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Show or tell? Opportunities, problems and methods of the exhibition as a form of research dissemination

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Show or tell? Opportunities, problems and methods of the exhibition as a form of research dissemination.

Abstract

There has a been a good deal of debate about the possible use of exhibitions in disseminating research, as an alternative to conventional text papers where artefacts have a significant role in the research The European Academy of Design has been a pioneer in this area but, so far, there has been little documentation of this practice or constructive reflection to support future development.

The authors were responsible for the organisation of an exhibition of research work at the 2002 "Common Ground" Conference of the Design Research Society. Their role included mentoring the exhibitors, making the practical arrangements for the exhibition and organising refereeing of exhibits by an international panel of referees. The exhibition demonstrated the potential for new forms of research dissemination but also highlighted a number of problems and issues which must be dealt with if future exhibitions are to provide a robust and appropriate way to present and record research outcomes.

The reflections of the organisers, and comments of referees and exhibitors are employed in this paper to develop guidelines for future practice in research exhibitions, paying particular attention to the importance of providing a full narrative within the exhibit and a permanent record, and ways that exhibitions might change the format of conferences to allow more constructive engagement between participants.

Introduction

Before 1990 research was not been an important feature of life for most design teachers, most gained standing and sustained their teaching through working as design practitioners. However, around the world, as art schools have become university departments, the traditional values of university education have asserted themselves and at least some practitioner/teachers have sought to develop a research culture, partly by engagement with the disciplines of research and partly by considering ways for creative practice to take on a more explicit investigative role.

This has led to a complex and heated debate but we do not intend to revisit it here other than to acknowledge that there are some real concerns about rigour as well as opportunities for new methods and ways of thinking about research, and that the volume of debate has tended to outweigh the supply of relevant examples of research practice.

One feature of the debate has been the idea that conventional texts may not be the best way to record and explain research where creative practice is a significant instrument. The idea of dissemination through artefacts has been discussed but has not been illuminated by many useful examples.

The European Academy of Design took a pioneering step in their 1999 biennial conference by including an exhibition of "practice-based research". This was refereed in the same way as conventional papers and a number of interesting exhibits were produced, demonstrating a diversity of work and connections between the methods and aims of the exhibitors and those of conventionally published research. In fact the conference award for "best paper" (on a vote by all delegates) went to one of the exhibitors. Unfortunately the EAD exhibition did not result in a permanent record of the research thus "published" so the exhibits did not contribute to the recorded body of knowledge and provided no exemplars for future researchers.

A further problem with the EAD exhibition, held in England, was that all the exhibits originated in the UK. Given the difficulty of transporting exhibition materials over long distances, it was reasonable to assume that the format inhibited international contributions and this was reinforced at the 2001 EAD conference in Portugal where exhibits were invited but only one was forthcoming (a graphic design exhibit from Australia) possibly because the ideas of practice-based research were less prevalent in the host country.

Against this background, the Design Research Society decided to include an exhibition in their 2002 Conference, "Common Ground", held at Brunel University in England. This was an experimental activity and there was uncertainty about whether suitable research exhibits would be forthcoming, how to referee them and how to provide a permanent record. However it was felt that this experiment needed to go further than the preceding EAD venture and make a permanent contribution to our understanding of this form of dissemination. In this paper we have described the processes that were adopted, some observations of the participants, and our recommendations for future practice.

In preparing this paper we owe a big debt to the exhibition referees and, particularly, to the exhibitors who made a very great effort to ensure an interesting and worthwhile exhibition. While we have drawn attention to some shortcomings of the exhibition we must stress that the research represented was interesting and of good quality, and the exhibitors invested great energy and inventiveness to show their work, despite a good deal of uncertainty about how to approach this new form of dissemination. The exhibitors selected by the referees as suitable for inclusion in the exhibition record are listed at the end of this paper.

Process of the Exhibition

Lacking experience of this process, the conference committee felt that it was not possible to referee exhibits fully in advance. Instead, brief exhibit proposals were reviewed by the committee to see whether they indicated that the exhibit would present research that was relevant and complete, and whether the exhibit was likely to be appropriately and effectively presented. Proposals were classified in three ways:

Posters

Where there was evidence of relevant research but it was incomplete or limited in scope, researchers were invited to exhibit their work as a "poster". This indicated work in progress which would be of interest and which would benefit from exposure, as with posters in scientific conferences.

Full Exhibits

Where the work was more complete and the outcomes appeared to be significant researchers were invited to exhibit their work on the understanding that it would be refereed at the conference and considered for inclusion in a post-conference publication.

Exhibits supporting papers

Where the proposed exhibit was in support of a paper which had already been accepted by the conference it was invited automatically.

It was evident from the proposals, and the questions asked by potential exhibitors, that researchers from different countries understood the idea of an exhibition in different ways. The conference committee provided support and mentoring to the exhibitors to help them understand the aims of the exhibition and refine their proposals. However the tentative nature of the project at this stage meant there was a limit to what could be achieved and we have concluded that, despite the effort required, exhibitors should submit a comprehensive presentation of their proposed exhibit before refereeing and acceptance.

The exhibition space was ideally placed, adjoining the main coffee area and the lecture theatre used for plenary sessions. It provided a comfortable and attractive extension to the social space of the conference, especially as it had glass doors opening onto a garden. We cannot stress too highly the importance of location in making the exhibition a part of the conference.

Most exhibits were set up during the day before the conference opening. While some were technically undemanding others were very ambitious and we should make special reference to J.R.Campbell, Jean Parsons & Mary Steiglitz of Iowa State University who combined good planning and inventive work on site to produce a large, complex 3-dimensional exhibit of textile design research using resources transported from Iowa in a small number of suitcases. They and others demonstrated that there need be no barriers to transporting exhibits long distances with limited resources and overcame our concern that an exhibition might not be viable in an international research context. However we concluded that exhibitors need good support on site (eg graphics production facilities) to make the best of the opportunity.

Exhibitors presented their work in a timetabled session in parallel with paper presentations, the main difference being that most used their exhibits as their principal visual aid. The audience, especially other exhibitors, had been able to review the work beforehand and the arrangement was relatively informal, with the audience carrying their

chairs from exhibit to exhibit. The result was a higher level of questioning and discussion than usual as well as a very supportive and constructive relationship between the exhibitors who came from a wide range of design disciplines. Discussions spilled over into the remainder of the day and some exhibitors made good use of the digital projector in the exhibition room to hold informal group discussions exploring their work in greater detail.

The refereeing process took place in a closed session and is described in detail below.

We discussed the event with organisers of two future conferences, who indicated that they would include an exhibition in their events. One indicated a number of improvements that might be introduced. However we detected a possible conflict between our idea of an exhibition, embedded in the conference, providing a series of individual research narratives, with the professional notion of an exhibition designed as a single coherent presentation.

Criteria for publication as research

The aim of such an exhibition is to disseminate research. Exhibitors must ensure that their audience and referees can understand and learn from the research as with any form of refereed publication. Because of this, we felt it would be helpful to set out some general criteria for published research.

We observed that individual exhibitors were working to a variety of models. If one looks at the requirements of universities and funding agencies in different countries there are different criteria for "publications" which may attract funding or support professional advancement of academics in creative disciplines. They do not always serve the purpose of disseminating research.

Our emphasis is not only on the quality of the enquiry which has been conducted but also on the clarity, appropriateness and relevance with which it is communicated. We do not suggest that exhibitors should reproduce the conventions of a scientific paper but they must reflect on how the exhibit will help its audience to understand and evaluate the research.

The first issue which any referee would consider is whether there is a clear question or problem which is being investigated and whether the question has arisen from a good understanding of its context. There are many kinds of research question, and they may be framed in a variety of ways, but the researcher must explain both the purpose of the enquiry and the circumstances from which it has arisen.

Normally these circumstances will go well beyond the direct experience of the researcher and take account, where relevant, of past research by others, the current and past agendas of professional practice and the social, cultural and economic context in which the work is set. Explaining this is a vital part of the exhibit's job, it is arguable that, in many cases the most innovative aspect of the research is the process of framing the problem.

The second requirement is to make the process of the research explicit. Since an exhibition consists of things, and research comprises activities, this is not a trivial challenge but it is vital that the audience understands both the methods used and the sequence of events in the programme of work.

Finally there is the question of what we know as a result of the research. Often this is not straightforward, and making too explicit a statement of outcomes or conclusions may miss the point in a project where a rich set of ideas and experiences have been developed.

However it is important to help the audience to understand and reflect on what has been learned and to do so in ways which are accessible to the whole audience for the exhibit, which will usually include people who have limited knowledge of the specialised issues addressed.

Narrative

Providing a narrative is therefore central to the design of a research exhibit. Rust and Wilson (2001) have described the construction of a narrative which mixes image and text in a PhD thesis. While that may be a more complex problem than a typical conference publication, there are some parallels in the need to reflect on the collection of artefacts that have been produced or collected in the research, and the opportunity to use them to frame the narrative before considering any text or other devices that might be used.

The publication criteria above provide some guidance to the form of narrative which might be adopted. If the exhibit (and the subsequent record) is to provide learning for the audience then consideration of the sequence of events that will occur in the learning process is vital.

The story need not be rigidly linear, moving through the various sections that make up a conventional research paper in strict order. However, it should be noted that research into learning with multimedia indicates the importance of a strong narrative thread (Stratfold1994) and the dangers of learners becoming confused and lost in the backwaters of multi-threaded information (Plowman 1998).

The exhibit designer has a number of options – for example they could choose a linear narrative path through the exhibit, they could provide several levels of detail, giving a view of the whole story at each level or they could provide a separate graphical/text narrative alongside the exhibition of artefacts

Each exhibitor will have their own ideas. In a creative field we should not set rigid standards but that does make the whole business even more challenging to the researcher who may well take on more work in developing an effective exhibit than in producing a conventional text paper.

Relationship of text to artefact

It is necessary to think about the role of text. The ideal of an artefact which communicates its story without words is a kind of "Holy Grail" in many discussions of design research (Biggs 2001) and this has led to an assumption that its supporters are advocating an absolutist view of a single object representing the whole of a research project.

Our view is that this ideal is an interesting challenge but it is more practical to consider the "artefact" as a complex object which might employ many media and the term "exhibit" may be more useful as it implies this multi-faceted format.

It is perhaps more relevant to consider whether, in a given publication, artefacts or text leads the narrative. If images and other artefacts are illustrations supporting a text, then the publication might be considered as if it were a conventional research paper and observe the conventions that apply to such papers, whether it is published in conventional journal form or as posters in an exhibition.

If, however, non-text artefacts arising from the research can be arranged to provide a narrative, albeit supported by text, then there is an opportunity to consider the design of

an exhibit that employs text but takes its structure from the arrangement of other material and where the predominate experience is of the artefacts rather than the text. From considering both research publications and work submitted for examination by postgraduate design students we suggest that, while text has advantages in the construction of explicit arguments, artefacts often give direct evidence of process, and quality of process and allow members of the audience to employ tacit knowledge in assessing the validity and meaning of the research.

For example Hennessy (1999) proposed a simplified approach to 3D computer modeling, restricting the number of tools available since most tasks do not require the full set. The research was illustrated by computer models of car bodies. From our perspective there were two problems with this research, as portrayed in a conference paper and slide presentation. Firstly the designs produced were unlike the complex surfaces used in real cars, raising questions about relevance and the author's understanding of 3D design. Secondly the CAD tools and graphical portrayal of the CAD model were primitive compared to current technology so it was not clear whether the research was recent.

The paper and the verbal presentation emphasized the arguments, which were sound, but did not make clear the relevance of the research. A fuller exposition of the experimental work, through demonstration or a full presentation of the computer models developed in the research, might have allowed the audience to understand its relevance and either overcome or confirm our reservations.

Similarly, in the Common Ground exhibition, there was an example of excellent research (Park & Yoon, 2002) where the rigour of the methods was not clear to the audience because the exhibit showed a relatively limited set of images of their work, focusing on the conclusions. We questioned some delegates informally and found that they had not understood the methods used (using a standardized geometric image format to represent the colour scheme of real house interiors) despite the text explanation. However, it appeared that most would have understood if they had been shown the images of the original rooms alongside the standardized images.

Exhibit or Poster Format?

Within exhibition, exhibitors adopted two main approaches.

A number of exhibits used a "poster" format, similar to posters of work in progress at conferences in many disciplines but generally produced to a higher standard of presentation and portraying work that was suitable for refereeing on a par with conventional papers.

The benefit of these exhibits over conventional papers was twofold. Firstly they included material such as software demonstrations and 3D objects and secondly the audience could look at and discuss them for a longer period, so author and audience were not shackled to the conference timetable where nobody sees more than a fraction of the papers presented and people have to make difficult choices between papers in parallel sessions.

The exhibition thus creates an asynchronous arrangement in which individuals can choose which publications to look at and for how long, and authors may make themselves available for discussion on more than one occasion.

This opens up a some possibilities. Firstly we could have done more to facilitate the processes, perhaps by displaying photographs of exhibitors with their work and providing

a way for them to notify their audience when they would be available to discuss the work, rather than having a single presentation session in competition with other parallel tracks.

Another possibility was that a poster might be the presentation of work described in more detail in a longer paper, and authors of conventional papers might choose whether to give a traditional timetabled verbal presentation or present their work as an exhibit with no formal presentation but the opportunity to discuss the work with individuals who are interested, either informally or at scheduled times.

The poster format might be considered a development of conventional research papers. Other exhibits offered alternative forms of communicating research and the issues that arose are discussed elsewhere in this paper. The biggest distinction is that, if they do not wish to combine an exhibit with a conventional paper, the exhibitors and organisers must find a way to include the exhibit in the permanent record.

Exploiting the opportunity

We felt that that, while exhibitors used visual material, none made the fullest use of the opportunity presented. Not all the exhibits could be described as "designerly"[1] in their approach to presentation and communication, and most presented either a partial view of the work, or were not explicit enough for an audience who were not familiar with the nuances of their specialist discipline.

Similar criticisms could be directed against paper presentations, especially the lack of visual content and design consideration. However, an exhibit offers a particular opportunity to study the presentation and the exhibitor should consider with care how to present a full and informative story and consider ways to show the fullest context for the research, as well giving a functional description of methods and findings.

Refereeing

As described above, we did not feel able to carry out a full refereeing process beforehand. This was unsatisfactory since individuals were undertaking a good deal of work and expense, with no certainty that their publication would be recognised. For future events it will be necessary to provide exhibitors with some guidance and a set of requirements enabling them to submit exhibit proposals for refereeing in the normal timetable and this might be considered together with the requirements for a permanent record so that the exhibition "proceedings" might be distributed at the event.

The refereeing process was carried out by a group of three experienced and widely recognised referees coming from different parts of the world – North America, Europe and East Asia. They reviewed the exhibits independently and met together with the exhibition organisers to consider their conclusions. This was not the usual "blind refereeing" approach since it was felt important to have some consultation between the referees - this was a new venture with no established practices to draw on. We were aware that we were in the process of developing policy as well as refereeing individual work.

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[1] In using the term "designerly" we do not wish to suggest that we have any preconceptions of styles of presentation but rather that we expect that researchers will seek to present their work in ways that reflect the professional standards of their design disciplines. This is particularly important when they seek to influence the work of professional practitioners or wish to claim some insight into the professional practice of design.

The general conclusions of the referees were that there were a number of good examples of research which deserved dissemination but that, in general, exhibitors had not managed to tell their stories with the clarity that was hoped for, Some exhibitors were uncertain about how the exhibition differed from other forms of publication and missed the opportunity to include relevant material that would have made their methods and the quality of their work more explicit, others made good use of the chance to employ artefacts but did not pay sufficient attention to the research narrative.

A Permanent record?

One of our assumptions was that, while exhibiting allowed much richer portrayal of the research, it would not be straightforward to translate that into a permanent record and there was an onus on exhibitors to consider this in their preparations, or to compile a suitable record of the exhibit once in place.

In the event we had examples of "posters" which had been prepared in digital format and lent themselves to archiving in a CD or website. There were exhibits which contained a mixture of material, including some suitable for archiving, and there were others which made no concessions to posterity and required a considerable effort to create a record.

Following the conference we carried on a dialogue with exhibitors which allowed us to compile electronic files of posters and other material on the Internet at http://www.dmu.ac.uk/ln/4dd/CG-2002.html . This provides a lasting record of some of the exhibits and has given us the opportunity to consider how such a resource might be structured. Readers who wish to develop similar archive can inspect the site and form their own views but issues include:

Download Time

We used a relatively simple, HTML-based approach to speed downloading as far as possible. However the main point of this exercise is that the increasing speed of the internet makes it possible to download rich graphical and other material which is essential for the success of such a venture. For this reason we recommend that permanent archives of research material should be constructed with a view to download speed but this should not be at the expense of clarity and completeness.

Navigation

We have adopted a layered approach where visitors can gain an overview of all the material in the exhibition before choosing to explore specific exhibits (in separate windows). There is also a general photo gallery to give a feeling of the layout and atmosphere of the event.

3D material

One problem is giving an overview of a large exhibit. For example Campbell et al provided a video which took in the whole of their exhibit but it was found that a more basic panoramic photograph with horizontal scrolling was simpler to use and very effective in reproducing the effect of viewing the exhibit. It also has potential to be the basis of a multi-layered record since it is relatively easy to create hyperlinks from objects in a photograph.

Similarly some 3D dynamic models relating to another exhibit (Scone) were available but it was not possible to implement them in a reliable way. Current developments (eg in Macromedia Director) appear to be aimed at solving this problem so we expect that interactive 3D will become more useful in time.

The main conference proceedings were compiled as a book but were not printed, instead a CD-ROM was provided to conference delegates. Despite the use of an electronic format for both the text proceedings and the exhibition archive there is a considerable difference between the two: The proceedings are laid out as a conventional book and not ideal for on-screen reading or navigation. The exhibit archive uses a website format which provides more navigation aids and an overview of the whole exhibition as well as allowing the use of many colour images and a variety of file formats, giving exhibitors some control over the archive entry but also a responsibility for effective layout.

The main advantage of the web-based archive is that it is available to anybody. The general trend in academic publication, starting with the Los Alamos Physics Archive in 1991 <http://xxx.lanl.gov> is towards placing research publications in web archives, whether through new forms of journal (eg Edmonds 2000) or through the more subversive but widespread practice of author and institutional self-archiving as pioneered at Los Alamos and promoted by Harnad (2001). In this environment we suggest that it would be progressive to develop approaches which ensure that research "papers" take forms suited to web dissemination rather than traditional paper formats and that publishers of digital journals and proceedings consider how to best exploit hypertext formats for the convenience of their audience.

It is also arguable that, while authors should always be merciful to their readers by keeping within sensible word limits, there need be no artificial constraints on the number and scale of colour images or other multimedia materials employed as long as the images serve to enhance the narrative and can be downloaded at a reasonable pace.

Robertson and Schybergson (1998) have proposed a 'pathfinder' design strategy for multimedia which combines established familiar methods with more innovative approaches. Their approach is aimed at migration to new methods rather than an abrupt shift and we suggest that this is a sensible policy for research publication where quality measures must be maintained and a wide audience addressed.

Technical formats and Production methods

A number of different formats were used by the exhibitors. This highlighted some differences between exhibition and computer presentations. Some work was exhibited as large posters (eg A1 size) mixing text and images. These do not support either fast downloading or easy navigation on computer screens. Since it is arguable that the small screen of the computer presents the greater navigation problem we suggest that it might be desirable for the exhibit to be developed first as a screen-based narrative. Although we have open minds about formats there are some advantages in using the ubiquitous PowerPoint slideshow software.

Previous work on presenting practice-based research (Rust & Wilson 2001) and our experience of working with design students at first degree and postgraduate levels indicates that working with PowerPoint can be very helpful in constructing narratives. (users must put aside preconceptions of business "bullet point" presentation and see the software as a tool for working with text and image in a richer and more creative way) LaPorte et al (2002) have argued that PowerPoint has become the most ubiquitous and accessible form of dissemination for science, especially on the internet and have presented some interesting arguments for the clarity and compactness of the visual slideshow in comparison with conventional scientific papers.

If PowerPoint is used as a tool for developing the narrative of the exhibit it will provide a portable screen-based version of the exhibit, a basis for a slideshow which can be used for formal presentations and lectures and a version that can be disseminated on the internet, either directly or converted to the more compact Acrobat format. It provides a good set of basic graphical tools, incorporates sound and video, is extremely easy to learn and slideshows can be viewed on virtually all personal computers.

Conclusions

Our main conclusion is that it is possible to make exhibitions work as research publications in an international setting but a good deal of work is needed on refereeing, guidance for exhibitors and permanent dissemination. We feel able to offer some specific advice to future exhibitors as follows:

Refereeing & Dissemination

It is essential to have a process which allows referees to see the proposals for exhibits in sufficient detail to assess both the value of the research and quality of communication. We feel that, as with full text of papers, proposals should provide sufficient visual and text detail to become the permanent record and be available on CD or website at the time of the conference, even if the proposed exhibit would give a richer portrayal of the work. If exhibitors are able to develop the record further during and following the conference this would be a bonus but it is unwise to rely on people having the energy and commitment to do this.

Narrative

At this early stage of development, exhibitors must have guidance on the need for both an effective "readable" narrative, explicit arguments and a complete account of context, methods and outcomes. They must take account of the range of disciplines and knowledge of conference delegates.

Presentations and Debate

Organisers should pay attention to the different ways that exhibits might be "defended". A less formal asynchronous approach might give more flexibility and greater opportunities for exhibitors to engage with those who are particularly interested in their work. There may also be scope for posters to replace formal presentations for some written papers.

Technical Support

While we have shown that international participation is possible, organisers must pay attention to providing good technical support. This includes detailed prior information, willingness to take account of special requirements, plenty of help with setting up and practical facilities (eg graphics facilities and materials) on the spot. International exhibitors will lack time, local knowledge and access to transport and materials so they need practical local help.

Finally we would like to remind readers that the dissemination of early scientific work, for example at the Royal Society in London, often allowed audiences to watch actual experiments taking place and gain a very personal sense of what had happened. Today's methods of dissemination are efficient and robust but perhaps there is some room to bring back some of the immediacy of discovery that those early expositions gave us.

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Biographies

Chris Rust started his career as a marine engineer, going on to work in engineering design and project management before taking early retirement at age 27 to pursue his interest in music and performance. He studied Industrial Design in his 30s and his professional work since then has been concerned with vehicle design and design for people with disabilities, leading to a British Design Award in 1992. In 1990 he joined Sheffield Hallam University where he is now MA Design programme leader. His current research is concerned with investigative design practice and the role of tacit knowledge in design practice and research. He is an elected member of the Design Research Society Council and a member of the recent UK Council for Graduate Education working party on research training in the creative and performing arts and design.

Alec Robertson is a council member and publications officer of the Design Research Society, a member of the Chartered Society of Designers (UK) and a Fellow of the UK Royal Society of Arts. He is a postgraduate external examiner and teaches postgraduate

and undergraduate design students. He has been a tutor on the Design Management Course at the Royal College of Art, London, and at University of Ulster. His professional work includes innovation research, industrial and information design, including work for government research bodies and the UK Design Council.

   His interests include conceptual modelling for design forecasting, multimedia product 'specification', dissemination problems of design research, and '4D Design'. He has organised several conferences and events with the Design Research Society, and the Cyberbridge-4D web site (http://www.dmu.ac.uk/ln/4dd), and been a referee for numerous international conferences and exhibitions.

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