

Global environmental change and the poetry of place: thoughts on the education of landscape architects

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THIS PAPER DISCUSSES A RANGE OF EDUCATIONAL ISSUES the author believes must be addressed if we are to produce environmentally and socially responsible landscape architects to meet the challenges of the twenty-first century. The ideas discussed in this paper were first presented at the Australasian Educators in Landscape Architecture (AELA) conference held at the University of New South Wales, Australia, in March, 2000. The author suggests that as a result of growing perceptual awareness of global environmental change and degradation at the local level, public recognition of the profession of landscape architecture and its associated knowledge base may increase in the future. Growing public recognition of landscape architecture will help in efforts to move the earth towards greater sustainability and environmental health. The author stresses that educators in landscape architecture need to work towards encouraging a shift in students' thinking from an anthropocentric to a more ecocentric consciousness and that student's design work should reflect this shift. It is suggested that students be made aware that their design and planning actions at the site and local level can collectively have profound influences on the health of the entire planet. The paper also outlines the curriculum of the new Bachelor of Landscape Architecture programme (being offered for the first time in 2000 at the University of Melbourne) in which environmental issues, along with other important concerns, are being emphasised.

INCREASINGLY, PEOPLE AROUND THE WORLD are voicing concern for the future of the planet and coming to the realisation that the earth is dying or, at best, gravely ill. In many instances this concern has been precipitated by the public's awareness of global changes that are now being manifest on a local scale. Human-induced changes such as worldwide loss of biodiversity; climate change; land, water and air pollution; and other forms of environmental degradation; are becoming increasingly apparent to people in their everyday lives. Recent research on public attitudes about the future identify consistently the future health of the environment as a major concern, and this concern is particularly strong amongst young people (Yencken and Wilkinson, 2000). It seems clear that those working in the profession of landscape architecture can help mitigate, and work towards reversing, the damage that we have done on our journey down this ecocidal path. In order to optimise the effectiveness of this effort, students of landscape architecture must be given the knowledge and the skills to address,

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systematically, the many environmental problems that confront the planet today. Students need to gain an appreciation for the fact that when they are acting on the local landscape they are simultaneously acting on the planetscape.

A PERSONAL CONNECTION WITH NATURE

When I was growing up in the New England region of the United States in the early 1960s, I found refuge in the forested land that extended from the back of my family's house. These temperate climate 'woods' contained a great diversity of flora and fauna. I spent practically all my spare time in this landscape and engaged in various forms of forest play. As I was fascinated by the native Americans who once inhabited the area, my play revolved almost exclusively around emulating their way of life – something I also sought to learn about from outside sources. I also appreciated the fact that below the surface of the ground lay extensive stratified beds of clay, and that in the red layer, corresponding to the Triassic period sediments, the impressions of dinosaur tracks lay frozen in time. All of these facets of the environment fuelled my imagination and I developed interests and skills I would not have otherwise acquired.

Collectively, these experiences instilled in me a profound connection with the natural world, both past and present, which I believe shaped my interests in landscape ecology, human perception of the natural world and the profession of landscape architecture. I also attribute, in part, my later interest in Eastern forms of meditation to fishing in the small river that ran through our land. This entailed sitting very still for hours in the forest along the banks of the river watching a cork bobber for signs of a bite. Later I learned that such concentration is exactly the activity one pursues in many forms of meditation.

One of the things I remember most distinctively about my experiences in the woods was the richness and diversity of plant and animal life. The water in the river was clear and supported an abundance of fish and other freshwater organisms. My connection with the water was strong. Indeed, water was the lifeblood of this place and it would have been for the Native American inhabitants who once roamed that land. The sounds of songbirds provided a particularly enchanting musical backdrop – always present yet something that I took for granted. Surprise encounters with other forms of animal life such as mammals, reptiles, insects and fish were frequent and a constant source of wonder. The expectation that a kaleidoscope of perceptual and cognitive experiences awaited every venture into the forest was always present and drew me back again and again.

I developed an intense bonding with this landscape and with all the plants and animals it housed. This bonding experience also extended back in time, as I was able to vividly imagine both the Native Americans and the dinosaurs that once roamed the landscape. To me these woods were a vast and wonderful museum that I would get lost in for hours, marvelling at, and learning from, nature's diverse creations.

A THIEF IN THE MUSEUM OF BIODIVERSITY

A few years ago I returned to the same piece of woodland. Besides the fact that things seemed smaller, there was something very different and disturbing about the place. Gone were the songbird sounds I had remembered so vividly, it was as if nature's music had been turned off. I strolled down to the river, which seemed a much easier journey than I remembered – I attributed this to a reduction in the thick undergrowth that had once covered the land. I reached the river's edge expecting to find the clear, sparkling water and evidence of the multitude of creatures that were once so abundant there. To my shock the river was now a brownish, slow moving stream with few signs of life. The lush vegetation that had once lined the banks, and provided shelter for various animals, was also greatly diminished. I encountered the same environmental degradation to varying degrees everywhere I looked, listened and smelled. It became apparent that things had radically changed since I was a child. In short, much of the poetry of the place I had loved was gone.

It occurred to me that the birdsong, the clear water and the diversity of plant and animal life had been stolen. I felt robbed. I felt the same emotions as if my house had been broken into and my most valued belongings taken. This led me to think there was a thief in this great museum of biodiversity, who had stolen something that not only belonged to me but to all people. I thought of all the children that would be denied the rich experiences of that forest environment. Instead of imagining Indians and dinosaurs on that land, within a few years children may be trying to imagine what it was like during the mid-twentieth century when destructive global environmental changes were much less apparent.

I started to research the possible causes of this environmental degradation in an effort to piece together what had happened at the scene of this terrible crime. I discovered that some years before, the forested land on the other side of the river had been strip-mined to extract layers of clay below the rich dark topsoil. Now the thief was reaching back millions of years, disturbing the resting-place of the dinosaurs. As a massive amount of silt and clay was carried into the river from the run-off of the strip-mining operations, the ecology of the river had also been completely changed. I felt the lifeblood of this place had been poisoned. I discovered that since the late 1960s the number of migratory songbirds in the eastern United States had been declining steadily. This was primarily due to the destruction of their winter habitat in South America. I realised that this thief was operating internationally, extending across great distances and into the distant past. In fact this thief had been looting the entire global ecological network, taking the precious gems it contained. This theft is occurring rapidly every second of every day across the entire planet. In the Ayurvedic system of medicine, (the traditional medical system of India), most diseases are thought to stem from *prajnaparadha*, or 'crimes against wisdom' (Svoboda, 1989). Surely the activities of the thief, and consequently the state of the environment today, is a result of such crimes against wisdom. But the question must be asked, who is this thief

committing such crimes and how can we stop these crimes from occurring in the future?

It is reassuring that the general public are beginning to sense that something is seriously wrong with the state of the environment. In my travels I have asked people if they have had similar perceptions and experiences as my own. Almost everyone who has had a connection with nature, had similar stories to tell as mine, especially when such places were integral to their childhood.

STATE OF THE ENVIRONMENT

David Yencken, (Professor Emeritus and the past professor of landscape architecture and environmental planning at the University of Melbourne), and Debra Wilkinson (an environmental policy officer with local government), recently published a book entitled *Resetting the Compass: Australia's Journey Towards Sustainability* (2000). They report on the latest opinions and research findings from around the world concerning the state of the environment. Some key issues identified from this literature illustrate the magnitude of the problem:

- Global warming is a reality. It is changing world climate patterns - global warming and climate change are expected to continue (IPCC, 1995).
- Approximately half of all accessible freshwater run-off in the world is being used for human consumption and water shortages in many parts of the world seem inevitable.
- Half of all the forests that once covered the earth are now gone and deforestation continues at an alarming rate with the greatest losses occurring in tropical areas.
- Approximately 25 per cent of mammal species and 11 per cent of bird species are threatened with global extinction.
- It is estimated that there has been a 50 per cent decline in freshwater ecosystems from 1970 to 1995. The World Wide Fund for Nature studied 227 populations of freshwater fish, reptile, bird and mammal species and found that 50 per cent to 60 per cent of the populations were in decline, 35 per cent to 40 per cent remain stable and only 5 per cent to 10 per cent were increasing.
- Oceans worldwide are being polluted and 50 coastal water 'dead zones' have now been identified.
- The world's coral reefs are damaged due to global warming and other human influences and extensive losses of tropical reefs are expected in the future.

Yencken and Wilkinson quote the world-renowned biologist Peter Raven's frightening prediction:

- The current extinction rate is almost 1000 times the pre-industrial rate and could climb to 10,000 times the pre-industrial rate during the next century.
- Between one-third and two-thirds of all plant and animal species are predicted

to be lost, mainly in the tropics, during the second half of the twenty-first century if current trends continue.

- The scale of this loss would equal those of past mass extinction events. (Raven, 1999, cited in Yencken and Wilkinson, 2000; p 25)

The changes outlined above are likely to have dire consequences for the biological health of people now and for all forms of life on earth.

SOME THOUGHTS ON EDUCATION IN LANDSCAPE ARCHITECTURE

As a teacher of landscape architecture I am in a unique position to help reduce this trend toward global environmental degradation by helping students increase their awareness of the issues. If there is a chance to prevent this trend and mitigate the damage that has occurred, there are several broad areas of knowledge and practice that students should be exposed to. These include instruction in environmentally responsible place-making and in techniques for restoring ecological processes. It must be understood that the topics below are by no means exhaustive and are merely presented as initial thoughts to stimulate further discussion and debate.

Stress the aim of creating and sustaining the poetry of place through creative and responsible place making

Students need to be taught the skills necessary to manipulate elements of nature such as plants, earth, water, to create and sustain the poetry of place. This entails instilling sensitivity to the natural attributes of sites they are addressing in their design studios. This can be achieved by tutors providing experience of diverse places through field trips and in-depth site investigations and encouraging students to describe visually, textually and even musically, the places they encounter. One means of heightening awareness of the poetry of place is having students spending time drawing landscapes and natural elements, thereby encouraging them to observe and describe nature as it manifests. Exposing students to artistic representations of the landscape can also be useful in sensitising them to the poetry of place. They should be encouraged to translate their awareness into tangible studio designs.

Develop an ecocentric consciousness

Many people working in the emerging field of ecopsychology (Roszak *et al*, 1995) are suggesting that due to the increasing awareness of global environmental change, people may be developing greater concern for the environment. Recent research suggests that people worldwide, particularly young people, rank concern for the environment as a major issue facing the future (Yencken and Wilkinson, 2000). In other instances, however, people are becoming more disconnected and alienated from the natural world. In his insightful essay 'Nature and Madness' (1995)

Paul Shepard suggests that such attitudes are not new. He believes these attitudes are rooted in a separation of people from nature, which humans first experienced when they changed from a hunting and gathering way of life to an agricultural one. Despite Shepard's suggestion that our alienation from nature is not new, he maintains that people have an ingrained sense of connection with the natural world that needs to be nurtured before it can be manifested into action. Hopefully, this sense of connection with nature can be awakened and harnessed to address the current needs of the planet.

Whether these sentiments are positive (towards an ecocentric view), or negative (towards an increased anthropocentric attitude), increased perceptual awareness of global modifications may be forcing a greater split between these two opposing sentiments. This polarisation may not necessarily be a bad thing. Students of landscape architecture need to be encouraged to develop a greater ecocentric awareness. They need to realise that, as their home is shared with millions of other species, they are not the centre of the universe. Such a shift from an anthropocentric to an ecocentric consciousness may not be easy but is essential if we are to have a chance of reversing our direction on the ecocidal path.

Interrelationships between landscape ecology and societal values

Students must appreciate the interrelated nature of societal values; resource utilisation and environmental degradation. It is imperative that landscape and urban ecology be taught as a main component of landscape architectural education. Tutors need to emphasise the critical relationships between these fields of knowledge and understanding of environmental perceptions and values. The degree that student landscape design work enhances or diminishes biodiversity, decreases material and energy consumption and retains compatibility with societal values should become central criteria upon which designs are assessed.

Encourage a sensitivity to the poetry of place by exposing students to literature addressing the concepts of place, sense of place and other similar ideas

The literature addressing the concepts of sense of place, spirit of place and 'genius loci' can help students articulate those qualities that endow places with special significance (Canter, 1977; Green, 1999, 2000; Hough, 1990; Jakle, 1987; Norberg-Schulz, 1980; Relph, 1976; Seamon, 1979, 1982, 1989; Steele, 1981; Tuan, 1974a, 1977, 1980). An array of terms have been used to describe the notion of a sense of place (Canter, 1977; Norberg-Schulz, 1980; Relph, 1976; Seamon, 1979, 1982, 1989; Tuan, 1974a). Relph (1976) writes of 'place and placelessness', Tuan (1974b) of 'topophilia', Seamon (1979) and Norberg-Schulz (1980) of 'genius loci' and Hummon (1992) and Steele (1981) of 'sense of place'. According to Altman and Zube (1989; p 2) the concept of place represents the '... abstract geographical qualities of environments ... (that) ... become transformed into meaningful places as people use, modify, or attribute symbolic value

to specific settings'. These concepts help elucidate the '... significant centres of our immediate experiences of the world' (Relph, 1976; p 141), and are intimately associated with the notion of a poetry of place and space (Bachelard, 1958). In broad terms these concepts concern people's identification and attachment to places and features (Altman and Low, 1992). Through an understanding of the concepts of place and relationship to physical locality, students might be more likely to express these relationships in their design work.

Increase awareness of the rapid trend toward globalisation and its effect on world environmental systems

With all its potential benefits and dangers, the fact that the world is becoming smaller should be emphasised in landscape architectural education. Since global environmental problems are not confined to international boundaries, students must be taught to think beyond their own immediate surroundings. Students need to develop the realisation that inducing change within their local or regional environment has consequences for the entire planet.

Develop competency in using digital technology and global communication techniques

Current information technologies allow the global networking of people from various disciplines to address collectively the environmental problems regardless of their geographic location. Global digital communication and the ability to collaborate without concern for physical space constraints, needs to be emphasised and incorporated into landscape architecture education. To take optimum advantage of this technology students need to be taught interactive digital communication such as electronic white boards; video-conferencing, audio, image and textual transfer techniques. The increasing trend of working and learning remotely, at home and overseas, needs to be exploited in order for people to tackle the environmental problems we now face.

There is, however, an inherent danger in placing reliance on digital technology that facilitates remote design practice, as it can also lead to a perceptual remoteness of the designer from the reality of place. Relph (1976) alludes to this danger when he describes the conflict between the insider and outsider experiences of place. What he terms 'objective outsidership' involves '... a deep separation of person and place ...' and a '... dispassionate attitude towards places in order to consider them selectively in terms of their location or as spaces where objects and activities are located ...' (Relph, 1976; p 51). There is a danger that planners and environmental designers, as outsiders, will rely on digital communication technology to consider environments from afar in order to effect environmental changes. This may result in a lack of sensitivity to the poetry of place and exacerbate some of the problems discussed above.

The digital technology available now can make paper-based landscape architectural work obsolete, thus helping limit resource consumption. However,

it can be argued that current information technology also uses a certain amount of energy. In the future, alternative sources of energy, such as solar power, should be perfected and used resulting in a more sustainable technology.

Emphasise a multi-disciplinary and integrative approach to landscape design and planning

Students should be taught, from an early stage, to understand that they need to collaborate with a range of designers and environmental and social scientists if the complex issues of global change are to be effectively addressed. The problems associated with global environmental degradation are complex and require the collective knowledge and skills of environmental design professionals. To work constructively across disciplines, landscape architecture students need to have familiarity with the various disciplines of the people they are likely to work with. They need to develop an understanding of how they can integrate information gathered from different specialists.

Involve students in landscape research and encourage them to read widely in various research journals and publications from a range of disciplines

To address complex environmental problems, students must be taught to access the existing body of research findings in relevant fields. Students need to read widely from research journals within a variety of disciplines to develop an appreciation of the areas of research that highlight particular problems. This understanding will help students appreciate the knowledge possessed by other specialists. One way of encouraging students is to have them back up their studio-based design and planning proposals with research findings. In this way they learn to base their design proposals on fact rather than personal supposition. Universities need to be supporting postgraduate research students to address environmental issues.

Involve students in studio-based projects that address actual problems facing society and the environment

Use real life problems as subject matter for studios so that students can gain an appreciation of the complexity of real life environmental and social problems. Disseminating the results of studio work to the community will enable the public to become aware of the profession of landscape architecture when solving environmental problems and challenging current practices.

Encourage collaboration between academia and professional practice

Programmes such as student internships and mentoring schemes can be effective in encouraging collaboration between students and professionals. The learning

process should be able to operate in both ways with students bringing new ideas, methods and sensitivities to the awareness of professionals who may hold outdated or conflicting values.

Teach students methods of enhancing their ability to think creatively

Introduce students to the psychology of creative problem solving early in their studies. This involves developing an appreciation of the intrinsic differences between the various phases of the creative process – idea generation, evaluation and presentation and how these phases interact to produce creative solutions. Encourage students to think laterally when engaged in problem-solving, not just base their solutions on the traditional approaches of landscape architectural thinking, but learn to draw from other disciplines.

Stress technical competency

Students need to develop a full range of technical skills used in the profession, including techniques for enhancing environmental sustainability and methods of environmental restoration. When students have mastered the necessary technical skills, they will then be able to produce creative design and planning solutions which will address problems associated with current and future environmental challenges.

Multi-cultural influences on environmental design

The consequences of globalisation highlight diminishing biodiversity and ecological differences, with cultural contrasts between different people also disappearing. Students should be made aware of this problem and lecturers should teach strategies for cultural conservation that can be used to minimise this trend. By exposing students to the fields of anthropology, cultural geography and similar disciplines they will learn an appreciation of other people and cultures. An important criterion for assessing student design and planning work can be the degree to which cultural and ecological conservation is encouraged in their proposals.

Ecological restoration and post-disaster environmental reconstruction

With continued global warming, natural disasters are likely to increase dramatically in the future (IPCC1995). As a result of this increased likelihood the skills and knowledge base of landscape architects will increasingly find a market in post-disaster reconstruction. Landscape architecture is uniquely suited to make a contribution in this area and students should be taught landscape restoration techniques. A body of work the author and his colleagues completed in the 1980s utilised a full range of skills associated with landscape architecture (available at that time) to address the redevelopment of a region of Victoria

devastated in the 1983 'Ash Wednesday' bushfires (Green *et al.*, 1985). This work was an attempt to broaden the definition of landscape architecture in Australia and make the public aware of the diversity of problems the profession can address. Recent technologies, theoretical and scientific advancements have made restoration practices more effective and precise.

NEW BACHELOR OF LANDSCAPE ARCHITECTURE COURSE AT MELBOURNE UNIVERSITY

In 2000 a four-year Bachelor of Landscape Architecture (BLA) course at the University of Melbourne was offered. The course provides a professional undergraduate degree in landscape architecture to complement the university's existing Master of Landscape Architecture programme (running since 1979). While the course embodies many components of 'conventional' landscape architectural education, the increased emphasis on environmental issues sets it apart from many other programmes in Australia. Landscape architecture at the University of Melbourne is taught within a single departmental faculty which enables an integration of cross-disciplinary perspectives by sharing subjects with architecture, urban planning and property and construction. At the same time a focus on exclusive landscape architectural studio-based subjects has been maintained. The course fills a niche in the Australian landscape architectural education market due to its emphasis on integrating principles of environmental sustainability into design and planning studios. Students also take subjects related to environmental issues in other faculties such as geography and botany. These courses impart knowledge which is expected to be integrated into their design studio work. The BLA encompasses five principal areas of study, and associated suites of subjects, as outlined below.

Landscape design and planning studio

The suite of studio subjects that students must take over four years has been designed to address environment types; from the design of small scale urban open spaces to the environmental planning of large biogeographical regions. Skills associated with these studio subjects include an emphasis on computer applications such as Geographical Information Systems (GIS) and more traditional manual techniques. The principle objective of the curriculum is to develop a commitment and sensitivity to enhancing the health of the environment by following principles of sustainable environmental design. The effectiveness of this approach is dependent upon critical assessment of criteria such as 'will the design increase net biodiversity on the site?' and 'is energy used efficiently to achieve the design objectives?'

Communication subjects

This suite of subjects focuses on graphic and textual communication including instruction in both manual and digital techniques. The faculty has established environmental simulation techniques through the use of GIS and computer-aided

design (CAD) equipped computer facilities. Students are expected to master these during the course of their studies. Currently we are working towards establishing 'seeded' studios that are supplied with specific computer facilities to address studio-based projects that range in scale and content.

Theory and history

Subjects in the theory and history of landscape architecture and urban design have been designed to complement the studio-based subjects.

Landscape technology and professional practice

This suite of subjects develops competency in landscape construction technology, plant materials, GIS and aspects of professional practice. These subjects have been planned to complement the studio-based subjects.

Environmental systems

A strong emphasis is placed on understanding environmental and social systems as this knowledge can influence environmental planning, design and management decision making. Subjects such as ecological biogeography, global ecology, society and environments are taught to ensure that students develop an understanding of environmental issues. The nexus between environmental perception and landscape ecology is a focus and reflects the research activities of faculty staff members.

Electives

Additional subjects that are offered across the university. These are being used to augment knowledge in specific areas so that students can develop specialised expertise in specific topic areas.

CONCLUSION

The ideas discussed in this paper are increasingly reflected in the University of Melbourne's new Bachelor of Landscape Architecture course. The objective is to train landscape architects who are socially and environmentally responsible. The course can only be assessed over time and refinements will be made where necessary. Only after three or four years can we judge the effectiveness of the course in producing environmentally conscious, knowledgeable and technically competent students. The test will be to see if students become equipped with the necessary skills and knowledge to meet the challenges associated with the bleak environmental future we are facing. If we, as educators of landscape architecture, are to produce professionals who appreciate the critical state of the environment and are willing to address the problems selflessly, we must act now. As the consequences of global change and the loss of poetry of place becomes more obvious, the knowledge and practical skills that landscape architects possess will become increasingly important in addressing the environmental problems that face the world.

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NOTES

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Ray's research interests focus on perceptions of environmental change in relation to tourism development in coastal communities; the relationship between place attachment and environmental and social change and the development of methods for modelling perceived landscape and town character. Ray is interested in the relationship between biodiversity and public environmental values and perceptions, particularly in urban and tourist environments. He has conducted a research project in Thailand entitled 'Assessment of environmental impacts of tourism in Thai coastal communities: Resident perceptions of environmental change'. Other recent research has been featured in several journal articles. One of his primary concerns is applying research findings to practice so design and planning actions will be sensitive to local cultural and ecological conditions. Ray has had extensive professional practice experience in the United States, Mexico, Australia and South-East Asia and is credited with a range of projects built in those places.

