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[Caldwell, Glenda & Osborne, Lindy](#)
(2011)

Bouncing back : the role of design in facilitating students to understand and deal with adversity.

In Hu, L, Elkadi, H, & Coulson, J (Eds.) *Proceedings of the 2011 International Conference of the Association of Architecture Schools of Australasia (ASSA): Architecture @ the Edge*.

Deakin University, School of Architecture & Building, Australia, pp. 12-22.

This file was downloaded from: <https://eprints.qut.edu.au/46002/>

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BOUNCING BACK: THE ROLE OF DESIGN IN FACILITATING STUDENTS TO UNDERSTAND AND DEAL WITH ADVERSITY

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ABSTRACT

After state-wide flooding and a category-5 tropical cyclone, three-quarters of the state of Queensland was declared a disaster zone in early 2011. This deluge of adversity had a significant impact on university students, a few weeks prior to the start of the academic semester. The purpose of this paper is to examine the role that design plays in facilitating students to understand and respond to, adversity. The participants of this study were second and fourth year architectural design students at a large Australian University, in Queensland. As a part of their core architectural design studies, students were required to provide architectural responses to the recent catastrophic events in Queensland. Qualitative data was obtained through student surveys, work design work submitted by students and a survey of guests who attending an exhibition of the student work.

The results of this research showed that the students produced more than just the required set of architectural drawings, process journals and models, but also recognition of the important role that the affective dimension of the flooding event and the design process played in helping them to both understand and respond to, adversity. They held the 'real world' experience and practical aspect of the assessment in higher regard than their typical focus on aesthetics and the making of iconic design. Perhaps most importantly, the students recognised that this process allowed them to have a voice, and a means to respond to adversity through the powerful language of design.

Keywords: Architectural Education, Design, Adversity, Flood, 'Real World'

INTRODUCTION

This paper investigates the role that architectural design played in assisting students to cope with flood events that occurred in Queensland, in early 2011. The Brisbane River broke its banks on 11 January, leading to the evacuation and closure of a large Australian university's campus, and the inundation of 20,000 homes located in suburbs with a high university student occupation. Many of the students who attend this university were left without homes and belongings, while others helped in the recovery of the disaster by volunteering assistance during the cleanup. Some of the students were away on holidays and could only attempt to comprehend the impact of the flooding from stories they heard from their friends and families, or saw through the TV screen. The interaction people had with the flood was varied, depending on their geographic proximity to, and physical affect by, the destruction.

This research investigates the effect the adverse conditions of the floods had on these students, and more specifically, focuses on how the process of design assisted these students in coming to terms with the disaster. Importantly, the flood was a real event, one which was unpredictable and severe, and one which could happen at any time, anywhere. The main

objective of this research is to interrogate the design process and examine its role in assisting students to understand and respond to adversity. The focus of the assessments within the 2nd and 4th year architectural design classes was on flood resilient design. By implementing a real event into the design problem, students found that their designs had a real and practical purpose.

CONTEXT

The research presented in this paper is set within second and fourth year architectural design studios. As a part of their core architectural design studies, students were required to provide architectural design responses to recent catastrophic flooding events, in Queensland. The assessment in the second year class was the third and final assessment that took place from weeks 9-15, of the semester. The assessment required students to design flood proof housing on a site set within a flood plane, near Brisbane city. This assessment was an individual item. The second year class had an enrollment of 165 students. The assessment in the fourth year class was an intense design charrette that took place in weeks 1-3, of the semester. As part of their first assessment students were asked to design a flood responsive unit based on an international competition 'Facing the Floods,' hosted by Tesseract. The design intent of the flood responsive unit, was to improve people's living while facing flooding. The designs ranged from temporary shelters, communication pods, and protective skins. Tesseract is a student group based in Scotland who raises awareness of humanitarian issues, by hosting international design competitions that respond to disasters. The 'Facing the Floods' competition focused specifically on the Queensland floods of 2011. The fourth year class had 160 students enrolled.

In both classes, students were given the freedom to develop their own brief, while working within the relative constraints of an actual context. While the scale and scope of assessments differed, the unifying factor was a deliberate focus on resilient design, and more specifically, on a response to the recent Queensland floods. Previous research has shown that when architects are faced with adversity, they focus less on trivial concerns, but more on design responsibility. The design process takes on greater meaning and allows people to cooperate at a higher level (Coleman, 2001; Cuff, 2009).



Figure 1: Rocklea Street Inundated by Flood Water in Archerfield [2011]
Source: State Library of Queensland

REVIEW OF BACKGROUND LITERATURE

Climate and natural disasters such as floods or droughts have increased over nine times, earthquakes have quadrupled and biological disasters have increased over 200 times (Fisher, 2010). The natural disasters that continue to occur are beyond society's control; society cannot predict the extent of their destruction, which is precisely why they must question the role that design plays. Educators are responsible for questioning the role of designers, in the 21st century. It is under conditions of crisis that new forms of architecture emerge. The literature states that through moments of adversity the importance of aesthetics declines and there is a general shift towards design responsibility, where the design process takes on a higher level of meaning requiring cooperation and practicality (Coleman, 2001; Cuff, 2009). Architects and designers must learn from moments of crisis where the disaster becomes a reminder to shift from aesthetic concerns, and focus on the cultural, functional, technological, environmental and emotional considerations. Design demands a higher level of social responsibility, meaning that the work for architects takes on greater meaning. (Coleman, 2001).

Architect, Denise Scott Brown, acknowledges this shift in priority: 'the severity of the disaster forces on us an altered logic in our conceptions of the city and of our relationships and roles vis-a-vis each other and society,' (Art Forum, 12.05). Architectural design directly responds to the needs of society.

Taking into account the affect that adversity has on society and the design profession, it is important to consider this as an opportunity to question old rules (Cuff, 2009). It is in the face of adversity that the role of an architect and designer becomes more complex and necessary. (Bonder, 2009). Designers must recognise the important role that they play in responding to humanitarian issues; one that requires collaboration and innovation (Suarez et al., 2008). The capacity for architectural responses is vast, the space for contributions to social and physical reconstruction is prolific and increases as the number of disasters continue to rise (Charlesworth, 2008). It is here that the design profession can stimulate the availability of resources and institutional support that assists in addressing the affect of disaster relief (Suarez et al., 2008). Charlesworth (2008) notes that:

Re-focusing the design profession upon social and ethical concerns can establish an effective platform from which architectural and planning professionals can contribute to the reconstruction of the increasing number of cities polarized by ...conflict ...the failure of many design professionals working in post-disaster failed to provide effective and sustainable reconstruction strategies, suggests that aesthetics and architectural heroism alone cannot solve the physical scars of sustained urban violence.

It is not only the physical scars that become visible when we interrogate the relationships between design and disaster relief. A critical element to all of this, is the emotional aspect that affects society. The emotional dimension can be difficult to quantify as it is not physically visible, however it can be felt and heard. It is important to reflect upon the fact that architecture and design will not only assist in rebuilding after disaster strikes, it is the process of rebuilding that can assist in reconstructing our will. As Cuff (2009) asserts, 'design after disaster is not an autonomous project. In other words, disasters destroy more than buildings, and more than buildings need to be reconstructed in their aftermath'. By examining the affects of adversity we can see that this process can teach us to cope with issues as a result of the disasters, and improve our role to become better designers and citizens (Coleman, 2001).

When examining the creative process within a psychological framework, it has been found that making art can be a way of rehabilitation. 'Perhaps learning and creating are continuous acts of reparation – a way of keeping sane, of getting well, and in so doing, making art' (Sagan, 2009). An example of an architectural design that responded to disaster by promising a hopeful glimmer of recovery was the INFO BOX at Potsdammer Plaz, Berlin. The INFO BOX exemplified the resilient power of architecture by creating a space that communicated the tragedy of past events, while providing agency for public reflection and promise of rebirth (Choi, 2009). In this form architecture takes on a monumental role, one which assists in memorialising historical events, while providing hopeful responses for the future (Bonder, 2009). It is a relationship that promotes critical reflection through engagement with past and present, within spatial forms.

Due to the immediate nature of disasters there is little time for reflection or for understanding the scope and scale of destruction, or the change that such disasters evoke. Students struggle with change; they have difficulty responding to change often confused with overwhelming ranges of emotion including sympathy, need, and uncertainty. Robert R. Bell Jr. describes this situation: 'I found a gap between knowing and understanding. Knowing something has changed, but not understanding what this change means to them personally for their career or for their generation. I sensed that the students especially needed time to figure it out and to understand the changes taking place ...I believe it is our duty as educators to allow students to understand their world from an experienced perspective' (Allen, 2006, pp. 22). The link between real events and the design process is invaluable in raising the importance of the role of design in engaging with students and providing them an opportunity to respond.

METHODOLOGY

Over 300 undergraduate students enrolled in second and fourth year architectural design were required to complete a design assessment, with a specific focus on designing in the event of flooding. The second year students were required to design a multi-residential housing facility located in a flood zone, and the fourth year students were required to propose a humanitarian emergency shelter for flood victims, to be assembled immediately after the event of a flood. Both of these assessments were undertaken in the first semester of 2011, directly after Brisbane's catastrophic flooding event.

Immediately following the completion of these assessments, nearly 200 students completed a survey about their experiences of the 2011 Brisbane floods, and the role that these played in assisting them to understand and respond to adversity while working on their design proposals. Further to this, all students were required to report back on their understanding of resilient design and to reflect on the design process in a reflective journal, which was required to be submitted as a part of the assessment. In addition to this, all students were encouraged to comment on the flood design assessment, when completing the university wide administered end of semester 'learning experience survey'. Lastly, key guests at an exhibition of the student work completed a survey after the exhibition - these guests included the exhibition keynote speaker, a high profile politician and many local architects and academics.

Using a qualitative grounded theory approach, the data from all four sources were coded and four key themes emerged: the 'real world' experience, the affective dimension of the flooding event, the practical aspect of the assessment, and the role of design in responding to adversity.

FINDINGS AND OUTCOMES

Three quarters of students from both design classes stated that they had been affected by the flooding that occurred in Queensland, in January 2011. Three out of 10 students reported that the floods had affected immediate or extended family members, and eight out of every 10 students stated that a friend had been affected. These numbers were higher than what had initially been anticipated at the commencement of the research and helped the researchers to contextualise the heightened emotional state of a high percentage of students, at the commencement of the design assessments.

Just under half of the students participated in or contributed to programs that helped to clean up after the flooding event and about one quarter of were unable to, as they were out of town at the time. Therefore about two thirds of students actively engaged in programs to assist in reinstating Brisbane back to its former state. While contributions varied, most students either joined the ‘mud army’ [a term coined by the media to describe the mass of volunteers who helped to clean up the mud left behind, after the flood waters subsided], or donated physical items or money to those who had been devastated by the event. Several students even teamed up with the Australian Institute of Architects [AIA] and Emergency Architects Australia [EAA], and provided pro-bono professional assessments of flood-affected properties.

An important aspect of the research was an analysis of student’s priorities when designing for floods. Across both design classes, the majority of students cited ‘buildable solutions,’ ‘environment/context’ and ‘social sustainability’ as the three highest priorities, however the order of these priorities differed between the two years. This can be attributed to the focus of the particular studios; ‘Environment/Context’ was a major focus of the second year studio in addition to the flood proof design focus, while the priority of ‘Buildable Solutions’ reflected the more mature and ‘real world’ focus of the fourth year students. The lowest priorities for both classes were ‘iconic design,’ followed by ‘aesthetics.’ While the data suggested very similar priorities between the two classes, there was one interesting discrepancy; ‘social sustainability’. The fourth year students, whose design focus was more humanitarian, rated this priority 50% higher, than the second year students.

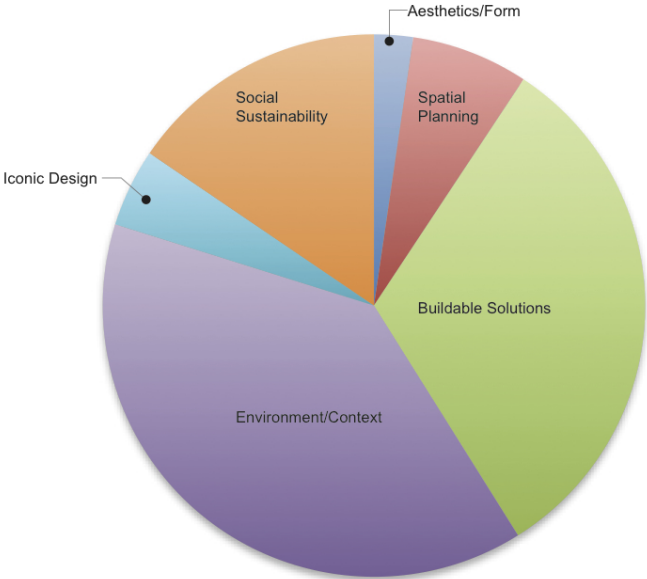


Figure 2: Overall Student Priorities in Response to Flood Design
 When questioned about whether the process of developing a flood responsive design assisted

students with coming to terms with flood disaster, they were evenly split; about one third believed that it had, one third believed that it had not and about one third were uncertain. Of those students who did believe that the design process had helped them to comprehend the floods, most realised this while working on the assessment, some appreciated this after completing the assessment, and a few recognised that this would happen, prior to starting the assessment. The majority of students stated that their experience in developing a flood responsive design would definitely affect the way that they approach future design projects.

Theme 1: The affective dimension of the flooding event

A key emerging theme was the affective dimension of the flooding event, and the effect that this had on the students: '[I] enjoyed learning a few different aspects of the floods and how it affected people ...biggest and scariest fact about the floods is the deaths that occurred ...design can aid in preventing such things' [1B], 'being overseas at the time of the flooding was very stressful and perhaps even hard to believe it was a reality ...investing time in [the] facing the floods project was very helpful in believing I could be connected to Brisbane again' [2B], and 'I assisted with the floods before the flooding, during the flooding and after the flooding ...it was a highly emotional time assisting with rescues as well as picking up the pieces ...I put my own feelings aside during all this process and the facing the floods design made me face these and opened up suppressed emotions ...it was a good way for me to deal with it and to get over it affecting me' [6B].

Many exhibition guests agreed that the overwhelming optimism of the design responses helped to underpin the notion that adversity can, indeed, lead to positive change: 'to me the strongest expression ...was in the optimistic and innovative nature of the responses ...there was hope and excitement evident in the propositions for addressing a set of challenges that are well outside of norms for most student projects' [JC].

Theme 2: The role of design in responding to adversity

A second emerging theme was the role that design plays in assisting people to respond to adversity: 'definitely beneficial ...should be implemented into all future designs ...crucial for Brisbane' [3A], 'Let's hope in the future there will be even more technologies and options for buildings to resist flooding. A flood response design is and should be considered as a benefit to bring designs even further' [1A], and 'I had already come to terms with [the flood but] it did make me think of the resilience factor in general in design' [8B].

This theme was confirmed by exhibition guests: 'one of the great outcomes of the exhibition [was] that design can provide a positive future full of excitement and optimism ...the range and execution of ideas grounded in the particulars of a major event such as the 2011 floods shows tremendous hope and the promise of resilience' [JC]. An academic commented: 'interestingly the choice of graphics and images were largely utopian in nature' [PC]. One of the tutors noted that many of the students had presented a vision outside of the base requirements of the assessment brief, by investigating the applicability of their design proposal to a multitude of adverse conditions, not just a response to flooding.

Theme 3: The 'real world' experience

A third emerging theme from the research, was the student's positive appreciation of designing for a 'real world' experience: 'designing for a natural event like the Brisbane/Queensland floods really brings the practical element of design into focus ...how we

as designers can provide solutions for real situations' [7B], 'I think it was a good idea that provided some real world significance' [5A], and 'I loved the assignment ...felt like we were doing something real and worthwhile' [10A].

Guests who attended the exhibition opening, reiterated this theme. A sustainable architect, agreed that the majority of work powerfully responded to the reality of the flood experience: 'most [work] exhibit[ed] expressed a good depth of analysis and appreciation of the unique circumstances to which their designs responded... the majority of the responses had tangible practical applications, even if only as a conceptual springboard to help inform a range of potential responses for future events' [JC]. A politician noted that: 'with tertiary student work one always expects an 'out-of-the-box' approach and that's good ... certainly some of these projects were not only out of the box, but they were out of this world ... I think a mix of reality and dreaming is good' [DH]. An academic said the projects showed a real world understanding through the technical nature of building solutions which were well explored: 'as expressed though diagrams of process and systems' [PC]. Another academic was inspired by the transfer of new ideas to industry professionals, community partners, politicians, family and friends, and the focus of building community around architectural practice: 'this exhibition exemplifies architectures important contribution to society' [PS].

Theme 4: The practical aspect of the assessment

The final key emerging theme was the value that students placed on the practical aspect of the assessment: 'it's more like architectural design ...we need to think of a lot of practical solutions' [4B], and 'what I found was that form takes a backseat to planning, but at the same time a building that is designed with potential inundation in mind has its own aesthetics and character. I think it is important to let the functional requirements reveal the design intent and its integrity ...[we] shouldn't try [to] disguise it and cover it up ...in terms of site analysis it gives you an additional element to consider and take into account while spatial planning and formulating initial ideas' [5B]'.

Exhibition guests agreed that practicality is not always applicable to student design work, because sometimes practicality and reality stifles innovation, however some designs: 'were both practically conceived and highly innovative ... others may have had some fundamental practical problems that could limit the future of the concept, but nevertheless are worthy of consideration, at least in the expansive [concept] phase of a response' [JC].

CONCLUSION

The results of this research showed that the students produced more than just the required set of architectural drawings, process journals and models, but also recognition of the important role that the affective dimension of the flooding event and the design process played in helping them to both understand and respond to, adversity. They held the 'real world' experience and practical aspect of the assessment in higher regard than their typical focus on aesthetics and the making of iconic design. The ability to respond to disaster through design empowered students, allowing them to take ownership of the events in their state and city, and assisted with their rehabilitation, thus demonstrating the value of design as an important component of the recovery process. There was recognition that 'disasters destroy more than buildings, and more than buildings need to be reconstructed in their aftermath' (Cuff, 2009, p. 5). Perhaps most importantly, the students recognised that this process had allowed them to have a voice and a means to respond to adversity through the powerful language of design.

Acknowledgements: The following people contributed to this research project: Maree-Elizabeth Lewis, Kirsty Volz and the second and fourth year architectural students.

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