspect of the scheme is clearly highly valued with many expanding on the rewards of attending the festival.

" It ensures that a wide range of people come and look at your work and means that one minute you can be talking to a group of 7 year olds and in the next breath to a retired academic."

"For me, I had previously only given talks to children, so it was good practice to talk to older members of society about my work too. There is also a lot of personal added value because the participants get to see a lot of the science festivals shows for free, and not only learn a lot of great science, but also get to see other science communicators in action."

One respondent proposed that a stand alone event might provide a more captive audience for the finalists. However one other comment opposed a suggestion such as this as unable to 'deliver the same message' if not connected to a larger science communication event.

In 2007, in an attempt to expand their use, a selection of the posters were exhibited at Science Oxford a month after the festival. The finalists were all based quite locally to Oxford and a few also took part in Science Oxford's evening public programme. However attendance to this event was poor and provided no real advantage or opportunity for finalists to practise and improve their communication skills. However areas for expansion of the use of the posters should be continuously monitored.

Some finalists expressed that the use of the posters was expanded through their own outreach work and that of their department.

"A lot of work was put into the poster and it was used for a number of other events."

Focus group participants felt that not only could use of the posters be expanded but also the use of the finalists at the festival. They agreed that there was scope for this expansion and that at least a proportion of finalists had an 'appetite' for such activity.

The rich variety of experiences for which the festival is valued – range of publics, chance to meet other scientists, discuss ideas and gain inspiration – mean the link is seen as very valuable by the finalists and should be continued. Expansion of finalist's activities at the festival could be reviewed, though it is also valuable for finalists to have some free time to attend festival events of their choosing

Management/running of scheme by British Science Association

Over the lifetime of the scheme, the vast majority of comments (88%) on the management/organisation of the scheme were positive. No suggestions for new improvements in this area were made.

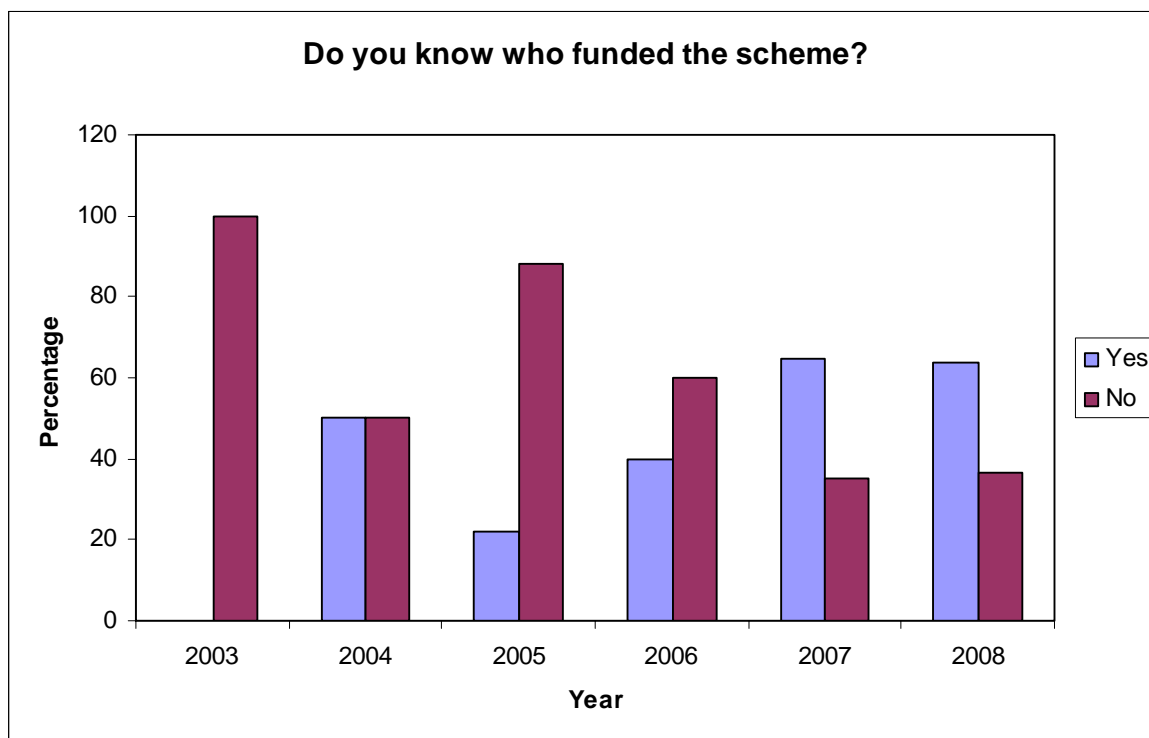
The Science in Society team are praised as 'friendly,' 'well organised,' 'enthusiastic' and 'helpful.'

"It was very well organised and run by the BA. We were well looked after by the team and received a good amount of information before and during the event."

"The day to day running was handled well - I felt able to contact the lead people at any time with any query. They were very helpful and genuinely tried to ensure it was a great experience for all."

A few finalists qualified positive remarks on the team with some negative comments on the venues, or levels of attendance to the exhibition. As previously stated, the annual change in venue creates organisational difficulties for housing of both the poster exhibit and the finalists. The team are continuously addressing these difficulties and should continue to do so. Other comments suggested expanding the training session; however for the majority the amount of training given was seen to be sufficient.

Awareness of funding



37% of all finalists from 2003 to 2008 correctly identified RCUK, or their own research council (RCUK was not formed until 2005), as the funding source for the scheme. A further 15% were unsure of the funder and suggested research councils as a possibility. 48% did not know or incorrectly guessed who funded the scheme. The most common incorrect suggestion was that the British Science Association provided at least some funding for the scheme.

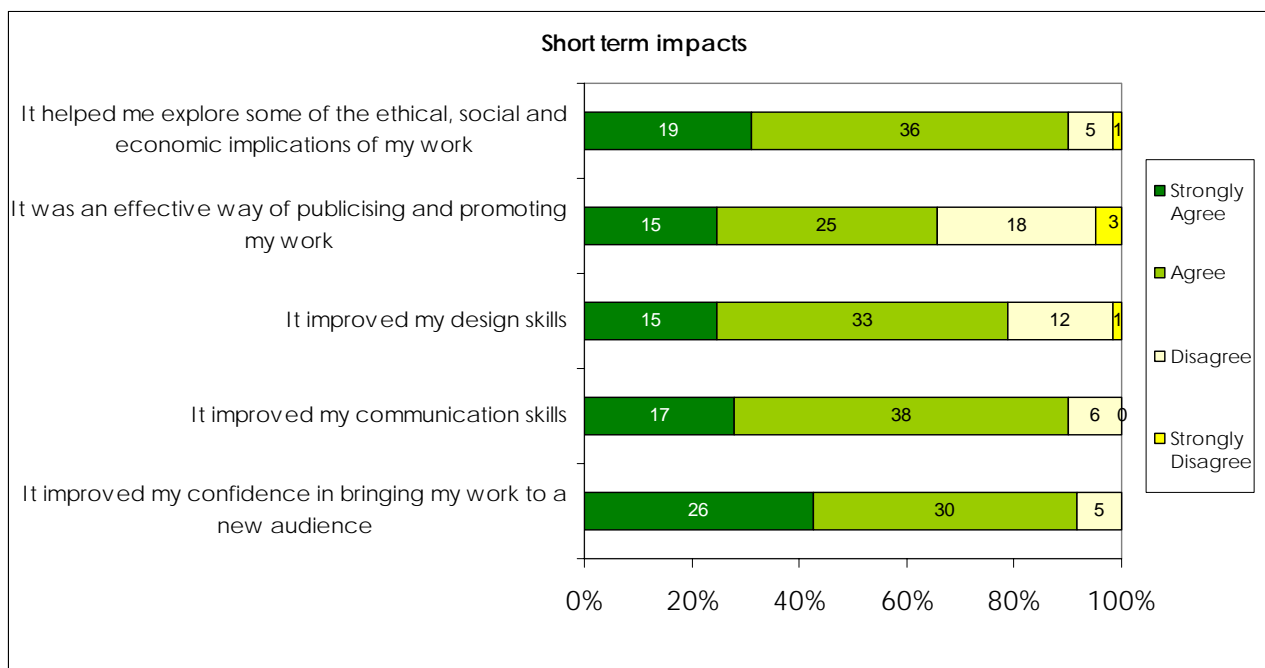
The proportion of people able to identify the funder has generally increased in its lifetime (0% in 2003 to 59% in 2008). This is most likely due to the training workshop giving a brief overview of science communication history and activities, and having an RCUK representative explain their reasons for funding the scheme. The funder’s logo is also included on the name plate produced for each finalist to display beside their poster. If the funders want to maintain/increase awareness of their involvement this should be continued. Confusion over the role of the British Science Association – seen as a funder rather than coordinator of the scheme – may also be cleared up by an explanation of their role, although to some extent this is already carried out at the workshops.

6.3 Short term impacts

Skills

The aims of *perspectives* intend that it imparts specific skills and competencies to participants. Its success in doing so was assessed by asking finalists to rate their agreement

with statements regarding the scheme.



The vast majority (92%) of participants were in agreement/strong agreement that the scheme improved their confidence in bringing their work to a new audience. A similar number (90%) answered positively when asked if the scheme had improved their presentation skills or provided an opportunity for publicising and promoting their work (87%). Negative responses to each of these statements stemmed largely from finalists feeling that they had not spoken with sufficient people to establish these skills or felt they had already gained the skills from other schemes.

"I felt the number of members of the public that I actually spoke to was low compared to my expectations."

This is a problem that the organisers are aware of and are continuously addressing; it will be more fully explored in a later section.

However some finalists commented on the great variety and number of people they had the opportunity to speak to

"...a much broader spectrum of the public than I would normally meet through my work, friends, conferences and occasional volunteering at local museums."

"It let me see that people not in my area of research were interested in what I am doing."

Another showed appreciation of the overall aim of the scheme.

"I think that perspectives was more about helping me to develop as a science communicator rather than as a platform for publicising my own work."

It is clear that expectations and experiences regarding numbers of visitors have varied between finalists. The efforts currently being made to make this experience more uniform and attract maximum visitor numbers should be continued; as interacting with the public is a vital aspect of the scheme for finalists. Moves to manage the expectations of finalists at

the workshop, as to how many visitors they will receive, and gain their cooperation in publicising the exhibition are also useful in addressing this.

Although it is an aim of the scheme to provide role models for teenagers, a couple of finalists specifically commented that the greatest value of *perspectives* lies in the variety of audience it reaches. It is pointed out that many other schemes exist to provide role models for school children, for example Researchers in Residence. The place of *perspectives* in relation to other schemes should be reviewed to establish if it is necessary to target the scheme to teenagers or a wider audience.

The vast media presence at the festival allowed some finalists to take advantage of an unintended impact of the scheme and promote themselves and their work through a variety of media.

"I was picked out to do my first radio interview."

The media presence is a unique and well-managed aspect of the British Science Festival and the benefits and uses of this should be emphasised to finalists during their training.

Comments on design skills were most strongly polarised – from learning a ‘huge amount’ to the advice being ‘fairly useless’ - but with little expansion; making a causative analysis difficult. 79% of finalists were in agreement/strong agreement that their design skills had improved, but with such difference of opinions it would be useful to get more detailed feedback on exactly why, or why not, the advice given was felt to be useful. In one case the design aspect led to some unintended, but very useful, networking.

"During the making of my poster I got in touch with the SCI-FUN team at Edinburgh University, with whom I am starting a new collaboration now."

Getting young scientists to consider wider social and ethical issues related to their work is a core aim of the scheme. The vast majority (90%) of past finalists agreed/strongly agreed that *perspectives* helped them explore these areas. One expanded on what they saw as a unique experience.

"I spoke to quite a few people in Dublin who had strong religious views and it was fascinating to learn more about their viewpoint with regards to my research."

Two social scientists commented that their work had social and ethical dimensions ‘integrated’ in its nature; or that it was considered differently by a ‘pure’ science audience. Social science research areas became integrated into *perspectives* during its lifetime and the scheme proved flexible in accommodating these new subject areas but it should perhaps be considered that these different subject areas might lead to different experiences with the scheme. These possibilities should be addressed with the relevant social scientists at the workshop and followed up during the festival.

Another finalist commented that they were at a very early stage of their career when they took part in the scheme and perhaps would have benefited more from the chance to think more widely about their research after they had become more engaged with it. This is an area to be considered at the application stage by the selection committee.

At the focus group participants were asked to make a mind map of what they felt were the immediate skills outcomes of the scheme. Popular words included ‘rewarding’, ‘diverse,’ ‘fun,’ ‘confidence’ and ‘exasperating.’ The last arose from having conversations during which it was difficult to get your message across. It was pointed out that this could

lead to the finalist becoming self critical and less able to communicate. To prevent this it may be useful to briefly outline at training workshops that, as in life, finalists shouldn't expect to have favourable conversations with each member of the public they speak with at the exhibition.

Participants also had views on the number of visitors. In this case they felt that finalists should take some level of responsibility for drawing people to the exhibition, and once there, engaging them in conversation. The challenge of this was appreciated.

"This is the first time I had to talk to people who could just walk off; there was therefore an extra challenge of being eye-catching and entertaining."

The skills and knowledge that successful conversations could impart were also valued.

"Not just from the poster but from talking to them ... you get an understanding of what bits they're interested in, what bits they're not and what they understand by the terms you're using."

With regard to design skills the participants found *perspectives* to be a useful way of building contrasting yet complementary skills to those required for academic posters; as it gave an awareness of the fact that your poster is an advert for you.

"Since perspectives I have made lots of scientific posters and have tried to incorporate some of what I learnt in perspectives in these."

Other comments appreciated the skills *perspectives* provides in this area as unusual.

"There is no definitive 'how to make a poster' for scientists, though there is lots on giving talks and other skills."

Participants also expanded on how the scheme helped them to consider wider issues surrounding their work.

"It really does make you step back and think about what it is you are doing and why you are doing it."

They described how being challenged helped them to solidify their own thoughts and they appreciated the chance to bring 'accuracy' to the debate; this varied from managing expectations to explaining applications.

For the majority of finalists it seems that the workshops and subsequent conversations at the festival are more than sufficient to satisfy themselves that they are able to develop skills and consider their work in a wider context. At the focus group the scheme was described as 'niche' in the range of skills it addresses and develops.

"If you're not that confident it is less scary to stand in front of a poster than a camera or audience."

Drawbacks

Open questions regarding the drawbacks of the scheme drew responses representing a mixture of long and short term effects on finalists.

Responses to this question reflected quite positively on the scheme with 'none' being the

second most popular answer when asked what the drawbacks were.

"I am convinced that as young researchers, we think not enough about how to engage with the public, how to think about social and ethical dimensions of our research. The perspectives scheme provides a unique chance to do this in a stimulating and friendly setting. I would encourage every young researcher to take the chance!"

However some areas for improvement were highlighted.

The most frequent comment was the amount of time participation in the scheme requires. This was seen as time away from their lab work, that some were required to take as annual leave, and was often not well received by supervisors. Attendance for the festival is an integral part of the scheme and is unlikely to be a requirement altered by the organisers. Therefore to address this problem more could be done to improve the acceptance of time spent on public engagement in the academic community. Letters from the British Science Association to supervisors go some way to addressing this but further action, such as the funder emphasising that a fraction of research grants should be used for public engagement, would further aid this culture change.

These actions would also address another drawback identified by a couple of finalists: that participation in a scheme such as *perspectives* would not further your academic career.

"...this sort of thing is not valued by promotions panels!"

The judging process was also highlighted as an area for improvement by finalists, particularly in early years. Improvements to timing and number of judges seen have increased general satisfaction levels with this process. One finalist expressed dissatisfaction with the winning scientist having only just begun their research and making a very general poster. Although there is no requirement for poster detail it should perhaps be considered to impose a minimum amount of time spent in research at the selection stage.

Four comments mentioned that they felt the representation of science subjects was not well-balanced in that there were more biology and medical themed posters. This could be addressed by the selection panel but participants are chosen for their ability and enthusiasm to communicate their science, rather than their subject area; an artificial balance is therefore not in the nature of the scheme and may be difficult to achieve. Also, the engineering and physical sciences research council actually provide the most finalists, 48% more than MRC and 56% more than BBSRC.

Benefits

Respondents identified a variety of benefits. Many of the most frequent reflect the aims of the scheme; namely having an opportunity to communicate with the public, improving their communication skills by doing so and thinking about their research in new ways.

"It is a fantastic opportunity to think about your research from a different angle, considering the implications of your work on other people."

A number emphasised how useful and refreshing it was to speak to members of the public.

"Gaining confidence and experience in discussing your research with members of

the public, rather than fellow scientists the whole time."

This question also drew out some unintended impacts of the scheme with 17 respondents commenting on the networking opportunity that the scheme provided.

"I can honestly say that it is the best opportunity to network that I have encountered over 4 years of doing science communication events."

Focus group participants also emphasised the networking opportunity provided by the scheme with one finalist making a contact that later proved of great professional use. Another told how the conversations she had with the public proved educational.

"They taught me stuff about the local area that related to my subject."

This opportunity is not currently highlighted in the application materials or the training workshop. Feedback shows it to be very valuable to past finalists, and so it is recommended that it should be more explicitly presented to participants. A number of finalists also commented on finding the scheme motivating for their scientific work as the public's excitement proved infectious.

"Especially as an early-stage researcher it helps you to realise how your work really will impact on the general public and I think this is a hugely important aspect of any research and actually discussing that with members of the public is very motivational."

One comment valued the scheme as a way of addressing their responsibility of informing the public on the research that they are – however inadvertently – funding.

"I also feel that as the public ultimately fund most of the research undertaken it is only fair they see what their money is spent on."

The scheme was also valued as something 'a bit different' to normal, a route to attendance to the festival and an opportunity to raise one's profile in their department for future outreach events.

6.4 Long term impacts

The final set of questions intended to ascertain the long term impact *perspectives* has had on finalists' attitudes to public engagement and how this has influenced their careers.

Attitude to public engagement

The most common outcome (54%) expressed, in response to being asked how *perspectives* impacted feelings on engaging the public with their research, was one of gaining new knowledge. This varied from learning about the public as an audience; their knowledge, understanding and needs:

"Perspectives was a really good opportunity to understand how the general public react to research and I found it refreshing to get an entirely different viewpoint to what I was doing."

To learning design skills as a means of engagement:

"After attending perspectives, I have gained perspectives on doing theme based

posters that is about capturing the audiences with a single outstanding theme."

Development of these skills is in-line with the aims of the scheme.

Numerous remarks, reflecting another aim of *perspectives*, expressed that the scheme had given them confidence and enthusiasm for public engagement work; and through this, enthusiasm for their research.

"It made me see how important it is to discuss things with the public and their enthusiasm helped mine."

"It gave me the confidence to get involved in communicating science. The feedback from the people I met showed that people are interested to see and learn about what research is being conducted."

Many followed on from expressions of enthusiasm to state that the scheme had led to further public engagement work.

"It was the start of a journey for me. Since then, I've been on BBC TV in the UK and also abroad and also done lots of radio interviews and interviews for magazines."

Nine comments praised the scheme as being the opportunity they had been seeking as a pathway into engaging and speaking to the public about their research.

"I always wanted to get involved in science communication activities; it gave me a confidence and encouragement to pursue it further."

Some statements simply expressed a general positive experience with the scheme.

"I was already involved in public engagement work before attending this event- very fun to do though"

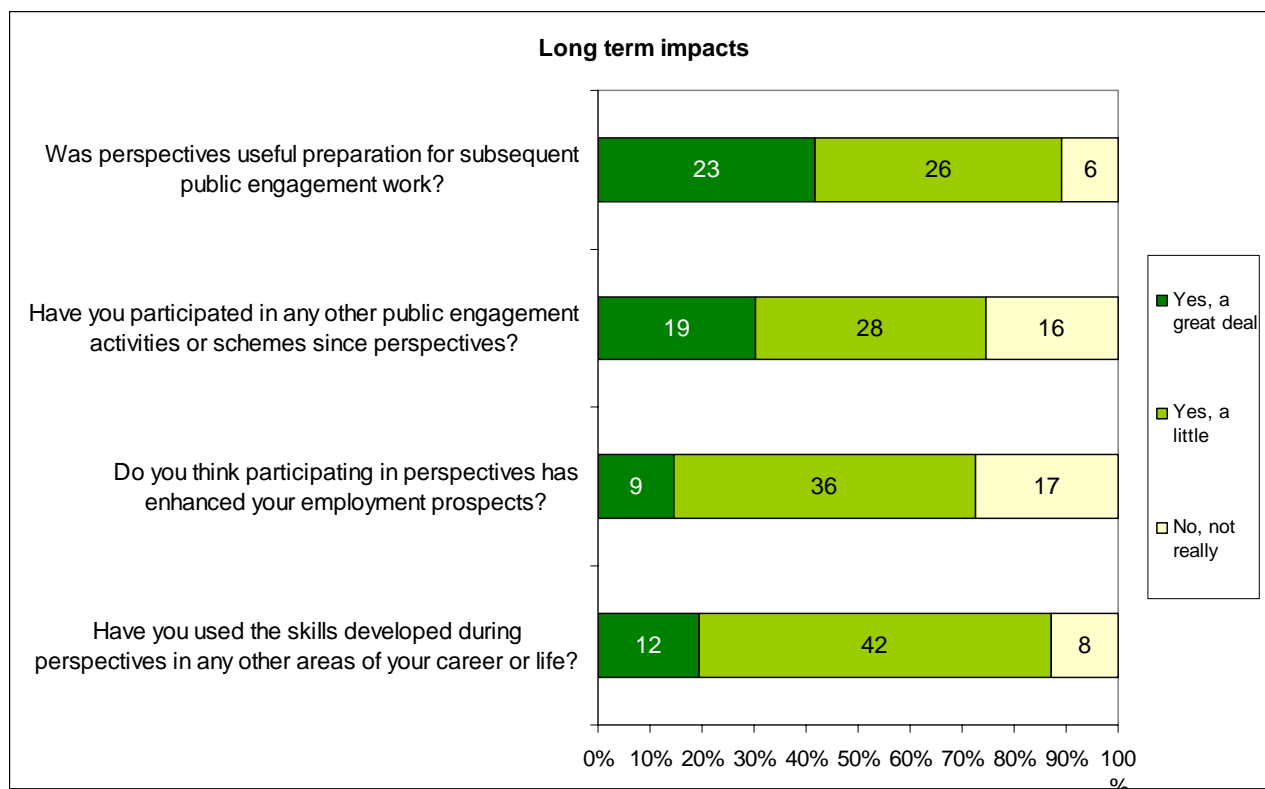
Four comments expressed that the scheme did not impact their feelings with regard to public engagement, as they were already in favour of it, and one expressed some negative outcome of participation.

"...gave me the feeling that some people (and in particular one member of the jury) are very aggressive against the science I do; in some case this has made me not been confident in taking part in some events where this kind of aggressiveness may appear."

To address this it may be useful to prepare finalists for the fact that some people they speak to may not agree with their research. In the case of the judge it should be ensured that during their briefing it is explained they could challenge their research, but not aggressively so.

Overall answers in this area show *perspectives* serves as an effective means of introducing young researchers to public engagement and the challenges and satisfaction offered by the field.

Further public engagement work



The majority of finalists have undertaken further public engagement work following participation in *perspectives* (30% many, 44% few). Of these 89% found *perspectives* to be useful preparation for the work. When asked for comments relating to further public engagement work, particularly their motivations and any barriers faced, finalists gave a variety of responses.

Motivations and barriers

Those who have not undertaken further engagement work had a variety of barriers. The main ones over which the British Science Association and RCUK can hope to exert influence are time, expertise and the lack of value placed on outreach work in some areas of academia.

"I'm all in favour of public engagement but have no idea how to go about it, I mean what sort of things might I organise, how would I publicise them etc."

"Employers aren't always keen on working hours being used for this type of activity rather than bench research."

Focus group participants emphasised how valued the letters from the British Science Association to supervisors and heads of departments are; this lends prestige to their participation and means others are encouraged to apply.

Motivation was not stated as a problem by any finalist, this should be an encouragement to all organisations seeking to increase public engagement with science; young researchers are willing to share their expertise and enthusiasm and should be made aware of opportunities to do so. When questioned on this area, focus group participants again emphasised that the *perspectives* group could be more widely used. They felt the group

should be 'captured' as fully as possible. It was strongly felt that the easier participating in further events was made, the more people would do so. Suggestions included organising a framework to allow the finalists to put on an event for National Science and Engineering Week, or a subsequent British Science Festival event. It would be useful for the British Science Association and the funder to explore these possibilities. Assessing whether there is a gap in the public engagement field for large scale events that do not require complete organisation by researchers, or if the organisational task is not prohibitively great and the researchers could create an event with minimal direction.

The questionnaire responses and focus group discussions showed *perspectives* to be an effective springboard to many other activities. Many comments about public engagement emphasised skills and contacts from *perspectives* inspiring and equipping finalists to join other programmes.

"Overall, my department and university as a whole has been very supportive of my outreach work and have passed many opportunities on to me. My involvement with the perspectives scheme has greatly contributed to this response."

"Perspectives gave me more confidence in public engagement work and following on from it I became a Researcher in Residence, organised several National Science Week workshops and received a BBSRC public engagement award to set up a big event for Leeds Festival of Science. I think that the experience of perspectives definitely led me down this path."

It was also emphasised that participation in *perspectives* affirms in their own minds that finalists have something valuable to say. One commented that as a student you are constantly told that you are not an expert but this scheme showed them that their knowledge still has great value.

"[After perspectives I did many things] I would never have thought of doing and never have thought I could do but I'm now comfortable with the idea that I have something to say."

One focus group participant suggested that it would be relatively easy to expand *perspectives* itself to areas of new media: for example by filming each of the finalists speaking briefly about their work or doing a demonstration.

Some commented on the usefulness of *perspectives* having publicity links with other initiatives funded by various bodies e.g. STEMNET. This is important, and should be further encouraged, as the public engagement landscape can be confusing to early career researchers with so many programmes available. It will go some way to solving the problem of researchers feeling they lack expertise if they are aware of all possible schemes they possess the proficiencies to participate in.

Skills and employment

Questions asking finalists to assess whether *perspectives* had provided skills useful in numerous areas of their career or life, and if the scheme had enhanced their employment prospects, elicited similar responses. In both cases the vast majority agreed that *perspectives* had some level of positive effect.

Those who felt the skills gained had limited use or enhancement to their employment prospects often felt that outreach activities were not well respected in the science community.

"...the people who regulate my work, i.e. thesis supervisor etc are in many cases not receptive to this kind of communication. It seems that academics can become very 'closed-off' to the need to communicate science to people further than their own field of research."

This is a culture that the British Science Association and the funder RCUK are working hard to address, and replace with one in which public engagement is embedded in good scientific research practice. Large scale initiatives such as the Beacons for Public Engagement are complemented by smaller schemes, such as *perspectives*, in bringing this step-change to academic institutions.

A number of comments showed the value of *perspectives* in sending this message to young researchers and their appreciation of the skills and experiences it provides.

"The skills that are developed during perspectives, especially the confidence I got from interacting with the general public and other scientists (who you don't know), are very transferable and applicable to many areas of my life."

"...It helps you to begin to consider yourself a researcher in your own right, rather than simply a student."

Skills have been used in a diverse range of settings; for the personal benefit of finalists and also their departments.

"We recently had an important visit by BBSRC, the major funding body to our institute. I was selected to meet them based on an essay competition - 'impact assessment of my work.' I strongly feel that my experience in perspectives helped me for this, and that the meeting with the BBSRC and discussion on public engagement with them were very successful."

Participation in the scheme also had unintended impacts on finalists careers, for example one expressed that they use material from the festival in their teaching.

By taking a step back from their research to present the field as a whole, finalists were encouraged to realise how much knowledge they have. At the focus group it was commented that this aspect gave them enthusiasm and confidence in their own work.

Progress with a culture change could also be seen in positive comments about *perspectives* and employment prospects.

"I think that employers are impressed that I was a finalist in the competition - and further that I was a runner up. I am often asked about it in interviews."

Focus group participants had appreciated the skills provided by the scheme when fulfilling competency requirements on job applications and key skills progress in their departments.

A number of responses highlighted that they are yet to apply for different positions following their participation in the scheme, but that they are happy to include the scheme on their CV.

Progress in creating a public engagement culture within scientific research is seen in some of these responses and should act as encouragement to the British Science Association and RCUK to continue their efforts of facilitating engagement between scientists and the

public.

Festival re-attendance

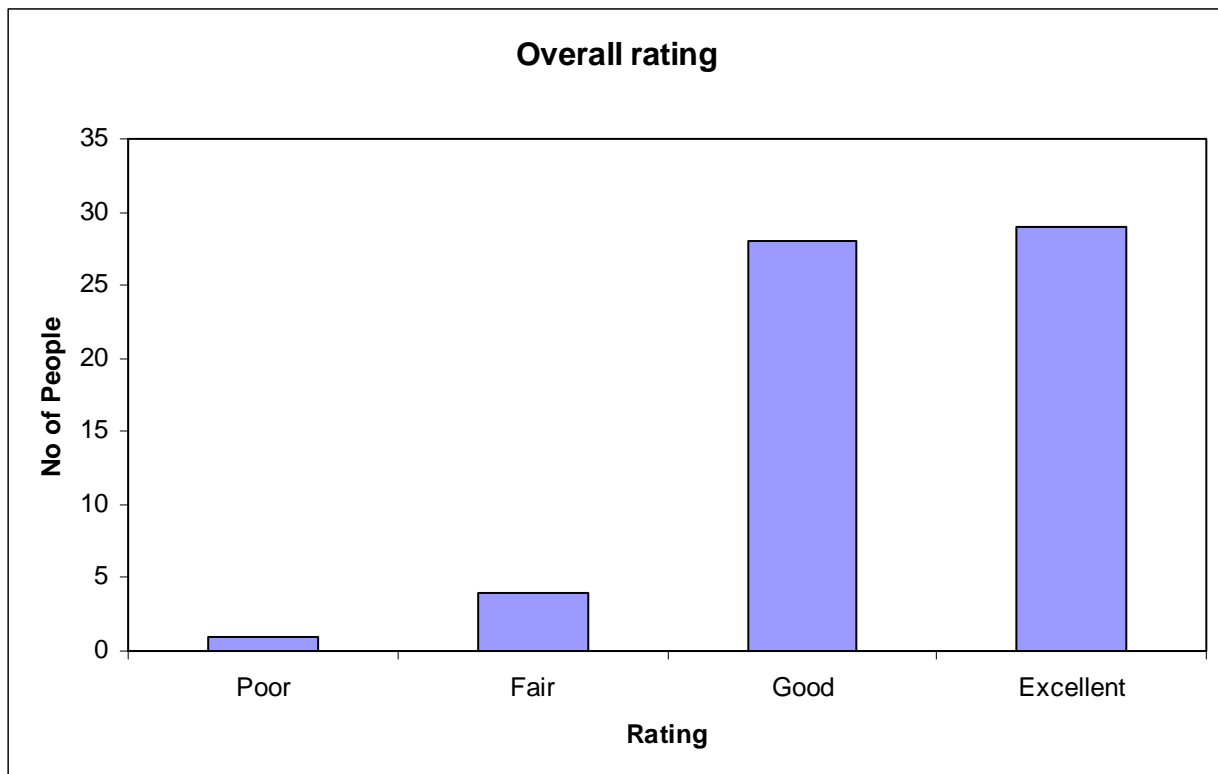
18% of finalists, who have had the opportunity to, have re-attended the festival. A couple of comments mentioned that more publicity of the Festival would encourage their re-attendance.

"The BA festival is so little publicised that I invariably forget about it until a chance mention in the media during the festival itself. You need to improve your publicity."

The British Science Association strives to contact past-finalists with a number of updates on science communication opportunities and it is recommended that the festival be added to these. RCUK could also publicise the grants it gives for organising events at the festival.

Scheme rating and Improvements

The final section of the questionnaire asked finalists to rate their overall experience with the scheme and invited suggestions that would improve it for future participants.



The scheme was highly rated by respondents with 92% answering good or excellent. This sentiment is also reflected in the section inviting finalists to give final comments.

"It opened up a world of science communication for me."

"It is sad that I won't be able to participate again!"

However, finalists did also target some areas for improvement. The two most prominent of these are the same as those identified in the annual evaluations – the attendance to the exhibition and the judging process. The organisers are aware of both and are taking

measures to address them. As aforementioned, the judging process has enjoyed increase in satisfaction levels over the lifetime of the scheme.

Some finalists gave suggestions of ways to remedy the problem of attendance; including giving incentives to the public for their attendance, avoiding programming the precise times for the poster sessions until the last-minute and encouraging people to leave their comments regarding the research areas on post-its. The first suggestion would require more funding and publicity and so should be carefully considered by the organisers. Last-minute timetabling should be relatively easy to achieve as all finalists should be at the festival venue already. Generating a post-it debate would also be relatively simple to resource and could be trialled with fairly little preparation.

Some finalists also felt that having props or leaflets to give out when discussing their research would help them to promote their work. This was originally prohibited as it was thought it would affect the results of the people's choice award, but as this no longer takes place this policy could be reviewed.

Some finalists suggested that the scheme would benefit from having more follow-up contact and training, or an organised follow-up scheme. Efforts are made to inform contacts of various other science communication opportunities. At present there is no formal follow-up scheme run by the British Science Association, however the existence of numerous other schemes at a wide variety of organisations should mean a direct follow-up is not essential. Efforts are made by the British Science Association to inform finalists of all opportunities available in the public engagement field and both a personal and work contact email are taken for finalists in order to make it easier to stay in touch with them.

Relatively few suggestions for improvements were made by finalists, perhaps indicative of the long term value of the scheme. In fact many toned down responses given in the short-term evaluations. Such rose-tinted reflection on the scheme suggests that over the long term the skills it provides are wide ranging in use and value.

Appendix 1

Questionnaire

What year did you participate in *perspectives*?

In what way did *perspectives* impact on how you feel about engaging the public with your research?

Comment box

Please rate your agreement with the following statements about the impact of *perspectives*? (Scale: strongly agree, agree, disagree, and strongly disagree)

- It improved my confidence in bringing my work to a new audience
- It improved my communication skills
- It improved my design skills
- It was an effective way of publicizing and promoting my work
- It helped me explore some of the ethical, social and economic implications of my work

Comment box

Have you used the skills developed during *perspectives* in any other areas of your career or life?

- Yes, a great deal
- Yes, a little
- No, not really

Have you attended the BA Festival of Science since the year you participated in *perspectives*?

- Yes
- No

Do you think that participating in *perspectives* has enhanced your employment prospects?

- Yes, a great deal
- Yes, a little
- No, not really

Comment box

Have you participated in any other public engagement activities or schemes since *perspectives*?

- Yes, many
- Yes, a few
- No, not really

Was *perspectives* useful preparation for subsequent public engagement work?

- Yes, a great deal
- Yes, a little
- No, not really
- No further public engagement work undertaken

Did participating in *perspectives* have any other impacts on you, your work, your colleagues or your institution?

Please add any further comments relating to the questions above. We are particularly interested in any relating to further public engagement work, your motivations for doing it and any barriers you have faced.

What would you say are the main benefits of the scheme for researchers?

What would you say are the main drawbacks of the scheme for researchers?

- Do you think that the link with the BA Festival of Science adds value to the scheme?
Yes, a great deal
- Yes, a little
- No, not really

Comment box

Do you know who funded the scheme; if yes, please state.

Please comment on the management/running of the scheme by the BA.
How could the *perspectives* scheme be improved in future?

Overall, how would you rate your experience with *perspectives*?

- Excellent
- Good
- Fair
- Poor
- Please enter any other comments/feedback on any aspect of the scheme.

Appendix 2

Aberystwyth	1
Bangor	1
Bath	3
Birmingham	4
Bradford	3
Bristol	6
Cambridge	15
Cardiff	7
Co. Durham	1
Colchester	1
Dundee	2
Durham	4
Edinburgh	6
Exeter	1
Glasgow	1
Goldsmiths	1
Heriot-Watt	3
Huddersfield	1
Hull	1
Imperial	7
Institute of Animal Health	2
Keele	1
Lancaster	1
Leeds	10
Leicester	2
Liverpool	4
Loughborough	2
Manchester	9
Microsoft	3
Newcastle	5
Northampton	1
Nottingham	4
Open University	1
Oxford	15
Queen's, Belfast	1
Reading	2
Rutherford	1
Salford	3
Sheffield	11
Southampton	4
Stirling	2
Strathclyde	2
Sussex	2
UCL	7
UEA	3
University of London	3
York	5
UMIST	4

The finalists over the period 2003 – 2008 have come from a number of different universities across the country and can be seen in the table on the left.

The universities that provide the most number of finalists are Cambridge and Oxford, followed by Sheffield and Leeds.

The breakdown of Research Councils have also been provided below, although there is no data from the 2003 finalists as to which research council they were from.

EPSRC provides the majority of finalists, significantly more than any other research councils.

AHRC	2
BBSRC	23
EPSRC	52
ESRC	18
MRC	27
NERC	19
Microsoft	4
PPARC	10
RCUK	4
STFC	3