

Demirbilek, Nur and Smith, Dianne J. and Scott, Andrew and Dawes, Les A. and Sanders, Paul S. (2007) The role of the learning context and designer characteristics challenge and reveal the design process. In *Proceedings Dancing with disorder: Design, Discourse, & Disaster, EAD07 Conference, Izmir, Turkey*.

THE ROLE OF THE LEARNING CONTEXT AND DESIGNER CHARACTERISTICS CHALLENGE AND REVEAL THE DESIGN PROCESS

Dr. F. Nur Demirbilek, n.demirbilek@qut.edu.au

Dr. Dianne Joy Smith, d.smith@qut.edu.au

Andrew Scott, aj.scott@qut.edu.au

Dr. Les Dawes, l.dawes@qut.edu.au

Paul Sanders, ps.sanders@qut.edu.au

Queensland University of Technology, Faculty of Built Environment and Engineering, Brisbane, Australia

Abstract

This paper discusses how designing is much more than the execution of a process toward an end product that satisfies a client brief. Instead design and designing are integrated with a designer's personal philosophy, understandings and attributes, relationships with others, and the nature of the project.

The project to be described in this paper explores how context can mould the experience of designing at a personal and collective level, and thereby, influence the resultant outcome. The project's focus offered the potential to monitor how students respond to the design process in a multidisciplinary environment. The findings indicate that students and staff were enthusiastic about the opportunity to participate in a community service project and that student engagement was influenced by their expectations, individual personalities, and group dynamics. It was also demonstrated that these influences were facilitated by the learning environment and impacted on the design process. .

Therefore, it is proposed that university students respond to projects that demand high levels of engagement and real world context. The students bring to that process rich experiences and knowledge in an integrated manner. The interrelationship between the design, the designer, and the context is therefore, an essential consideration for design educators and practitioners when fostering teams and tackling design projects.

Introduction

The focus of the paper is a community service project to design an **educational tourist centre** for the Save the Bilby Fund located in Charleville, South West Queensland, Australia. The design was undertaken by a **multidisciplinary team of students, staff and professionals** from architecture, engineering, interior design, industrial design, and landscape architecture. It was an elective for the students and the staff volunteered to be involved in the design team.

Understanding *what it is to design* is discussed through reflection and evaluation of two design workshops that were the core activities of the project. The project altered student perceptions of design, of their own discipline and of the other disciplines, and insights into their personal attribute and personality were possible. Collectively these aspects clearly indicated that the design is a product of the evolving experience of designing and that design cannot be understood holistically if discussed simply as

method or process. Design therefore has the potential to be transformative in its nature.

THE PROJECT

The facility to be designed was the vision of zoologist Peter McRae who envisioned a centre that would educate the public about the ecology of semi-arid and arid areas with particular emphasis on underground systems and their interdependency with our everyday life. The Australian marsupial *Macrotis lagotis*, commonly known as the *bilby*, is the iconic animal used to demonstrate the potential for alternative lifestyles in these severe regions. The income from the non-profit facility to be located in Western Queensland, Australia will fund research into Australian endangered species.

It was considered imperative that the design teams visit Charleville in order to appreciate the context of the site and of the native flora and fauna. Therefore, the student project involved two intensive design workshops. The first workshop in 2004 consisted of nine students and three staff on site for one week. It provided a strong conceptual basis and briefing document for future work, as outlined in depth in Smith, et al. (2005). The work resulted in a set of guidelines for undertaking multidisciplinary projects with emphasis being placed on the advantages of block teaching, the involvement of the client, and an intimate knowledge of the site and the community stakeholders, in order to foster engagement and an in-depth understanding of a project.

Limitations identified in the first workshop were addressed in the second workshop held in 2006. These included the need for a longer period of immersion for block teaching, a greater understanding of the semi-arid location-based constraints, greater clarity in regard to staff expectations and a more explicit educational structure to underpin the teaching and learning approach adopted. This workshop involved fourteen students from four disciplines who formed two teams, and five staff members working with consultants and clients over a two week period in Charleville.

The structure of this second program consisted of an orientation and briefing session, preliminary research by the students, a series of staff or expert presentations involving exemplars and visuals which provided base knowledge about the client, the disciplines, the context, and possible approaches to tackling the project. Student presentations were held at the end of week one and week two; the first presentation (in the spirit of collaboration) was to the client and council in order to receive feedback, and the second to the client, council, and community as part of the community consultative process.

In both workshops the format of sessions was largely directed through discussion as the project unfolded with debriefing and briefing sessions occurring each morning. Social activities were also an important part of the learning context. This open and enthusiastic working environment stimulated engagement and productivity.

Work-in-progress was displayed on the walls to stimulate discussion and as a point of reflection. Activities outside the 'studio' served to allow some down-time while being necessary for the project. These included site visits and visit to the bilby enclosures. In addition, to fit in with the sustainability design theme of the project, the students designed and constructed a small scale rammed earth wall from local soils, which became part of the overall design project. The objective of the exercise was to give all students a better understanding and appreciation of alternative building materials and

construction techniques. The constructed wall was subsequently monitored to examine beneficial thermal properties. This activity also served as a hands-on team building exercise.

DEVELOPING A TEACHING and LEARNING FRAMEWORK

Assumptions concerning three aspects of student learning—interdisciplinary interaction, design methodology, and the engagement of adult learners—were made.

Adult learners: Adult learners are known to require meaningful learning experiences and ‘vital involvement in one’s world as opposed to the spurious flirtations of youth’ (Erikson in Tweedell 2000, p.3).

‘Dewey believed that learning best occurs within an institution which will not obstruct experience...A progressive institution will shape experience by reorganizing the surroundings and providing an environment that will promote growth. The outcome should be a fully integrated personality whose successive experiences are integrated with one another. This is the creation of self control gained through a product of reflective learning’ (Tweedell 2000, pp.2-3).

Tweedell (—:p.4) states that education of adults should in fact ‘transform individuals so they may change society’ as had been posited by Mezirow and Freire.

It was therefore proposed that a learning environment that provided an opportunity for university students to be embedded in a real project would prove to be stimulating and meaningful for them. Our project revealed in a first-hand manner the inherent complexities of the project, the stakeholders, and working with other consultants.

Design Methodology: In addition it is known that designers come to a design problem with different understandings of what it is that they are doing. Franz (1997) in her study of the conception of interior design demonstrated that architects and interior designers working in this field may have one (or more) conceptions of designing —experiential, structural, production or retail. Their conception will underpin how they go about the process of designing. Franz quotes Marton’s definition of phenomenography applied to educational research, as ‘... mapping the qualitatively different ways in which people experience, conceptualize, perceive, and understand various aspects of, and various phenomena in, the world around them’ (1997 p.11). Students with differing backgrounds may have differing understandings of the task set and how to undertake designing.

The Charleville workshops provided an opportunity to work to reveal these differences and to reflect on the advantages and disadvantages each may have. Franz’s typology also enabled us to critique the process evidenced through the work, images and reflections after the workshops to analyse what had occurred.

Interdisciplinary interaction: Associated with the diverse understandings of the individual students (and staff members) was the interdisciplinary nature of design teams. The potential to address complex and ill defined design problems or situations through a transdisciplinary approach is recognised in that new and innovative solutions can emerge from the blurred edges of discipline discourses and practices.

Transdisciplinary activity takes ‘as an article of faith the underlying unity of all knowledge’ and as a consequence works beyond the discipline boundaries (Newell 1992). As highlighted in Smith et al. (2005), disciplines have distinct set of knowledge, theory and practices, and therefore, ‘collaboration involves relating or integrating knowledge and methods for each domain’ (Squire 1992 p.7) because as Squire points out, ‘the discipline culture (philosophy, values, or understandings of the world) is not taken into such an account. In contrast, disciplines have also been described as a loose field consisting of many subfields’ (Squire 1992) and each may have stronger links to the core subfields of other disciplines (Becher 1990).

How an individual perceives the way disciplines should interact will influence how he or she goes about the project and in the case of educators how they establish the context in which group activity is undertaken. As Newell (1992) observed, those seeing interaction only in operational terms will tackle the project by seeking to identify discipline topics to cover and/or references to contribute. However if a broader understanding is held, the interaction will seek to identify and embrace philosophical differences through interdisciplinary engagement. The bringing of discipline knowledge to a problem in the role of ‘expert’ can be limiting and may reinforce current or known approaches and resolutions. The processes may be built upon consultation and compromise rather than on innovative collaborations.

Therefore, the second workshop explicitly encouraged students to interrogate the problem in a holistic sense—to bring professional and personal experiences, as well as common sense understandings, to the task. During the second week, students were encouraged to also contribute their specialised knowledge once the problem had been explored and defined by the group. It was anticipated that some students might have difficulty breaking old habits when presented with such freedom to engage with a situation especially when it was ‘real’. The two week session was therefore designed so that the students were required to bring the work to an endpoint in the company of others; thereby addressing the fracturing that had occurred in the first workshop (Smith et al. 2005).

Figure 1

METHODOLOGY

This paper reports on an ethnographic approach in order to research the experience of design by the participants. The staff members were also participants in the design workshop, however, their input was as managers of the workshop structure and to ensure that the overall objectives were embedded as the studio unfolded.

Ethnography is defined by Delamont as “...spending long periods watching people coupled with talking to them about what they are doing, thinking, and saying, [and] designed to see how they understand their world” (Delamont 2004, p.218). It is also noted that as a researcher who is a participant observer that;

...by living with the people being studied, watching them work and play, thinking carefully about what is seen, interpreting it and talking to the actors to check emerging interpretations. ... watch these things being done and ‘help’ occasionally. It is important to participate enough to be able to write feelingly about the nature of work: its pains and pleasures, smells and

sounds, physical and mental stresses. ... 'Participant' does not mean doing what those being observed do, but interacting with them while they do it" (Delamont 2004, p.218).

The data collected was drawn from a number of sources including the students' initial understandings of design, their reflections at the end of week 1 and at the end of week 2, their comments in their reflective diaries, the design-process drawings, and the staff reflections upon (and interrogation of) the photographic record of the workshop. Indicators of engagement, interaction, personal emotions, and understandings were sourced by drawing on text, graphic information, and imagery. From these it was possible to compile an in-depth understanding of how the design was not only undertaken, but in addition, how it was experienced by the participants.

FINDINGS: STUDENT AND GROUP CONCEPTIONS

The findings drawn from the above data sources are outlined below according to their origin. A summary of what is indicated then follows each one.

Initial conceptions:

Prior to leaving Brisbane at the orientation day, members of each discipline were asked to discuss and define design and the purpose of their discipline in the design of the built environment. The comments are outlined in Table 1.

These comments indicate that the students all saw design as a process involving multiple dimensions which needed to be combined in some way through a process. However they contrasted in their conception of the purpose of the design activity itself. Architectural design was believed to address experience, practicality, and serviceability, Interior Design facilitate the relationship between people and their environments, Engineering design makes things work appropriately, while Landscape Architecture did not identify an endpoint for the design process. Likewise the roles identified indicated that the individuals perceived a definite role for the discipline they belonged to—architecture as an innovator, engineering to oversee safety, interior designers to address user needs and facilitate experiences, while landscape architecture as creators of integrated and responsible spaces. In addition landscape and interior designers felt it necessary to identify clearly what they are not (gardeners and decorators).

These conceptions indicate that discipline perceptions of design is different from the other disciplines. Such differences may influence how members of a discipline; that is the students, may approach the design project and their role in a collaborative team.

Table 1

Structured Reflections: expectations

Students were also asked to respond to a number of set questions at the commencement of the project in Charleville. The purpose was to ascertain student conceptions of and aspirations for the workshop. These questions were: What do you expect the scope of the project will be? What do you expect you will learn as a result? How do you feel about the process? What knowledge and/or skills do you expect to be able to contribute in areas or ways that would be considered outside your core discipline area to the development of project?

It is evident from the responses that all students felt excited but simultaneously being worried or anxious about what would be required of them and how they may perform. For example descriptors used included:

Excited; motivated; happy; optimistic; anxious; worried; scared; unsure; concerned.

A number of students envisaged the project in practical terms. However, others anticipated that opportunities for new experiences and the need to fulfil broader client and societal goals were involved. For example:

It will involve extensive community consultation/interaction; design of a tourist centre that will educate people; an exceptional design that attracts tourists and allows them to observe and interact with bilbies; work together as a mixture of disciplines; practical/realistic design; attraction that will put Charleville on tourist map; iconic design; low maintenance eco-friendly building and landscape.

Learning outcomes identified also varied between those who predicted that skills and facts would be acquired and those who foresaw that personal development and generic capabilities would develop. For example:

How to work within a multidisciplinary group; learn from others and share own knowledge with others; teamwork; nature of ecotourism in Australia; ESD for semi-arid regions; understanding of rural Australia; to contribute to a real life design; to see from different perspectives; compromise.

In addition, the authors sought to make explicit how students perceived the discipline boundaries and integration before the project commenced. Therefore, the following question was posed: *What knowledge and/or skills do you expect to be able to contribute in areas or ways that would be considered outside your core discipline area to the development of project?*

Again it was evident that some students saw their ability to contribute simply in terms of discipline expertise while others considered themselves more holistically in terms of personal experiences, personality, and generic capabilities. For example:

Commonsense and practical approach; ability to discuss and listen to everyone's opinion; organizational skills; communication skills; motivate the team and keep everyone having fun; outback culture (S4).

Structured Reflections: midway experience

To gauge the students' learning experiences, each student was asked to address a number of questions at the end of week one. The first week's program had encouraged students to work outside their discipline frameworks to interrogate the problem and to explore the potential of the project.

The comments reflected different learning approaches with some students only listing *the what*. However, others discussed *the what* more holistically by stressing how personal dimensions were already interwoven with the professional aspects.

When explicitly asked how they felt, all students commented that they had commenced the project with a balance between excitement and fear reinforcing the initial result.

Structured Reflections: overall experience

On the second last day each student was asked to stop and reflect on the process and outcomes from their individual perspectives. The questions posed were:

Have your expectation been met?; What are the key things you have learnt?; What key things have you learnt re other disciplines and interdisciplinary teams?; and, What aspects about yourself have you developed or not that influences your ability to contribute to a team?

The comments indicate differing levels of engagement or at least a willingness to share their experiences and opinions in this way. The most common answer to *Had their expectations have been met* was “surpassed”. Key things they said they had learnt include the following aspects:

- personal skills and attitudes: *working in a team and controlling one’s personality when things get heated; to be flexible; sharing; not to be a selective listener; a designer must become selfless;*
- design process: *design through facilitation, creative motivation, criticism and injection; step back and let go; experiment more; give up ideas/push ideas; fantastic brainstorming sessions; and*
- interdisciplinary interaction: *to liaise between different professions; team effort is the main reason for success; working in groups takes a lot longer than working individually.*

The main thing that they’ve learnt from other disciplines is to accept that they all have something to contribute; and that, it is vital that each team member has a fair say. The aspects that they have developed that influence their ability to contribute to a team are improved listening and communication skills; a better sense of empathy; improved tolerance to people; and a better appreciation for other disciplines.

Unstructured or informal reflections

The informal records captured in a personal diary included reflections interwoven between notes from presentations, discussions, sketches, and lists of things to do were more revealing. A number of quotations are deliberately included below to demonstrate the depth of the experience. More particular is the transformative nature of the experience. The learning environment and the developing design process provided through this project acted as enablers for this to occur. The student reflections showed a number of issues that emerged and the associated shifts that occurred in their understandings. These are grouped below.

Type A: as individual learners:

i) Different sides of their personalities were revealed to themselves.

For example: *Before this trip I perceived myself as a leader. Since then I have questioned my ability in this role (X3);*

I was forced to socialise with the same group of people 24/7. ...This tested all of us and this INTENSITY brought forward a side to many of us we would likely display. With me, it brought out the panicky side of my personality –the side of me that fears failure and thus strives to control (X3).

ii) Understanding their own limits and attempting to develop alternative strategies.

For example: *It does not feel as though we have achieved much today –just a lot of arguing! (X4);*

...there is a huge segregation in our group but nobody seems to admit it. We need to recognise each other’s input and not to be dominated by members or professions (X1).

iii) Self awareness of their ideas, process, and learning and the impact for themselves
For example: *... we all sat in front of one of the big white boards and natted out our design. It worked really well because we could all just grab a marker, draw over the top of different options, printout, then start again. ... We worked it out as a team (Y1).*

iv) Personal attributes such as honesty and taking responsibility were adopted
For example: *Everyone, myself included, is focused on own ideas that it is hard to work together on one idea (X1).*

v) A high level of self awareness developed over the process.
For example: *I have realized that I have a good grounding in my discipline, but I by no means understand everything about it and I have so much to learn. ... we don't have to know everything, we just need to have the right attitude (Y1).*

Type B: Insights into habits and preconceptions

i) They were challenged to move beyond their normal practices.
For example: *Being forced to work so intensely with others makes you think about what you are doing and examine your project more carefully (Y1).*
Thinking back over the two weeks, I feel as though we did achieve a lot even though most of the time it got really stressful (X2).

Type C: about design and designing

i) Understand at a profound level that design is not for the self or for one's own ego.
For example: *Another thing we need to stop is designing in our egos. The designers need to design for the cause rather than myself, ourselves (X3).*
As a design group one of the most important things I learnt is to design to a sense of selflessness (X3).

ii) They came to understand that design is embedded in emergent theory and the need to let things to be revealed through the process.

For example: *... today really proved to me that sometimes it just doesn't work and you're better off to just take a break... (Y1).*

The next couple of days are sure to be intense but I don't care. I can't wait to see what we come up with! (Y1).

Type D: about the process

j) The importance of inquiry and asking questions.
For example: *This has been the most valuable subject I have taken as it is helping me to consolidate everything I've learnt so far and making me realise how important it is to ask questions and work with other people (Y1).*

ii) Adopting new ways of doing things that they were exposed to and learning to be in a transdisciplinary team.

For example: *I found the process very useful. I feel as though I am achieving quite a lot in terms of design through the transdisciplinary approach (X4).*

Type E: concerning the holistic nature of design practice

i) That whole life was important to the process and the person had formed connections beyond the present activity or project such as friendships, people to consult with, and shifts in how they saw their career path.

For example: *I feel honoured to have had the opportunity to work with students from other disciplines on a real life project and I know I've had a tremendous learning experience this last two weeks. I've made dear friends and learnt more about myself and my abilities (X1).*

Everyone ...created a bond between one another, something that just doesn't happen at Uni these days. May be every course should have something similar, as you get to know people better (Y3).

ii) Learning environment influencing how they design and what it is to design.

For example: *Design, I have discovered, is not about the designer. It is ...a reflection of the space (history, useability, surrounds, client's wants) (X3).*

The site itself presents interesting challenges. It is completely flat ... Horizontal planes reign supreme! The setting western sun is an exciting energy on site which needs to be taken full advantage of –long dramatic shadows (X4).

These experiences and insights indicate how the process of designing is more than one tackling a design problem and compiling a brief to address. The reported understandings and conceptual shifts indicate how the learning environment and the individual are interrelated in influencing the design process and outcome. In order to understand this in more depth, the authors have adopted two ways of describing the transformative nature of the student's learning will be discussed.

TRANSFORMATION THROUGH DESIGNING

In order to ascertain the influence of the learning environment on the transformative process indicated through the findings thus far, the psychologist, Covey's (1999) personality traits and Franz's (1994, 1997) conceptions of designing will be applied. Through this analysis, the observations made during the project can be analysed in order to demonstrate how the design outcome and process are influenced by the designer's conceptions and personality as well as the physical learning environment, nature of the project, and the client requirements. Design is an integrative process which can be transformative for the student-designer depending on the learning environment adopted.

Covey's Seven Operational Habits:

Covey (1999) describes seven operational habits that an individual can adopt. Each is defined below and are then used as a framework to discuss the 'habits' observed in the studio or reported by the students. The results indicate the students used these habits positively and negatively depending on the situation and timing.

Habit 1: Be Proactive

Being proactive is more than taking initiative, it is accepting responsibility for our own behavior (past, present, and future) and making choices based on principles and values rather than on moods or circumstances...

Two groups showed quite a different approach to the design process during first week. Group X had great difficulty in developing a common vision. Their personal distastes and conflicts affected the group formation resulting in all members working as either individuals or teams composed of 2 members only. Some members blamed each other for failures and some members choose to become ‘victims’ with declarations such as “*they don’t like me, they don’t accept me...*”; although, their choices appeared to be based on their moods. However, most journals revealed that they later on individually became aware of the situation and decided to compromise, and to try to finding a mid way for successfully completing the task. Group Y, on the other hand, showed more cohesive from day one; respecting each others’ ideas and mostly enjoying working together. There were heated arguments at times but the approach was mainly constructive rather than being self invested or a power play.

Habit 2: Begin with the End in Mind

Individuals, families, teams, and organizations shape their own future by creating a mental vision and purpose for any project...

Many students were novice designers, being at their second or third year of a 3 to 6 years long education. This inexperience resulted in difficulty to begin the design with a goal or end in mind. Lack of a common vision caused some members to get lost in details (their comfort zone) rather than trying to create an evocative, atmospheric or stimulating outcome appropriate to the special and “unique” situation of the particular project and place.

Habit 3: Put First Things First

...organizing and executing around the mental creation (your purpose, vision, values, and most important priorities)...

Although stimulated and engaged by the opportunity, both groups showed evidence of being somewhat overwhelmed by the scope of a real project and consolidating a brief. They failed to prioritise tasks and design criteria to address this situation, and at times became lost in premature detail or presentation tasks (Figure 2).

Figure 2

Habit 4: Think Win-Win

Thinking win-win is a frame of mind and heart that seeks mutual benefit and is based on joint respect in all interactions...

Most members of the groups supported each other and worked together providing input from their disciplinary background. However, one member was noted as dragging his/her group down trying to be the star of the group; “*There is one person in the group who is really negative and this person is putting both the group and design down all the time*”.

Habit 5: Seek First to Understand, Then to Be Understood

When we listen with the intent to understand others, rather than with the intent to reply, we begin true communication and relationship building...

During the earlier stage there was no coherence in the work of Group X. There was friction among the members, some of them blaming each other and refusing to take responsibility for the 'bad job'. There were others not having the courage to show their true opinions and values —being afraid to be misunderstood either as dominating or passive respectively for various reasons such as feeling 'outsiders' or lacking strong views. At a later stage, once they realized that they were in a spiraling downfall a group member took the lead of the group to uplift the situation; this person chose to be "leading as a manager" and sharing the tasks rather than "leading the design". However, this action helped the other members to lower their defenses and join the process successfully.

Habit 6: Synergize

...Synergistic teams and families thrive on individual strengths so that the whole becomes greater than the sum of the parts...

Initially group members tended to play roles they defined through their perceptions of their discipline. Engineers offered no more than structural opinions, interior designers waited for an interior space to be provided, etc. As individuals became more comfortable in their groups this gave way to freedom to comment on all aspects of the design thereby behaving more transdisciplinarily. This allowed the groups to benefit from a wider range of ideas and opinions.

Habit 7: Sharpen the Saw

Sharpening the saw is about constantly renewing ourselves in the four basic areas of life: physical, social/emotional, mental, and spiritual. It's the Habit that increases our capacity to live all other habits of effectiveness...

The very intensive work that went on from early morning to late evenings for six days a week is quite an exhausting and nerve wrecking process including the organization of social events. However, organization of barbeque parties, celebrating birthdays, soccer matches, visiting an Australian homestead, as well as students preparing a documentary film about the "Charleville experience" were all bonding and energy generating activities.

In summary, it is evident that all seven habits were present to varying degrees. However, there was a difference between the two 'groups' personalities' due to the individuals involved and to the group dynamics. Covey's (1999) categorisation, while enabling insights into the behaviour of the individuals and the groups, does not address how the students' conceived designing in its own right. This aspect will be addressed in the following analysis.

Franz's Approach and Outcomes:

In her phenomenographic study of design, Franz's concern was 'elucidating ways of categorising how the designers approached the task and what they understood of the material related to the task' (Franz 1997, p.12). It was found that designers understand (or experience) design in at least four different ways: experientially; structurally; in production; or in retail terms. She defines these conceptions from an approach and outcome points of view, where **approach** refers to the organization and management of a design situation; and **outcome** represents the understanding of the situation, its

constituents and their relationship to each other. Before applying these to our study, the four conceptions of designing will be discussed briefly.

Experiential Conception: Design is seen as the development of an interpretative framework for facilitating interaction involving people and environments. **Approach** is holistic; motivated by the desire to deeply understand and contribute to the situation intrinsically (characterised by an attempt to find, develop or preserve the relationship of some *thing* to a greater whole). **Outcome** is dynamically hierarchical and appreciation of the situation is sophisticated in an extreme way.

Structural Conception: Design is seen as the generation of an environment for supporting interaction within that environment. **Approach** is discriminatory; characterised by a strategic frame-of-reference. **Outcome** is statistically hierarchical and appreciation of the situation is sophisticated in a limited way.

Production Conception: Design is seen as the production of an object for accommodating specific functions. **Approach** is mechanistic characterised by a focus on what is given (the physical parts or components and their particular function within it. Situations are understood to be comprised of disparate elements, each contributing singularly to the meaning of the whole). **Outcome** is atomistic (resulting in collections of various isolated components) and appreciation of the situation is defined as literal.

Retail Conception: Design is seen as the supply of an object for accommodating specific functions. **Approach** is commercial, characterised by a focus on what is available; whereas, **outcome** is atomistic and appreciation of the situation is literal and limited to design as business.

From the observations of the groups certain conclusions can be drawn. Both groups began the design process with what appeared to be a **Structural Conception**; that is, a process characterized by an understanding of design as the generation of an environment for supporting interaction within that environment that is sympathetic with the designers' goals, the client's goals, and general community attitudes. The approach is guided by the rationalistic belief that the complexity of design situations can be managed by reducing them to a state in which their structure becomes evident. In this conception design commences with designers meeting the client to establish the design to be generated. Then, designers search for examples that are similar to the project, gather information, synthesize and suit to their own philosophy.

During the workshop and at its completion, there were some variations in the approaches of the two groups and some fluctuations within each group. Group X's difficulties with group dynamics led them to slow down, if not come to a halt, and work separately whereas Group Y continued to demonstrate the characteristics of a structural conception for a good part of the first week. This group then shifted towards **Experiential Conception** attributes. Butter paper sketches revealed that development of the project at this stage was more complete as this group was dealing with the design and relationships as a whole. Graphic "conversation" shows an interactive group approach and strategies to attempt to deal with a complexity of issues (Fig. 3.a). For example, an exploration from 2D to 3D (Fig.3.b), trying to link the disparate

aspects (Fig.3.c), exploration of various options, and experimental evaluation are evident.

For Group Y, another stage followed where there was a loss of feeling or inspiration, indicating a lack of ideas is evident. There appeared to be aspects of both **Production and Retail Conceptions** in combination. A rational “logic” is evident which restricted the design rather than responding to or leading design options. The translation of options generated through freehand engagement to computer aided representation also seems to have constrained the inspired or freer investigations. There is evident many examples of tunnel vision, focus on the parts at the expense of the whole, the use of non exploratory “known” situations or stock-standard answers (Fig.3.d). An ability to bring the previously evident brainstorming process, and to apply the explorative skills, to the “real” design was minimal. The group did bring substantial knowledge to the design, but this could not be developed to its potential due to lack of depth of exploration. This could be the result of students returning back to their comfort zone due to time constraints rather than applying their new found skills and awareness. However, although the process demonstrated one or two conceptions, there were also aspects of innovation in the area of environmental sustainable design and its application (Fig.3.e).

The other group demonstrated directly attributes of the **Production Conception**, characterized by a focus on the physical parts or components and their particular function with it. It was comprised of disparate elements, each contributing singularly to the meaning of the whole; a collection of various isolated components. Their work on butter paper can be described as: “risk” versus repetition and fine tuning, “stagnating” balance process, fine adjustment rather than refining, working with the information and or idea but not resolving, describing as objects rather than working through, “dead end” reflection, emotionally “tight” process, and creatively “tunneled”. Once the group dynamic was restored after the spiraling downfall the group converted to **Structural Conception** and put the pieces together toward a resolution.

Figure 3

IN CONCLUSION: THE EXPERIENCE

Although it was evident that the process of the intensive workshop revealed attributes of the four conceptions of design identified by Franz, by combining the data from the student reflections and our photographic record, the students did also, to varying degrees, adopt an Experiential Conception. In some cases this was indicated in the initial reflections while in others it became evident as they began to develop self awareness. The development of the initial design conception is hypothesised to be influenced by the speed, degree, and nature of the personal and professional transformation.

As stated previously, design is seen within the experiential conception as the development of an interpretative framework for facilitating interaction involving people and environments, the approach is holistic; motivated by the desire to deeply understand and contribute to the situation intrinsically (characterised by an attempt to find, develop or preserve the relationship of some *thing* to a greater whole), such that,

the outcome is dynamically hierarchical and appreciation of the situation is sophisticated in an extreme way. The students (or designers) therefore come to see design as being beyond just the project and themselves as a producer of a design.

The quotations from the diaries and our observations demonstrate an experience which is captured by X7's quote. The reflections clearly demonstrate the interdependency between the self, the group, the design process, societal and personal values, and a transformation of understanding and in approach:

(by DAY7)

I have no idea what I and my group are doing. It feels as though we are walking so far backwards that we are not getting anywhere. I used to say "I'm excited" now I have changed my mind. I hate it here....

(but by DAY14)

I miss the intense brainstorming sessions and biting my tongue. The Charleville experience was amazing ... an opportunity to reflect on the important things in life and not just the superficial attributes life offers.

Within this paper we have sought to explore the nature of design through the interrogation of a community based design project involving staff, students, consultants, and clients from breath of disciplines. Initially assumptions were made concerning three acknowledged aspects of student learning—interdisciplinary interaction, design methodology, and the engagement of adult learners. As a result, the current authors posited firstly, that the Charleville Educational Tourist Centre project provided a suitable learning experience that would be stimulating and meaningful for adult learners; secondly, that these students would have different understandings of the design process and its goal, and that these differences, and their advantages and disadvantages, would be revealed through the project; and thirdly, that some students may have difficulty in embracing the opportunities in integrating a transdisciplinary (or at least interdisciplinary) approach to design and that facilitation to break old habits may need to be orchestrated particularly when the situation was a real project for a client.

All three aspects were shown to be evident and important. Through the project reported, it has been demonstrated that a design project can provide a learning experience that is also transformative and dynamic in nature. The design process was shown to involve the conceptions of design of the individual, the discipline, and the multi-discipline group. In addition, the personality of the individuals and their ability to embrace ambiguity and develop self awareness, to identify and reflect upon the role of design in society, and the role of the designer in relation to the project were all shown to play part in how the design resolution was achieved.

The current project is of value because it not only indicates the value of such projects in fully engaging students in learning. It also amplifies a series of assumptions and modes of operating that are inherent in design practice. Importantly the project demonstrated how the individual, social, and professional dimensions of the interaction are embedded in how a design project is understood, undertaken, and resolved. There are, therefore, opportunities to capitalise on this knowledge to amplify the productive and successful aspects as well as to counteract the obstructive or inhibiting elements.

In our project, students showed a range of talents pertaining to procedural and professional engagement. What was able to be shown to be limiting was a lack of deep substantive knowledge and technical skills across all disciplines and years, which stimulated a return to predictable or known concepts or resolutions. These deficits became explicit due to the intensity of the program and therefore were able to be addressed to some degree. By ensuring that such aspects are addressed proactively in similar situations in the future, it is posited that the level of resolution could and would be higher. Further research into these characteristics and conceptions will assist in our understanding of designing, design methodology, and design education in both traditional studios and intensive educational environments.

REFERENCES

- BECHER, T., 1990. The counter culture of specialisation, *European Journal of Education*, 25 (3).
- Covey, S.R., 1999. *Living the 7 habits*, NY: Simon & Schuster.
- DELAMONT, S., 2004. Ethnography and participant observation. In: C. Seale, G. Gobo, J.F. Gubrium, and D. Silverman. eds. *Qualitative research practice*. London: Sage, 217-229.
- FRANZ, J.M., 1994., A critical framework for methodological research in Architecture. *Design Studies* 15(4), 433-447.
- FRANZ, J.M. 1997, *A Phenomenographic study of design in the interior design context*. Thesis (PhD). Queensland University of Technology.
- NEWELL, W., 1992. Academic disciplines and undergraduate interdisciplinary education: lessons from the school of Interdisciplinary Studies at Miami University Ohio. *European Journal of Education*, 27 (03) 215.
- SMITH, D., SANDERS, P., DEMIRBILEK, N., and SCOTT, A., 2005. Designing together: a collaborative experiment in the design methodology within a multi-disciplinary environment. In: K. Holt-Damant, and P. Sanders, eds. *Third international conference of the Association of Architecture Schools of Australasia (AASA)*. Brisbane: UQ and QUT.
- SQUIRE, G., 1992. Interdisciplinarity in higher education in the United Kingdom. *European Journal of Education*, 27 (3).
- TWEDDELL, 2000. A theory of adult learning and implications for practice. Midwest Educational Research Association Annual Meeting, Chicago, Illinois.

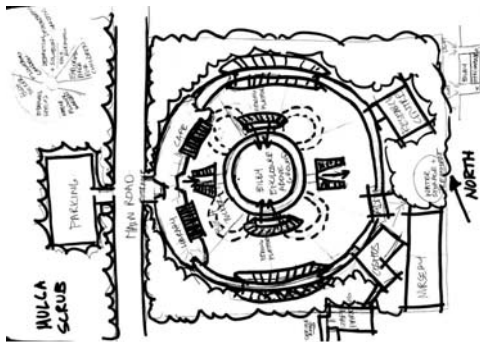
Acknowledgement:

The staff would like to thank the contribution to this project by Peter McRae from Save the Bilby, all of the students from 2004 & 2006 workshops 2004: Ben Kofe, Jennifer Michelmores, Marie Anne Ammons, Nadia Hasninlayali, Nick Ovens, Rebecca Murphy, Sam Walker, Snow Park, Tim.Healy; 2006: Aimee Long, Candy Rosmarin, Chris Rawlinson, Craig MacDonald, Garry Luk, Jason Taylor, John Ole Keko, Leah McKenzie, Lauren Walsh, Mari Njaerheim, Rachel Forrest, Samantha Cowley, Truong-Hai Nguyen, Victor Mantilla; Jim Gall, Gall & Medek Pty Ltd, and the consultants and community members who offered advice and information.

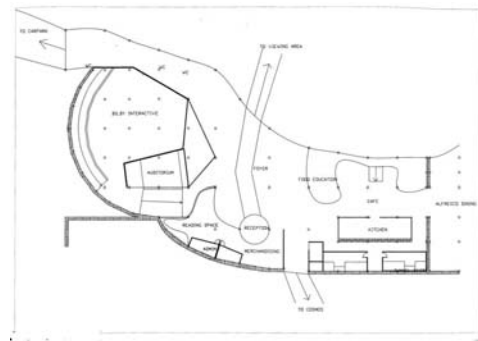
The project was financially supported by the Murweh Shire, QUT's Faculty of Built Environment, and Save the Bilby Fund.



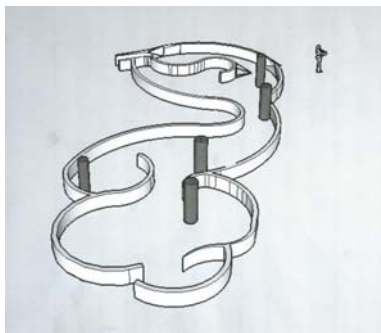
Figure 1. One of the teams analysing the site constraints.



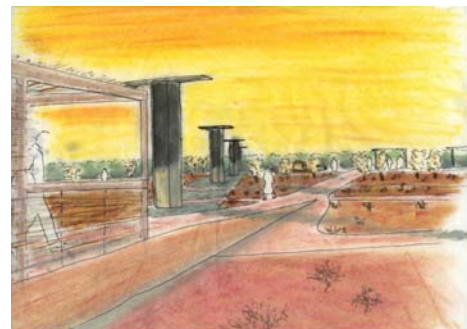
a) initial fluidity and delicacy captured by freehand exploration



b) constraint and rigidity emerge with drafting package

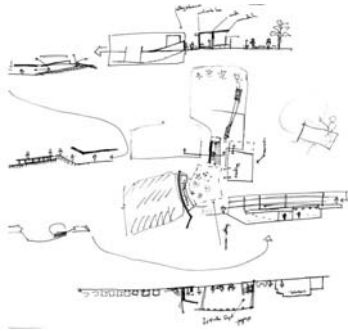


c) compromised design qualities—materiality, physicality and detail

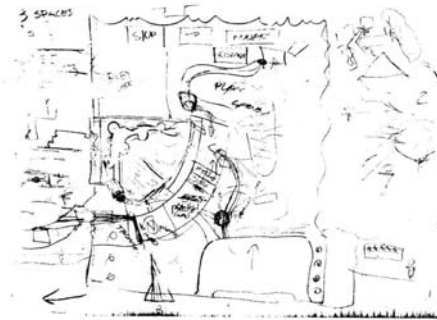


d) mood and atmosphere of design represented with pastels

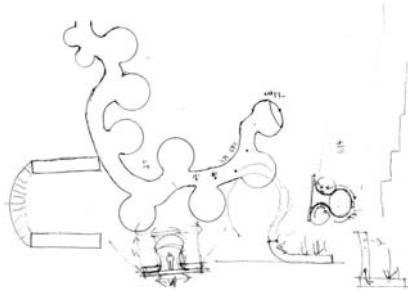
Figure 2 Examples of how student design development process is influenced by the medium of communication.



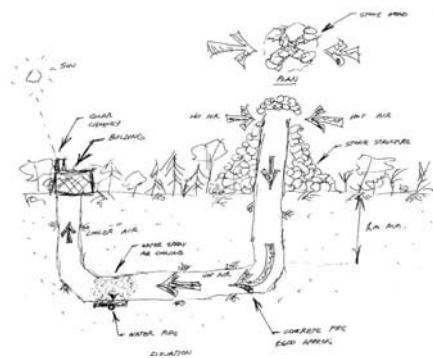
a) 2D:3D integration



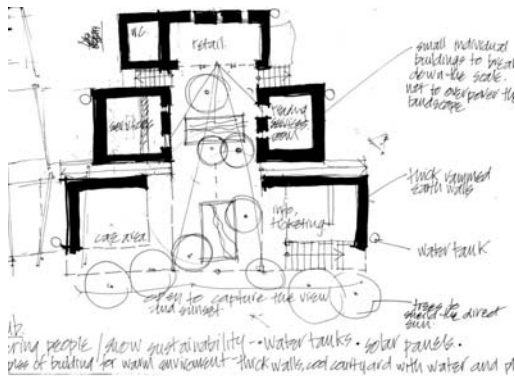
b) graphic-conversation



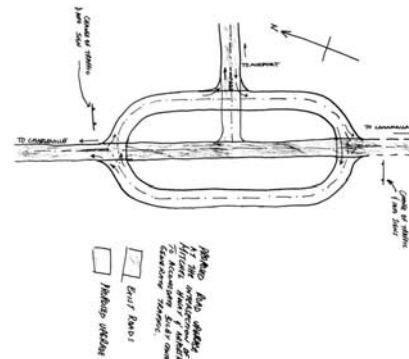
c) student and tutor discussions



d) exploration of architectural science principles



e) integration of interior, site, and ESD design options



f) trying safe and predictable solutions

Figure 3 Examples of student idea development.

Table 1. Student Comments on Design and Discipline Role

Discipline	Design	Discipline role
Architecture	It is a process: logical, illogical, formal, special; reflect; creating a feeling and an experience; ensures practicality, serviceability; It is a concept an expression, a usable space	Renaissance subject; Form to house function; Pushing boundaries; Experimentation with materials; Community/amenity
Engineering	Making things work for their intended purpose, through evolution of ideas/representation of testing	“We can make it work;” “We ensure: <ul style="list-style-type: none"> • it stands up • it is safe • it is serviceable • it can be built”
Interior Design	About looking after environment - people relationships	Create a feeling and experience that meets the needs of the users; Create an identity; Make the spatial relationships right “We don’t <i>just</i> do paint, pot plants and curtains”
Landscape Architecture	A combination of skills working together	Creators of social, environmental and cultural spaces; “We are not gardeners”