

CHAPTER FOURTEEN

CAN INTERDISCIPLINARY TEACHING LED BY THE ARTS CONTRIBUTE TO THE DEBATE ON CONTEMPORARY ENVIRONMENTAL ISSUES?

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Introduction

Over the last twenty years, a number of projects have developed from collaborations between artists, architects, landscape designers, curators, engineers, scientists and communities that involve the remediation of land that has become environmentally depleted. This has given rise to a confluence of art, technology and social engagement, and could be considered a new form of interdisciplinary practice.

My paper discusses an interdisciplinary elective that I have written and teach that focuses on the environment. Interestingly my experience in writing and teaching this course led to a cross disciplinary Linkage Grant to remediate former mine sites, titled ‘Transforming derelict mine sites via collaborative partnerships: Combining community and creative practice with science and technology’. The Linkage Grant will be discussed in another paper.

Art & the Environment — Studies in the Field brings together students studying fine arts, design, media arts, architecture, engineering, science and environmental humanities. The elective focuses on perceptions of land and encourages cross-disciplinary interaction and creative thinking. Students respond to a range of environmental problems by physically interacting with a large area of land I have called the ‘Creative Laboratory’ at the University of New South Wales (UNSW) Fowlers Gap Arid Zone Research Station north of Broken Hill. The students complete the course with an exhibition in Sydney. In this paper I will show examples of the results of this elective and discuss how the course represents an innovative approach to art/design education. I do this through a photographic essay of the work of the students.

My research over the past decade has led me to believe that we now live in a world that presents problems or challenges that transcend any singular discipline. We live in an interdisciplinary world.

Many academics across a broad array of disciplines have realised that we now need to educate in both a disciplinary and interdisciplinary manner in order to address some of the complex problems we face today. Research has shown that interdisciplinary teaching has been advocated across the globe over the past few decades, with academics arguing that challenging questions across subjects that include the environment, health, global security, technology and culture require ideas, skills and methods that come from cross fertilisation of disciplines (Rhoten *et al.*, 2016).

Interdisciplinarity is not new. The ancient Greek idea of creating the ‘whole’ person advocated that education should be interdisciplinary. As Mary Taylor Huber and Pat Hutchings remind us:

At the heart of liberal education lies the idea that learning should be greater than the sum of its parts. Resonant with the classical tradition of educating the ‘whole’ person, liberal education has historically encouraged ‘breadth of outlook, a capacity to see connections and hence an ability to make fundamental decisions and judgments. (Huber and Hutchings, 1993: 28).

One of the grand challenges of today is Climate Change, and there is ongoing research on how this will impact on our environment. According to Associate Professor Mark Diesendorf from the UNSW Institute of Environmental Studies (2012):

Most of the academic research at Australian universities is disciplinary based, while the biggest problems faced by human society fall into the broad categories of environmental destruction, resource depletion, poverty, war, disease, injustice, inequity and exploitation, none of which fits into a single academic discipline. These are inherently complex, “wicked” problems that not only require inputs from several disciplines, but also require new forms of knowledge and research that have not been classified as disciplines.

Diesendorf believes that interdisciplinary research can be more effective, because the focus is on the problem and its solutions, instead of the individual disciplinary perspectives and solutions.

This is not a unique position. At the Centre for Study of Higher Education, University of Melbourne, Clinton Golding has written that certain complex problems and phenomena are difficult to understand through the lens of one discipline alone. He includes Climate Change and World Poverty as examples, amongst others. He cites Howard Gardner when he calls for a 'synthesising mind' in order to begin to understand and solve some of these contemporary global problems.

The Art and the Environment — Studies in the Field elective

In around 2005 I began to explore the new environmental art movement that was starting to come to prominence internationally. It was also at this time that I wrote the elective *Art and the Environment — Studies in the Field*. My aim was to create a course of study that explored the challenge of Climate Change from an interdisciplinary perspective, enabling students to think outside the linear focus of their discipline in search of alternative ways of seeing and living on the land. An investigation into the environmental art movement confirmed a commitment to an interdisciplinary approach, and I explain the principles behind this movement below.

The definition for Environmental Art, as explained by The Green Museum, reads as follows.

What is Environmental Art?

In a general sense, Environmental Art is art that helps improve our relationship with the natural world. Much environmental art is ephemeral (made to disappear or transform), designed for a particular place (and can't be moved) or involves collaborations between artists and others, such as scientists, educators or community groups (distributed ownership).

Some environmental art:

- Informs and interprets nature and its processes, or educates us about environmental problems
- Is concerned with environmental forces and materials, creating artworks affected or powered by wind, water, lightning, even earthquakes
- Re-envision our relationship to nature, proposing new ways for us to co-exist with our environment
- Reclaims and remediates damaged environments, restoring ecosystems in artistic and often aesthetic ways.

(The Green Museum 2010)

This definition is given to the students at the beginning of the course. As the aim is to allow students to learn through direct experience the course is predominantly taught intensively over a two-week period in the arid zone of the far west of NSW. Students are required to attend a lecture before they travel west, to introduce the aims of the elective and to show some innovative examples of environmental art from across the globe. This is also an opportunity to introduce the students to each other, as they will be forming small teams in order to respond to one of the group projects on site. At this meeting students outline the degree they are taking, their areas of interest and particular skills. As a result of this meeting students tend to begin to plan their projects while undertaking the 13-hour train journey to Broken Hill.

The first week of this intensive course is spent in Broken Hill. As the elective aims to challenge students to think of new, creative ways to perceive the land, in order to research new ways of living, students are exposed to a variety of perceptions of this land from different stakeholders across the region. They meet with bureaucrats from Broken Hill Council, miners, pastoralists, local artists and indigenous elders, amongst other stakeholders. They also experience different aspects of this land experientially, as can be witnessed by the following examples.

They go down an old mine and learn about conditions for miners early last century and today (Figure 1).



Figure 1: Students exiting Daydream Mine, north of Broken Hill. 2013.

The students learn about permaculture and vermiculture where they discover how worms can rehabilitate contaminated land and the transformative nature of the soil produced for local farmers (Figure 2).

The students experience the indigenous perception of the land by spending the day at Mutawintji National Park with elder and respected artist, Badger Bates (Figure 3).



Figure 2: Visit to Australian Vermiculture farm.



Figure 3: Badger Bates speaking about the rock art of Mutawintji.

The students learn about water issues and challenges for this region (Figure 4) and they are given a tour of Broken Hill, an old mining town which, like many mining towns in Australia, has the disadvantage of being built quickly without a focus on permanence, as the population can be transient. They witness how people live, and although there are some who are trying to create change, many Broken Hill-ians prefer the water intensive green lawns of the 'European garden' (Figure 5) and the addition of massive air conditioners on corrugated iron houses, to alleviate the sweltering conditions in the summer. This preference is due to enculturation and could be changed through the offering of alternative views of the notion of beauty in an arid environment, along with a more considered approach to appropriate architecture for this environment.



Figure 4: Menindee Lakes.



Figure 5: Garden in Broken Hill. The lawn is watered by drinking water.

Students are also introduced to some innovative enterprises that have been undertaken on contaminated land. One example of an enterprise of interest is the olive grove plantation on contaminated land in Broken Hill. Led by an artist in collaboration with a local doctor, the team planted olive trees on lead-contaminated land. They discovered that, although the fruit was contaminated with lead, the olive oil showed no trace of lead, and have gone on to win international awards for their olive oil (Figure 6).



Figure 6: Olive Grove on Lead Contaminated Land, Broken Hill.

After a week in Broken Hill and Mutawintji National Park students are taken to the UNSW Fowlers Gap Research Station, 110 kilometres north of Broken Hill, where they spend the next eight days working on their projects. In the evenings students are shown videos that help to inspire, including information on recycling (*Cradle*

to *Cradle*), alternative building techniques (such as *Earthships*), alternative societies that have transformed land and explored renewable energy (such as Auroville in India) and a bit of light relief in films such as *Mad Max*.

Students are placed into multi-disciplinary groups, with each team focusing on one of the projects that have been suggested to the class. These group projects include:

- The Land is my Canvas
- Sustainable Sculpture/Structure/Shelter
- Adventure Playground/Energy
- Open Proposal

Students are assessed on an individual project and on their contribution to a group project. They are required to write a proposal for their individual project, which they discuss with the lecturer and then present the outcome in the exhibition that is held in the UNSW A & D Gallery in Sydney, generally a month after returning.

There is no requirement to produce an artwork in the traditional sense, but rather to think about the problem in a more lateral or even novel way, then respond by creating something that expresses the idea physically, and can be exhibited.

For the group project, small teams are formed, with each student coming from a different discipline. These teams work together to create an installation on the Creative Laboratory at Fowlers Gap, which is videoed and photographed for inclusion in the Sydney exhibition. A mark is given to each team project, and then students undergo peer assessment in order to ensure each student is rewarded fairly.

The following images show examples of Group Projects that have been constructed on the Creative Laboratory by Art and Environment students.

Examples of ‘The Land is my Canvas’ Group Project

This project is most directly related to Land Art, but stresses the added value of transforming perceptions of this land at the same time as having utilitarian purposes.

In 2013 a group of students from fine arts, landscape architecture and architecture created a Land Art installation that utilised the natural materials of the site, was aesthetically pleasing and also channeled water to alleviate erosion at the time of the torrential rain that can occur in this area, filtering the water into a well for local animals (Figures 7, 8 & 9).



Figure 7: Land Art that filters water. 2013.



Figure 8: Land Art that filters water.



Figure 9: Water well.



Figure 10: The Phases of the Moon. 2012.

In 2012 a multidisciplinary team from geology, engineering, architecture and fine art worked out the exact geometry of the phases of the moon in order to craft their installation (Figure 10).

Examples of the ‘Sustainable Sculpture/Structure/Shelter’ Group Project

Students were taught how to build a traditional indigenous wilpi out of local mulga bushes and gum trees in July 2010 (Figure 11).



Figure 11: Traditional Wilpi.

As a result of learning about the construction of a Wilpi, an architecture student, who stated that she had never been taught about indigenous construction techniques prior to this course, produced a ‘flat- pack Wilpi’ for her individual project (Figure 12).

The Wilpi was still standing two years later, so a team of students who undertook the Sustainable Sculpture/Structure/Shelter project in 2012 built a recycled version from materials gathered at the tip, then created a performance that imagined alternative communities of the future, which they videoed (Figure 13).

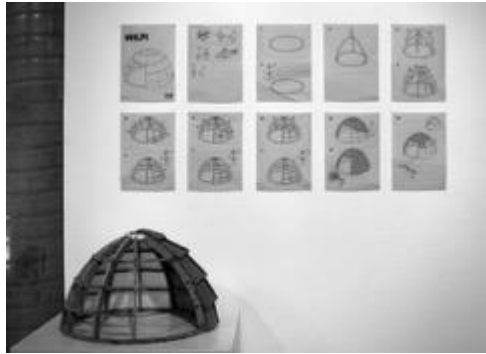


Figure 12: Flat pack Wilpi produced by an architecture student for her individual project. 2011.



Figure 13: Alternative Wilpi with performer, 2012.

In 2013 a team of students devised and constructed a structure that could be carried as a back pack, then used as a shelter in the desert, at the same time as gathering water at night (Figure 14).



Figure 14: Shelter that collects water at night and can be carried on your back, 2013.

Examples of ‘Adventure Playground’ Group Project

The aim of the Adventure Playground is to create an educational space that incorporates play, at the same time as focusing on sustainability and exploring the particular environment it is found in.

Adventure playgrounds appear in many parts of Japan, including around Tokyo, Sapporo and their

neighbouring cities. The adventure playground movement started in the 1970's when local residents, parents and designers set up experimental play areas that were taken from Lady Allan of Hurtwood's book 'Planning for play' and visits were made to London and Denmark's adventure playgrounds. Originally set up in empty lots and abandoned spaces, these now permanent parks receive very little vandalism and are ecologically sustainable.

In 2011 a team of students created an adventure playground by researching the local plants, then isolated them creatively and carved the relevant educational information on sticks placed within each installation (Figure 15).



Figure 15: Adventure Playground, to teach about the local plants, 2011.

Another team of students created a land art game, that the local children could play (Figure 16).

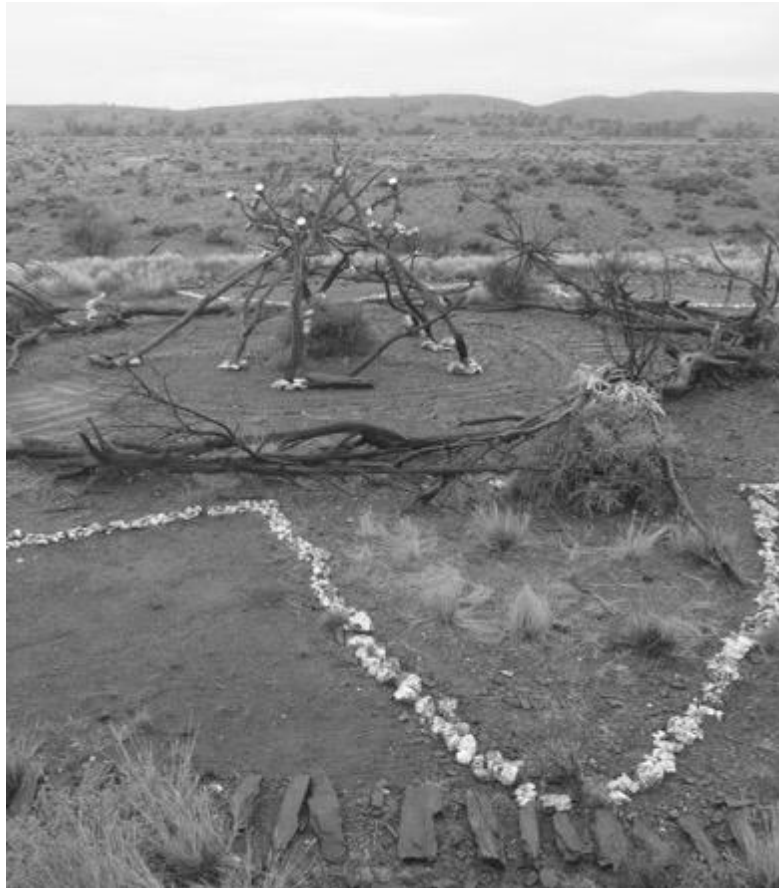


Figure 16: Adventure Playground, 2011.

In 2013 a team of students from the disciplines of architecture, fine arts and industrial design created a flying fox for the local children, created from found materials combined with an old pram that had been sourced at the Broken Hill tip. This installation also included a small merry-go-round, which, when operated, created energy that turned on a light on the top of the tripod construction (Figure 17). We have some wonderful footage of students and local children playing on the flying fox in 2013.



Figure 17: Flying Fox constructed from local materials and recycled objects found in the tip.

Examples of ‘Open Proposal’ Group Projects

Students can put forward an idea for a project that has not been prescribed, as long as it fits into the aims of the course. In 2012 a group of students constructed a vertical green wall with a blind that was able to open and close, made from recycled pipe sourced from the Broken Hill Tip (Figure 18).



Figure 18. Vertical green wall with closable blind made from recycled pipe.

Students photographed the installation at various stages of opening or closure, exhibiting the idea in the exhibition held in Sydney (Figure 19).

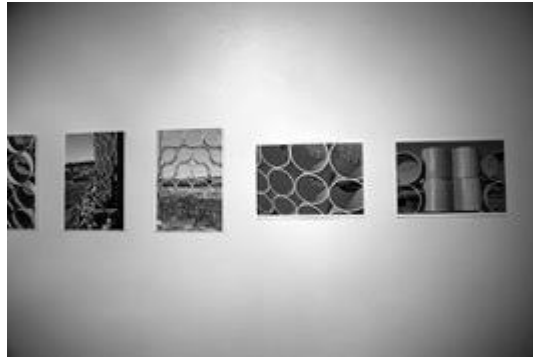


Figure 19: Concept of blind from waste pipe exhibited in Sydney.

Over the past three years there have been numerous innovative projects produced on the Creative Laboratory as a result of this elective, under the Open Proposal Group Project.

These include a caravan that was transformed into a *camera obscura*, whereby images of the surrounding landscape were projected via a small lens installed into one wall of the caravan, on to the opposite wall. The images were all upside down and back to front, but were strong enough for students to photograph for the final exhibition (Figure 20).

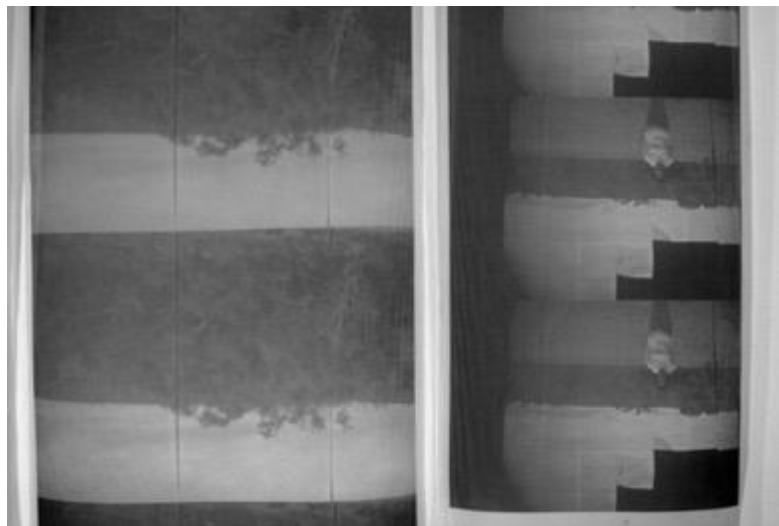


Figure 20: Photographs taken with the ‘Caravan’ *Camera Obscura*, printed onto material. Images are upside down and back to front, to represent how the *camera obscura* projects them.

Another ‘Open Proposal’ idea was the installation of a sun dial produced from an old discarded satellite dish and other paraphernalia from the Broken Hill tip (Figure 21), a chair produced from locally found junk and many innovations that have transformed the arid zone of Fowlers gap into beautiful ‘garden’ spaces.



Figure 21: Sun dial, in the ‘field’, 2011.

In 2012, Environmental Philosopher, Professor James Hatley from Salisbury University in the USA participated in this course. His response to the experience, which he provided in a letter to me was as follows:

This course was a unique opportunity for research and learning that I can recommend enthusiastically to other scholars and students in a wide variety of fields stretching from the arts to the humanities to the social, natural and applied sciences. It was eye-opening to find students respectively in art, environmental studies, architecture, engineering and geology actively collaborating on their group projects. One evening I overheard students in geology, engineering, architecture and art doing research on and working out the exact geometry of the phases of the moon in order to craft their installation. One could hear how the focus of each student’s particular field of endeavour supplemented the others as they moved to a consensus and drew up plans for what became a striking work.

Many students have provided positive written feedback. I have selected two representative comments:

This course IS my favorite of my entire career studying Architecture at UNSW. I learned valuable lessons about the realities of transforming line-work into built form, and learnt about the true nature of the built environment outside our cities. (Master of Architecture student)

The Art and Environment Course really was the most inspiring course I've done in my degree and has influenced my design practice enormously. Alongside the course itself, I found the chance to interact and work so closely with students from other disciplines incredibly rewarding. Overall the course has made me far more aware of the negative environmental impacts we are having on both urban and distant arid regions of Australia. (Bachelor of Design student)

Students are able to share their experience with the broader University community in the exhibition that is held a month after returning to Sydney. The work they produce is wonderfully varied, ranging from video to photography, painting, sculpture, installation, drawing and design. Students express their delight at the freedom to think creatively, particularly if they are studying outside of the fine arts, and art students really benefit from the knowledge brought to the course by students outside of the arts.

A huge amount of work and a wealth of ideas have resulted from this elective — too many to show here, but I include a taste of some of the exhibitions that have been held in the UNSW Art & Design Gallery in Sydney (Figures 22, 23, 24, 25, 26, 27).



Figure 22: 2011 Exhibition — room shot.



Figure 23: Environmental artist, Janet Laurence opening exhibition, 2012.



Figure 24: 2012 Exhibition Opening with students serving food sourced from 'Dumpster Diving'.



Figure 25: 2013 Exhibition — room shot.



Figure 26: 2013 Exhibition — room shot.



Figure 27: 2013 Exhibition — room shot.

Conclusion

To return to my original question: can interdisciplinary teaching led by the arts contribute to the debate on contemporary environmental issues? From my experience I believe it can. By bringing together students from a cross section of disciplines across the university enabled the students to think about the environment in ways that were not discipline based. Each student brought their particular knowledge to the problem at hand, then through discussion and practice based experimentation discovered solutions that many admitted they would never have thought of prior to this elective. Students who belonged to disciplines that tend to favour a more linear way of delivering information were encouraged to think more laterally, and in doing so surprised themselves with their solutions to the problems set. Similarly, students from the arts and design gained knowledge from students outside of the arts that enriched their experience and led to more considered outcomes.

Many of the students who have undertaken this elective over the years have remained in touch, both with me and with their peers and some have gone on to make changes in their lives as a result of this experience. These students have now joined the debate and contribute to keeping it alive.

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