Design in the Clinical Environment

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Background

The first phase of the project team's enquiry into interdisciplinary art and science collaboration was as part of the CETLD "Biomechanics in chair design" project, completed in October 07. The project was carried out in a human movement laboratory, and the team observed similarities and differences between the perceptions of the participating medical design students on how they learn and critically appraise information. For example, both sets of students became aware that they used an evidence-base in their learning, and that experiential/ workplace learning was a common feature of their training. Having developed a dialogue in the lab environment that brought together issues of understanding language, visual and tactile aesthetics, actual and perceived comfort, biomechanical issues and practical ergonomics in chair design, the second phase was to continue this process and the dialogue out of the lab and into actual clinical environments. "Design in the Clinical Environment" is a multidisciplinary collaboration between University of Brighton (UoB) faculty of arts and architecture, Brighton and Sussex Medical School (BSMS) and the Royal Institute of British Architects (RIBA) to develop innovative teaching and learning models for cross-disciplinary and interprofessional education[1]. The project further extends existing principles of evidence-based medical treatments and the increasing evidence that aesthetic, intellectual and cultural dimensions of design are acknowledged as significant in improving patient outcomes, in the workplace and in the social interfaces embodied in the built environment[234].

Aims of the study

- To enable design students and medical students to work together in a healthcare environment to better understand the impact of environment and aesthetics on well-being and working practices of staff and patients

- To use this information to facilitate collaborative work to produce and evaluate creative works based on the student's experiences.

- To use the information gained in this project together with other pedagogic research to produce a model for interdisciplinary learning between art and science students.

What happened?

A number of challenges were encountered during the early phases of the project (see interim report) the measures taken in response to these challenges as outlined in the interim report were successful in enabling to the project to progress.

A Visual Research (VR) project brief titled “The secret life of an object” was given to the students (see appendix1) to facilitate the development of an independent body of work informed by visits, interactive workshops and group discussions. Taught sessions, facilitated by the research team, ran on Friday afternoons for six weeks. A dialogic teaching and learning method was used in combination with supervised visits and collaborative work sessions. Participation was offered as a Student Selected Component (SSC) to level 3 medicine students at BSMS and as a 10 credit Visual Research (VR) unit of study to level 2 three-dimensional design and materials practices students at the UoB. The aim was to encourage students to think through creative practice about ideas relating to medicine, healthcare and design and to produce their own creative visual responses. Two supervised visits to the Royal Sussex County Hospital, a visit to the architectural practice “Building Design Partnership” (BDP), London, and a series of collaborative workshop sessions were carried out during the project. Each session was considered as an individual experience that would inform student responses to the project brief. Final works were presented to the peer group for critique and selected pieces exhibited in the Brighton and Sussex Medical School ‘open house’ exhibition as part of the Brighton festival.

The first visit to the RSCH was to introduce the design students and medical students to the clinical environment in the context of design. A number of publicly accessible hospital environments were visited as part of a route pre-determined by the research team. This included - waiting areas, transition areas (corridors and pathways), outpatients department and the emergency department waiting area. An enquiry and problem-based approach was used requiring the students to reflect on their experiences and identify issues where intervention, redesign or other constructive change could be employed to enhance the environments visited. The combined perceptions of healthcare staff, medical students and

the design students were explored during a recorded dialogic critique, facilitated by the research team at the end of the session.

The second session was a visit to BDP, London. BDP designed and built the Royal Alexander Children's hospital at RSCH. BDP also employ a number of graduated from the 3D design and materials practices courses at the UoB. Bennedict Zucci, director of healthcare led the session. Three graduates from the UoB were also present during the meeting offering their experience of professional life working as architects model makers post-university and insights into the value of knowledge gained during their undergraduate studies and what they bring to the organisation. Students were given the opportunity to ask questions about what information was taken into consideration when the architects make design decisions and about the nature of professional practice in architectural design.

The third session ran in two stages. The first stage was a second visit to the RSCH, This was an opportunity to identify features within the building that had been discussed in the previous week. The second stage was a group discussion about the objects that each learner had selected – identifying the reasons for choosing that object and how they are planning to respond to the project brief. One student selected her keys as her significant object, describing the freedom they provide (car key) and the security they offer (house key). She also described how this can be similar to the patient perception of medics and the hospital environment – the hospital is a place of security during ill health and good medical care becomes the key to recovery and freedom.

The following week all students were invited to the faculty of arts and architecture, for a tour of the department, workshop facilities and student works, and to participate in a drawing workshop specifically developed to facilitate interdisciplinary practices (See appendix 2). The drawing workshop proved to be highly successful in facilitating critical dialogue exploring the similarities and differences in approach that each group of students practice. For example, the students who were familiar with creative practices were very expressive in their drawing style - illustrating words such as "adrenaline" and "fear" with free flowing, angular, dark lines which communicated the emotional feelings that you may associate with these words. The medical students, however, were much more reserved in their drawing style – depicting symbolic images that represent the words in a more literal way. Drawing a syringe for example, to represent adrenaline and a stick-man standing at the edge of a cliff to represent

fear. Students identified this session as being particularly effective in communicating the project principles.

Students were then offered a self-directed study week requiring them to work from their own initiative to incorporate ideas and principles discussed during previous sessions into a body of work that communicates their own, personal response to the project brief. This was also an opportunity for students to use the online blog site situated within the CETLD website to share and develop ideas with peers within the group.

The final session was a group ‘crit’, a peer review process that is familiar to the design and materials practices students but that was “very different” for medical students. Each student was asked to describe their project – the initial idea, how it developed, what they noticed during the project and how they feel about their final outcomes – to the group. During this session the medical students demonstrated particularly good research skills, all delivering projects that where well informed and well located within a wider context of their area of interest and all very creative in their though process and exploration of ideas. The design and materials practices students presented works that demonstrated a more advanced visual language and that incorporated a number of specific skills that were not available to the majority of the medical students, such as, advanced photography and mark making techniques.

Lessons Learnt

The challenges associated with conducting multidisciplinary research in an educational context and working with students throughout this process, are becoming more clearly understood by the research team. The complexities of institutional systems and limitations with time availability have proven to be key elements that need to be addressed when pursuing collaborative cross-disciplinary projects, especially when working in public environments such as hospitals. The value of practicing a ‘shared risk and reward’ research model - where the research interests and outcomes are developed and benefited from equally by all involved has been recognised as an essential factor in facilitating effective cross-disciplinary research. Establishing a common vocabulary within the project is an essential element of facilitating effective interdisciplinary practices for both staff and students.

Research Outcomes

Progressed research in teaching and learning?

This project has successfully incorporated the principle of evidence based learning with design-led creative practice to enhance the teaching and learning of participants, and developed a model for interdisciplinary teaching and learning and identified the added-value that interdisciplinarity can bring to teaching and learning in higher education. Specifically looking at aesthetic, intellectual and cultural dimensions of design, this project has built upon existing teaching excellence and interdisciplinary collaboration in the School of Architecture and Design, Clinical Research Centre for the Health Professions and Brighton and Sussex Medical School and will continue to feature in the curriculum of level 2 three-dimensional design and materials practices courses and in years 3 and 4 of medical student training.

Results

- Students worked together in a healthcare environment to better understand the impact of environment and aesthetics on well-being and working practices of staff and patients - gaining a greater awareness of noise, the use of crash barriers in transition areas, exposure to green spaces, colour, signage, space, orientation and the affect of these elements on the individual.

- Students were introduced to unfamiliar research methods. For the medics those that encourage freedom of thought and exploration of wider research contexts. These methods can be applied to medical practices through problem solving challenges and investigative communication tasks, such as, differential diagnosis and taking patient histories. And for 3D students an insight into academic research methods that are suitable for peer review and academic critique.

- All students developed their communication skills, especially those beyond written or verbal forms of communication i.e. verbal, kinaesthetic and those communicated through two and three-dimensional media. These skills have particular value for medical students when dealing with patients with sensory or learning disabilities, taking case histories, talking to patients and talking to colleagues. And for 3D students when presenting and developing ideas with others.

- Greater awareness of people (and patients) as individuals – how information is received and understood

- Recognition of opportunities to apply creative practices to professional life – problem solving, differential diagnosis.

- Development of personal and professional skills - independent learning, self-reflection, time and resource management, teaching others, communication skills, trust, linking theory to practice.

Evaluating the benefits

Informal interviews were conducted and recorded with students to gain qualitative feedback for the project.

Feedback from the medical students was very positive. Students identified the *freedom* allowed in creative practice as being a particularly enjoyable experience that will be valuable in both working and personal life. Some of the specific skills gained during the project will help to develop communication skills and inter-professional skills. Students also stated that creative practice is a good escape from the rigidity and rigour of professional life. Developments to the project identified by the medical students included further extension of the project to enable development beyond an introduction to creative practice and on to applying their creative practice to realise outcomes in the clinical environment. All medical students demonstrated the ability to think creatively and apply creative practice to a very high standard. Limitations to their practice were most commonly due to a lack of specific skills, such as, model making or advances materials practices skills.

Feedback from the design students was generally positive – identifying inter-professional development and a greater awareness of creative practice beyond university as particularly valuable experiences. However, a number of students stated they would have liked a more 'medical experience' that would enable them to understand an average day in the life of a medic. Students suggested that a visit to *clinical* environment within the hospital (a vacant theatre or ward), an in-formal meeting with interested patients or a trip to the anatomy lab for a drawing workshop as specific areas of interest that could inform their own project development. All design students identified the high standard of research practices demonstrated by the medical students and recognised this as an opportunity to develop their own skills.

Conclusions

The model used in this project was effective for facilitating inter-disciplinary teaching and learning. An introductory phase to creative practices has proven to be a particularly valuable process. In this study medical students initially demonstrated a tendency to be only 'goal orientated', often seeking to identify a problem to solve by applying a reductionist research method as opposed to identifying opportunities for development and indulging the process of exploring ideas.

The project identified that shared experience combined with reflective discussion, can facilitate effective cross-disciplinary teaching and learning experiences. The dialogic teaching and learning method was highly successful in establishing a common theoretical understanding between disciplines through language. This, in turn, facilitated the open sharing of ideas, knowledge and skills.

How you have met the selected CETLD themes?

The project embraces a number of CETLD themes including;

- Practice-based learning in a way that advances understanding, impact and design of the physical and virtual space of teaching and learning at Higher Education level.

- Interdisciplinarity in design education that reflects upon traditional models and stimulates fresh approaches to practice-based learning in design-led education by bringing together staff and students from Highter Education, Medicine and professional Architectural practices.

- Student voice and student centred learning that stimulates debate and dialogue between staff and students from design with other disciplines that have different structures of knowledge traditions, learning styles and curriculum structures

- Undertaking design-led activities to participate actively in research-led learning and to engage with ICT to personalise and extend their learning opportunities

- Employer engagement through our links with BDP to contribute to research and evaluation of innovative learning and teaching activities and object scholarship in design-led education.

- Engage with and explore links and opportunities between partner institutions in design-led fields of Higher Education and the cultural and creative industries.

Dissemination

Outcomes from the project will be published online on the CETLD website. This will include multimedia footage used within the teaching programme and student interviews conducted after the project to gather student feedback.

The project has been presented to national and international peers at a number of academic conferences including the “Is Design good for you?” symposium, Brighton, UK. The International Medical Education Conference, Kuala Lumpur, Malaysia and the annual University of Brighton Learning and Teaching conference, Brighton, UK.

Student works produced as part of this project featured in the ‘Art and Medicine’ exhibition at Brighton and Sussex Medical School as part of the annual Brighton Fringe Festival.

Articles will also be submitted to a number of peer-reviewed journals for publication and the Art Design and Media Higher Education Academy magazine.

Next steps

The collaboration set-up during this project will continue to feature and develop within the curriculum of both institutions and in both courses. This project has also been instrumental in establishing a foundation of collaborative study that has enabled research assistant Tom Ainsworth to begin a cross disciplinary PhD with UoB department of Arts and Architecture and BSMS to develop interactive hand-held objects for the treatment of rheumatoid arthritis.

It is hoped that this project will further develop the interdisciplinary links between the two institutions and further develop a framework for ‘design for wellbeing’.

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