

## **PATHWAYS AND PROGRESSION**

An evaluation of four projects with secondary schools:

### **Museum of Science and Industry in Manchester**

Bugs in the Bathroom website project with Year 9 students at St Gabriel's RC High School in Bury

### **Manchester Art Gallery**

'Coasters' sketchbook project for Year 9 students at Fulwood High School and Kirkham Grammar School in Preston

### **Whitworth Art Gallery**

Portfolio enrichment days for Year 10 students

### **Manchester Museum**

Forensic science sessions for Years 8 – 11

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## **INTRODUCTION**

### **Purpose of report**

The purpose of this report is to highlight successful approaches to working with secondary schools. It is not concerned with quantitative data, but rather with the nature of the experiences and processes that inspire hard-pressed secondary school teachers to make a museum visit. The report is designed to highlight a number of 'key' principles that might guide further work with secondary school audiences in museums in Greater Manchester.

### **The wider context**

In many ways museum education in the UK is a huge success story. Since the seminal Anderson Report *A Common Wealth* in 1997, the percentage of museums offering an education service has risen from 51% to 86%. The recent report *What did you learn at the museum today?* shows how the investment provided by Renaissance in the Regions has led to a 40% increase in contacts with school-age children in the 69 museums in question between 2003 and 2005.

For many museums, however, secondary schools remain an elusive audience. Even within Renaissance-funded programmes, only a small proportion of visits made to museums are by secondary schools. What's more, a very large percentage of all teachers continue to use museums for straightforward knowledge-based learning, above all in History. The cross-curricular benefits of using museums are still not widely understood; nor is their potential for brokering relationships with a very wide range of 'experts' and supporting various kinds of vocational learning.

Interviews carried out with museum educators in Greater Manchester in the course of undertaking preliminary research last summer (2006) indicate that they find the secondary market a universally challenging one. Timetabling considerations, the cost of transport and issues connected with supply cover are powerful deterrents to taking pupils out of the school. There has to be a compelling reason for teachers to make the effort.

### **Background**

The report follows a small piece of research commissioned by the North West Hub in the early summer of 2006 in order to elucidate current themes and priorities in secondary education. With the second phase of the Hub Business Plan in mind, Hub museums were eager to find an appropriate focus for future work.

Early discussion about the direction of future programmes revolved around the difficult process of transition or transfer from primary to secondary school. Could there be a role for museums and galleries in providing a safe and creative context in which issues of academic continuity and emotional stability could be explored?

While transition from primary to secondary school is and always will be a matter of great concern to teachers and advisory staff, it soon became clear that it might prove difficult for museums to make a decisive intervention. There are, after all, deep-seated attitudinal and organisational differences between primary and secondary schools, which museums can do little to change or mitigate. It also became apparent that there would be challenges in dealing with two sets of teachers (primary and secondary) with possibly divergent agendas.

In the course of discussion with museum educators, teachers and advisory staff, another equally important moment of 'transition' began to emerge as a possible focus for enquiry: namely the point at which pupils are choosing subjects for GCSE in Year 9 or beginning to think about specialisation, further education and future careers in Years 10 and 11.

### **Building on existing models**

Many of the Hub museums are already running projects which cater for secondary students at this crucial juncture in their school career. Several of these projects appear to work well and have the potential to be developed or adapted to other circumstances. Rather than invent a new initiative, it therefore made sense to look more closely at existing models. Four projects/programmes seemed worthy of particular investigation:

- **Museum of Science and Industry in Manchester**  
Bugs in the Bathroom website project with Year 9 students at St Gabriel's RC High School in Bury
- **Manchester Art Gallery**  
'Coasters' sketchbook project for Year 9 students at Fulwood High School and Kirkham Grammar School in Preston
- **Whitworth Art Gallery**  
Portfolio enrichment days for Year 10 students
- **Manchester Museum**  
Forensic science sessions for Years 8 – 11

What is it that makes these projects different from the standard museum-based education session? What are the key selling points? And what do students get out of them, both personally and academically?

### **The 'RAVE' principles**

As we talked about these projects, the discussion began to crystallise around some common themes. All four projects introduced students to **real** artefacts, situations and role-models; they were designed to have an impact on **attainment**; they had a **vocational** dimension; and they gave access to **expertise** not normally available in the classroom. The first letter of each of

these key words gave us the handy acronym **RAVE** – not a bad word (though perhaps a slightly corny one) to describe work involving teenagers!

### **Aim of the evaluation**

In order to test the value of the ‘RAVE’ principles, the evaluation process has focussed less on outcomes, important though they are, than on what motivated the participants to take part in these projects in the first place and which aspects of the experience were perceived as providing the greatest benefit. In short, this report looks at **why** and **how**, as opposed to what and how many.

After initial briefing by education staff at each of the four museums and some background reading of written material, information was gathered by means of observation (where relevant), interviews and focus group-style discussions. In some respects, this approach resembles what is often called ‘grounded theory’, in which the researcher’s task is to understand what is happening within a given situation and propositions are allowed to emerge from the data collected. At the same time, however, there was a hypothesis to test: namely our collective ‘hunch’ about the motivational significance of the ‘RAVE’ principles in persuading teachers to take children out of school.

As far as possible, the same questions were asked of all participants, with some flexibility to reflect the differing character of each project. Broadly speaking, the questions encouraged the participants to address:

- Expectations and reasons for taking part
- The value of contact with real/original artefacts and the museum environment
- How relationships and interactions with ‘experts’ contributed to the experience
- Impact on subsequent learning and attainment

Most interviews (though not all) were recorded and then transcribed, so that the participants’ own words could be used in each case study. Together, these commentaries provide a powerful cumulative insight into ways in which museums and galleries can guide students’ decision-making and support their academic progress at a critical moment in their secondary education.

## **PROJECT ONE: Museum of Science and Industry in Manchester (MSIM)**

### **Bugs in the Bathroom**

**School:** St Gabriel's RC High School, Bury

**Year Group:** Year 9

Interviews were conducted with:

Suzanne Spicer (Access and Learning Manager, MSIM)

Mike Topping (ICT Manager, MSIM)

Meg McHugh (Curator, Community History, MSIM)

Jan Hargreaves (Archivist, MSIM)

Helen Mather, Louise Freak, Aidan Nelson (teachers)

Ruth, James and Oisin (pupils)

### **What happened**

In February 2005 St Gabriel's RC High School in Bury and MSIM made an unsuccessful application for an Attic Media bursary to support a collaborative website project. Such was the enthusiasm of both parties for the idea that they decided to go ahead with it anyway, using funding from MSIM's Designation Challenge Fund (i.e. special funding from the Department for Culture, Media and Sport dedicated to the digitisation of significant collections).

Over the course of nearly one academic year, a group of nine Year 9 pupils brainstormed ideas for the website, devised its structure and graphic design, researched the content, wrote text, selected illustrations and secured copyright clearance for the chosen images. In doing all of this, they used the museum's collections and drew on the expertise of museum staff.

Pupils were invited to apply for participation in the project by submitting a brief statement of interest, as if for a real-life job. They were then individually selected for what they could bring to the team. From the beginning, teachers tried to inject as much 'reality' into the situation as possible. An important aspect of this was that pupils were given a professional website brief.

Their chosen topic, *Bugs in the Bathroom*, involves a light-hearted but informative look at the history and science of the water supply and public hygiene in Greater Manchester. The website is built around a timeline in the form of a virtual sewer, with various jumping off points. It is designed to appeal to slightly younger children, as well as to adults. The address is: <http://www.msim.org.uk/EducationLearning.asp?menuid=1118>

### **Expectations and reasons for taking part**

The main impetus for taking part in this project came from St Gabriel's specialist status as a Science College.

*Science College work means that we do a lot of cross-curricular work in science, art, music and drama. It has led to us using museums and galleries much more. (Teacher)*

Specialist status brings with it additional funding: at St Gabriel's High School this amounts to £123 per pupil, plus £150K for capital development. The investment has supported staffing costs, enhanced provision in ICT, allowed the school to develop better links with its feeder primaries and freed up the Head of Department's time. One of the aims of Science Colleges is also to extend the public understanding of science in the immediate community, though this is something the school has yet to address in a significant way.

Although there is now a great deal of 'enrichment' on offer at St Gabriel's, the Head of Science knows that the school will have to prove that its results have improved when it applies for redesignation as a specialist college in two years' time. As ever, therefore, standards remain an issue.

The other major incentive to experiment comes from the new science GCSE, which places a firm emphasis on scientific understanding as an aspect of good citizenship. Thus the school now uses anything that is in the news:

*We do feel positive about the new GCSE: it has an interesting feel to it. We did IVF the other day and the response from the pupils was great, as there had been an item in the news about whether women who are obese should be entitled to fertility treatment. (Teacher)*

The Head of Science already knew the MSIM, as she belongs to the museum's educational advisory panel. But one of her colleagues, who only qualified two years ago, was surprised at how the school's relationship with the museum developed.

*When I was at school there was never anything like this, there weren't these kind of opportunities. You wouldn't have seen them (i.e. museums) as an interactive resource. You wouldn't have seen the people as there to work with you, to develop what you are needing to achieve. That surprised me. (Teacher)*

The three pupils who were interviewed had all visited museums before. Even they, however, were surprised that the museum didn't entirely match their preconceptions. They thought curators were old and eccentric (not unlike the clichéd image of the scientist perhaps) and expected the environment to be highly regimented. In the event, they were agreeably surprised by the informality of the institution and its personnel.

*I thought there would be lots of older people. I expected glass cases and lots of text. But when you go there, there are interactive things to do. And I liked the people that are doing acting. That was brilliant, the acting. (Pupil)*

*I thought it (i.e. the curator) would be a person who was quite – or very – old, quite wacky. But she was really normal. They didn't act how I expected. They were approachable. (Pupil)*

### **The value of contact with real artefacts, situations and role models**

Staff at MSIM were eager to ensure that the pupils' website exploited the museum's collection and archive.

*We tried to keep them focussed on the gallery (i.e. the Underground Manchester Gallery) because the funding had been given on the basis that they would be working with objects. It was that 'real world' thing again. (Meg McHugh)*

*A lot of our archive material supports the artefacts in our collection, so I tried to get out documents that are relevant, like a trade catalogue showing different toilets and basins, information about water filtration, images from the Electricity Council's catalogue. A lot of them hadn't used an archive before. (Jan Hargreaves)*

In the end, contact with real objects and documents does appear to have been a key factor in enthusing the students and giving some reality to their ideas. One of the teachers spent a day with the pupils looking behind the scenes, including the archive. They saw many objects, for example, the re-created Roman latrine, and explored books, documents and catalogues (e.g. for Victorian bathroom fittings) in the archive.

*They had a really valuable day, just learning how to put on the gloves and how to search in the books. By the end of the day they were absolutely delighted with what they had achieved. When they were meeting with Meg, they were staggered at how old some of the books were. (Teacher)*

The students hadn't expected the visit to be so 'hands on'. They were also astonished at how much material is in store behind the scenes. The fact of being able to touch objects enabled them to understand how certain artefacts had changed over time and helped them make sense of some of the pictures they encountered while looking through the archive. Their high level of motivation reflected the fact that they were undertaking research with a real creative purpose in mind, rather than gathering and regurgitating facts for the sake of it.

### **How relationships and interactions with 'experts' contributed to the experience**

Perhaps unsurprisingly, teachers and pupils spoke even more enthusiastically about the people they met than the objects in the museum's collection. At the very beginning of their visit, the students watched a performance of *Water*,

*Water Everywhere*, which captured their attention and interest straight away. Although it can't exactly be proved, it is possible that the light-hearted and deliberately entertaining tone of the website may owe something to the performative character of this initial experience.

The pupils responded well to the challenge of carrying out a real-life task:

*They like to have high expectations put upon them. They like the idea of being put into a situation and finding out what you can do with it. When they brainstormed ideas, they loved the idea that adults would value what they said. (Teacher)*

*The way the museum staff approached it, it was a case of 'Right, where do you want to take it? I'm your facilitator'. Whereas normally you (i.e. the teacher) are telling them what to do. (Teacher)*

*I provided technical expertise and kept introducing ideas about the real world – for example, by asking them who is the audience for the website. And what are you going to do about visual impairment? (Mike Topping)*

They were also deeply impressed by the 'expertise' of the museum 'experts':

*The great thing about the museum was those individuals with such specialist knowledge and the ability to share that specialist knowledge in an effective way. It helped motivate the children as well as educate them. They could see these were highly developed skills in a real environment. The encouragement they got as well, being treated with respect and as mature individuals. They were treated with respect and not told what to do. (Teacher)*

*When Mike spoke to them for the first time, they were very inspired – in school you're giving them manageable chunks. Some of them were very inspired by the scope of the website. It was a chance for them to show real creativity. (Teacher)*

Observing how the museum itself worked showed them how teams function in real life. They observed adults 'modelling' team behaviour in a way that perhaps rarely happens in school.

*They got a lot out of seeing how different specialisms within the museum came together to make something happen. They benefited from seeing how everyone liaises with one another. (Teacher)*

Their own team worked well in the end, despite the presence of some strong personalities and occasional clashes over the content and style of the website.

*I found it quite hard because I'm quite independent. The people who were doing it were the independent sort. It worked out all right in the*

*end, because when one person didn't know what to do, someone else would step in. (Pupil)*

*With different fonts, it was like a full-scale war. But we got there in the end! (Pupil)*

One of the hardest aspects of the project was learning how to write for an audience, something museum curators are well used to doing but is rarely required in school. Having never before been forced to proofread and organise a text for presentation to the outside world, the pupils found this a challenge.

*It was quite hard, wasn't it? Because there wasn't a lot of information on some of the things we were interested in. The further back in time we went, the harder it got. (Pupil)*

*You had to do it so that anyone younger than us could understand it. We had to put it into simpler text, simpler vocabulary. And so that older people wouldn't mind reading it in a simpler form. (Pupil)*

*You're reading through it all and you're thinking, I don't want to put it all in because some of it's just boring. We had to remember our audience. There's no point doing things if nobody's going to be using it. (Pupil)*

The students not only had to think carefully about the tone, content and structure of their writing, but also about its accuracy and originality. Writing for publication demands a rigorous approach to the acknowledgement of sources. Meg McHugh, the Curator of Community History, cast a critical eye over their first draft:

*We were impressed when Meg came back with her detailed evaluation of what they had done so far. It was just so detailed - down to dates, and questions like, Where's your evidence, I'm not sure that this sentence works, Have you looked for this source and so on? It was so meticulous. She recognised where text was too similar to reference material and asked them to change it. (Teacher)*

Copyright issues were a further hurdle. Pupils were surprised to discover how tight restrictions relating to copyright can be and just how much administration is required to obtain clearance for the use of certain images.

### **Impact on subsequent learning and attainment**

As anyone working in the field of educational evaluation will know, it is often difficult, if not impossible, to demonstrate a causal connection between specific experiences or interventions and subsequent improvements in attainment. Nevertheless, there is plenty of prima facie evidence to suggest that this project had a significant academic impact.

At a basic level, the project related to a Year 8 topic on microbes, which gave the pupils some pre-existing scientific knowledge on which to build. In the view of their teachers, the content has also given them 'a really good grounding for GCSE'. But science teachers at St Gabriel's take a particularly broad view of their subject and embraced the opportunities offered by this experience because it promised benefit across a range of subject areas:

*We thought the strength of the project was that it was so cross-curricular, because it takes in social history, public health, even nutrition and citizenship. (Teachers)*

The Head of Science acknowledges that a specific impact on attainment would be hard to pinpoint, especially given that the participants are mostly in the school's Gifted and Talented cohort and are therefore being pushed in other subject areas too. But certainly all the pupils who took part in the project did achieve their target in Year 9 SATs; indeed, the school achieved its highest ever SATs results in terms of Level 7, 6 and 5.

One distinct strength of the project was that it showed pupils the range of ways in which science can be applied, something that will become even more relevant to schools with the introduction of the new 'Applied Science' GCSE next year.

*It shows them that science isn't just in a lab, you can go in so many different directions. (Teacher)*

As for the pupils themselves, they felt that the project had provided a useful grounding for the independent study needed for GCSE in Year 10.

*Normally if you're doing something, it's a case of you do this and this. The teacher will tell you what to do and you'll just do it. It helps you in Y10 working on your own, you have to be independent. (Pupil)*

*We were working to deadlines. You've got your homework, but it's not the same. (Pupil)*

Pupils were also able to articulate the cross-curricular benefits of undertaking a project of this kind and the value of applying rather than passively absorbing knowledge:

*There are things you're learning. When you're doing something like this, you think I never thought I'd have to use that. You remember things better. (Pupil)*

*It helped you in other subjects. At that point we were doing lots of essays in history about sanitation. We were doing the Industrial Revolution in history, how it affected Bury, so it helped with that. (Pupil)*

When asked about future areas of specialisation and even careers, the pupils were all open to the possibility of pursuing science. One wanted to do

something with biology and science; another said she might be interested in healthcare. They didn't rule out the idea of working in a museum:

*Yeah, it would be a different type of job! (Pupil)*

*If I worked in a museum, it would be more the designing side. I'd like to work in ICT in a museum. (Pupil)*

On a more general level, they all agreed that the project had given them a new insight into the importance of science in contemporary life. They are now acutely aware of the importance of clean water in combating disease and the appalling consequences of lack of access to clean water in poorer parts of the world.

## **PROJECT TWO: Manchester Art Gallery**

### **'Coasters' sketchbook project**

**Schools:** Fulwood High School and Arts College and Kirkham Grammar School

**Year Group:** Year 9

Interviews were conducted with:

Joanne Davies (Curator, Formal Education, Manchester Art Gallery)  
Pat Mountford (Artist and Gallery Educator)  
Geraldine Walkington (Teacher, Fulwood High School and Arts College)  
Simon Gardiner (Head of Art, Kirkham Grammar School)  
Sabir, Uzma, Aishah, John (pupils at Fulwood High School and Arts College)  
Heather, Rosie, Katy, Anne, Sarah (pupils at Kirkham Grammar School)

### **What happened**

This project began with an intensive day of workshops at Manchester Art Gallery, followed by a trip to the circus and Blackpool Pleasure Beach (hence the title 'Coasters'). It involved two schools of a very different character, Fulwood High School and Arts College and Kirkham Grammar School, and was funded by a special initiative that enables state and independent schools to work together.

The aim of the project was to give pupils a better understanding of how to use a sketchbook for GCSE Art. Although the regular use of sketchbooks is a central requirement of the syllabus, it can be hard to persuade students that their sketchbook is a vital observational and investigative tool, a place where they can jot down 'on the spot' ideas and impressions for future use. The practice of regular looking and drawing needs to be instilled in pupils who have not yet acquired the habit of working in this way.

On 27<sup>th</sup> January 2006, two groups of about 20 Year 9 pupils from each school took part in a series of short workshops at Manchester Art Gallery with a range of different facilitators: writer and drama practitioner Johnny Woodhams; artist Pat Mountford; sculptor Susie MacMurray; and digital artists Harriet Clarke and Liz Noble. Jo Clements of Salford Art Gallery led 'critical thinking' sessions in front of a painting and students were able to sit in on the journalist Alison Butterworth interviewing Susie MacMurray. A number of these artists then undertook follow-up activities in each of the schools, including short periods of residency.<sup>1</sup> Among the works of art encountered were Alexander von Wagner's *The Chariot Race* (c.1882), Ken Currie's large painting *The Edge of the City* (1987) and various items in the Gallery of Craft and Design.

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<sup>1</sup> The artists were: Pat Mountford, Susie MacMurray, Julie Midgeley, Johnny Woodhams, Katy McCall, Liz Noble and Harriet Clarke.

## Expectations and reasons for taking part

Both the art teachers involved with this project are sympathetic to experimentation and seize any opportunity to enrich the curriculum. But Fulwood High School's status as a specialist 11-16 Arts College provides an additional rationale for taking part in projects of this kind. The school is currently applying for re-designation as a Performance, Media and Visual Arts college, has built a new state-of-the-art arts centre on site and regularly tries to put pupils into contact with professionals in different fields. Fulwood is also a 'pathfinder' school for enterprise education.

Simon Gardiner is the Head of Art at Kirkham Grammar School, an independent co-educational day and boarding school a few miles outside Preston. This project promised experiences which he knew would benefit his pupils, but it was also an opportunity for him as a teacher to share ideas with like-minded people and develop a useful network of contacts. 'You get insular in school', he says.

As an art teacher at Fulwood High School and Arts College, Geraldine Walkington has pioneered many projects in the sphere of work-related learning. She saw this project not just as a chance to improve sketchbook skills, but also as a means of introducing pupils to a real painter (Pat Mountford), whose expertise would supplement that of the teachers in Fulwood's art department (where the staff have backgrounds largely in the area of fashion, textiles and ceramics). She particularly liked the fact that the initial 'carousel' of activities at Manchester Art Gallery showed her pupils how different artists respond to the same thing and gave them an insight into artistic practice as an individual and subjective activity, with no rigid rules about 'right' and 'wrong'.

The idea for 'Coasters' came from Geraldine, who had previously worked with staff at Manchester Art Gallery and knew that they might be willing to tailor a project to suit her needs. In this respect, Geraldine is not an entirely typical teacher:

*They (i.e. staff at Manchester Art Gallery) did everything. They found the artists and helped us to devise the day we had there. They were absolutely fantastic. Often teachers don't ask for tailored activities. Maybe galleries don't let them know that it's possible. It must be really hard for galleries to contact the right person at the right time. It's only recently that teachers have got their own emails. It sounds silly, but some teachers don't know how to access their own emails on the school system. And they get bogged down with all sorts of other things. We could do with more dialogue about what teachers want and what the gallery wants to do. (Geraldine Walkington)*

Geraldine's pupils were attracted by the project because it promised to be fun. At least one of the students interviewed had never been to Manchester before and most of them do not visit museums, unless with school. One student expressed surprise at how 'modern' Manchester Art Gallery appeared.

*I was surprised how modern it was in some bits. I liked the modern architecture – all the glass bits. (Pupil)*

By contrast, the pupils at Kirkham Grammar School knew what to expect of the museum visit, even if they found the activities themselves new and challenging.

### **The value of contact with real artefacts, situations and role models**

Students at both schools retained vivid memories of the works of art that they had encountered at Manchester Art Gallery. They could recollect both what the pictures actually looked like and the process of analysing them. There was also some evidence to suggest that they would feel more confident about undertaking a similar activity again in the future.

*We had never looked at paintings in that way. We were being asked to think about ideas of what the painting could be – what ideas did artists have as they were making it? (Pupil)*

*It was easy to think about things the picture could be about. There was so much to say about some of the pictures. (Pupil)*

*We looked at how it was drawn, the composition, the fact that all the horses' legs were not touching the floor. (Pupil)*

*I hadn't ever spent a lot of time in front of pictures. I have done observational drawings. But this is different. It's like reading a picture. (Pupil)*

*Now we can look at different paintings. Now we know what to look for. (Pupil)*

Geraldine noted the beneficial impact of a new environment and experience, which had an immediate and lasting effect on one of her more recalcitrant pupils.

*It increased enthusiasm. They got into it very quickly. They settled down and worked. Their concentration was phenomenal. One boy people thought we were daft taking on. He couldn't concentrate, messed around in lessons. And he came in and he worked with Pat, and he just came back the next day and back the next day. And he worked from 9 o'clock when she came in till 3 o'clock when she left. It's rewarding to get that reaction from someone who needs turning on. (Geraldine Walkington)*

Simon is likewise convinced that this day out in Manchester will always be remembered, in contrast to the standard classroom lesson.

*It introduces the real thing: their experience of art is no longer mediated or at one remove. (Simon Gardiner)*

A further injection of 'reality' was provided by the subsequent visit to Blackpool Pleasure Beach, which gave pupils a real-life context in which to apply the ideas about sketchbooks they had picked up at the art gallery. The fact of actually experiencing the 'coasters' ride seems to have made it easier to draw and paint the scene. It was as if the movement and exhilaration of the ride itself gave a new vitality to their representations of it.

*That was good, with all the artists. Even going on the rides afterwards, that helped, because it gave you a feeling of what it was like. (Pupil)*

*What did I enjoy? I thought the trips to the Pleasure Beach and circus were really good because you were responding to something real. (Pupil)*

*The day out really helped me to gain a sense of the place, from the tackiness to the fun, and ultimately reproduce it in my work... Without the trip I am sure that I wouldn't have been able to quite gain a sense of this. (Pupil)*

### **How relationships and interactions with 'experts' contributed to the experience**

The sheer inventiveness of the various creative practitioners leading sessions at Manchester Art Gallery made a deep impression on the participants. For most of the pupils, this was a first ever encounter with a real artist.

*They were quite fun, creative people. Their dress sense gave you the idea that they were quite flamboyant. Johnnie dressed as one of the characters in the painting, so when he did his poem it was about that character. When he came in, in the morning, he realised that the colours he'd done were wrong, so he changed it. Even in his jacket, he'd put in the shadows. He'd really got into the character. He was trying to get everyone to get into character with the painting. (Pupil)*

Here again, the opportunity to see for themselves how a 'real' artist works opened their eyes to new ways of doing things. They were shocked – and in some cases resistant to – the idea that an artist might work very quickly.

*She (i.e. Pat Mountford) taught you to draw it really quickly. Sometimes it's better to do it really quickly. (Pupil)*

*She shouted at us a lot and made us learn a lot. Don't be too neat! But it was constructive criticism. (Pupil)*

*I learned what an artist does. They have loads of sketchbooks. The way they think is different to the way we think. When you think I'm*

*going to do some art, you get a pen. But they use different materials. Brainstorming. (Pupil)*

*I liked Johnny's work because it was rough and textured, he just uses anything he can find. He told us about his life too, he was in a band before he became an artist. (Pupil)*

One pupil confessed that she can still hear Pat's voice in her head urging her not to be too slow and neat:

*I hear her voice when I'm doing my work – saying don't make it too nice! (Pupil)*

Pat showed pupils how to use a viewfinder in order to isolate an area of their chosen subject and make it more manageable. Although this is a technique which the teachers use in school, Geraldine noted that the pupils seemed more receptive to the idea when it was demonstrated by a 'proper' artist. However expert in reality, teachers are not always perceived as such by their pupils.

*It's nice for pupils to see artists using it. I think they think that teachers perhaps hide in a cupboard at school at night and never do anything else!*

### **Impact on subsequent learning and attainment**

Both the teachers involved with this project are in no doubt about its efficacy in demonstrating how a sketchbook can be used.

*They (i.e. the pupils) don't think that sketchbooks are a problem. But as a department we are always trying to get pupils to use their sketchbooks in the way that an artist would, to use it for documentary, as a diary – it's getting them to that point. That takes a lot of time – it really needs to be looked at in Primary School. They need to be so familiar with the process that it becomes a way of life. (Geraldine Walkington)*

Geraldine Walkington notes that take-up for GCSE Art in Year 10 is high, compared with previous years, and attributes this – at least in part – to the beneficial impact of the 'Coasters' project. The project helped raise overall levels at the end of Key Stage 3 and provided a firm foundation for GCSE, even if it may prove hard to maintain the necessary momentum in the future.

*Yes, it had an impact on end of KS3 levels. But it needs that same kind of intensity to be continued in order to avoid slipping back into old ways of working. (Geraldine Walkington)*

*At the end of KS3 when you looked at the work they did before hand (i.e. before the project) and the work they did afterwards, the difference was about two levels. (Geraldine Walkington)*

Simon Gardiner is similarly convinced that the project has had an impact on attainment, with some pupils now working at A'level standard and, in some cases, perhaps even at the level of a Foundation course.

Most pupils made striking progress, extending their repertoire of techniques and learning to break free from long-established habits:

*One boy is very structured... It's made him look differently at his artwork. He has got this knack of putting figures into cartoons. He understands where the muscles go. When he was looking at the figures, he just got it. (Teacher)*

*I find that I'm better at the black fine line pens with watercolour. I didn't know I could do that. (Pupil)*

*It teaches you different methods. If you're stuck in a rut, you don't know how to experiment. (Pupil)*

*The project means that you are able to do other stuff as well, like photography. We learned a lot from taking pictures of Blackpool Pleasure Beach. (Pupil)*

*The Coasters project... has opened up a whole new door for me. I would not have, off my own back, drawn this type of art work. The complicated structures are nothing like what I used to draw and I have thoroughly enjoyed working on them. (Pupil)*

*The Coasters project has really been about experimenting with different ways of creating a piece of artwork and then moving onto a larger piece. Initially all our work was in sketchbooks using different materials from felt tipped pen to charcoal. We then moved into a larger piece of artwork, firstly using only charcoal, but slowly incorporating wax and paint. We also now have used a variety of surfaces for our work-card paper and currently canvas. (Pupil)*

There seemed to be some evidence, certainly at Fulwood High School, that pupils were aware of and able to articulate something of their own 'personality' as artists, perhaps because of the contact with role-models which this project had provided.

*I really don't like being messy. I'm really into drawing, something's got to look real. I like structure, muscle structure, building things, so it was very challenging. Yes, it has changed me a little bit. (Pupil)*

*I like messy! I was messy before and I'm messy now. (Pupil)*

Pupils were also able to describe the specific benefit of learning how to use a sketchbook. Although they didn't exactly express it in these words, they had clearly begun to realise that creative practice involves a continuous process of experimentation and re-appraisal. In a sense, it is something that never stops:

*Oh yes, it helped with sketchbooks. Definitely. Pat really helped. We learned how to scale things down, how to simplify them and then build up the detail. It really helped with exams. (Pupil)*

*It's helpful for ideas, learning how to use a sketchbook. Knowing how to annotate is helpful for GCSE. (Pupil)*

*We are all doing Art GCSE. We had to put a lot of hard work into this project. That changed some people's views about art. I won't name names! (Pupil)*

The experience of analysing pictures, annotating sketchbooks and talking about their own work was perceived by teachers and pupils alike to have had a secondary impact on other subjects:

*It must help with other areas, just in the fact that they have to analyse the work of others and look at their own work. (Teacher)*

*Katy McCall was just phenomenal. She asked them what were they going to do next – it made them think and talk about their work in a way that they hadn't done before. (Teacher)*

*It has helped slightly in English – the way you describe things. (Pupil)*

Several of the participants expressed an interest in continuing with art beyond GCSE and perhaps even after school. One pupil at Fulwood High School definitely wants to make a career in the visual arts. Another pupil at Kirkham Grammar School wants to study fashion design and appreciates Pat Mountford's help with learning how to make fast and simple sketches.

Others felt that the project had stimulated a more general recreational interest in the history of art. One pupil at Kirkham Grammar School had begun to link her work on the Coasters project with Toulouse Lautrec, whose subject-matter is likewise drawn from the world of popular entertainment.

There was little evidence in discussion of an increased enthusiasm for museums and galleries, despite the evident impact of the initial visit to Manchester Art Gallery and the vivid memories the participants had retained of individual works of art. But perhaps the value of a museum visit is harder to analyse and put into words than encounters with such larger-than-life characters as Pat Mountford and Johnny Woodhams or the excitement of a visit to Blackpool Pleasure Beach. Though we naturally hope that positive experiences in a museum or gallery will break down barriers to future visiting, it is hard to demonstrate in a short-term evaluation of this kind that this has

actually happened. We must simply hope that a subliminal transformation of perceptions has taken place.

Whatever the long-term effect of participation in this project, it has undoubtedly acted as something of a catalyst for other spin-off activities in the short-term. Kirkham Grammar has created a website about the project ([Kirkhamgrammar.co.uk/coasters](http://Kirkhamgrammar.co.uk/coasters)), to which several students have contributed lively 'blogs'. The project has also been promoted energetically (and with outstanding visuals) in the school's quarterly magazine. One pupil at Fulwood High School described with some pride how impressed his family had been with what he had achieved:

*It was worth it though, what you got out of it. My family thought it was good. They took a picture of my canvas and said, 'You wouldn't have done that without that project'. (Pupil)*

For the teachers, too, the project has been a source of inspiration. Simon Gardiner at Kirkham Grammar School is planning a trip to Scarborough and has invited Pat Mountford to take part. Geraldine now wants to organise a project which will bring the worlds of art and science together, with a similar emphasis on real-life experiences and role models.

*As teachers, we learned an awful lot – just the way the artists did things, the way they talked about and analysed their work. (Geraldine Walkington)*

## **PROJECT THREE: Whitworth Art Gallery**

### **Portfolio Development Days for Year 10**

**Schools:** Levenshulme High School, Lostock College, Culcheth Hall School, St Peter's High School

**Year Group:** Year 10

Interviews were conducted over 21<sup>st</sup> and 22<sup>nd</sup> November 2006 with:

Leanne Manfredi (14-19 Co-ordinator, Whitworth Art Gallery)  
Alice Tasker (teacher, Levenshulme High School)  
Christine Lawley and Karen Moores (teachers, St Peter's High School)  
Derry Edwards (teacher, Culcheth Hall School)  
Andrea Hughes (teacher, Lostock College)  
Various pupils at the four schools  
Various students from Manchester Metropolitan University, Salford University and the University of Manchester

Assistance in interviewing the participants was gratefully received from students in the Centre for Museology at the University of Manchester: Peishu, Laura, Poppy, Hazel, Lindsey and Lucy.

### **What happened**

As part of the University of Manchester, the Whitworth Art Gallery is strongly committed to widening participation in Higher Education. The Portfolio Development Days were explicitly designed to support the transition from school to college and university by enabling Year 10 pupils to:

- work with professional artists
- explore the gallery's collection
- meet and talk to Foundation and undergraduate students already studying at Manchester Metropolitan University, Salford University and the University of Manchester

Each school was offered a menu of activities, tailored as far as possible to their individual requirements. To give just two examples:

#### **Levenshulme High School**

The school had asked for an activity that relates to a project they are currently doing on architecture. The morning began with discussion and drawing, led by Leanne Manfredi, in the exhibition *Concrete Thoughts*, which shows how contemporary artists have explored ideas about the built environment. Participants made quick, schematic drawings, with an emphasis on geometric shapes, from original works of art in the exhibition. They were not allowed to rub anything out.

Under Leanne's supervision, they then translated these drawings into 3 D reliefs, using cardboard, pastel and crayon.

After viewing the university students' portfolios over lunch, they returned to the exhibition for a more structured critical discussion. They looked at such contemporary works as Toby Patterson's *New Plan (2004)* and explored his relationship with the post-War modernist artist Victor Pasmore. They also learned about the gallery's collecting policy.

### **Culcheth Hall School**

The school first of all had a talk from curator Frances Pritchard in the Textile Study Room, which focused on the theme of embellishment in Indian textiles. They looked closely at different kinds of stitching and discussed the difference between fashion and function.

Then they took part in a practical felt-making and decoration session with the artist Jane McDonald, learning how to soak the wool, roll it out etc. Each pupil made an artefact of some kind with their manufactured felt.

The morning ended with viewing and discussion of university students' portfolios in the South Gallery.

For all secondary pupils, a key feature of the day was the opportunity to view and talk about the portfolios which students from Manchester's various art and design courses had brought with them to the gallery. They were also able to question students about the content of their courses and the routes they had taken into Higher Education.

Unlike the other projects which form part of this evaluation, the Whitworth event was observed and analysed as it was actually occurring. This had some practical disadvantages, as the teachers involved were under the usual inevitable pressures of time and were often distracted by the need to supervise their pupils. The busy timetable for the day also made it difficult to record interviews and capture the participants' own words. It was, unfortunately, impossible to impose a ten minute 'plenary' review of the day on groups that were intent on dashing off to catch their mini-bus!

On the other hand, the participants' impressions, feelings and observations were expressed spontaneously rather than 'processed' after the event and this provides an interesting contrast with the more distilled version of events which characterises the other case studies. Being on the spot also enabled the team of evaluators to keep a close eye on levels of immersion or dis-engagement and to record their own impressions of what was taking place. Sometimes their observations expose a gap between what people say and what they actually do. For instance, boys' reluctance to express enthusiasm

for what they were doing was sometimes belied by their willingness to concentrate and remain 'on-task'.

### **Expectations and reasons for taking part**

The schools taking part in this project could not have been more different: an all girls 11-16 comprehensive school (Levenshulme), a co-educational inner city High School (St Peter's), an independent girls' school (Culcheth Hall) and a mixed 11-16 comprehensive school in Stretford (St Peter's).

Although their reasons for taking part in this event varied according to individual circumstance, there were many common themes. Chief amongst these was the importance of the event being free. Without exception, the teachers intimated that they might not otherwise have been able to attend. Levenshulme High School's specialist status is in Modern Languages and there is no additional funding for art and design. Although a private school might be expected to be well funded, even Culcheth Hall's teacher was grateful for the absence of a charge, since she has no access to some of the special funding streams that are sometimes available to schools in the state sector.

Staff at Levenshulme High School and Lostock College both saw the occasion as offering just the kind of experience that would reinforce the 'real life' rationale of the relatively new applied Art GCSE, with its emphasis on links with the outside world of work. Levenshulme teacher Alice Tasker liked the fact that the format of the day required the students to behave in a 'grown up' manner. She stresses the demanding character of the applied Art GCSE, which many people nonetheless persist in seeing as designed for less academically able students.

Teachers at St Peter's High School were more concerned about the need to raise attainment in their subject. They see the achievement of the 'gold standard' five A to Cs at GCSE as a genuinely pivotal moment in any school career, for if students do not achieve this then they cannot enter the sixth form and go on to Higher Education. In their mixed, multi-cultural school, with its high intake of African students, this is a challenging goal. Thus staff were attracted to this event because it offered the opportunity to work with artists (something they can't afford to do in school) and promised the kind of motivating experience their pupils desperately need. Both Christine Lawley and Karen Moore are acutely aware of their pupils' inability to develop and sustain ideas. They report that their portfolios are often scrappy and fragmented, that they do not use their sketchbooks at home and that they certainly never visit museums and galleries. In short, secondary schools such as St Peter's are now dealing with a generation of children who have done little drawing and painting at primary school and whose skills are lamentably under-developed as a result.

Derry Edwards at Culcheth Hall School was inspired to enrol for this event by the gallery's mailshot, which she considered very well pitched. She was impressed by the organiser's responsiveness and willingness to tailor the

event to her needs. Interestingly, she has not always found the Whitworth so amenable in the past, citing the overly academic nature of previous experiences and a general lack of visitor facilities as discouraging. (This, it must be stressed, was several years ago.) She considers the input of the artist to have been a wonderful bonus.

As far as pupils were concerned, it was difficult to ascertain in the time available precisely what expectations they had of the event. There is some evidence to suggest that they anticipated a static workshop and were surprised by the fluid and varied structure of the day. One Levenshulme pupil spoke enthusiastically about her interest in meeting students from various degree courses, because she is keen to pursue her art and design studies when she leaves school. Another pupil from St Peter's knew that she was going to work with an artist and was consciously looking forward to learning new 'techniques'. Some pupils (mainly boys) admitted that had come because they had been compelled to; most clearly saw it as a welcome day out and a change from classroom routine.

A handful of the pupils interviewed had aspirations to carry on with art at A'level and beyond. But most of them had, as yet, little idea about future careers and at least a couple were clearly of the view that a career in the arts was not, for economic reasons, a serious option.

As might be expected, the staff and students from the various courses and institutions which had volunteered to take part in this event were able to articulate clearly why they were there and what they expected to get out of their involvement. The Head of Three Dimensional Design at Manchester Metropolitan University explained how the ratio of local to national students has shifted massively in recent years (as a consequence of tuition fees and rising maintenance costs), making Greater Manchester the university's prime catchment area. Marketing the institution to *local* GCSE and A'level students has therefore assumed a new importance. He sees his task as being to implant in young people's minds the idea that art *can* be a career and that it involves the kind of complex thinking and problem-solving skills normally associated with so-called academic subjects.

The students themselves found the process of preparing for the day highly beneficial, for the discipline of organising their work in order to talk about it to other people led them to think about it in a new light. Two final-year embroidery students pointed out that occasions such as this enable them to fulfil the 'Personal and Professional Development' element of their course and that the ability to communicate and market their work acquires a new importance in the final year of their degree. Two male students who were doing the 3D and Business Development course at Manchester Metropolitan University noted that their participation in this event would make a useful addition to their CV and that 'workshop delivery' actually forms part of their Business module. One of these students was interested in the Whitworth event because he hopes to undertake a PGCE and become an art teacher. Clearly the occasion provided just as much benefit to the students taking part as it did to the school pupils and their teachers.

## **The value of contact with real artefacts, situations and role models**

As the participants talked to the team of evaluators, they made little distinction between the works of art on the walls and the overall environment of the gallery. The building, its atmosphere and artistic content seem to have been experienced as a single entity.

For many of the participants, it was a wholly new environment and reactions varied – as one might anticipate – according to the self-confidence and maturity of the pupil. Some of them found the sheer size of the building daunting and initially felt uncomfortable working in a public space under the scrutiny of other visitors. Others said that this gave what they were doing some status: they felt they were engaged in something ‘serious’ and ‘grown up’. Most of the interviewees enjoyed the liberation from the classroom and thought that the stimulus of the gallery environment made them concentrate and work harder.

Several pupils expressed appreciation of the autonomy they enjoyed while working in the gallery. In contrast to the classroom, where they more often than not copy images in books, they relished the freedom to walk around and select the works of art that interested them. Whether or not they made use of what was on the wall, they appear to have found the permanent displays a source of interest and stimulation. One student from St Peter’s was excited by the range of sources from which she could draw and was able explicitly to articulate how she felt about the experience. She particularly enjoyed the talk given by the gallery’s Curator of Wallpapers, because it gave her new insight into how wallpapers are made. She singled out Thomas Couture’s *Les Prodiges* as her favourite exhibit – not, perhaps, a work with self-evident appeal to teenagers. Even some of the more taciturn (usually male) students were self-evidently ‘on task’ during the visit: one shy boy offered little feedback in conversation, but gave every appearance of looking closely at the artworks and accompanying labels.

This was not, of course, true of everyone. The St Peter’s group was large and difficult to control. It wasn’t until the afternoon, when working with the artist Harriet Clarke, that the majority really settled down to concentrated work. One or two pupils found the gallery environment de-motivating, because they felt that their own work compared poorly with the exhibits on the wall. Some of the pupils at Lostock College seemed a little overwhelmed by the exhibition *Who are you? Where are you really from?* and unclear about whether they were being asked to copy from it (something they are accustomed to doing) or use it merely as general inspiration. In the event, they modelled their own creative efforts very closely on the exhibition. On a positive note, one evaluator observed how readily this ethnically mixed group of pupils identified with the subject-matter of the exhibition: they could see how artists from backgrounds similar to their own were making work about cultural identity and how their work had been validated by the Whitworth Art Gallery.

Certain other aspects of the museum environment made an impact on pupils. The presence of computers in the gallery came as a surprise, as did the fact

that you could actually use the computer to find out about the collection. There is some evidence that pupils gained a better understanding of the museum as an institution: one said that she now appreciates why light levels have to be kept low for light-sensitive materials; another was interested to learn that there is a lot of work in store. For one girl from St Peter's, the whole experience had suddenly made the idea of working in the art world more tangible.

It would have been interesting to talk again to these pupils after the event, in order to establish how vividly they could remember the Whitworth's collections and exhibitions. One issue that might benefit from further investigation is whether self-directed drawing from works on the wall is more or less effective than skilfully facilitated discussion as a means of creating a relationship with the collection. The ideal, of course, is a combination of both.

Some sessions perhaps achieved this balance better than others. If the aim of occasions like this is partly to instil an understanding of the work of art as something created by a real person, to reveal the 'intentionality' of the artwork and stimulate curiosity about its maker, then self-directed drawing on its own may not be enough. Talking, as well as looking, needs to be part of the process.

### **How relationships and interactions with 'experts' contributed to the experience**

Teachers and pupils alike greatly valued their encounter with a real artist. They identified the benefits as:

- Insight into new techniques and new ways of doing things
- Access to new materials
- A fast pace of delivery
- A less prescriptive, more tolerant style of teaching than pupils experience in school
- Encouragement to regard 'mistakes' and 'messiness' as a necessary part of the creative process
- Constructive conversation

Some pupils were disorientated by the freedom of the workshops. A boy from St Peter's, who likes to draw knights, horses and castles and is used to copying from books, enjoyed the experience, but would have liked more guidance from adults. A pupil from Lostock said that she didn't like using her own identity as a theme because she didn't know what to say about herself. But these pupils appear to have been the exception rather than the rule.

Teacher and pupils at Culcheth Hall School had never before worked with felt and particularly appreciated the fact that the activity could be easily replicated in school without need of specialist equipment. It was useful, they said, to learn a technique which could be adapted to so many different kinds of object (e.g. bags, scarves, jewellery etc.) and to see the artist's own creations on display. One pupil from Lostock admitted that it had never occurred to him

that being an artist might be a proper job: he was genuinely surprised at how smartly dressed the artist was!

At the end of the morning's activities each school had the opportunity to explore the portfolios specially brought to the gallery by students on local art and design courses. Each group of students had laid out their sketchbooks and portfolios on tables or on the floor in the Whitworth's South Gallery. Although there was some inevitable hanging back on the part of the secondary school pupils, most of them were encouraged by the informality of the atmosphere to engage their slightly older peers in conversation. In many cases the age difference can have been no more than 3 or 4 years, an important factor in making the encounter meaningful. One student from Manchester Metropolitan University pointed out that school for her was still a relatively recent experience: 'It seems like no time since we were on the other side of the table.'

When asked to describe what had impressed them about the students' sketchbooks and portfolios, pupils mentioned the following:

- Variety of subject-matter
- Scale
- Novel modes of presentation (e.g. stitched accordion-style books, annotated tags, boxes etc.)
- Doodles
- Texture
- Range and combination of media
- Intensity and regularity with which sketchbooks are used ('You mean you sit in a café and sketch?', one pupil asked).

Much of the questioning revolved around matters of technique and medium, but there were also questions about the routes people had taken into Higher Education. On the whole, the secondary students were too shy to share their own work with the university students, so the exchange was somewhat one-sided. One monosyllabic boy in a larger group appeared to be taking little interest in what a (male) student in 3D Design and Business Development was showing him, but surreptitiously returned to show off his own work once the rest of his peer-group had wandered away. The importance of male role-models in such a situation cannot be overestimated!

The long-term impact of these encounters will only be revealed, if at all, months and perhaps years down the line. But there were encouraging signs already that important messages had been absorbed, at least by some pupils. One girl from Levenshulme High School wants to be a fashion designer and is now all the more eager to pursue her studies; another from St Peter's gained lots of ideas from the students and will try some of them out at home ('I was tired, but now I'm inspired!'); yet another from Lostock College realised that she could do interesting combinations of subjects in Higher Education, e.g. design alongside photography. These responses appear to indicate that events of this kind can play a part in stimulating educational ambition.

## **Impact on subsequent learning and attainment**

To assess fully the impact of the Whitworth's event would require follow-up observation and questioning in school, something it has not been possible to do within the constraints of time and funding available to this evaluation. But there are, nonetheless, many indications that pupils' experience of the day will produce practical benefits in the classroom.

Several pupils declared their intention of incorporating newly learned techniques into future work. Pupils at Levenshulme High School intend to use the 3D techniques they learned in their portfolios. They discovered, too, that the creative process need not necessarily begin with realistic representation, i.e. a ready-made or copied image. One or two pupils were able to explain how their own artistic practice might change as a result of what they learned. A pupil from St Peter's recognised that her own drawing style is overly dependent on straight lines (a legacy, she says, of art education in Pakistan) and that she had learned from working with an artist how to use tone and texture. Contact with the students had shown her just how much it is possible to change. 'Nothing is off limits', she observed.

At a basic level, pupils came away from the Whitworth with works of art which they could add to their portfolios - enrichment in its most practical sense. Some had been more pro-active than others in seeking out new ideas and sources: one girl collected postcards and brochures from the various university institutions taking part in the day, with a view to using these materials in her portfolio. Others took to heart the overall sub-text of the occasion: a boy from Lostock College said that he could now see more clearly the need to build up his portfolio and diversify its content. On a more general level, the event may have done something to de-mystify the art world. One girl was heard to remark that she thought that 'Only posh people did art' and may have modified her opinion as a result of meeting a number of (highly approachable) artists, students and curators.

The long-term legacy of this event will depend much on the skill with which teachers can relate the experience to subsequent developments in the classroom. A number of the participants regarded it as a 'one off' experience and could not see how it might relate either to anything they had already done at school or to anything they might do in the future. Their perception of the event is due less to shortcomings in the Whitworth's planning (the gallery did, after all, tailor activities to suit the needs of each school) than to the difficulty of instilling a sense of direction and purpose in pupils who are not fully engaged with the subject and who often lack the most basic of skills. In these circumstances, teachers need all the help they can get.

## **PROJECT FOUR**

### **Manchester Museum, University of Manchester**

#### **Forensic Science**

**School:** Ashton on Mersey School

**Year Group:** Year 9

Interviews were conducted with:

Pete Brown (Learning Manager, Manchester Museum)

Angela Petrouis (teacher)

Jennie, Katie, Stacey, James, Alex (pupils)

Ceri Harrop, Abdul Hamzeh (PhD students and session leaders)

#### **What happened**

Manchester Museum's secondary programme mobilises the resources available to it within the university in order to give schools a taste of sophisticated scientific investigation. Like its neighbour, the Whitworth Art Gallery, the museum is actively involved with the university's Widening Participation (WP) programme and 'tracks' the schools that take part in education programmes according to their 'band' within the WP targeting scheme.

The session which Ashton on Mersey School attended was one of a series about Forensic Science:

*Solve a crime using a series of scientific investigative techniques in this 2 hour session where students will become Forensic Investigators for the village of Pickwick Green. The session includes fingerprinting and DNA extraction using a safe and proven method. (Manchester Museum promotional flyer)*

Participants were presented with an amusing fictional scenario involving the cross-breeding of onions at the traditional Green Onion Competition in the village of Pickwick Green. The new champion, Eddie Shingle, has been accused by his arch-rival and former best friend, Colin Heyscroft, of cross-breeding his onions in order to increase their size. Only DNA analysis can establish whether cross-breeding has in fact taken place. The mystery is further complicated by the fact that the judge responsible for delivering the onions to the DNA laboratories discovers that his shed has been broken into by 'persons unknown'... though an incriminating fingerprint left at the scene of the break-in should reveal the culprit.

Participants first of all don proper lab coats and gloves. In the course of the session, they use a 'cutting enzyme' to analyse the sequence of the DNA in the two onions they have been asked to compare. They do so by placing the

DNA in 'agarose gel' and running a current through the gel as a means of separating pieces of different sizes (i.e. electrophoresis). In the 'pure' Pickwick Green onion the size gene contains DNA that *can* be cut by the enzyme, while the crossbred onion does not. Pupils also explore fingerprinting techniques in order to establish who has broken into the judge's shed. By combining all the evidence, they can then explain what really happened in the Pickwick Green onion growing competition.

### **Expectations and reasons for taking part**

Manchester Museum's own internal summary of its standard evaluation forms for the period February to June 2006 reveals more or less what might be expected, namely that teachers are attracted to this session by:

- The opportunity to use specialist equipment not available in school
- The chance to see how science is applied in real-life
- Insight into science as a career option
- Practice in following instructions and carrying out experiments

The interview with Angela Petrouis at Ashton on Mersey School amplifies this picture very interestingly. This was the first time she had taken children out of school: indeed, it was the first time her department had ever organised a trip at all. She was surprised and somewhat daunted by the complexity of the administrative process, which involved the following steps:

- Check with her Head of Department that the dates didn't clash with anything significant, for example examinations
- Ensure that other members of staff were not going to be absent on the dates in question
- Compose a letter to parents, get it vetted, send it out and then collect financial contributions
- Organise transport
- Check that a second teacher could accompany her (since they needed to use two mini-buses)
- Check that all the children who returned their slips were entitled to go on a trip (they are only allowed 3 per year).

Had the sessions not been free (they were subsidised by Strategic Commissioning funding from DCMS/DfES), she might not have been so willing to contemplate taking on the administrative task of organising the visit. As it was, pupils merely had to make a contribution of £2 towards the cost of transport.

*I personally have an interest in forensics. The flyer that came out about it sounded interesting, it grabbed my attention. But the thing that got me most was probably the fact that it was free. (Angela Petrouis)*

There were, of course, other attractions, notably the obvious links with work-related learning and the clear relevance of the forensics session to Science 1: scientific enquiry, i.e. the area of the National Curriculum which focuses on

the use of ideas and evidence and investigative and communicative skills. Access to specialist equipment was a further bonus.

Although the experience of taking children out of school was not without its challenges, Angela Petrouis welcomed the chance to spend an entire morning with her pupils. In school, she says, lessons are hopelessly short:

*We have two 50 minute lessons. You have to arrive and settle them down. In the first lesson you have to set homework, then do your starter, main and plenary. And if you are doing something practical, then you have to fit that in too. Then in the second lesson you have to go through homework. So to have a morning or afternoon when you can sit down, paint a scene and take something the whole way through is great. (Angela Petrouis)*

One of the things that surprised her about the session was that it wasn't a murder mystery: she had expected a different kind of story with different clues. Her pupils, too, were clearly disappointed not to find a dead body on the floor of the museum! But they looked forward to the museum visit as a change of scene and a chance to try out new equipment. Places on the trip were allocated on a first come, first served basis. All the participants were in Set 1 for science, but Angela Petrouis was nevertheless surprised at who signed up for the event, for they were not in every case the usual candidates. This has led her slightly to re-assess her own judgement of certain pupils:

*The ones who were enthusiastic about science came. But the ones that I didn't necessarily expect to bring their reply slips enjoyed it too. So I don't know how good a judge I am! (Angela Petrouis)*

For the post-graduate research students who deliver many of the Forensic Science sessions, the experience is a means of developing their skills in communicating science to a non-specialist audience. Ceri Harrop is undertaking research in bio-molecular science and is being supported financially in her post-graduate degree by industry. She often has to explain her research to other scientists and finds the experience of working at the museum extremely helpful in this respect:

*There is nothing more scary than a bunch of 15 year olds! (Ceri Harrop)*

Abdul Hamzeh also finds the teaching rewarding. After a first degree in Pharmacy in his native Syria, he won a scholarship to undertake research on genetics at the University of Manchester.

*My desire to teach increased after these sessions. Even applying for post-doctoral positions, I'm happy to mention my teaching, because it reflects that you can communicate with students and transfer knowledge. (Abdul Hamzeh)*

*We benefit mutually from it, the students and I. It's a good experience. I'm really glad I've done it. (Abdul Hamzeh)*

### **The value of contact with real artefacts, situations and role models**

The Forensic Science session at Manchester Museum does not incorporate a link with the collection, although it was originally designed to complement the now no longer existing 'Science for Life' display on the top floor of the museum. Education staff at the museum are keen to re-establish some kind of link with the collection, but are not yet sure how this can be achieved. They ask themselves whether the activity could take place anywhere? Does the museum environment significantly affect how the activity is perceived and conducted?

Interestingly, many of the people interviewed for this report spoke about the 'atmosphere' of the museum as having contributed in some intangible way to the interest of the experience. While they acknowledged that there was no direct link with the collection, they had enjoyed looking round the displays and found the ambience of the museum conducive to learning.

*Museums take you out of the daily drudge of school routine. Manchester Museum has lovely quiet atmosphere once you are in the teaching area. And the children are interested and stimulated by the exhibits. So they are in a curious frame of mind. (Angela Petrouis)*

*The children actually wanted to look at other things. And when you stop for a break, it's nice to do something different. They were on the floor where there are interactive exhibits. I think they are mainly to do with the body and health. When we were leaving, they were looking through the natural history displays. (Angela Petrouis)*

All the pupils interviewed mentioned how much they had enjoyed looking round the displays during their break.

*I hadn't been before. It was good, they had all different things to interact with, though we weren't allowed to go downstairs. (Pupil)*

Abdul Hamzeh had never before considered the impact of the museum environment, but concluded on reflection that it probably does make a difference to how participants approach the session:

*The museum environment? Does it help? I just take the environment for granted. During the main break we tell them to go round the displays. I think it does give an advantage. I have done the same kind of thing in a university environment too, but maybe the museum gives it an advantage. You are there to learn. It's a learning environment. (Abdul Hamzeh)*

## How relationships and interactions with 'experts' contributed to the experience

The Forensic Science workshop requires participants to absorb a great deal of information and carry out a large number of practical tasks, which means that there is little time for conversation and reflection. As they talked about the experience, pupils at Ashton on Mersey School dwelt more on the sequence of practical activities than on the persona of the facilitator.

Sometimes pupils were unclear about the identity and status of the person leading the session. Angela Petrouis at Ashton on Mersey School is not convinced that her pupils would have understood the notion of 'graduate' and 'post-graduate' and reports that they were initially disappointed that Lauren Furness (the museum's Widening Participation Officer, who delivered one of their sessions) was not a real forensic scientist.

Even so, it is clear from what the participants say that their sense of having privileged access to a scientific 'expert' is a key factor in keeping their attention. They also benefited from a style of facilitation that was less disciplinarian than in the classroom:

*There was just one scientist, Lauren. She was from Canada. (Pupil)*

*She was nice – she liked joining in. She would answer as many of your questions as you liked. And she was fun as well. (Pupil)*

*She was interesting, so everyone listened to her. She was a new face. If you did something wrong, she didn't tell you off, did she? She just encouraged you. You wanted to listen to her. (Pupil)*

Their teacher confirms the effectiveness of the session in holding their attention:

*I can't describe how, but when you look at a class you know whether they are bored. I could see from the way they were that they were interested. (Angela Petrouis)*

Both Abdul and Ceri sense that they are able to connect with secondary school pupils because their own experience of school is relatively recent. Abdul remembers and uses as part of his teaching strategy his own initial misconceptions about DNA.

*I still remember how I first encountered DNA and I use that. We get taught about DNA and RNA at school in Syria, maybe at GCSE level. I used to get material and read about it. But when I read it, I imagined it the wrong way. I think if I use that to tell them, it might deal with their misconceptions. (Abdul Hamzeh)*

The extent to which participants engage post-graduate students like Abdul and Ceri in conversation varies from school to school. Both, however, try to

emphasise their passion for science (something teachers who have been 'delivering' for 30 years may find it harder to communicate), as well as the exciting possibilities that a career in science can open up.

*Do they ask you about you? It varies. Some schools ask how you got involved, the whole story. We use waiting times to talk to them, e.g. while running the gel. (Abdul Hamzeh)*

Having recently been through the English education system herself, Ceri understands how difficult it is for students to make decisions about what to study at GCSE and beyond. She knows from her own experience that it can sometimes take someone else to show you the way.

*I think I demonstrate the fact that it's 'do-able'. They say, 'So we can do what you do?' They think you have to be some kind of super intelligent person. They say things like, 'You must be dead clever then, Miss.' They are puzzled about how I live. Do I have a car? Am I paid to do a PhD? It opens their eyes when I tell them that I'm sponsored by industry. (Ceri Harrop)*

The other significant factor in engaging pupils' interest is the fact of using *real* equipment to carry out a *real* investigative process. Even two months after the event, pupils at Ashton on Mersey School could describe in some detail each step of the procedure they had carried out during the workshop.

*I liked the fingerprinting. You couldn't get it off for ages. And the new equipment, equipment that you could mess about with! (Pupil)*

*It was to see what kind of fingerprint you have, a swirl or... a different thing. Two cases we did. Someone stole the onion and switched it. We tested to see if his fingerprints were on the shed. (Pupil)*

*When you were using the little squirty things, everyone kept forgetting you had to change the ends of them, everybody kept forgetting to change them. (Pupil)*

From the moment they put on lab coats and gloves, participants are made to feel that they are doing something special. And the invented 'onion stealing' scenario adds a certain human interest to the situation:

*They definitely get interested in the pipette and the gloves, all these things help. It gives some spice to the session. It's not human DNA of course, but it's quite realistic. There are so many things involved in the setting. This is as close as we can get to reality. (Abdul Hamzeh)*

*They love the lab coats and the pipettes. And it's a neat scenario. They do have to think about it, as it's very 'twisty and turny'. (Ceri Harrop)*

The real-life applications of DNA analysis are constantly and quite deliberately re-iterated by the people leading these sessions. They relate the content of the workshop session to ideas and issues that are in the news:

*We stress the link between what they are doing and things in the news. We put lots of effort into using phrases like 'cloning' and 'genetically modified'. I insert these words intentionally. (Abdul Hamzeh)*

Armed with practical experience of analysing DNA, pupils will hopefully be more receptive to media debates about these contentious issues. The aim is to instil in them an understanding of science as something that concerns us all in every aspect of our daily life.

### **Impact on subsequent learning and attainment**

Although Manchester Museum advertises its secondary programme under the general banner of 'Raising Attainment in Science', it makes no specific claims about attainment for the Forensic Science sessions. It is nevertheless interesting to speculate about importance attached to the issue of attainment by teachers and whether there are any indications of how the experience might affect subsequent academic performance.

Angela Petrouis states that attainment was not uppermost in her mind when she enrolled for the session. Instead, she wanted to take pupils out of their familiar environment and give them a taste of something 'real', in the hope that it would increase their motivation to learn. She did anticipate that they would learn new skills, such as carrying out a 'fair' test and evaluating results. But there was no explicit desire on her part to do something that would improve levels and grades. Indeed, the content of the session is not even *directly* relevant to the Year 9 syllabus. Fingerprinting, for example, is encountered when pupils do Adaptation and Variation in Year 7 and re-occurs in Year 11. But it is not a Year 9 topic.

The pupils themselves were clear that actually *doing* the DNA analysis, as opposed to passively reading about it, had reinforced their scientific understanding.

*The forensic side of it is all right, but when you are doing stuff in science at school you don't really get involved. You don't think it's relevant to what you're going to do with your life. (Pupil)*

In the time available for interviewing them, it was difficult to explore in any detail the impact of the session at Manchester Museum on their general attitude towards science. Although they all declared their intention of going on to Higher Education, they were none of them sure what they would study and feelings about science were mixed.

In contrast to some of the teachers interviewed for this report, Angela Petrouis has concerns about the direction of science in secondary schools. The new emphasis on applying scientific knowledge enables teachers to make useful

links with the outside world and she acknowledges that this is helpful in motivating students. But she worries about the fact that schools are increasingly adopting courses that are easy to succeed in and that depth of subject knowledge is being sacrificed to breadth.

*The new approaches are quite topical. If you can link science to the outside world, they seem to get it. They can see the relevance. But although they may be easier to teach, I don't think we are teaching them more science. The content they will need to understand for degree level is getting pushed out of the syllabus. (Angela Petrouis)*

Her remarks draw attention to what is perhaps the central dilemma facing the science education community today and the issue that divides opinion most: should we aim to equip young people with the scientific knowledge they need for responsible citizenship? Or is our task, rather, to train the scientists of the future? The trend at present is undoubtedly towards the former, which can only make museums with a broadly based collection and inherently interdisciplinary 'offer' all the more attractive to schools.

## CONCLUSION

### Quality versus quantity?

It goes without saying that the museums taking part in this study are committed to maintaining the quality of their educational services. But they are also under considerable pressure from both local and national government to increase the take-up of services and achieve ever higher numerical targets.

For obvious reasons, this is easier to do with primary than with secondary schools. Yet there is still, perhaps, an unspoken assumption in some quarters that museums can indeed achieve a break-through in attracting secondary visits. If only they can hit upon the right formula, the numbers will surely follow.

The case studies described in this report suggest that this may be an illusory goal. Secondary teachers are less disposed to embrace the idea of general enrichment than their primary colleagues. Instead, they want bespoke experiences, with clear academic purpose, for small numbers of pupils. As Angela Petrouis at Ashton on Mersey School suggests, the museum visit has to provide obvious 'value added' for it to be worth the rigmarole of securing parental permission, collecting money and organising transport and supervision.

So what, then, constitutes genuine added value? What is it that persuades teachers to brave the bureaucracy associated with organising a trip out of school? Do the experiences described here embody at least some aspects of a winning formula?

### Real artefacts, situations and role models

There is a marked trend in secondary education towards work-related and applied learning. It is noteworthy that applied GCSEs in Art and Science featured in conversation with several of the teachers interviewed for this report and that Fulwood High School (which instigated the *Coasters* project at Manchester Art Gallery) is a 'pathfinder' school for enterprise education. Teachers are grateful for access to people who are employing their skills in a 'real' context, whether it be an artist, a scientist or a member of the museum staff. Pupils, in turn, enjoy learning in response to a live brief or real situation. It is striking how often the young people interviewed for this report mentioned the importance of being taken seriously by the museum (or its representatives) and expected to behave with adult professionalism, as for example at MSIM when working on the *Bugs in the Bathroom* website.

It is equally clear that contact with museum objects and artefacts contributed to pupils' sense of doing something with purpose and relevance in the real world. Clearly collections were central to the website project at MSIM, as was the initial encounter with works of art to the *Coasters* project at Manchester Art Gallery. But even when collections were not ostensibly the prime focus of the experience, the atmosphere which surrounds them was valued by the

participants as having engendered a receptive frame of mind. Where the encounter with collections involved a skilful human mediator, for example an artist or curator, it seems to have had a particularly lasting effect.

## **Attainment**

By the time secondary students arrive in Years 9,10 and 11, they are reaching a critical juncture in their secondary career, the point at which their choice of subjects and performance in examinations largely determines the course of their subsequent studies and, indeed, whether they continue with academic study at all. In many schools, a student who fails to achieve five A to C grades at GCSE may not be allowed to progress to A level. This is the moment at which the drive to raise attainment acquires a new urgency, even if this is sometimes more apparent to teachers than their pupils!

Several of the projects in this study were explicitly marketed to schools under the banner of 'raising attainment'. Although it is always difficult to attribute academic progress to any single intervention, there certainly is evidence that the Manchester Art Gallery *Coasters* project transformed the use that students make of their sketchbooks. From being a somewhat meaningless adjunct to their coursework, it has become genuinely integral to the creative process. And whether or not the other projects analysed here *did* raise attainment, the teachers concerned clearly thought that they *might* do. In other words, they are attracted by experiences which are likely to have a tangible and practical impact not just on motivation, but on skills, knowledge and – ultimately – the quality of written and creative work that pupils produce.

## **Vocation**

All the projects scrutinised in this report were designed in some degree to encourage thinking about future career destinations. Only longitudinal research would demonstrate whether they were successful in doing so and it would be impossible, even then, to isolate this among many other possible influences and interventions.

Teachers, however, were undoubtedly attracted by the vocational dimension of these experiences. Participants in the Whitworth's Portfolio Enrichment days met and talked to students who were studying art and design at degree level. They saw, in some cases for the first time, that art and design are not the dead-end options that many people often imagine them to be, that they can be pursued at a higher level and open up serious employment opportunities. The post-graduate research students who deliver sessions at Manchester Museum also demonstrate by their own example that scientific research attracts all kinds of people and takes many different forms. Young, lively and enthusiastic, they dispel the stereotypical image of the earnest scientist and communicate an excitement about their subject that is clearly infectious.

## **Expertise**

The teachers interviewed for this report were emphatic about the value of learning from experts. If they are to make the effort of taking children out of school, then they want to be sure that they will be working with adults whose expertise augments and complements their own. Pupils from St Gabriel's in Bury enjoyed working with a real IT expert at MSIM; they benefited from the Curator of Community History's subject knowledge and rigorous approach to proof-reading; and they learned new research skills from their experience of using the museum's Archive. Similarly, the prospect of working with professional artists was a powerful incentive for the teachers who took part in Manchester Art Gallery's sketchbook project and the Whitworth Art Gallery's Portfolio Development Days. As for Manchester Museum, teachers may not always know in advance that the session will be led by a post-graduate research scientist, but they are certainly attracted by the specialised nature of the workshop and the idea of using equipment and techniques that are normally only available to experts in the field of forensic science. Across all four projects, the 'experts' have a credibility and authority that helps engage the interest of students at an age when peer-group pressure *not* to work is often at its strongest. As Geraldine Walkington from Fulwood High School noted, they are more inclined to accept advice from the 'expert' or authoritative outsider than from their teacher.

## **Brokerage, sustainability and playing to the museum's strengths**

One notable feature of the projects described here is that teachers were sometimes surprised by the willingness of museums to adapt their educational offer to meet the needs of individual schools. Teachers do not, on the whole, appreciate either the range of expertise that resides within the museum itself or the ability of museum staff to broker relationships with other kinds of expert.

It has to be said that museums could do more to spell this out in their promotional materials and general dealings with the education sector. Perhaps it is largely a matter of personalising the contact that education staff have with teachers and making sure that teachers have real opportunities to shape what happens in the course of the museum visit. The compartmentalisation of functions within the museum can also mean that curatorial (and other) expertise is rarely harnessed in the delivery of educational work. Yet curators, IT specialists, archivists etc. are - or could be - educators too.

All four case studies involve museums which are relatively well staffed and resourced. So would the model work elsewhere? It is true that from the outside these projects may well appear labour-intensive and costly. Yet in reality the investment of time and money was made in the early stages of each initiative. Although Manchester Art Gallery played an important co-ordinating role in setting up the sketchbook project and provided considerable support to the artists throughout, it had little involvement with the direct delivery of activities. After the introductory session involving the collection, teachers and artists largely ran the programme themselves. The same could

be said of the project at MSIM, where teachers, pupils and museum staff worked together intensively to begin with, but the pupils became increasingly self-sufficient as time went by. Even the logistically complex Whitworth project, with its large number of participating adults, was actually based on a simple idea: that secondary school pupils might benefit from a 'mentoring' experience with artists and degree students. The event did, of course, present administrative and practical challenges. Once tested, however, it will be easy to 'roll out' again.

Perhaps the only impediment to sustainability and replicability is cost. In all but the sketchbook project (which was largely funded by the schools through a special grant), the museums themselves were able and willing to subsidise activities: the Museum of Science and Industry had Designation Challenge Funding for the website project; the Whitworth Art Gallery used its own internal budget to pay the artists participating in its Portfolio Development Days; and Manchester Museum was able to offer two free Forensic Science sessions to Ashton on Mersey School thanks to Strategic Commissioning Funding from DCMS/DfES.

The 'RAVE' principles identified at the outset of this report do appear to answer teachers' needs in the later stages of Key Stage 3 and in Key Stage 4, as experiential learning with a vocational dimension becomes increasingly relevant to pupils facing difficult choices about subject specialisation. As long as museums have access to external funding for work of this kind, they will be able to sustain and refine what appears to be an effective pedagogical model. But the ability of museums to mobilise secondary school audiences on a large scale must remain somewhat in doubt if teachers can only take advantage of what museums have to offer when activities are provided free of charge. Most of the teachers interviewed here emphasised their straitened circumstances. Yet the fact is that some schools consistently *do* find money for curriculum enrichment. So why is it that some can, while others apparently can't? A difficult question to answer... and not, perhaps, one to which there will ever be a straightforward or satisfactory response.

As this report makes clear, however, museums are not short of ideas for engaging the secondary sector. By capitalising on their own rich internal resources and brokering relationships with artists, academics and other experts, they can make a real contribution to young people's educational experience at a point when the choices and decisions that they make can have lasting consequences for the rest of their lives.