

## [O12] Use of a sci-art project to explore the benefits of interdisciplinary collaboration

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### INTRODUCTION

The term 'sci-art' refers to a movement that brings scientists and artists to work together on collaborative projects (1). The aims of these projects are various but may involve, for example, the artistic expression of scientific phenomena, or they may be aimed at promoting public engagement with science. A major theme has been to bridge the divide between what are perceived as the two cultures. The term 'sci-art' is not new, having been coined by Bern Porter in his 'Sciart Manifesto' published in 1950 (2). However, in recent years, collaborations between scientists and artists have been encouraged by funding from major institutions, including the Wellcome Trust (3) (from 1996 to the present), and the Sciart consortium (4) (between 1999 and 2002), comprising the Arts Council for England, the British Council (5), the Calouste Gulbenkian Foundation, the National Endowment for Science, Technology and the Arts (NESTA), the Scottish Arts Council, together with the Wellcome Trust.

Between 2003 and 2005, the Faculty of Science and Engineering at MMU was the centre of an extensive building and refurbishment programme. This programme involved the complete refurbishment of the laboratory block (see Figure 1), major changes to the main teaching and office block, and the building of a new teaching and IT block. The three main buildings have been linked by an enclosed

**Figure 1: A webcam picture of the main John Dalton laboratory building during its refurbishment. The new central IT building is shown on the right.**



'street', with a number of large spaces that would benefit from displays of artwork. Despite inevitable disruption to the work of the Faculty during the building programme, which necessitated removal to temporary laboratory accommodation, the work provided an opportunity to run a 'sci-art' project in which arts and science students were asked to collaborate in the design of an artwork for the new/refurbished buildings.

The aim of the project was to explore the interaction between arts and science students when working together on a collaborative project.

**Table 1: Learning outcomes of the project****At the end of the project the student will be able to:**

- Work effectively with others in situations requiring collaboration or negotiation
- Apply effective strategies for time management
- Understand and apply a range of research strategies and information retrieval procedures
- Use critical reflection as a means of identifying progress, personal strengths and professional development needs
- Question and explore ideas, issues and theories in a way that demonstrates the development of critical thinking
- Communicate scientific ideas in ways not usually employed by scientists
- Communicate scientific ideas to non-scientists in the process of collaborative work
- Appreciate the creative process as it progresses from concept to outcome

**METHODS**

The project took place in the academic year 2003/2004, and overseen by a working group consisting of academic staff from both disciplines. The working group felt that the project was most suitable for Level 2 students, and that it should take place after Easter, when most formal lectures were finished.

Expressions of interest were invited from staff and students in the Faculties of Science and Engineering and in the School of Art and Design. Academic staff and students in both disciplines were notified of the project in January 2004 and invited to a preliminary meeting, which in the event was attended by 25 students. At this meeting, the students were informed of the aims of the project, the degree of commitment required, the learning outcomes (see Table 1) and the assessment methods (Table 2). Students were also informed that this was a competitive project, with the winning design progressing to completion. As a result of this meeting 18 students went forward with the project. The distribution of their degree subjects is shown in Table 3. All 'science' students were registered within the Department of Biological Sciences at MMU. For these students, the project was undertaken as a unit of 'Negotiated Self-Managed Study', which

forms an alternative to a period of industrial placement normally completed between April and September. The assessment of this project for the science students is shown in Table 2. For the arts students, participation in this project represented an extra commitment and this was reflected in a modified assessment.

The students were put into interdisciplinary groups of between three and five students. The uneven distribution between students from the two disciplines was monitored but was not felt to be a problem. The students worked on their project for six weeks on a full-time basis. Academic staff 'mentors' from both disciplines facilitated each group. Within the group, all students contributed to the project. The students arranged their own work patterns and division of labour. A weekly tutorial was arranged for each group at which academic staff from both disciplines were present. The purpose of these tutorials was to monitor the group's progress and to support and guide the students where necessary. Group presentations were given at the end of the six week period and were attended by all academic staff involved, as well as the Deans of Science and Engineering and Art and Design.

**Table 2: Assessment of Sci-art project\***

<b>Component</b>	<b>Advice to students</b>	<b>Contribution to Assessment (%)</b>
Team presentation	A 20 minute presentation in which students present their design, giving the background and rationale for their proposals. During this presentation they should demonstrate evidence of team-based research and should provide team-based visual development worksheets	60%
Individual reflective journal	This should take the form of a diary or 'logbook' of the project, detailing the events which took place, the work achieved and an ongoing <b>individual</b> reflection on these events (eg why something was done in a particular way, how it worked out, what you thought of it, would you do it in the same way again etc	20%
Individual evaluative summary of the project	Maximum 500 words	20%

\* For the arts students, this project was additional to their course, rather than integral. To avoid overloading the students, they were advised to participate in the team presentation and to carry on their usual practice with regard to their individual reflective journal.

## RESULTS

The students eventually settled into four interdisciplinary groups. The students used initial tutorials to explore the difference between ways of working within the two disciplines. In some groups science students visited arts students within their studio space. Observations by 'mentors' indicated that, initially, the scientists, perhaps as expected, were used as sources of information, while the artists supplied the creative input. As the project progressed, the artists began to source their information themselves, while the scientists began to have creative input.

It was also clear that both sets of students had difficulty at the outset, and some anxiety was

generated when they could not decide on the theme and medium of their artwork. Some students at this point contemplated leaving the project. However, the knowledge of the six-week deadline helped them to focus, and to accept some level of compromise. With few exceptions, most students worked well together and remained firm friends at the end of the exercise.

## THE ARTWORKS

A brief summary of each artwork is given below:

**Group1:** An interactive piece based on a series of projections flashing in a continuous

**Table 3: Distribution of students at project outset**

Subject Area	No. of students participating
Biomedical Science	10
Biological Science	1
Photography	2
Embroidery	4
Interactive arts	1

loop with images and words 'randomly' projected. Embroidered images separate the different projections. The students produced a 'mock-up' on CD-ROM for demonstration.

**Group 2:** An installation based on photographic images hanging from above.

**Group 3:** A floor-standing dynamic branched sculpture representing and reflecting the branching of fractals and of biological structures. This sculpture, termed 'Chaos' (see Figure 2) was made of a variety of materials and could be added to and changed over time.

**Group 4:** This was based on an enormous crystal garden, 'growing' above one of the reception areas. The students provided several examples of home-grown miniature crystal gardens.

The winning design (Group 1) took into account the feasibility of the artwork and of its installation within the space.

## REFLECTIONS ON THE PROJECT

The project has had several outcomes beyond a design for the artwork. The individual evaluations showed that the students enjoyed carrying out the project, despite some initial problems and anxieties. The reflective journals, the first produced by our bioscience students, clearly indicated insight into the

**Figure 2: Chaos**

project and into the difficulties and benefits of working with students from very different disciplines, where ways of working and even language of work were completely different from their own. The academic staff also enjoyed being involved with the project and the opportunity to work within different disciplines. Although the project work lasted only six weeks, staff felt that the students had achieved the learning outcomes and developed new skills as a result. As a consequence, the scientists and artists now have a better idea of each other's working methods and language and this can only be beneficial for both groups.

## REFERENCES

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