

////////////////////////////////////

OPENING DOORS BROADENING DESIGNERS' SKILL SET

Erik Bohemia and Aysar Ghassan
School of Design, Northumbria University
erik@theglobalstudio.eu and aysar.ghassan@northumbria.ac.uk

ABSTRACT

Literature suggests that exposing future designers to knowledge from other disciplines is beneficial. We refer to these as 'non-traditional' skills. One such area is the social sciences; in this paper we will be focusing on this area. First we outline the reasons why design students should be exposed to discourse from the social sciences. We refer to these as 'non-traditional' design skills.

We then describe an international project which illustrates how students were able to practice such skills alongside more 'traditional' design skills.

We conclude by stating that although the project demonstrated the possibility of enabling future designers to practice both 'traditional' and 'non-traditional' (wider) skills at module level is a good start, we believe that such 'wider skills' should be strategically incorporated at programme level in order to scaffold them through the programme.

Keywords: Widening Design Curriculum, Design Education, Social Sciences in Design

INTRODUCTION

In this section we will argue that inclusion of a 'non-traditional' area of instruction - namely, that pertaining to discourse from the social sciences - is important in contemporary design education. To do this we will be exploring the link between design and the social sciences through three related areas of investigation. Firstly, we will present research which argues that objects created by designers are subject to certain notions from the social sciences. We will also present research which argues that designers either consciously or unconsciously utilise discourse from the social sciences in their practice. Secondly, we will discuss how discourse from the social

sciences may be related to the changing nature of design practice. Finally, we will explore how discourse from the social sciences may be related to the changing aspirations of some designers.

I - DESIGN AS A LENS FOR DISCOURSE FROM THE SOCIAL SCIENCES.

As designers have significant involvement in the product development cycle (Ulrich & Eppinger, 2004) they are influential in the creation of objects and services. The importance of the role of designers in the lives of consumers is highlighted by Heksett (2005:5) who states that design helps 'to shape and make our environment in ways without precedent in nature, to serve our needs and give meaning to our lives.'

The importance of *meaning* is also underscored by Lloyd and Snelders (2003:250) who claim that beyond what may be termed its actual intended function, an object can be something that 'expresses or embodies ideas'. Indeed, in the case of certain products, it may be the ideas that relate to the perceived meaning of a product and its relationship with the identity of a consumer that may help to account for its commercial success (Lloyd & Snelders, 2003). Consequently, as designers 'play a pivotal role in articulating production with consumption by attempting to associate goods and services with particular cultural meanings and [...] address[ing] these values to prospective buyers' (du Gay, 1997, p. 5), they are described as key 'cultural intermediaries' (du Gay, Hall, Janes, Mackay, & Negus, 1997:62). Furthermore, (Buchanan, 1990:74) argues that design has a role in 'interpreting and expressing culture at large'.

The extent to which design influences meaning in society is underscored by Paul du Gay (1997). With

regards the preponderance of design in the developed consumerist marketplace, he states:

... 'more and more of the goods and services produced for consumer across a range of sectors can be conceived of as 'cultural' goods, in that way they are deliberately inscribed with particular meanings and associations as they are produced and circulated in a conscious attempt to generate desire for them amongst the end uses. the growing aestheticization or 'fashioning' of seemingly banal products - from instant coffee to bank accounts - whereby these are sold to consumers in terms of particular clusters of meaning indicates the increased importance of 'culture' to production circulation of a multitude of goods and services.'
(du Gay, 1997, p. 5, emphasis as per original)

As the aforementioned shaping of identity and meaning-making are aspects of discourse from the social sciences, it can be argued that objects created through the actions of designers are subject to discourse from the social sciences. We argue however that the relationship between design and the social sciences is more entrenched. Referring to the work of Lakoff and also Ortony, Casakin (2007:33) states that metaphors are 'analytical devices that facilitate the understanding of an unknown situation in terms of a familiar one'. Metaphor is important in the cognition process (see Gibbs Jr., Bogdanovich, Sykes, & Barr, 1997). Interestingly, designers make use of metaphors in the creative process (Casakin, 2007). Furthermore, it has been suggested that myth contributes to the identity of the discipline of design (Nelson, 1965; cited in Buchanan, 1990) and that design thinking is influenced by 'myth' (Buchanan, 1990:75). Thus, as social scientists study metaphor and myth, it can be argued that designers are either consciously or unconsciously involved in utilising discourse from the social sciences.

Thus far, we have outlined that both objects created by designers and designers themselves are subject to discussion related to the social sciences. Consequently, design and the social sciences are intrinsically linked. We will move on to discuss how

the changing nature of the discipline of design requires designers to be more familiar with knowledge from the social sciences.

II - THE CHANGING NATURE OF DESIGN PRACTICE

In recent years the remit for professional designers has grown to involve tackling complex social and political issues (Fry, 2011; Norman, 2010) such as crime (Gamman & Pascoe, 2004). It has also grown to tackle scientific issues such as working to improve human health and wellbeing, as well as environmental sustainability (Davey, Wootton, Thomas, Cooper, & Press, 2005). Such interventions are examples of what has been termed 'Socially Responsible Design' (Davey, et al., 2005). Clune (2010:70) states that if designers are to make a contribution to the increasingly important area of sustainable design they 'should engage in design for behavioral change to encourage positive actions that contribute to a sustainable society.' Moreover, Manzini (2011:9) envisages that design schools should see their role as being agents of change for a 'better world' and suggests that design students should play a pivotal role in this process and develop 'capabilities [to] become more socially effective and contribute to the solutions of the complex problems of contemporary society.'

According to Don Norman (2010) and others (P. Johnson, (Chairman, Steering Committee), 1996; The Design Skills Advisory Panel, 2006) the broad range of projects that design practitioners are involved in necessitates an adjustment in the type of knowledge(s) and skills designers should possess. Worryingly, Norman (2010) goes on to say that, contrary to this, industrial design pedagogy is still too focused on nurturing traditional design skills, namely those associated with 'form and function, materials and manufacturing' (Norman, 2010), and that it must change to help facilitate students' grasp of wider problem-solving skills. Norman's approach necessitates familiarity with aspects of both the social sciences and science. Indeed, he states:

'Service design, interaction design, and experience design are not about the design of physical objects: they require minimal skills in drawing, knowledge of materials, or manufacturing. In their place, they require

knowledge of the social sciences, of story construction, of back-stage operations, and of interaction.’ (Norman, 2010)

Norman’s thoughts echo the conclusions of other researchers and commentators in the area of design (e.g. Bohemia & Harman, 2008; Cox, 2005; Dym, Agogino, Eris, Frey, & Leifer, 2005; Meurer, 2001; Polaine, 2011; The Design Skills Advisory Panel, 2006) as well as from other quarters (Del Vitto, 2008; Einstein, 2002; P. Johnson, (Chairman, Steering Committee), 1996).

Moreover, as the creative and analytical skills of designers are currently used to inform corporate strategies or ‘to develop solutions that promote long-term development and increase the quality of emergency aid’ (Knutslie, 2008), Polaine (2011:43) argues:

‘Being able to take in and see the patterns in complex systems are essential to the future careers of designers as practices such as design thinking, social and service design start to engage in complex, global and political issues.’

However, there is growing scepticism that designers have the training to be able to critically undertake these increasingly complex and strategic roles. For example, Borja de Mozota (2010:98) states that:

‘The problem is that even though designers have this potential to work at higher strategic levels of organizations, they are not trained to do so. This is a challenge for design education.’

Through the above it can be argued that the changing role of designers in professional practice may require them to have an increased understanding of discourse from the social sciences. As studying has been argued to be one of the ways students are socialised to become ‘professional’ (Lave & Wenger, 1991), it can be argued that discourse related to the social sciences should be included as part of the core diet for contemporary design students. We will now move on to discuss why the acquisition of knowledge becomes increasingly

important as the aspirations of designers continue to change.

III - The Changing Aspirations of Some Designers.

In recent speech Derek Miller (2010), Senior Fellow at the United Nations Institute for Disarmament Research (UNIDIR), claims that:

‘Many designers today, especially the younger generation of designers, want to do some good in the world. They no longer seem satisfied simply creating objects of desire for profit. This is laudable. But for the good intentions of the design profession to actually result in some good, it is going to be necessary to carefully attend to how we design. Design is both a social process, with implications for others who are participants to that process, and also brings something new into the world that may have social force. Attending to both matters responsibly will be essential as the field moves forward.’

This is especially true as design steps into the wider world of international peace and security – given that the issue here is not consumer value but life and death.’

For Miller, a vital part of being a professional is one’s ability ‘to figure out what is wrong with their own ideas, and not what is right about them.’ Worryingly though, Miller goes on to argue that:

‘Designers are worryingly not involved in that process. Design is trying to prove itself, rather than disprove itself. It is the latter, though, that will serve the social good.’

Thus, according to Miller, what might be termed the ‘intellectual engagement’ of designers is not as rigorous and objective as it ought to be. We believe the inclusion of discourse from the social sciences in Higher Education is one method of improving this situation for future designer.

Thus far we have aimed to illustrate a multifaceted argument to justify why design should embrace discourse from the social sciences in professional practice and in design education. We believe incorporation of social sciences may widen the skills

of designers and is therefore vital in helping to build capacity for future design practice. Given its importance, it is perhaps surprising that instruction in discourse from the social sciences is not a core element of design education across the board.

SOME NOTABLE ISSUES WITH DESIGN EDUCATION

The highlighting of perceived shortcomings in design higher education is by no means a new phenomenon. Indeed, over two decades ago the respected journal 'Design Issues' published a special issue on the theme 'Educating the Designer' (Bellin & Diani, 1990). The main thrust of the selected articles called design educators to transform the design curriculum from one based on skill acquisition to a knowledge-based model of learning (see Bagnara, 1990; Giard, 1990; McCoy, 1990; Shannon, 1990). Many decades before the inception of this special issue, academics at the Bauhaus, the New Bauhaus and the Hochschule für Gestaltung (HfG) in Ulm, Germany believed that a broad approach was an important aspect of the curriculum (Findeli, 2001; Lindinger, 1990; Spitz, 2002). Indeed, at the HfG, 'the design project was to be deducted from the knowledge gathered in the theoretical courses' (Findeli, 2001:9). As such, academics from these design schools recognised that design education which relied on what might be termed 'traditional skills training' was not sufficient in educating prospective designers. It is well known that these design schools are noted for their influence in and contribution to the field of design (Godau & Polster, 2000; Woodham, 1997). However, more recent design education appears to suffer from a lack of wider skills. Indeed, Frascara (2007:68) states that, as result of contemporary design education, design students suffer from a 'lack of intellectual tools' which results in attempts at originality being reduced to 'superficial aspects of design'. He also argues claims that design practice 'suffers from the abuse of fuzzy words such as "intuition" and "creativity"' (Frascara, 2007:32, original emphases) and that this is a consequence of contemporary design education. It can be suggested that Frascara's argument may (at least in part) account for the reason why the discipline of design:

...lacks that tradition of ongoing reflection and debate which transforms a recognizable practical activity into a defensible field with ideas and methods that can be systematically communicated'...

(Buchanan, 1990:75)

In this section we have argued that instruction related to discourse from the social sciences is an important aspect of design education in order to help build capacity for future design practice. Such exposure may be seen as being part of 'wider skills' which go beyond a concentration on aesthetics. Indeed, it has been suggested that design education is predominantly a concentrates on aesthetics (Frascara, 2007). We will move on to propose why the inclusion of 'wider skills' may prove problematic for some design educators.

A Perceived Barrier to widening skills

Based on the authors' experience, a reason which might explain the reluctance of some design academics to promote the introduction of 'wider skills' into an undergraduate curriculum relates to what we will term a 'dilution of core design pedagogical values'. Through this notion, we suggest that, because the module structures and workload models in some design schools specify a limited tutor-student contact time, some design academics believe the further introduction of 'wider skills' serves to 'reduce' the opportunity for students to practice 'core (traditional) design skills'. We argue that the reticence to adopt the inclusion of 'wider skills' amongst some design academics may be related to the belief that the further incorporation of 'wider skills' is tantamount to the 'dilution of core design pedagogical values'. We suggest that, with regards the introduction of 'wider skills' and their relation to contemporary design practice, the notion of a 'dilution of core design pedagogical values' is erroneous. Design academics may not be alone in their view – studies suggest that academics from other disciplines might have similar views when it comes to dilution of core disciplinary values (see Bohemia, 2005).

We will use a case study to illustrate how a student project can potentially facilitate development of

both ‘traditional skills’ and some of the ‘wider skills’ promoted by critics such as Don Norman.

PILOT STUDY PROJECT

Background

Over the past five years, academics from a UK-based university have developed and implemented an innovative international collaborative teaching and research model named the ‘Global Studio’.¹ The Global Studio is a cross-institutional collaboration conducted between an English based university, industry partners and international universities. Its focus is to equip students with an appreciation of cross-cultural and distance communication. These skills are becoming increasingly important in a globally networked professional community of practice (e.g. Bohemia & Harman, 2008; de Vere & Gill, 2010; Del Vitto, 2008; Horváth, Duhovnik, & Xirouchakis, 2003; Horwitz, 2006; Nemiro, 2004). The Global Studio was designed to incorporate various pedagogical techniques. It follows in the tradition of the Design Studio, with its emphasis on project-based learning and learning in and through ‘doing’ (Schön, 1985). The emphasis on project-based learning in the Global Studio is underpinned by the assumption that this pedagogical technique contributes to embedding established design practices into the student’s own repertoire (Bohemia & Harman, 2010). However, additional layers have been included in order to facilitate the development of cross-organisational and cross-cultural communication and collaboration skills. One area of innovation developed in the Global Studio involves linking student teams across the globe in order to undertake a product/service development project to enable students to gain experience in working in distributed international group settings.

THE PROJECT

The ‘Global Studio’ project which is a feature of this paper is a collaboration between an English post-1992 university and six other international higher education institutions (HEIs) based in the following locations: Japan, Korea, Australia, Taiwan, China and Canada. It involved close to 250 students and 21

supervisors. At each institution students were allocated into small teams. Teams of students from one institution collaborated with teams of students from another participating institution.

PROJECT AIMS

The idea for the theme employed in this project was inspired by the anthropologist Marcel Mauss’ classic book ‘The Gift’ (Mauss, 1950, 1990). This text puts forward a theory which argues that ‘giving’, ‘receiving’ and ‘reciprocation’ are fundamental social activities linked to interaction between humans. These interactions are part of cultural practices and ‘carry meaning[s] and value[s] for us, which need to be meaningfully interpreted by others, or which depend on meaning for their effective operation.’ (Hall, 1997:3) One of the aims of the project was for participating students to begin to explore the ‘work’ artefacts ‘do’ in relation to social practices (cf. J. Johnson, 1988). The project aimed to encourage students to explore various questions related to intercultural communication and Design including:

- How do relationships form between people?
- How do bonds form between people of different cultures?
- Should cultural differences be bridged or should they be celebrated?
- What strategies might be employed in order to encourage relationships?
- What are the material effects of Design?

PROJECT SCENARIO

The scenario of this project related to participating students being involved in a hypothetical exchange programme with their international student collaborators. As such, students were asked to design gift(s) - to be given to their new tutor or their host family - which would figure as part of this programme.

The social practices investigated during the project related to the ‘giving’, ‘receiving’ and ‘reciprocation’ of gift(s) designed by the participating students. This project was an opportunity to open spaces for participating students to discuss rituals, ceremonies and protocols related to ‘gift exchange’. It was also an opportunity for

¹ <http://theglobalstudio.eu/>

students to investigate their own and their collaborators' cultures.

The project brief specified that students were to see themselves as representatives of their own university and guests in their new country in the hypothetical exchange. Thus, in order to complete the task successfully, the students were asked to incorporate two things:

- 1) Information about their own university (and the region it was situated in) - as they would be representing this institution.
- 2) Information specific to the culture they would be visiting. This information would be supplied by their collaborating team in the partner university.

In this project, students were asked to write a brief which would lead to the production of the gift they would be designing. The lecturers emphasised to students that they would be unable to complete the task alone - they would need specific cultural information from their collaborators in order to write a brief that would take into account cultural differences or similarities and specific cultural contexts / mores / rituals / celebrations.

PROCESSES

Prior to writing a design brief, students were asked to undertake research into their own institution in relation to what type of corporate image it is aiming to project and how it is viewed by stakeholders. Then they were asked to explore cultural issues associated with gifts at their partner country together with their collaborators.

The design briefs guided the development of their concepts and were also meant to be used as a reference by their counterparts when providing feedback on the proposed concepts. Two integration cycles of concept development were scheduled within the project schedule. However, most groups managed to complete only one concept development cycle before moving to finalise their ideas. The project culminated with a number of synchronous presentations facilitated by various ICTs between the paired design groups. It should be noted that seminars examining issues related to corporate gifts and how these gifts may provide different perceptions of the institution and exporting rituals

associated with gifts were presented in the early stages of the project.

We propose that this project provided an opportunity for students to practice skills related to visualisation, for example the design of concepts. Referring again to Norman (2010), we term these types of skills 'traditional design skills'. However, again with respect to Norman (2010), we also propose that this project introduced students to 'non-traditional design skills' - in this case discourse related to the social sciences. We argue students were introduced to these through a number of activities: seminars and workshops prepared by academics and masters/doctoral students, through undertaking research related to their local culture and through exploring gift-giving within the culture of their collaborators.

We propose that the opportunity to work with collaborators located in a different country (and thus a 'context' different to their own) also provided students with an opportunity to experience similarities and differences with regards how they might interpret and approach the project theme and how they might re-represent design concepts when providing feedback.

METHOD

In order to evaluate the effectiveness of the project, mid-term and the end-of-project evaluation questionnaires were developed. The mid-term questionnaire consisted of 18 Likert-scaled items. The questions related to student perceptions of the tasks completed up to that point, the level of virtual communication with the collaborator and levels of cultural awareness. The questions included prompts inviting students to add accompanying narratives to their answers. Three open-ended questions were also included. Similarly, the end-of-project questionnaire consisted of 15 Likert-scaled items related to perceptions about the tasks undertaken in the second part of the project as well as the level of interaction with collaborators and levels of cultural awareness. Prompts to expand answers and two open-ended questions were also included. The student response rate for the mid-term survey was 56% (n=130) and the end of the project rate was 61% (n=141).

STUDENTS REFLECTIONS

Student feedback informed us that this project was an opportunity to practice 'tradition design skills'. However, in this section we will be concentrating on providing examples of student feedback which relates to how the project has widened their skills through incorporating issues related to the social sciences.

This was a relatively complex project with regards the number of issues students had to deal with. For many, it involved undertaking unfamiliar tasks such as exploring gift-giving practices, writing a design brief, organising and managing meetings over different time zones as well as providing critical feedback to collaborators located in international locations. Despite this complexity, only a relatively small percentage of students (8%, n=11) indicated that the project had not provided them with a learning experience which was as good as in other modules. Overall, feedback indicates that a lack of appropriate communication from their collaborators was the main cause for students stating this. Many students perceived that this was a multifaceted project and found it to be challenging. For example:

'Proposing and refining gift ideas to another university and provide/receiving feedback. The experience was based on being able to communicate with other from different cultures and backgrounds and being able to take those aspects and translate them into an item. The challenge of the project was having to communicate with one another over time and language differences.' [Q3, 51]

Furthermore, many students indicated that *'the broadness of the task proved challenging but made [them] think of design in different way.'* [Q3, 23] Students generally recognised the benefits of their collaborations. They expressed appreciation for the feedback their counterparts had provided and stated that this helped them to move forward with their conceptual ideas. The collaborations also helped them to understand how differently their design concepts can be understood within different contexts. For example a student stated *'I was surprised at what partner thought about our proposal. They had different the way of thinking,*

and it was good opportunity to know the difference.' [Q16e, 3] Importantly, students saw this as an important learning element: *'One thing is usual in one country, but it is unusual in the other country. I think I need to be more flexible.'* [Q17e, 4] However, most students commented that they would have liked to receive more feedback from their collaborators.

Most of the students (71%, n=92) found it useful to work with students from other countries. They commented on how this helped them to *'learnt about them, their lifestyle, and culture and what design means to them at their university.'* [Q4, 8] and *'it opened [their] eyes to different cultures as well as the difficulties of collaborating with designers throughout the world.'* [Q4, 9] Another student stated that: *'by working with the [international collaborators], we gained experience of culture and gaining knowledge [we] couldn't receive online with ease'* Another student stated that *'It has allowed [them] and [their] group to gain a better understanding of a foreign culture.'* [Q4, 29] In addition they found *'it... interesting to learn about different gift customs of another culture.'* [Q4, 47]

Student comments also indicated that by *'working with another nation's students makes a chance to experience about other culture. We can find another point view about same object, about their environment.'* [Q4, 20] and that *'it is a complete cultural cross over, a lot of our perceptions were changed when seeing things from their point of view.'* [Q4, 24]

We argue that working with students in international settings has prompted students to think about the relative values of objects (as indicated above) and what solutions as designers they are generating. This is illustrated by the following comments from students:

'It's neat to see how other people work and develop concepts around the same brief. Although frustrating and challenging at times, it can be refreshing. I really like thinking about design in a global context because it helps us think more consciously of what we are putting out into the world.' [Q4, 49]

'Through this project, I've learned that the world is big and we're living in different environments. So I have to know about the differences before I think.' [Q10, 108]

Interestingly, a number of students indicated that working with international collaborators highlighted their lack of ability with regards expressing the meanings of their ideas to people (in this instance their peers) in different cultural contexts. We believe that this, along with the aforementioned recognition by students that objects and practices have different meanings in different cultural context indicates that student were able to move from an essential understanding of culture to a non-essential one (see Holliday, Hyde, & Kullman, 2004). This practice is important, for if designers are meant to design for 'others', that is users, then they need to recognise the relevant multiplicity of perspectives. Linked to this notion, the majority of students indicated that this project enabled them to explore cultural issues as they *'had to go outside and experience [the] world. Get out of the shell that is the [class] room 103.'* [Q17, 36]. Other students commented they *'never really appreciated [their] own culture. Projects like this make you realise what your culture is and how it's represented.'* [Q17, 8] and that *'being used to my own surroundings for so long, I wasn't sure as to what was part of my culture specifically or not'.* [Q17, 9] These sentiments are echoed by this student *'we every day see [elements related to] our culture but did not justify them or explain them. It gave me a chance to think about our culture carefully.'* [Q17, 102] Thus, the interaction and views exchanged by communicating with international collaborators provided students with a possibility to reflect on their local cultural context.

This project also gave students the opportunity to contemplate how the shortcomings of stereotyping (which inevitably happens when one is trying to articulate an essential view of what cultures is (see for example Holliday, 1999)). This point is expressed by this student: *'Taiwan culture is very complicated. We need to search it more deeply.'* [Q17, 56] and also outlined by these students:

'Seeing/observing what the overseas team had found on our own culture (or my own) demonstrating what the cultural stereotypes were. What the overseas team found was not necessarily appropriate to our culture or reflected our culture, but based on these cultural stereotypes and clichés.' [Q17, 48]

'I found that how I was obsessed with stereotype while exploring Korean uniqueness. After then that, it helped me to change my perspective to see other side in Korea.' [Q17, 117]

'I learned about my own country's culture afresh. Our partner had so many questions about Japanese culture. So, I studied about that hard.' [Q16e, 6]

Furthermore, this student commented that through participating on the project they had learned about *'the opinion of people so far away from the U.K. and Europe considering those places and how wrong are some stereotypes from both parties.'* [Q17e, 65]

Although the vast majority of students found the cultural element of the project to be beneficial, a small minority did not feel this way. Indeed, one student indicated that the *'the culture component confused the task, and there was too much personalisation.'* [Q5, 36]

We would like to suggest that the project organisation and the theme provided students with an ample opportunity to think about social issues. We have termed these 'non-traditional design skills'. The majority of students displayed both 'traditional' and 'non-traditional' skills in their project outcomes. Consequently, we argue that in this project the majority of students incorporated both in their repertoire. An aquarium with Japanese fish which also incorporates a pot with English herbs is an example of how project outcomes attempted to look at cultural symbols. As can be seen from Figure 1 and Figure 2, this project also incorporated good use of 'traditional design skills':



Figure 1 Board 1 of the 2-in-1 project
©2010 Nasser Maqsood and Po-Ming Chou

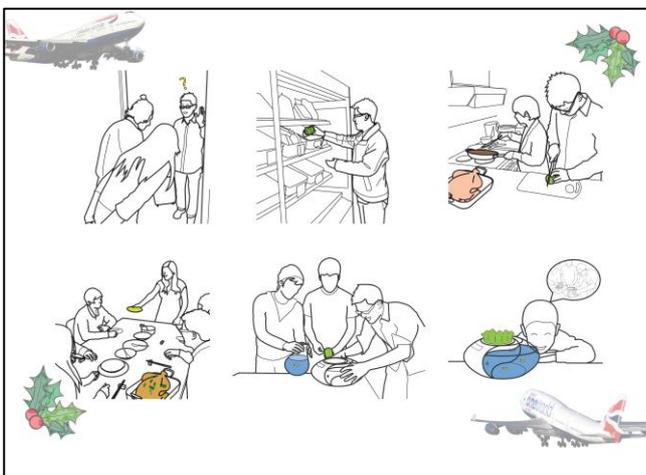


Figure 2 Board 2 of the 1-in-2 project
©2010 Nasser Maqsood and Po-Ming Chou

Exceptions to the incorporation of 'non-traditional' design skills were those project outcomes which simply incorporated local landmarks in their proposals, such as USB memory stick in the shape of well-known bridge or a photo holder incorporating elements of one of a participating university's landmark buildings.

CONCLUDING REMARKS

Comments from the students (and project outcomes) suggests that they generally felt the project enabled them to incorporate 'traditional design skills' such exploring their ideas via sketching and drawing. Feedback from the students (and project outcomes) also suggests that they generally felt the project enabled them to incorporate 'non-traditional design skills'.

We argue that that this project has provided students with an opportunity to acquire knowledge

related to social sciences that many would not have (at this stage in their learning) had the opportunity to acquire. We conclude that incorporation of such 'wider skills' at module level is a good start, however, we propose that such 'wider skills' should be strategically incorporated at programme level in order to scaffold them through the programme. This would provide students with an opportunity to practice and incorporate these 'wider skills' in their design repertoire throughout their studies. We also propose that the project theme, the way it was structured and general support offered to students during the project provided them with opportunities to widen their skills and to think about the implications their solutions may have on the 'others'.

We suggest that, with regards the introduction of 'wider skills' and their relation to contemporary design practice, the notion of a 'dilution of core design pedagogical values' is erroneous. The reason is that whatever a problem the design students are asked to tackle and whatever the project focus - whether it is form giving, ergonomics or function - the proposed solution will always have social, cultural and political implications! Therefore, it is important that future designers are given permission to explore how their actions impact on 'others'. We propose more design projects should be initiated which incorporate both 'traditional' and 'non-traditional' design skills.

ACKNOWLEDGEMENTS

The authors would like to thank participating staff and students from the collaborating universities and our external partners. They would like also to thank staff from LTech and IT services at Northumbria University who kindly provided technical support for this project.

REFERENCES

- Bagnara, S. (1990). The Design of Training and Education in Automation. *Design Issues*, 7(1), 53-70.
- Bellin, L., & Diani, M. (1990). Educating the Designer: Beginning a Dialog. *Design Issues*, 7(1), 3.
- Bohemia, E. (2005). *The Politics of Border Crossing: Negotiating the Boundaries in Multidisciplinary Curriculum Design*. Paper presented at the 3rd Engineering & Product Design Education International Conference: Crossing Design Boundaries, Napier University, Edinburgh, Scotland.
<http://www.informaworld.com/smpp/title-content=t737913923>

- Bohemia, E., & Harman, K. (2008). Globalization and Product Design Education: The Global Studio. *Design Management Journal*, 3(2), 53-68. doi: 10.1111/j.1948-7177.2008.tb00014.x
- Bohemia, E., & Harman, K. (2010). Dissemination of innovative teaching and learning practice: Global Studio. In A. Venis (Ed.), *Learning and Teaching Projects 2008-9* (pp. 15). Bristol, UK: ADM-HEA.
- Borja de Mozota, B. (2010). Design Management as Core Competency: From "Design You Can See" to "Design You Can't See". *The Journal of Design Strategies*, 4(1), 91-98.
- Buchanan, R. (1990). Myth and Maturity: Toward a New Order in the Decade of Design. *Design Issues*, 6(2), 70-80.
- Casakin, H. P. (2007). Metaphors in Design Problem Solving: Implications for Creativity *International Journal of Design*, 1(2), 21-33.
- Clune, S. (2010). Design and Behavioral Change. *The Journal of Design Strategies*, 4(1), 68-75.
- Cox, G. (2005). Cox Review of Creativity in Business: building on the UK's strengths (pp. 48). London: HM Treasury.
- Davey, C. L., Wootton, A., Thomas, A., Cooper, R., & Press, M. (2005). *Design for the surreal world? A new model of socially responsible design*. Paper presented at the EAD06, Hochschule für Künste Bremen, Germany. <http://ead.verhaag.net/>
- de Vere, I., & Gill, C. (2010, 28 June - 1 July). *Global Design: innovative curricula towards global collaboration*. Paper presented at the ConnectED 2010 International Conference on Design Education, Sydney.
- Del Vitto, C. (2008). Cross-Cultural "Soft Skills" and the Global Engineer: Corporate Best Practices and Trainer Methodologies. *The Online Journal for Global Engineering Education*, 3(1), 8.
- du Gay, P. (Ed.). (1997). *Production of Culture/Cultures of Production*. London: Sage.
- du Gay, P., Hall, S., Janes, L., Mackay, H., & Negus, K. (1997). *Doing Cultural Studies: The Story of the Sony Walkman*. London, Great Britain: Sage Publications.
- Dym, C. L., Agogino, A. M., Eris, O., Frey, D. D., & Leifer, L. J. (2005). Engineering Design Thinking, Teaching, and Learning. *Journal of Engineering Education*, 103-120.
- Einstein, H. H. (2002). Engineering change at MIT. *Civil Engineering*, 72(10), 62-69.
- Findeli, A. (2001). Rethinking Design Education for the 21st Century: Theoretical, Methodological, and Ethical Discussion. *Design Issues*, 17(1), 6-17.
- Frascara, J. (2007). Hiding Lack of Knowledge: Bad Words in Design Education. *Design Issues*, 23(4), 62-68.
- Fry, T. (2011). *Design as Politics*. Oxford, UK: Berg.
- Gamman, L., & Pascoe, T. (2004). Seeing Is Believing: Notes Towards a Visual Methodology and Manifesto for Crime Prevention Through Environmental Design. *Crime Prevention & Community Safety*, 6(4), 6-18. doi: 10.1057/palgrave.cpcs.8140198
- Giard, J. R. (1990). Design Education in Crisis: The Transition from Skills to Knowledge. *Design Issues*, 7(1), 23-28.
- Gibbs Jr., R. W., Bogdanovich, J. M., Sykes, J. R., & Barr, D. J. (1997). Metaphor in Idiom Comprehension. *Journal of Memory and Language*, 37, 141-154. doi: ML962506
- Godau, M., & Polster, B. (2000). *Design Directory : Germany*. London: Pavilion Books.
- Hall, S. (Ed.). (1997). *Representation: Cultural Representations and Sygnifying Practices*. London: Sage.
- Heskett, J. (2005). *Review: Design: A Very Short Introduction*. Oxford: Oxford University Press.
- Holliday, A. (1999). Small Cultures. *Applied Linguistics*, 20(20), 237-264.
- Holliday, A., Hyde, M., & Kullman, J. (2004). *Inter-Cultural Communication: An Advanced Resource Book*. Oxon: Routledge.
- Horváth, I., Duhovnik, J., & Xirouchakis, P. (2003). Learning the methods and the skills of global product realization in an academic virtual enterprise. *European Journal of Engineering Education*, 28(1), 83-102. doi: 10.1080/0304379021000056839
- Horwitz, F. M. (2006). The promise of virtual teams: identifying key factors in effectiveness and failure. *Journal of European Industrial Training*, 30(6), 472-494. doi: 10.1108/03090590610688843
- Johnson, J. (1988). Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer. *The Sociology of Science and Technology*, 35(3), 298-310.
- Johnson, P., (Chairman, Steering Committee). (1996). Changing the Culture: Engineering Education into the Future - Task Force Reports (pp. 112). Barton, ACT: The Institution of Engineers, Australia.
- Knutslie, S. (2008). Design without Borders. *Design 21: Social Design Network* Retrieved 20 May, 2011, from <http://www.design21sdn.com/organizations/126>
- Lave, J., & Wenger, E. (1991). *Situated learning: legitimate peripheral participation*. New York: Cambridge University Press.
- Lindinger, H. (Ed.). (1990). *Ulm Design: The Morality of Objects*. Cambridge, Massachusetts: The MIT Press.
- Lloyd, P., & Snelders, D. (2003). What was Philippe Starck thinking of? *Design Studies*, 24(3), 237-247.
- Manzini, E. (2011). Design schools as agents of (sustainable) change: A Design Labs Network for an Open Design Program. In E. Bohemia, B. Borja de Mozota & L. Collina (Eds.), *Researching Design Education: 1st International Symposium for Design Education Researchers* (pp. 9-16). La Bourse du Commerce, Paris, France: CUMULUS ASSOCIATION and DRS.
- Mauss, M. (1950, 1990). *The Gift* (W. D. Halls, Trans.). Suffolk, UK: Routledge.
- McCoy, K. (1990). Professional Design Education: An Opinion and a Proposal. *Design Issues*, 7(1), 20-22.
- Meurer, B. (2001). The Transformation of Design. *Design Issues*, 17(1), 44-53.
- Miller, D. B. (2010). Design Ethics for International Peace and Security Retrieved 20 May, 2011, from <http://www.unidir.ch/unidir-views/pdf/pdf-uv-28-31.pdf>
- Nemiro, J. E. (2004). *Creativity in virtual teams : key components for success*. San Francisco, CA: Pfeiffer.
- Norman, D. (2010, 20 Jan 2011). Why Design Education Must Change. *Core77* Retrieved 20 Jan, 2011, from http://www.core77.com/blog/columns/why_design_education_must_change_17993.asp
- Polaine, A. (2011). Design Research - A Failure of Imagination? In E. Bohemia, B. Borja de Mozota & L. Collina (Eds.), *Researching Design Education: 1st International Symposium for Design Education Researchers* (pp. 41-51). La Bourse du Commerce, Paris, France: CUMULUS ASSOCIATION and DRS.
- Schön, D. (1985). *The Design Studio: An Exploration of its Traditions and Potentials*. London: RIBA Publications.
- Shannon, M. J. (1990). Toward a Rationale for Public Design Education. *Design Issues*, 7(1), 29-41.
- Spitz, R. (2002). *HFG ULM: The View behind the Foreground* (I. Jklavina, Trans.). Stuttgart, Germany: Edition Alex Menges.

The Design Skills Advisory Panel. (2006). *Design a New Design Industry: Design Skills Consultation* (pp. 124). London, UK: Creative & Cultural Skills and the Design Council.

Ulrich, K. T., & Eppinger, S. D. (2004). *Product Design and Development* (3rd ed.). New York, NY: McGraw-Hill/Irwin.

Woodham, J. M. (1997). *Twentieth-Century Design*. Oxford: Oxford University Press.