An Evaluation of Design Ventura

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1: Introduction

Background

Design Ventura is an enterprise education programme that is being managed by the Design Museum with the sponsorship of Deutsche Bank. The programme focuses on the development of enterprise capability in the context of design. The programme aims to:

1. 'Increase the skills and confidence of learners through multiple engagements with a range of inspiring role models and design experts.
2. Raise the motivation of learners and raise aspirations by enabling them to discover their creative entrepreneurial talent.
3. Fire a passion for design amongst young people, and connect this to practical next steps that relate to achievement in future careers and education.
4. Build lasting relationships with teachers and schools
5. Identify new pedagogic approaches to enterprise education within a museum context that will support the development of Learning at the Design Museum in the longer term.'

(Design Museum 6 monthly Report to Deutsche Bank)

The programme aims to place design skills in a real-world context, developing student creativity and enterprise capabilities. The programme gives young people aged 14-16 the opportunity tackle a brief set in collaboration with eminent product designer Sebastian Conran. Design Ventura aims to give young people a taste of life within the design industry, and to empower them to explore ideas from both creative and business perspectives. Throughout the project, museum educators, practising designers and people from the world of business will provide support, expertise and advice for students and their teachers.

As a museum education project, Design Ventura is unusual because of its large scale and long duration and the way that it combines outreach and museum based learning. Another innovative feature is the provision of information and resources on line along with support for on-line networking for participants. The programme started in Easter 2010 and is expected to run for three years. It is planned that the programme will engage 30-40 secondary schools and 600-800 students per annum.

Aims and Objectives

The aims of Design Ventura have been expressed in terms of the desired impact of the programme.

Table 1 analyses the learning outcomes into three categories:

6. Enterprise and creativity skills
7. Confidence and ambition to succeed at school and in their careers
8. Business understanding within the design industry

Additional aims are:

9. 'Legacy' which concerns the lasting capability for Design Ventura in terms of teacher capability, on line resources and institutional relationships
10. High quality learning experiences – participant enjoyment and satisfaction in relation to the programme.

A key task for the evaluation is to collect evidence in order to make informed judgements about the degree to which these aims and outcomes have been achieved.

Impact Measurement Area	Aim	Outcome Indicators	Anticipated outcomes
1.Skills	To improve enterprise and creativity skills amongst young people	-Increased creativity -Improved business and economic understanding (inc. financial capability) -Increased teamwork skills -Increased leadership skills -Improved decision-making skills -Improved ability to assess/manage risk	• 60% young people experience an increase in enterprise skills and creativity.
2.Attitudes/Attributes	To increase confidence and ambition amongst young people	-Increased self-confidence. -Increased ability to handle uncertainty -Raised career and education aspirations -Reduction of perceived barriers to success/achievement	• 70% of young people experience an increase in confidence and ambition. • 50% of young people perceive a reduction of barriers to success/achievement.
3. Knowledge and understanding	To increase understanding of business within the design industry	-More business and design professionals actively involved in design-enterprise education -Number of applications to trade at Ventura Pitching Events.	• 60% of young people experience an increase in economic and business understanding. • 60% of participating schools submit applications to trade in Ventura Pitching Event
4. Legacy	To build sustainability through training for teachers/volunteers, partnerships and online resources.	-Increase of schools participating during for more than 1 year of the programme -Take up of Virtual Ventura and Ventura Awards following CPD	• 50% of schools participate in the Ventura programme more than once. • 100 schools participate in the Virtual Ventura over three years.
5. Qualitative Experience	To provide a learning experience of the highest quality.	-Levels of enjoyment amongst all participants -Perceived efficacy of the project in achieving its stated aims -General feedback – comments, quotes etc. gathered from all participants.	• 85% of participants rate their experience of the project as ‘good’. • 85% of participants agree that the project achieved its stated aims. • Range of positive feedback collected from cross section of participants.

Description of the Programme

Schools were recruited through mail outs and hand outs at the Design Museum. Following enquiries from 45 state schools, 30 were booked into the programme by July 2010, with other schools being offered places for future years and the opportunity to participate in a virtual version of the project. 14 Deutsche Bank priority schools participated including those participating in the virtual version of the programme.

A full day of CPD for teachers was held in June 2010, with 42 teachers attending (of the 43 who booked). An additional twilight CPD session was held for 23 teachers. Training was provided for the staff delivering the planned workshops along with briefing sessions for designers and Deutsche Bank volunteers (total of 36).

Learning content for the programme was developed and mapped against GCSE curricula to ensure relevance for schools. The content was informally reviewed by practising teachers. Handbooks, teachers' notes for all workshops and other support materials were prepared and reviewed by the Design Museum team.

During the first half of the autumn term, 32 launch workshops were held at the Design Museum, followed by 31 'hothouse' sessions in school with a business focus and 32 'hothouse' sessions in schools with a design focus. A total of 823 students participated in these sessions. In addition, 912 young people were registered to participate in a 'virtual' version of the project, where teachers used materials created by the Design Museum to run Design Ventura in their own time.

Schools submitted their entries to the Design Museum at the end of October and 10 finalists were invited to present their designs at a judging day at the Design Museum in November. The winning school was announced in February 2011.

2: Methodology

Responsibilities

Responsibility for the evaluation was shared between the Design Museum and CEI at the University of Warwick. The Design Museum took responsibility for recording participation and administering the surveys while CEI took responsibility for survey design and analysis, qualitative research and analysis and reporting. This division was intended to take advantage of fact that the Design Museum had close contact with schools and had the capacity to administer the survey.

Data Collection

Administrative Data

The Design Museum has collected data relating to the characteristics of participating schools together with the details of the various activities they have participated in.

The Design Museum carried out research on a sample of eight schools (25% of all the schools participating) to investigate their demographics. Using Ofsted and school websites, the research found that in most sample schools, around 50% of students were from ethnic minority groups. Two of the schools were boys only.

Data on Activities and Learning Outcomes

A survey of teachers was conducted in three waves: June, September and December. The first wave was administered using paper questionnaires during the course of CPD at the Design Museum in June. The second two waves were conducted on-line: teachers were individually emailed and invited to complete a web based questionnaire. A small prize was offered to incentivise completion.

40 questionnaires were completed by teachers in Wave 1 in June. Ten questionnaires were returned in September (Wave 2) of which three represented new teachers. Just seven teachers completed the final questionnaire in December (Wave 3) of which three had also completed the questionnaire at the beginning.

A survey of students was conducted in two waves: a baseline in September 2010 followed by a final questionnaire in December 2010. In both cases the survey was conducted through a web-based questionnaire, though teachers

were asked to administer completion in school. Reminders were sent to encourage submissions. Teachers were offered paper questionnaires for students but no teachers took up this offer. Participation in the survey was incentivised with small prizes.

146 questionnaires were submitted in the first wave and 35 were submitted in the second wave. In relation to the 823 students recorded as participating, the 2nd wave is a disappointing response rate (4%). The small numbers reduce the statistical value of the data collected. It seems likely that the response rate was reduced by the fact that the 2nd wave did not take place until after the competition was finished, when perhaps interest was diminished or perhaps students and teachers were exhausted.

Qualitative Data Collection

Interviews and observations have been carried out in order to explore how participants perceived and valued the activities they participated in and how they have benefited from them. In May, the launch of Design Ventura was observed as was CPD for teachers in June. Two introductory workshops for students at the Design Museum were observed as was the final pitch. In addition, a business and a design focused hothouse session were observed in two schools.

Interviews were carried out with four teachers, two groups of students at two different schools and with two volunteers (one a designer and one from Deutsche Bank), two museum educators and the programme leader.

3: Results

Profile of respondents

Students

Gender

The survey suggests that most students participating in Design Ventura were male: 74% were boys and 27% were girls (N=146). These figures may reflect the popularity of design with boys but they may be distorted by the particular schools that responded.

Ethnicity

46% of respondents to the survey described themselves as White, 12% as Mixed, 15% as Asian or Asian/British, 25% as Black or Black British and 1% as Chinese or any other ethnic group. Two percent chose not to describe their ethnicity. This data is consistent with the secondary research conducted by the Design Museum into ethnicity.

Year Group

27% of survey respondents were in year 9, 67% in year 10 and 5% in year 11.

In terms of programmes studied, 49% reported that were taking GCSE Design and Technology – Product Design, 19% GCSE Design and Technology – Graphics, 11% GCSE Design and Technology – Resistant Materials, 12% GCSE Art and Design/Applied Art and Design. It would appear that either some year 9 students have commenced GCSEs or that there was some misunderstanding of this question.

Teachers

40 teachers completed the survey at the beginning of the programme. However, not all of these teachers went on to actually deliver Design Ventura – in some cases this fell to another teacher at the school. 21 of these had qualified between 2000-2010. Nine qualified from 1990 to 1999. 18 of the teachers reported that they had worked outside education in a design role and 13 had worked in a business role. Five had set up a new business.

Motivations

Teachers reported that they chose to do Design Ventura because:

they wanted to provide a real-life design context to learning activities which otherwise would simply be exercises
they wanted students to have access to design professionals
they saw Design Ventura as an enrichment activity for particular groups of students
it fitted with an emphasis on enterprise in their school (Business and Enterprise College).

Timing

In general teachers favoured the autumn term. A number of teachers used Design Ventura as an introduction to a GCSE programme in year 10. One teacher argued that submission in December rather than November would have given her more time and helped her to integrate the project into the term's scheme of work. One teacher commented that she might go on to use the programme in the summer with a year 9 group.

Training

Seven teachers who attended training sessions completed the Wave 2 teacher survey. All of them reported that they had obtained a 'clear understanding of the programme' and seven of them reported that the training helped them to decide that 'the project fits well with the needs of teachers and students at my school'. Six said that they had 'developed their understanding of how design education and enterprise education can be connected together'.

The business volunteer interviewed was extremely positive about the training that he received. He described it as enjoyable, clear and motivating.

The museum educators interviewed had experience of both education and the design process. One of them had business experience: neither had experience of enterprise education. They both received a half day training, which they reported as valuable. One reported that she spent considerable time preparing for her first session, customising the materials and working out how she would use them. Museum educators profited from working together to prepare sessions.

One of the museum educators reported that she was observed by a colleague from the Design Museum and benefited from informal feedback and that she also valued informal feedback from the volunteers.

The Brief

Most respondents were positive about the use of the Design Museum shop as a context for the competition. They believed that it extended the experience of their students and that it was accessible and offered good opportunities for students to explore key concepts such as product analysis, target markets etc. Respondents liked the fact that the shop was a 'live' ongoing business. One student, when asked what he liked best about Design Ventura, said: 'Thinking about whether your products actually could be on the shelf of the Design Museum and knowing it's going to be your product and not, like when you walk into a shop it's to just going to be a product...it's going to be you've made it, produced it.'

However, some teachers and museum educators believed that many students were challenged to understand the context. They pointed out that many of the products in the shop were targeted at older people, that they were relatively expensive and were aimed at an affluent market (socially different from the students) and that they were sometimes 'ironic' in a way that students did not understand. Some students reported that they were puzzled by the prices of products in the shop. Observation of sessions confirmed that many students were mystified as to why people would buy some of the objects in the shop.

On the other hand, one group of students commented: 'It's helping us think about the markets because we had to produce it for the Design Museum we had to think about what they want, not only what we want.' Another student commented: 'The Design Museum doesn't just have things that you don't see everyday, in the shop there was just a chair, like £500 chair there was a lot of other things as well, like a Dyson fan which didn't have blades, just blew out air. Kind of made you think, an everyday product that you don't think you can improve there's always one way or another that you can improve it.'

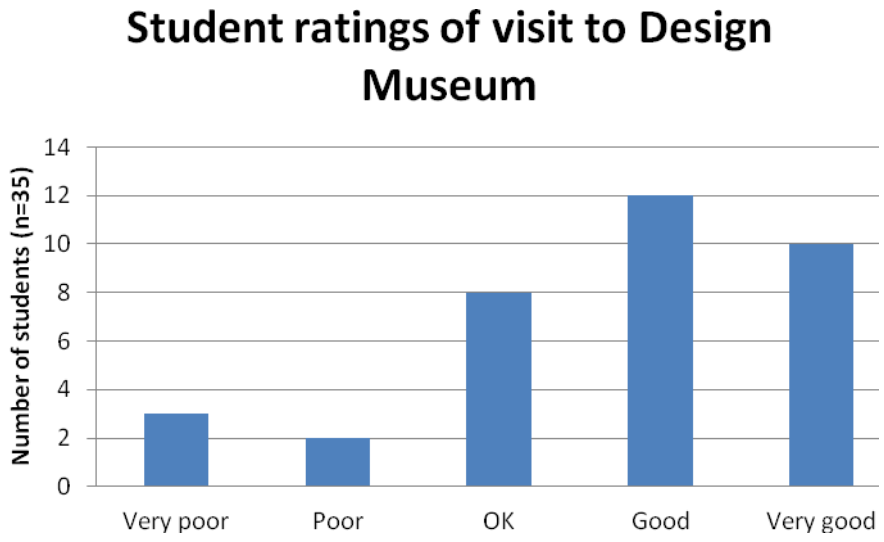
Baseline

According to the Wave 1 teachers' survey some students had relatively little experience of key features of the Design Ventura approach. 46% of teachers (N=46) reported that their students had not had direct contact with practising designers, 26% of teachers had brought students into contact with practising designers at some point in their careers, while 28% had done this in the last two years. 55% reported that their students had not had direct contact with business people, 18% had brought students into contact with business people at some point in their careers while 25% had done this in the last two years. On the other hand, 47% of teachers (N=36) reported that they had already participated in enterprise competitions that relate to design and 59% said that they had other experience of teaching enterprise at school.

Activities at the Design Museum

Survey Findings

According to the student survey 22 out of 35 students rated the visit to the Design Museum as good or very good. There did not appear to be any differences between how students in different years rated different parts of their experience, although the low response rate makes it difficult to draw firm conclusions.



Qualitative Findings

Teachers reported that students responded well to the Design Museum. Some teachers thought that their students found it difficult to understand the Design Museum shop. One teacher who had already played the introductory video to his pupils and introduced them to the project said that his students had found the workshop at the Design Museum repetitive, although they had been stimulated by the exhibition they had viewed and the environment of the Design Museum. Another teacher thought that the workshop session had worked well for most of her students, but said that it did repeat work that she had already done in class several weeks before and that it would have been good if there had been more focus on product analysis which was particularly valuable for her students.

In the two sessions observed, students were mostly engaged, and produced appropriate responses to each part of the workshop. Students interpreted the 'character profile' task in different ways. A significant minority from one class went off task during the latter part of the session. One of the teachers attending, an NQT, expressed frustration that the students had not attended better.

Most students were observed to be extremely interested and impressed by the exhibition (Brit Insurance Design of the Year) that they viewed. They were also observed to explore the shop, looking at objects and discussing them. A group of students commented on the exhibition and agreed that they would have liked more information on the designs that were exhibited – in particular they would like more analysis of what was successful about the exhibited products.

School Based Learning

Some schools conducted Design Ventura within the curriculum whilst others offered it as an extra-curricular activity. According to the Wave 2 survey of teachers four out of ten teachers were planning to integrate delivery with timetabled lessons and another four were planning to deliver outside of lessons.

The survey confirms that the students participating in Design Ventura were involved in a variety of GCSE courses: GCSE Design and Technology (Resistant Materials, Graphics, Product Design, Textiles), GCSE Art and Design, GCSE Business Studies, Engineering Diploma and Key Stage 3 Design and Technology.

One teacher used Design Ventura with year 10 Graphics students as a way of introducing them to the design process. For teachers who did this, Design Ventura provided the context to teach skills that would otherwise have been taught through a school-based project: product analysis, task analysis, technical drawing, initial research, situation analysis. In this case, the Design Ventura project was not assessed as part of the GCSE, but was regarded as preparatory. One teacher said that they could not assess Design Ventura with a GCSE group because group work could not be assessed. However, two out of ten teachers (Wave 2 survey) reported that they planned to use Design Ventura to produce assessed work for GCSEs or Diplomas.

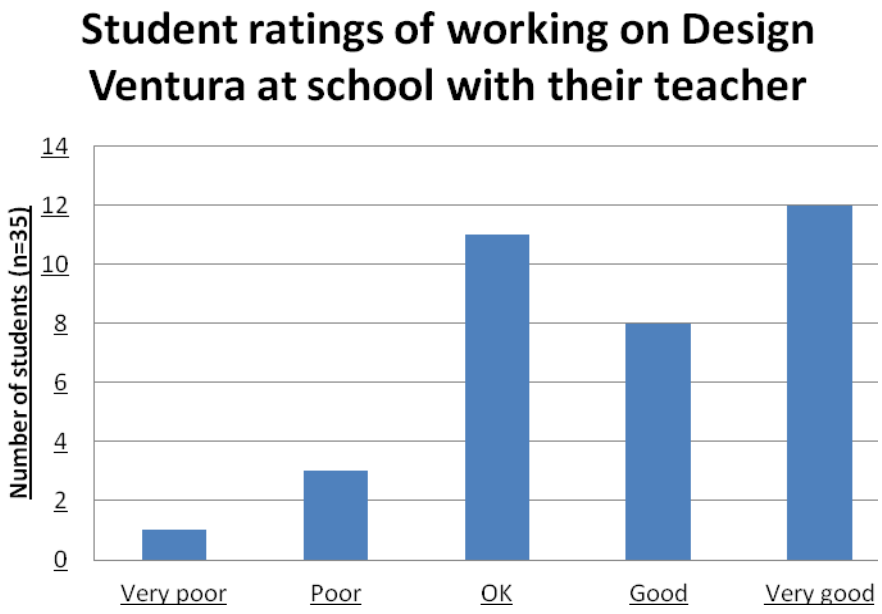
One teacher reported that her school had produced a scheme of work around Design Ventura which formed the curriculum for all six year 9 Design and Technology classes from September to mid-November. This school regarded Design Ventura as a way of enhancing its core curriculum. All of these students participated in a hothouse session, but only one third of students visited the Design Museum.

In one school, Design Ventura took the form of about ten after school and lunch time sessions, in addition to the visits and the hothouse sessions. This school reported that more ‘able’ students were invited to participate (though not formally identified as ‘gifted and talented’ students). This school was

hoping that the programme would encourage participants to opt for Design as a GCSE.

Survey Findings

20 out of 35 students rated their experience of working on Design Ventura with their teacher at school as good or excellent.



Qualitative Findings

Students commented on the greater freedom that they had to develop ideas and discuss ideas with others. They enjoyed the designing and making work particularly, but also the pitching. A number of students particularly enjoyed bringing in the business dimension to design work and they felt that they were able to contribute in this side of the project. Students liked the team character of the work, although some experienced challenges with team work.

Teachers commented on the engagement of students, the pride they took in their work and the creativity, business and generic skills that they demonstrated.

A business studies teacher particularly valued the way that Design Ventura applied concepts from business studies, for example, marketing. He explained that Design Ventura had lasting value as a reference point for students within the business studies programme.

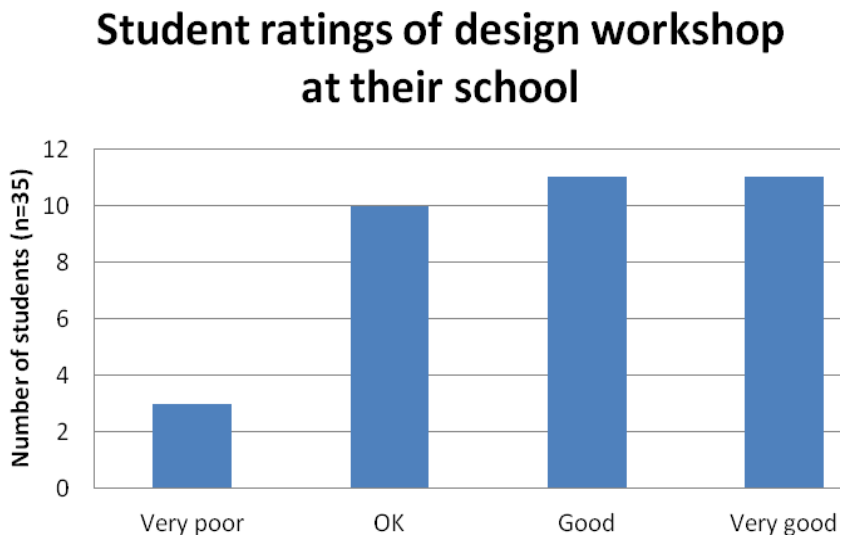
A number of respondents believed that business studies classes had found Design Ventura more challenging than design students. Reasons cited were that the students or teacher lacked a familiarity with the character of the design process or access to materials or a readiness or time to engage with the practical problems of making a design work. One business studies teacher said that, if he did Design Ventura again he would want to do it in partnership with the CDT department.

Design 'Hothouse' Workshop

Most schools chose to do a general workshop which included all elements of the design process. This including revisiting of the design brief, an input and task around drawing, an input and a task about modelling and an opportunity for students to pitch their products using the drawings and models they had produced.

Survey Results

22 out of the 35 students who responded to the survey rated their design hothouse workshop as either good or very good.



Qualitative Results

A particularly successful feature of this workshop, according to all respondents, was the contribution of the designer. One teacher commented on the way that the designer lent authenticity to the process another that his

students had been inspired by the designer. A third commented: 'He was brilliant. The session was really, really good....'

A group of students reported that a designer had led them to revalue their own design: they had thought that their design was 'childish' but praise from the designer had encouraged them to stick with it and to develop it. This perception was supported by a museum educator who thought that teachers were not always sensitive to the virtues of students' design proposals and that designers, who were in touch with innovation and the market, were sometimes better at spotting potential.

A group of students agreed that the designer had helped them to imagine themselves as designers. This suggests that physical proximity, communication and contact with artefacts help students to think of themselves as designers in the making. Students were often predisposed to value what professionals said, according to one student: 'If you learn something off your teacher you might not believe them because you think she's never been in that position before but if there's people that actually come and they work for that particular thing that you're learning about then you take more interest in them because you feel like they know what they're talking about.'

Teachers and museum educators commented on the effectiveness of using artefacts. Museum educators used items from the Design Museum shop to remind students about the project brief. In many cases designers brought in examples of their work: sketch books, models or samples of materials – these artefacts were extremely effective at engaging the attention of students. They helped students to understand and take on-board guidance and instruction from the designers. For example, one group of students reported that they had learnt that drawings did not need to be completed, rather that they should be used as a stepping stone in the design process. This, they reported, removed a barrier which had stopped them progressing. They had changed their approach because they had seen evidence that a professional designer used drawing in this manner.

It was observed that students wanted to handle the artefacts that designers brought in and that they took the opportunity to physically examine objects with attention. This kind of interaction made a difference to the actions of students. For example, students in one group decided that they would like, for their own product, to make use of a particular material that the designer had brought in. Another group reported that they had been encouraged to make a rough and ready model and had discovered that this could help them to move their design forward. These examples suggest that, where the object of teaching is not merely to impart knowledge but to influence action in relation to materials (as in the case with design) then physical interaction with artefacts can help.

There is some evidence that the design volunteers were also able to contribute to enterprise and business learning. Some of the designers chose to speak about the business side of design, for example, the costs of various

materials. A number of respondents believed that this was a particularly effective way of engaging students in the business side of design.
During the design sessions, students were expected to progress their own projects. Usually, these sessions were structured so that the museum educator made an input about drawing, and then all of the groups were asked to progress the drawing on their own projects. After perhaps 20 minutes, there was another input on modelling, and the students were then asked to start modelling their projects. This was observed to produce an effective lesson - students were required to develop their designs rapidly and were excited by the challenge of pitching at the end. However, a number of groups seemed to start from scratch, they were not carrying forward work from a previous session, further, some were asked to put aside their drawing before they had completed it. In other words, students gained from these sessions but it was not always easy for them to connect their own project development to these highly structured and compressed sessions.

The general design hothouse workshops were reported to work best at an early stage of the project – because they functioned as an introduction to all of the design stages. Alternatively, it could work well where students needed to consolidate – to be reminded of what all the stages are and how they connect together. Where students were seeking to take forward their own projects they might have benefitted more from a session that focused on the particular stage they were at. However, this would require a better understanding on the part of the museum educators as to where learners had got to.

Both the museum educators said that they were able to adapt sessions to the needs of students on the spot. This was said to be particularly important in those sessions which were delivered later in the term, when students were more advanced in their projects.

Both museum educators reported problems arising from misunderstandings about what was to be achieved in a session. On some occasions, the museum educators believed that the quality of a session had been reduced because of the large numbers of students involved and the way they had worked. For example, in one hothouse session the students were not working in the project groups, so they could not take forward their projects. In some cases, one museum educator might be working across two or even three groups of students. On other occasions, museum educators thought that a session was affected by the fact that students had not fully understood their brief – perhaps because they had not attended a briefing session at the Design Museum.

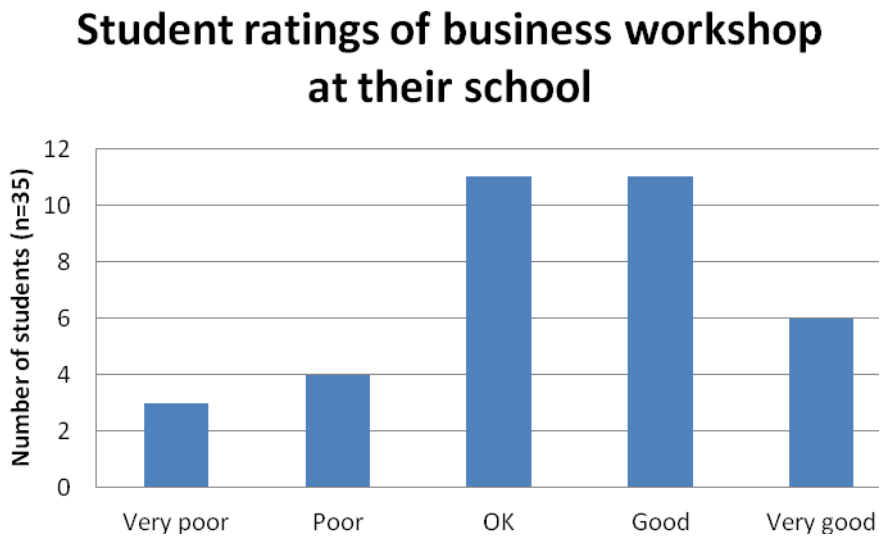
On the practical side, teachers reported difficulties fitting 2 hour sessions into their timetables and organising cover. This increased the strain for some teachers, but in most cases did not interfere with the sessions.

Business 'Hothouse' Workshop

The Business hothouse workshop provided an opportunity to support the business understanding learning outcomes. The workshop outline gives a particular focus to costing and to marketing. The sessions were led by museum educators supported by volunteers and teachers. Students were briefed on how to cost and market their products and tasked to produce a break-down of costs and a marketing strategy. They were given a briefing on how to pitch, usually by the business volunteer, and at the end of the session each group was required to present their product – including costing and marketing. Sessions lasted one to two hours depending on the school.

Survey Findings

17 out of the 35 students that completed the survey rated the business workshop as good or very good. This is a slightly less favourable rating than for the design session.



Qualitative Findings

One of the teachers interviewed was particularly positive about the business hothouse, because of the quality of the delivery and the way that it had engaged his students with the business side of design. He praised both the museum educator and the business volunteer for their capacity to engage his students, get them to contribute and extend their understanding. The outcome of the sessions was that that the different groups were able to demonstrate different strengths and weaknesses by the end of the session and this in turn set up another learning opportunity.

The business volunteer that was interviewed very much enjoyed the two sessions that he participated in. He felt confident about the particular contribution that he had agreed to make – the top tips on pitching – and was pleased with the way that students responded to him. He was particularly pleased to see that the students did attempt to put his advice into practice in their pitching at the end of the session. He also enjoyed informally supporting groups of students in the course of the lesson.

The business volunteers were most valued for their ability to talk about pitching, to give informal support to students and to feedback on the way that students pitched. Students particularly valued informal feedback that the museum educators and volunteers gave to them. One said: 'I think the two women were good because they actually come round and actually helped us, if there was something bad they wouldn't be, "that's alright", they'd tell you straight, "that's not good."'

A number of interviewees were critical of some aspects of some business hothouse sessions. It was pointed out that some students did not have access to the costs of materials for their products and that they were unable to complete the costing tasks in a meaningful way. One school did provide cost information to students, including a cost for use of facilities, which helped the students to tackle this task.

Another teacher felt that the business session was 'good' but that it 'had confused them and panicked them a bit' because it had given considerable focus to marketing and packaging relatively late in the programme. In her view the business hothouse session should have come earlier. However, this problem might also be seen as a communication problem – better communication between teacher and museum educator would have ensured that the business session did fit into the programme of learning.

In some sessions, business volunteers were asked to talk about their roles in business, in most cases this was not viewed as very successful, it was believed that the business contributions were too remote or inaccessible. Some interviewees said that business volunteers had not read the brief in advance of the activity and did not take advantage of the support materials that had been produced for them.

Communication

The scale of the project, its outreach character, the number of sessions and participants created considerable communication demands. Communications were managed successfully: in only one out of planned 96 workshops was there a break-down of communication. However, there was a reliance on good will from all parties to be flexible and find time. There was a perception at the Design Museum that more time was needed to manage communications centrally and a clearer definition of channels for communication.

One teacher commented that the 'contact and communication 'have been excellent' but that she would have welcomed more in terms of 'where you're at in different stages...just almost break it down like a scheme of work'. She saw this as a flexible tool which could be adapted to fit particular circumstances:

'A scheme of work is open to flexibility...but just as long as you've got those guidelines so that you know that the first week I'm going to focus on [this], the second week I'm going to move on to this, and it also focuses the students because you can say to them you've got this amount of time to come up with this.'

Such a scheme of work could provide a framework, within which teachers could develop their own programmes but could also provide a shared reference point to help museum educators and teachers communicate about the timing and appropriateness of particular inputs. However, it was clear that some participants did not want more 'paperwork' and believed that a fairly open and flexible relationship between teachers and museum educators was a virtue.

Museum educators reported that teachers were extremely busy and that it was hard to explore the details of the session in advance. Telephone communications with teachers were reported to be difficult or impossible. In the sessions observed, the details of what would happen were sorted out briefly during five or so minutes while students arrived. One museum educator reported that she had, on occasion, been able to use email to find out where a school had got to and what focus they wanted from a session.

There were occasions when sessions could have been better tailored to the needs of students if there had been more communication so that presenters understood where students had got to already. In principle, the better the fit between a session and the learning needs of the students the more successful it is likely to be. Museum educators commented on the benefits of being able to work with the same students and teachers on more than one occasion; it seems likely that this did help them to pitch their sessions appropriately. However, some teachers and museum educators took the view that close coordination is unrealistic and that an approximate fit between each session and the needs of learners is the best that can be managed. That said there may be ways, at least for some schools, that museum educators can draw upon what teachers know about where students have got to, in order to fine tune the focus and level of the sessions.

Web

Several teachers commented that they had used the video and other resources from the website and that they valued them. Teachers were pleased that the resources were available to be used in the future and some teachers thought that they were likely to use them again. A number of

respondents found the on-line shop useful for research. However, there was little evidence of the teachers and museum educators using the web for on-line discussion.

Learning Outcomes

Design Capabilities, Business Capabilities and Generic Skills

Design Ventura was intended to achieve outcomes relating to design and enterprise education and also generic skills (defined in terms of personal, learning and thinking skills – PLTS). There is considerable qualitative evidence that design skills and generic skills were achieved.

Survey Results

Students were surveyed in two waves to discover whether, from their own perspective, they had progressed in terms of design and enterprise skills or in terms of confidence and ambition. However, only 25 students responded in both waves which is insufficient to draw reliable conclusions. Analysis of this data does not suggest that students perceived gains. In fact, students were more likely to self-assess their skills and confidence levels as lower at the end of the programme than at the start. This evidence does not fit with what was said in interviews by teachers and by students. The most likely explanation is that the students were not judging themselves consistently between the two points in time.

Teachers were asked to assess the impact of particular features of Design Ventura in the final teacher survey. Of the seven teachers that responded, six judged that 'working to a brief set by an outside organisation' had considerable or very high impact. Five judged that 'learning first-hand from a designer' had considerable or very high impact. Three judged that 'learning first-hand from a business person' had considerable or very high impact. Five judged that 'working in a team' had considerable or very high impact. Four judged that 'combining business and design skills' had considerable or very impact.

Teachers were also asked to track the change in capabilities of an individual student. The capabilities of the student were assessed on a scale of 1-6, where 1 means very weak and 6 means very strong. The following chart shows the average score that teachers assigned to students before and after the programme. These results suggest that in the view of teachers, students did make progress across a range of design and business/enterprise capabilities. Unfortunately, only three teachers reported on the capabilities of individual students at both the start and the end of the programme.

Table Showing the Average Rating by Teachers of Student A's Capabilities at the Start and End of Design Ventura (1= Very Weak; 6 = Very Strong) N=3

	Knowledge and understanding of the design industry	Responding creatively through the design process	Assessing materials, production techniques and manufacturing considerations	Communicating design ideas	Knowledge and understanding of business aspects of design	Awareness of product, marketing and target audiences	Reflecting on and modifying ideas	Considering and responding to issues of ethical and sustainable design
Baseline	3.00	3.67	3.67	3.00	2.67	3.00	2.67	2.00
Post-programme	3.67	3.67	3.67	4.00	3.00	3.50	3.33	3.67

Teachers also rated the same students in relation to their general capabilities in learning and employment. The following averages show that teachers judged the sampled students to have improved in terms of team work, communication skills and self-confidence but to have deteriorated in relation to 'resilience, flexibility and a can-do attitude'. Once again, these findings are not reliable because of the small numbers.

Table Showing the Average Rating by Teachers of Student A's General Capabilities at the Start and End of Design Ventura (1= Very Weak; 6 = Very Strong) N=3

	Resilience, flexibility and a 'can do' attitude	Team work including leadership and shared decision making	Communication skills including discussing, presenting, pitching and using ICT	Self-confidence
Baseline	3.67	3.33	3.33	3.33
Post-programme	3.33	3.67	3.67	3.67

Qualitative Findings

According to several interviewees the most striking evidence of learning was the capacity of students to generate good quality ideas when constrained by the brief and materials. This kind of design capability was exhibited in the three classes observed during the evaluation, although one or two groups in each class found it difficult to generate an appropriate idea. Teachers reported that they found it hard to judge which was the best design to submit and the judges praised the quality of all 10 designs that were selected for the Pitching Event. The survey was not successful at generating data which would permit judgements about value added in terms of design capability. However, even without that data it is possible to state that all of students participating **extended** their design capability because they were able to apply existing or improved design skills to address an unfamiliar design problem in

an unfamiliar context. The majority of students were judged by those involved in teaching them to have responded appropriately in this context.

Speaking of particular students, teachers were able to describe their progress, e.g. 'her ability to ... communicate her ideas through drawing and writing have improved since being on this project' and, of another student, 'there's a bit more of a social dynamic to the way she responds to questions and I think that has been coaxed out of her through this project'. More than one teacher commented on progress in team skills, for example: 'the way they work within their groups, bouncing ideas off one another and...in terms of listening to other peoples' ideas.' A number of students reported that they were more confident about communicating their ideas to groups, for example: 'And then before this design thing if someone asked me to go up and talk to the class I wouldn't go, I'd refuse, I wouldn't go up there at all ...it made sure I had more courage to go up there and talk to people.'

For one teacher the particular outcome of the design workshop was meta-learning, i.e. what students learnt about their own learning: 'they got a lot out of it just seeing that the design process he [the designer] goes through is the same process we go through at school'.

According to another teacher, students were able to develop their 'creativity skills' because they had the chance to tackle a problem in their own manner. He also identified understanding of market segmentation as having developed. However, for this teacher the greatest learning was in terms of presentation skills and team skills. This teacher had particularly focused on getting individuals to take on particular responsibilities within their teams and had raised the status of presentation by inviting in outsiders to witness presentations. This suggests that there is scope for teachers to focus on particular learning outcomes, and that the learning outcomes for students may be affected by the focus of their teacher.

There was some evidence of students bringing creativity to business problems. For example, one group whose design featured an apple-shaped product decided that they could use a recycled food crate to present their product – a creative and cost-efficient solution.

One group of students interviewed reported that they had progressed in terms of their design and team skills. They believed that they had all been able to contribute and that they had been able work well together. They agreed that designers did need to be aware of business issues if they were to be successful as designers. They had learnt, they said, that one way of doing this was to observe and understand what other designers were doing.

Aspirations

Survey Results

Students were asked about their career intentions. Analysing the careers aspirations of those students who participated in both waves (N=25) suggests that students were affected in their careers thinking through participation in Design Ventura. The percentages of students who wanted to work as designers (48%) remained unchanged. However, the percentage saying that they would like to be a business person rose from 50% in the first wave to 58% in the second wave. The percentage saying that they would like to set up their own business fell from 59% to 38% with a corresponding increase in the numbers of those who said that they didn't know.

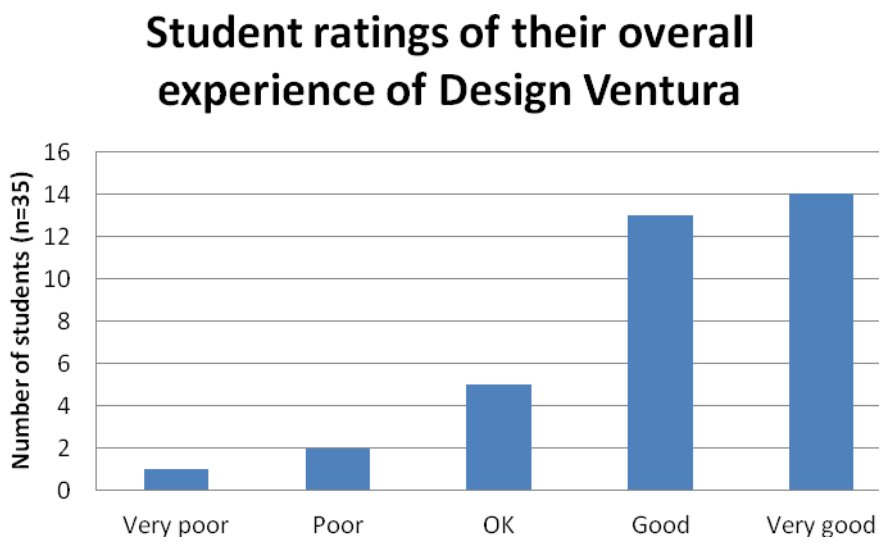
Qualitative Results

One teacher claimed that some, though not all of the groups in his class, had stronger entrepreneurial aspirations as a result of Design Ventura. In his view, the character of the task combined with the visit to the Design Museum and its shop, had provided an experience which led students to believe that they might be able to take a product to market in the future. In interview, a number of students from this class confirmed that they had been encouraged as potential entrepreneurs by Design Ventura. One student commented: 'Yes, I do, I think it's a lot more easier for us to get our head around being an entrepreneur, thinking of your ideas and producing them, it's not always as hard as you think it's going to be.' Another was able to reflect on entrepreneurship in a balanced manner: 'It's challenging but it's still doable if you do it at the right time and the right research.'

Satisfaction and Enjoyment

Survey Findings

27 out of 35 students (77%) rated Design Ventura as either good or excellent.



Qualitative Findings

Teachers generally described their pupils as being engaged by Design Ventura: 'they're much more engaged, they're wanting to outdo one another, they're all contributing well within their groups.' A number of teachers identified individual students who had been 'brought out' by the project and one reported positive responses from a number of parents who had heard about the project through their children. Teachers reported that many students had been ready to give up their free time to work on Design Ventura, for example, after school or during break time and that, for some students, this additional commitment was unusual. Students reported that they enjoyed the opportunities to experiment. They valued the fact that Design Ventura was a competition. Some students said that an emphasis on experimentation and materials helped to guide them as to what products were viable. Students found the context of the Design Museum shop interesting and different.

While students enjoyed the competition, there was some confusion. Some teachers did not explain to their students that not all groups would get their designs submitted to the Design Museum. Teachers and students agreed that it would be disappointing for students to discover that they had not won, however, they believed that they could still be positive about the experience: 'Obviously if we win we'll feel good but if we lose then we have to reflect on what we did and say, what I did wrong, what I did right, what I can improve on.'

One group of students objected to potential profits going to charity: 'I don't understand how like if it's our ideas, we're giving away our stuff for free, it's like say we're running a burger stall and then like everything we cooked or everything we just give away for free.'

A group of year 9 students said that what they enjoyed most was working in a group and expressing ideas. However, this group was unusual in that it was drawn from different classes for whom Design Ventura was an extra-curricular, after school activity.

Teachers found running the project demanding. In many cases, teachers ran extra sessions, after school or during lunch or break time. Organising trips and visits was extra work. Teachers experienced the pressure of the competition and a number reported that they had felt under pressure towards the deadline to get students to complete and submit. However, teachers did not regard this work as excessively burdensome; they took the view that the extra work was well worth it.

The project was enjoyable for the museum educators, volunteers, and teachers.

Outcomes for Teachers

Survey Findings

Teachers were asked to judge their own capability to teach enterprise at the start and end of the programme. Only two teachers answered this question at both points in time. However, both reported their capability as improving from fair to satisfactory.

Six teachers out of seven said that they would like to continue to use Design Ventura to provide an enterprise dimension within design education. Five said that they would like to use elements of Design Ventura more generally in their teaching. Five said that they would like to use Design Ventura with other year groups or in teaching other subjects. Six said that they would like to use other enterprise competitions either as well or instead.

Only one teacher reported that teaching enterprise with enterprise through Design Ventura caused ‘considerable extra workload’ and none regard the workload as a deterrent to doing it again. Six out of seven respondents saw it as ‘some extra workload’. However, no teachers expressed the view that this approach was ‘easy’ or that workload was ‘not a significant issue’.

All seven respondents believed that combining enterprise education with design education was either valuable or very valuable in helping students to:

- Learn how to innovate
- Develop a capability to work with others
- Develop business and enterprise skills
- Develop self-confidence.

The survey asked teachers about how they thought design and business education connected together. At the start of the programme 33% teachers

concluded that 'design education has to include something about enterprise education because it is part of the environment where designers work', 23% agreed that 'enterprise education and design education have different goals and skills but designers and entrepreneurs have to learn to work together and 48% agreed that 'successful design depends on being enterprising so design capability includes a capability for being enterprising.' All of the teachers involved saw a value in integrating design and business education, though for slightly different reasons.

The numbers answering this question at the end of the survey were too small to judge whether teachers had changed their views on this question.

Qualitative Findings

One teacher commented on what he had learnt from one of the hothouse sessions. He was impressed at the way that students were encouraged to generate and then develop their own ideas, not many of which were realistic initially, and then brought back to something more focused. A the end of the session, he said: 'we had five clear design ideas, five products, all very different, using different materials, different manufacturing processes and even different technologies.' This teacher continued: 'I would like to take this into my department. Sometimes we tend to do all the research and we sort of beat the design creativity out of them. Whereas in this case...they had the ideas and we thought how realistic they are and they came to a good product solution...I've actually put [this approach] into a scheme of work with a graphics project we do...and left it very wide and with some constraints...but we'll see what the results are...it's been a big learning curve...' For this teacher, the hothouse workshop modelled a new way of teaching and provided a demonstration of its effectiveness.

Outcomes for Designer Volunteers

The designer that was interviewed had other experience in educational projects and supporting young designers. He particularly valued the way that Design Ventura had created an opportunity which made it possible for him to combine educational and mentoring activity with his professional design work. From his point of view, the Design Ventura programme allowed him to make contributions to design education which he enjoyed and which, he could see, were valued by students and teachers.

Outcomes for Business Volunteers

The business volunteer reported that he had given around 12 hours to Design Ventura and that this had been a reasonable amount of time given other commitments. He believed that his own confidence and effectiveness in the classroom had improved – he spoke also about becoming more relaxed in the

classroom situation. He was pleased that he had received an email from the teacher subsequently. He also said that his respect for what teachers did had increased. He was pleased to have had an involvement in a successful design programme as this is an area where he felt his own education had been unsatisfactory. He expressed a desire to continue his involvement in Design Ventura.

Some teachers thought that some of the volunteers could have been more effective it they had altered their pace or 'broken' things down more to enable children to take things in. The challenge here is that the volunteers were effective partly because they were not professional teachers; it is therefore not surprising that they did not always 'tailor' everything to students. However, museum educators and teachers did help to mediate between the professional volunteers and the students.

One teacher commented that she would have liked to have seen a little more learning in terms of costing and risk assessment, in particular in relation to the business hothouse session. However, a particular problem seems to be that successful costing depended on students researching their own costs, but at the point when the hothouse costing exercise was set, many students had not researched these costs.

4: Conclusions

1. The evaluation has produced quantitative and qualitative evidence showing high satisfaction and enjoyment levels for the teachers and students involved in Design Ventura. Student surveys show high satisfaction ratings for all elements of Design Ventura. The evaluation has produced qualitative evidence that the experience was rated positively by business and designer volunteers and by museum educators.

2. There is considerable qualitative evidence in relation to learning outcomes for students and for teachers. Design Ventura has engaged students and helped them to develop a range of design skills, e.g. product analysis and communicating and developing design ideas. In terms of business and enterprise skills, there is evidence that many students have progressed particularly in relation to their communication and pitching skills and team work, but also, in some cases, in their understanding of marketing and costing.

3. Many of the teachers and students involved in Design Ventura gained access to designers or business volunteers which they had not previously had.

4. Low responses to the final waves of teachers' and students' surveys limit the usefulness of the quantitative findings. However, there is

some evidence from the teachers' survey that Design Ventura improved the capability of students, particularly, with respect to considering and responding to issues of ethical and sustainable design, communicating design ideas, reflecting on and modifying ideas and knowledge and understanding of the design industry.

5. The survey also produced evidence of a positive impact upon team work including leadership and shared decision making, communication skills including discussing, presenting, pitching and using ICT and self-confidence.

6. The evaluation provides evidence that the strategies employed by Design Ventura are responsible for these outcomes. Students and teachers responded positively to the competitive character of Design Ventura. The real-life context of the Design Museum shop inspired them. They enjoyed their visit to the Design Museum and they valued the visits of museum educators and business and design professionals to their schools. Students and teachers were influenced by the design professionals – they gained a better understanding of the design process and they developed their design work in the light of what they saw and where told. Students responded particularly well to artefacts – both in the design museum and at school.

7. Many of the students visited the Design Museum for the first time and they responded positively to the exhibition they saw and the environment.

8. Design Ventura supported career aspirations for the students. A large proportion of the students were interested in working in design. Many students said that they believed that they had a better understanding of what designers did and that Design Ventura had encouraged them to value their own potential as designers. Those students that progressed through to the Pitching Event were particularly encouraged.

9. Teachers have been helped by their involvement in Design Ventura. Teachers reported that their learning objectives were supported, that they believed that Design Ventura confirmed and supported their approach to design or, in some cases, that Design Ventura encouraged them to develop their own teaching style.

10. There is evidence that teachers saw the value of combining business and design education but there is no evidence that the experience of Design Ventura changed teachers' views in this respect.

11. Teachers reported that they would like to continue to make use of Design Ventura in the future with other classes.

5: Recommendations

1. Design Ventura should continue to be available for students in London schools.

2. The design of the business hothouse workshop could be reviewed to explore whether there are ways of improving the role that the business volunteer plays, to look at whether the costing exercise needs revision or further resources and to consider the timing of this session.

3. The Design Museum and its partners should explore the best ways to support professional volunteers in the classroom so that their contribution and impact are maximised. For example, there may be formal performances through which the 'role' of a business person can be communicated to students rather as the 'role' of a designer can be communicated through artefacts.

4. The use of artefacts and materials proved particularly effective. There may be ways of extending the use of artefacts and materials, for example, during the museum based session.

5. The Design Museum could consider how communication between schools and the museum can be enhanced so that, so far as possible, museum educators and teachers can coordinate teaching in the hothouse and museum sessions with the activities of teachers and students in schools. An outline scheme of work might help to support such communication.

6. A number of improvements to the evaluation process should be explored. These include: greater use of paper-based rather than electronic questionnaires, linking questionnaires with participation in the competition and revising questions in the questionnaire to make them more sensitive to likely learner outcomes and engaging teachers in the evaluation process.

7. It may be possible to develop ways of helping learners to understand the marketing and pricing of the Design Museum shop. More information about this kind of business and its customers would be helpful to those students who are unfamiliar with this kind of market.

8. The web-resource could be reviewed as there is scope for it to contribute more. For example, it may be possible to use the web to

extend the connections between practitioners and students and teachers. Alternatively, it might be possible for teachers to share resources that they are developing, worksheets or schemes of work through the web.