Museums supporting pupils’ Pathways and Progression in secondary schools

An evaluation of secondary work in four museums in Manchester
Foreword

What inspires hard-pressed secondary school teachers to make a museum visit? This report attempts to answer that question. It is the summary of a longer report based on an evaluation of four secondary school projects commissioned by the Manchester Museums’ Consortium, through Renaissance North West, in 2006.

The original evaluation was not concerned with quantitative data, but rather with the nature of the experiences and processes that persuade secondary school teachers to use museums. It set out to highlight a number of key principles that might guide further work with secondary school audiences in museums in Greater Manchester. In publishing this summary, we hope we will also provide the wider profession with food for thought.

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WORKING WITH SECONDARY SCHOOLS: 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 (Research Centre for Museums and Galleries, University of Leicester and Museums, Libraries and Archives Council, 2006).

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 is more, a very large percentage of 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 providing access to a range of experts and supporting vocational learning.

This report provides an overview of an initial piece of research and an evaluation of four case studies which illustrate key characteristics of successful museum interaction with secondary schools.

Introduction
But there are deep-seated systemic difficulties that museums can do little to mitigate: for example, two sets of teachers with possibly divergent agendas and, in many places, a limited correlation between primary and secondary intake.

• The later stages of Key Stage 3 (Year 9) and Key Stage 4 (Years 10 and 11) are a period of major personal and academic transition for the individual pupil. Young people choose subjects for GCSE in Year 9 and begin to think about specialisation, further education and future careers in Years 10 and 11. Finding a pathway through this process can be daunting; and it is also the moment at which educational progression becomes critically important. Museums can readily provide experiences that assist pupils in thinking through the choices that have to be made.

• The new vocational emphasis of the government’s 14-19 Strategy and the introduction of ‘lines of learning’ and ‘diplomas’ means that the demand from schools for vocational experiences is likely to increase. Museums are well placed to meet that demand because they have access to specialist collections and expertise that directly fit the requirements of the curriculum.

BACKGROUND RESEARCH: CURRENT THEMES AND PRIORITIES IN SECONDARY SCHOOLS

A small piece of research was commissioned by the Manchester Museums’ Consortium, funded by Renaissance North West, in the early summer of 2006. The aim was to elucidate current themes and priorities in secondary education through consultation with Children’s and Young People’s Services, secondary advisors, teachers and museum professionals working with secondary schools.

The main focus of the research was to investigate whether museums could play a part in supporting transition (or ‘transfer’) between primary and secondary school. But there was also an expectation that other significant themes and trends would emerge.

In the event, these were the main findings:

• It may be extremely difficult for museums to support pupils in the transfer between primary and secondary school. The transition from the cosy, generalist atmosphere of primary school to the more impersonal and compartmentalised environment of secondary school is socially, emotionally and academically disruptive and is widely acknowledged as a challenge for the education system. Museums can potentially provide a safe and neutral space in which these issues can be explored.

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INVESTIGATING EXISTING MODELS

The Manchester Museums’ Consortium was aware that several museums in Manchester are already running projects which cater for secondary students at the crucial juncture between years 9 and 11. These projects appear to work well and have the potential to be developed or adapted to other circumstances.

These projects had a set of common characteristics:

- R: Real artefacts, situations and role-models
- A: Attainment impact
- V: Vocational dimension
- E: Expertise not normally available in the classroom.

The first letter of each of these key words coincidentally formed the handy acronym RAVE.

The Manchester Museums Consortium therefore decided to look more closely at four specific projects in order to test the value of the RAVE principles. The evaluation process focused 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, the study looked at why and how, as opposed to what and how many.

The following four projects were investigated:

- **Museum of Science and Industry (MoSI)**
  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 Development 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?
**Museum of Science and Industry (MoSI)**

**SCHOOL:**
St Gabriel’s RC High School, Bury

**YEAR GROUP:**
Year 9

**TIMESCALE:**
Autumn term 2005 - summer term 2006

**AIMS:**
- To create an informative and entertaining website about the history of sanitation in Manchester, devised entirely by young people
- To provide ‘enrichment’ activities that reflect St Gabriel’s RC High School’s status as a Specialist Science College
- To give pupils a chance to apply their knowledge in a ‘real life’ context by way of preparation for the new Science GCSE
- To extend MoSI’s existing relationship with St Gabriel’s RC High School by giving pupils access to the collections, archive and expertise of staff

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**BUGS IN THE BATHROOM**

**SETTING THE SCENE**

In February 2005, St Gabriel’s RC High School in Bury and MoSI made an application for an Attic Media bursary to support a collaborative website project. Although unsuccessful, both parties were so enthusiastic about the proposal that they decided to go ahead with it anyway, using funding from MoSI’s Designation Challenge Fund.

As a Specialist Science College, St Gabriel’s seizes any opportunity for ‘enrichment’. The Head of Science knows that the school will have to demonstrate improvements in attainment when it applies for re-designation as a specialist college in two years’ time. Projects like this are not, in her view, an optional extra, but a fundamental element of the drive to raise standards. 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.

At MoSI the policy is increasingly to offer secondary schools ‘bespoke’ experiences that not only reinforce subject knowledge, but also give access to resources and expertise that are not available in the classroom. As the number of secondary pupils going on to study science at A’ level continues to decline, the museum is keen to support schools in making the subject attractive to potential recruits. Year 9 pupils facing important choices about subject specialisation at GCSE are a prime target.

**WHAT HAPPENED?**

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 this, they used the museum’s collections and drew on the expertise of museum staff, above all the Curator of Community History, the ICT Manager and the Archivist.

Pupils were invited to apply for participation in the project by submitting a ‘statement of interest’, as if for a real-life job. They were then selected according to 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, and is designed to appeal to slightly younger children as well as to adults. It considers in turn such questions as:

- How Manchester eventually secured enough clean water to meet local demand
- How waste is taken away from people’s homes and disposed of
- How people in the past managed to keep clean
- Which diseases were caused by dirty water and still are in many parts of the world.

**PROJECT STRENGTHS**

**Cross-curricular**
The project was truly cross-curricular in that it involved a fusion of science, social history, citizenship, design, ICT and English. For the teachers concerned, this was one of its chief attractions and benefits.

**Flexibility**
Both pupils and teachers were surprised by the informality and flexibility shown by the museum. All spoke appreciatively of the willingness of museum staff to share knowledge, ideas and enthusiasm.

**Access to expertise and role models**
Teachers particularly valued the fact that museum staff could offer expertise that complemented and augmented their own, while pupils were able to observe adults ‘modelling’ team behaviour in a way that rarely happens in school.

**Access to real objects**
The students hadn’t expected the experience to be so ‘hands on’. They were astonished at how much material is in store behind the scenes. The opportunity to handle objects helped them understand how certain artefacts had changed over time and enabled them to make sense of the images and information they encountered while looking through the museum’s archive.

**A real purpose**
Their high level of motivation reflected the fact that they were carrying out research with a real creative purpose in mind, rather than gathering and regurgitating facts for the sake of it.

The biggest challenge of all was learning to write for an audience. Pupils had to think carefully about the length, structure and tone of their text, proof-read it for factual accuracy and typographical errors, seek copyright clearance and acknowledge their sources.
**Academic impact**

As anyone working in the field of educational evaluation will know, it is difficult, perhaps even 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.

Looking back, both teachers and pupils felt that the experience had prepared them well for the independent study required for GCSE in Years 10 and 11. It had reinforced their understanding of certain scientific topics and demonstrated how scientific research and knowledge matter in real life. The inherently cross-curricular nature of the project was also perceived as beneficial: it involved the application of many different skills and kinds of knowledge.

**LEGACY AND SUSTAINABILITY**

MoSI’s relationship with St Gabriel’s High School has continued to develop over a second academic year, with the previous year’s cohort of Year 9 pupils (now Year 10) acting as mentors to pupils in the year below. Staff at the museum acknowledge that projects of this kind are labour-intensive and would be difficult to sustain on a grand scale. But they are in no doubt that highly specialised opportunities for relatively small groups of secondary pupils represent the way forward in meeting the needs of the secondary sector.
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)

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. (Recently qualified teacher)

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. (Curator of Community History, MoSI)

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. (Teacher)

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)
SCHOOLS:
Fulwood High School and Arts College, Preston; Kirkham Grammar School, near Preston

YEAR GROUP:
Year 9

TIMESCALE:
January to June 2006

AIMS:
- To improve pupils’ sketchbook skills in preparation for GCSE Art and Design
- To enable schools in the state and independent sector to work together
- To enable pupils to gain new ideas and skills by learning from professional artists
- To experience at first-hand original works of art in the collections of Manchester Art Gallery

COASTERS - USING SKETCHBOOKS FOR GCSE ART AND DESIGN

SETTING THE SCENE
This joint venture between Fulwood High School and Arts College and Kirkham Grammar School was funded by the Department for Education and Skills (now Department for Children, Schools and Families) through the Independent/State School Partnerships Grant Scheme, which aims to widen educational opportunities and share best practice and expertise.

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.

Kirkham Grammar School, by contrast, is an independent co-educational day and boarding school a few miles outside Preston. The Head of Art saw the project as an exciting opportunity for his pupils to broaden their outlook and - just as importantly - a chance 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.

WHAT HAPPENED?
Both the teachers involved with this project wanted to develop their pupils’ sketchbook skills and expand their understanding of how a real artist works. From previous experience, they knew that Manchester Art Gallery could help them devise a project that exactly suited their needs.

This project began with an intensive day of tailor-made workshops at Manchester Art Gallery facilitated by a number of different people: writer and drama practitioner Johnny Woodhams; painter Pat Mountford; sculptor Susie MacMurray; and digital artists Harriet Clarke and Liz Noble.
**PROJECT STRENGTHS**

**Access to real objects**
As far as possible, discussion and activity took place in front of the gallery’s permanent display, so that pupils could develop a relationship with original works of art and design. Students took part in ‘critical thinking’ sessions led by Jo Clements of Salford Art Gallery and listened to the journalist Alison Butterworth interviewing artist Susie MacMurray about her work.

**A real-life context**
Pupils from both schools then made joint trips to Blackpool Pleasure Beach and Blackpool Tower, where they photographed and sketched the spectacular fairground rides and circus. This gave them a real-life context in which to apply their sketchbook skills and inspired them to work on a larger scale than usual.

**Access to expertise and role models**
Several of the artists led workshops back in school and/or worked in school as ‘artist in residence’. They introduced students to new media and techniques and encouraged them to experiment. For example, the painter Pat Mountford showed them how to use a view-finder and how to brainstorm ideas by making lots of rapid sketches. Harriet Clarke and Liz Noble taught them how to use pinhole cameras and digital photography. Performance poet Johnny Woodhams demonstrated how images can serve as a starting point for other kinds of creative process.

Over time, these activities generated a large and remarkably varied body of work. As a ‘grand finale’, all the participants in the ‘Coasters’ project showed their work in an exhibition at the University of Central Lancashire’s art gallery in May 2007.

**Academic impact**
The project proved invaluable in preparing pupils for GCSE. They learned how to use a sketchbook as an investigative tool and saw for themselves how real artists work. By the end of the project they had begun to realise that creative practice involves a continuous process of experimentation and reappraisal. It is, in a sense, something that never stops.

The art teacher at Fulwood High School and Arts College attributes raised attainment levels at the end of Key Stage 3 and the high take-up of GCSE Art and Design in 2006-7 at least in part to the impact of this project, while the Head of Art at Kirkham Grammar notes that some of his Year 10 pupils are now working at A’ level and even Foundation Course standard.
**Vocational learning**

The pupils themselves acknowledged that they had extended their repertoire of techniques and become much bolder in their approach to tackling a new theme. Several of the participants expressed an interest in continuing with art beyond GCSE and perhaps even after school. There was also evidence that the experience had stimulated a more general recreational interest in the history of art. Long after the event, many students could vividly recollect the works they had encountered at Manchester Art Gallery.

**LEGACY AND SUSTAINABILITY**

Whatever the long-term effect of participation in this project, it has acted as something of a catalyst for other spin-off activities in the short-term. Fulwood High School and Arts College 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. Kirkham Grammar has created a website about the project, 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. Although the work displayed in the project’s final exhibition marked the end of a journey for many pupils, it will no doubt provide others with a springboard for even bigger and better things.

We could do with more dialogue about what teachers want and what the gallery wants to do. (Art teacher)

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)

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)
PORTFOLIO DEVELOPMENT DAYS FOR YEAR 10

SETTING THE SCENE
In most schools, achievement of five A to Cs at GCSE is a pre-requisite for entry into sixth form and Higher Education. For many pupils, this is a challenging goal, and it is therefore vital that they receive all the encouragement and support they can get in Year 10, the first year of GCSE.

In Art and Design, one of the biggest challenges is the development of a rich, varied and well-documented portfolio of work, which draws on a range of stimuli and shows evidence of the ability to develop and evaluate ideas. Students who are not used to regular sketching and experimentation struggle with this aspect of the syllabus. This is where galleries like the Whitworth can help, by giving access to their collections and brokering relationships with artists and Higher Education courses.

For the Higher Education institutions themselves, recruitment is a pressing issue. At Manchester Metropolitan University, for example, 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 university to local students is now a priority.

WHAT HAPPENED?
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). They were attracted to the event for many different reasons, including the opportunity to work with artists and thereby reinforce the ‘real life’ rationale of the relatively new applied Art GCSE, with its emphasis on work-related learning. All the teachers taking part stressed the importance of the event being free.

Each school group was offered a menu of activities tailored to suit its own individual requirements. One school asked for an activity that could relate to a project pupils were doing on architecture. They spent the morning talking and sketching in the exhibition Concrete Thoughts, which showed how contemporary artists have expressed ideas about the built environment.
Another group listened to a talk from one of the gallery’s curators on the theme of embellishment in Indian textiles. They looked closely at different kinds of stitching and discussed the difference between fashion and function. The morning ended with a practical felt-making and decoration workshop, led by a professional artist.

Over the lunch-break pupils then had the opportunity to view the portfolios which students from various local art and design courses had laid out in the Whitworth’s spacious South Gallery. They talked to the students, browsed through their folders, sketchbooks and portfolios, and, in a few cases, showed them their own GCSE work. The gallery’s 11-19 Co-ordinator rounded off the day with a brief talk about how schools can make best use of the Whitworth’s resources, pointing out, for example, that much of its collection can be explored on-line.

**PROJECT STRENGTHS**

**The gallery environment and access to real objects**

The GCSE pupils valued the gallery’s calm atmosphere, the range of stimuli provided by its exhibitions and permanent collection displays and the choice and freedom offered by the gallery environment. 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.

Although some pupils found the sheer size of the building daunting, most enjoyed the liberation from the classroom and thought that the novelty of the gallery environment made them concentrate and work harder.

**Understanding the museum**

Several said that they had gained a better understanding of the museum as an institution: one girl commented that she now appreciated 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 interviewee, the whole experience suddenly made the idea of working in the art world more tangible.

**Learning from experts**

Teachers and pupils alike valued the experience of working with an artist, highlighting the distinctive benefits as:

- a faster pace of delivery
- access to new materials
- insights into new techniques
- a tolerant style of teaching
- encouragement to regard ‘mistakes’ and ‘messiness’ as a necessary part of the creative process

Several teachers noted with regret that they cannot afford to have an artist “in residence” in school.
Academic impact
Pupils took note of and were impressed by many aspects of the way students had developed and presented their work, including:

- Breadth of subject-matter
- Variations in 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

The participants also learned from working with artists and in some cases actually made work that could be added to their GCSE portfolio. For certain pupils at least, it was clear that the experience had demystified the art world and opened their eyes to the possibility of pursuing art beyond GCSE and A’ level.

LEGACY AND SUSTAINABILITY
The secondary pupils’ interaction with the slightly older and more experienced university students was central to the purpose of the day. The long-term effects of such an encounter are difficult, indeed probably impossible, to assess.

There were encouraging signs, however. One 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!

Since running this event as a pilot in November 2006, the Whitworth Art Gallery has organised a further 26 similar sessions, involving 620 secondary students. The format of the day appears to provide the ingredients that secondary schools want: a well-balanced combination of practical activity, advice and inspiration.

I was tired at first but now I’m inspired!
(Pupil)

Now I know how much it’s possible to change my style. Nothing is off limits.
(Pupil)

You mean you sit in a café and sketch?
(Pupil to university student)
Manchester Museum, University of Manchester

SCHOOL:
Sessions involve many different secondary schools. Interviews for the evaluation were conducted with Ashton on Mersey School.

YEAR GROUP:
Year 9

TIMESCALE:
Ongoing

AIMS:
• To demonstrate how science is applied in real-life
• To give schools experience of specialist equipment and investigative techniques not available in the classroom
• To provide insight into science as a career option and encourage entry into Higher Education
• To raise attainment in science

FORENSIC SCIENCE SESSIONS
SETTING THE SCENE
Manchester Museum’s secondary education programme mobilises the resources available to it within Manchester 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 intention is to open up Higher Education to young people who, because of social, economic or other circumstance, might not otherwise consider further study. Schools are equally keen to stimulate educational ambition and raise attainment, particularly in so-called ‘difficult’ subjects like science.

The forensic science session is also attractive to schools because it links with work-related learning and ‘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. A further bonus is access to specialist equipment that is not available in the classroom and the input of facilitators who are often PhD researchers.

Each session can accommodate a maximum of 16 pupils and costs £100. However, Manchester Museum also offers a number of sessions free of charge, thanks to special funding (Strategic Commissioning) from the Department for Culture, Media and Sport and the Department for Children, Schools and Families to target schools which don’t habitually use museums. Without this subsidy, Ashton on Mersey School might not have been able to attend the event.

WHAT HAPPENED?
Participants are 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 accuse 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.

**PROJECT STRENGTHS**

**Learning from experts**
This is a fast-moving session involving a sequence of tricky practical activities and a complicated plot. Because of this, concentration levels are always high. Participants’ sense of having privileged access to scientific researchers is a key factor in keeping their attention. Young, lively and enthusiastic, the PhD students dispel the stereotypical image of the earnest scientist and communicate an excitement about their subject that is clearly infectious.

**A different environment**
The ambience of the museum is also a vital aspect of the experience. Although sessions do not directly involve the collections, teachers and pupils value the variety of exhibits on show and the atmosphere that surrounds them. Simply being in a different environment appears to engender a more receptive frame of mind.

**Academic impact**
The impact of a one-off, albeit intriguing, experience on attainment and long-term educational aspirations is hard to gauge. But pupils are clear that actively carrying out fingerprint and DNA analysis, as opposed to passively reading about it, reinforces their understanding of what it entails. Even two months after the event, pupils interviewed for the purposes of evaluation could remember every step of the workshop process. There is also some evidence from feedback that these sessions prompt at least a few students to consider science as a future career destination.
LEGACY AND SUSTAINABILITY

The teaching of science in secondary schools is in a state of flux. The new Science for the 21st Century GCSE, which emphasises the relevance and application of science to everyday life, has divided opinion within the science education community. While the new emphasis on applying scientific knowledge enables teachers to make useful links with the outside world and is helpful in motivating students, some teachers and academics argue that it jettisons the depth of knowledge young people need for scientific study at a higher level. 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 towards the former, which means that Manchester Museum’s broadly-based collection and explicitly vocational ‘offer’ will no doubt become increasingly attractive to secondary schools in the future.
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. (Research student/demonstrator)

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)

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. (Teacher)

I think I demonstrate the fact that science is ‘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. (Research student/demonstrator)
SUMMARY OF FINDINGS

INTRODUCTION
Secondary teachers want bespoke experiences, with clear academic purpose, for small numbers of pupils. As one teacher interviewed for the evaluation suggests, the museum visit has to provide obvious 'added value' for it to be worth the rigmarole of securing parental permission, collecting money and organising transport and supervision.

The evaluation of the four projects showed that projects which RAVED provided 'added value' and were therefore attractive to teachers.

THE RAVE PRINCIPLES
The successful projects had a set of common characteristics:

• Real artefacts, situations and role-models
• Attainment impact
• Vocational dimension
• Expertise not normally available in the classroom.

Real artefacts, situations and role models
• There is a marked trend in secondary education towards work-related and applied learning.
• 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.

• 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 MoSI, 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.
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 education 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!

- There is some evidence that these projects did make a difference to pupils' attainment. For example, Manchester Art Gallery’s 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. Similarly, pupils taking part in the Whitworth Art Gallery’s Portfolio Development Days came away with practical ideas for improving the content of their portfolios. Participants in all four projects spoke of enhanced self-confidence and understanding of their subject.

- All the teachers concerned were attracted by experiences which they thought might 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. As a promotional ‘hook’, ideas about attainment certainly matter.
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.

• However, teachers were undoubtedly attracted by the vocational dimension of these experiences. Participants in the Whitworth’s Portfolio Development 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 dead-end options, 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. They show that it is ‘do-able’.

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.

• 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 one teacher noted, they are more inclined to accept advice from the expert or authoritative outsider than from their teacher.
Further thoughts

Brokerage and playing to the museum’s strengths

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.

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.
Sustaining the model

All four case studies involve museums that are relatively well staffed and resourced. So would the model work elsewhere? It is true that from the outside these projects may 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 MoSI, 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. The event did, of course, present administrative and practical challenges. Once tested, however, it has been easy to ‘roll out’ again.
Widening the offer

Perhaps the only impediment to sustainability and replicability is cost. Most of the teachers interviewed here emphasised their straitened circumstances and indicated that the absence of a charge had been a key factor in persuading them to make a museum visit. 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 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.

Why some schools consistently do find money for curriculum enrichment and others don’t is a question that goes well beyond the scope of the present evaluation. 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.
Renaissance

The Pathways and Progression Secondary Schools Initiative is part of the Renaissance North West Education Development Programme which aims to develop a comprehensive museum service to schools. The Secondary Schools Initiative set out to tackle a challenging area of provision, in recognition of the great potential for working at this level.

Renaissance is the Museums, Libraries and Archives (MLA) Council’s £150million programme to transform England’s regional museums. For the first time ever, investment from central government is helping regional museums across the country to raise their standards and deliver real results in support of education, learning, community development and economic regeneration.

A network of ‘Hubs’ has been set up in each English region to act as flagship museums and help promote good practice. Alongside the Hubs, MLA Regional Agencies and Museum Development Officers are providing advice and support, Subject Specialist Networks have been set up, and national museums are sharing their skills and collections to ensure Renaissance benefits the entire museums sector. Renaissance is helping museums to meet people’s changing needs - and to change people’s lives.

For more information and further copies of this report, please visit the Renaissance pages of the MLA North West website www.mlanorthwest.org.uk.