OUTCOMES FROM A DISTRIBUTED DESIGN STUDIO

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ABSTRACT
This exhibition aims to demonstrate the specific outcomes which have been generated by students participating in the Globally Distributed Design Studio course conducted across three universities, Delft, Napier and Northumbria. The exhibition of the specific student outcomes from this course such as prototypes, models, design development concepts and briefs provides conference delegates with additional data regarding the Globally Distributed Design Studio course, thereby supplementing the accompanying paper which evaluates students' learning within this course. The Globally Distributed Design Studio course was developed with aim of providing students with skills in distance communication and distance teamwork. The basic idea was to set-up experiential learning environment and to link student product development teams around the globe in 'designer' and 'client' roles. It was anticipated that taking up the roles of both 'client' and 'designer' would encourage the embedding of design process stages in student practices, thereby enhancing student learning. The paper describes the details of the course structure, process and outcomes.

Keywords: Exhibition, Design Studio, Project-based learning

1 INTRODUCTION

This paper accompanies an exhibition of student outcomes from the Globally Distributed Design Studio course conducted between Northumbria, Napier and Delft universities between February and May 2007. The paper will describe both the project that was undertaken by students and the structure of Globally Distributed Design Studio course. It will also provide examples student work from each of the project stages.
The aim of the work exhibition is to provide supplementary data in regard to this course, thereby providing conference delegates with an opportunity to see material outcomes generated by student groups working in a distance. Description of the course evaluation is provided in paper titled 'Distributed Design Studio – Evaluation of Three Way Collaboration' included in this proceedings [1].

1.1 Globally Distributed Design Studio course background

The Globally Distributed Design Studio course was developed with aim of providing future design graduates with skills that would enable them to work successfully in a distributed product development process [2, 3]. These include:

- Developing teamwork skills
- Reflecting on local culture and context

- Improving skills in writing
- Providing critical feedback
- Using distance communication technologies
- Using technical drawings as a means of distance communication
- Making a design prototype based on supplied drawings
- Understanding the impact of distance on design processes and design outcomes

1.2 Process

A supplementary aim of the course was to embed design processes in the course structure. The course structure was underpinned by a design process (i.e. Design Brief, Design Concept, Detailed Design, Prototyping and Testing) with each student assignment outcome corresponding to a particular stage in this process. The plan was to link distributed student workgroups from different universities in both 'designer' and 'client' roles to undertake a product development project.
The following section will describe the process used in the Globally Distributed Design Studio:

Outcome 1
A client group from one university generates a Design Brief which is then forwarded via Wikis to a designer group at another university. Then, the paired client and designer groups from two universities (i.e. TU Delft – Northumbria or Napier – Northumbria) meet virtually via either videoconferencing or teleconferencing to clarify the aims and requirements of the Design Brief. The designer group then develops a design solution addressing issues outlined in the Design Brief. The client group monitors and provides feedback to the designer group during the design process.

Outcome 2
The designer group presents their Design Concepts, via Wikis to their client group who provides them with feedback using multiple IT technologies.

Outcome 3
Following on from this feedback the designer group then develops their Design Concepts further into a Detailed Design proposal which they then forward to their client group.

Outcome 4
The client group then constructs a prototype based on the Detailed Design proposal provided to them by the designer group.

Outcome 5
Finally, the client group tests the design prototype. Based on the test outcomes the client student group provides feedback to the designer group (see Figure 1).

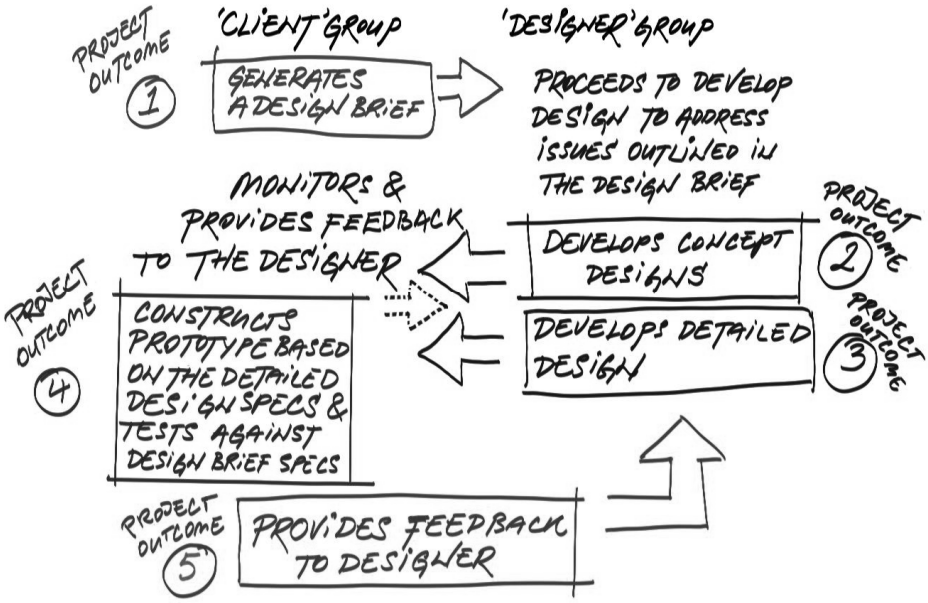

Figure 1 Process used in the Globally Distributed Design Studio course

It was anticipated that the distributed nature of the project where distributed groups are responsible for execution of different project stages would encourage students to be explicit in communicating their ideas between the distributed client and designer groups. In addition, it was envisaged that these roles would to stimulate critical reflection among students and provide them with an opportunity to see progress in work of students from other universities.

The course was structured to provide face-to-face teaching (e.g. lectures, design studios and workshops) in conjunction with online learning. Student assessment at each of the partner universities was organised independently. This enabled each of the partners to vary the project scope and its emphases.

1.3 Students Teams

At the start of the course each student group was assigned a company name to indicate the groups pairing across the universities (see Table 1). However, the two TU Delft groups adopted new company names.

Having three partner universities involved in the course has resulted in having different sized classes with students at different levels of study and from different courses working together. For example, TU Delft used four Industrial Design Engineering Masters students, Napier University had twelve 3rd year Consumer Product Design students whereas Northumbria University had 33 students 2nd year Computer Aided Product Design and Product Design Technology. Difference in class size meant that that 4 student groups from Napier University worked with 4 groups from Northumbria University and 2 groups from TU Delft worked with 4 groups from Northumbria University (see Table 1). This meant that each client group at TU Delft managed 2 designer groups at Northumbria University. Therefore, it was still possible to run a project with an uneven number of groups at different locations.

Table 1 The pairing of the student client/designer groups across the three universities

Napier	Northumbria	Delft
LG, Scotland ↔	LG, England	
Britannia, Scotland ↔	Britannia, England	
Electrolux, Scotland ↔	Electrolux, England	
CASIO, Scotland ↔	CASIO, England	
	Philips, England ↔	VICEVERSA, the Netherlands
	Breville, England ↔	
	Bosch, England ↔	HEMA, the Netherlands
	AEG, England ↔	

2 PROJECT DESCRIPTION

2.1 Wiki pages

A dedicated website was set-up for the course using Wiki pages. Each of the student groups at the three universities was given access to this site. Each student group was responsible to for designing, constructing and maintaining their own group's Wiki pages (see Figure 1). The Wiki pages were used by the student groups to keep track of their project and share and exchange information in regard to the design project progress between the paired client and designer groups from the different universities (see Figure 2).

Figure 1 Example of Wiki entry pages from Bosh and LG (England) groups

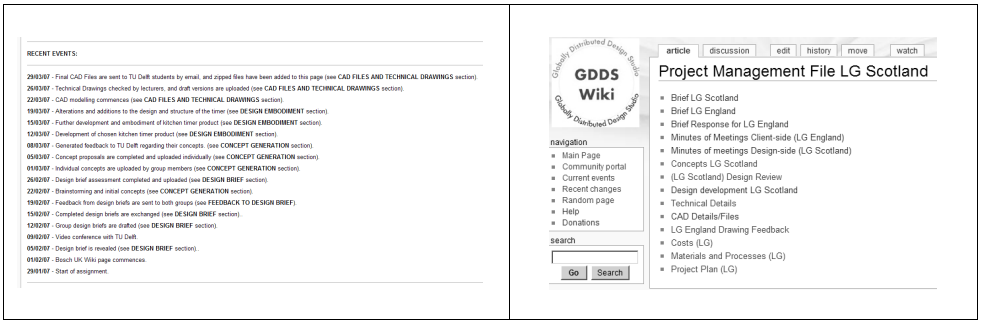

Figure 2 Example of a Notice board (Bosh, England) and Project Management entry page (LG, Scotland)

2.2 Design Brief (Outcome 1)

All student groups were asked to write a design brief for a kitchen timer intended for their local market. Then each group forwarded their design brief to the designer group they have been allocated at another university. The client brief comprised of a number of components including:

- specification of the intended user for the proposed kitchen timer
- intended product performance
- size
- cost
- detailed project schedule

Additional information was also forwarded to the designers including:
- mood boards
- product scenario
- photographs of existing kitchens
- information on local culture

Designer and client groups would clarify design requirements specified in the design briefs in order for both groups to agree on the final working design brief document.

2.3 Design Concepts (Outcome 2)

The above stage was followed by a concept development stage. At the end of this stage the designer groups had uploaded their design concepts onto the Wiki pages accompanied with story boards and short descriptions. Then the clients have evaluated and selected design concepts based on how well they addressed specifications outlined in the design briefs.

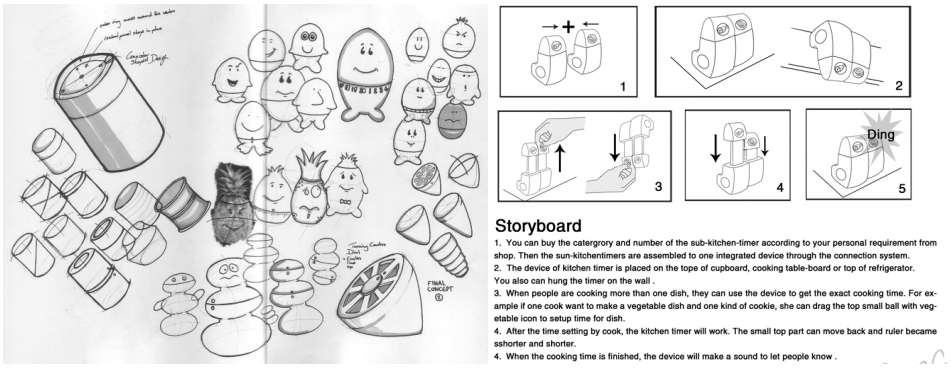

Figure 3 Example of design concept and a story board (England and the Nethelands)

2.4 Detailed Design (Outcomes 3)

Based on the feedback provided by the clients, the designer groups developed further detailed design proposals. This included construction of 3D sketch models to test various design features such as ergonomics, size and overall product shape and its fit within a kitchen environment. At the end of this design stage the designer groups forwarded their CAD files to their clients.

Figure 4 Example of foam models (Casio, Scotland and Casio, England)

2.5 Design Prototypes (Outcomes 4)

Based on the CAD data the clients produced working prototypes which they tested and evaluated against the design specifications they outlined initially in the design briefs.

2.6 Client Presentations (Outcomes 5)

Following the evaluation of the prototypes the clients used this information to write a report for the designer groups on how their design proposal has addressed their expectations.

In summary, this paper has described the various assessment outcomes of the Globally Distributed Design Studio course. These outcomes are displayed in the accompanying exhibition. It is important to display projects outcomes as they provide additional visual information to designer educators about the Globally Distributed Design Studio and its process.

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