The Newcastle Soundscape Project

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Abstract

By implementing the pedagogical maxim that, "one learns what one does", the Newcastle Soundscape Project (NSP) provides a practical manifestation of teaching and research activities undertaken in the domain of Audio Communication at the School of Design, Communication and I.T. This Project has developed through a focus on problem-based learning projects designed to produce recorded soundscapes. The NSP originated in 1997 as a feature of the course, Soundscape Studies, which is offered at the University of Newcastle, Australia as part of four (4) degree programs, Communication, Design, Fine Art and Music. Students in this course consider a range of communication theories and apply audio production techniques in order to discover, analyse and test relationships between and within specific audio environments and their representations. The aims of this on-going project include: the documentation of responses by students to acoustic environments; increasing the level of awareness and appreciation of soundscapes; and, providing ways for others to experience a diversity of soundscapes.

1 Introduction

For the majority of participants the *Newcastle Soundscape Project* (NSP) provides a starting point for a new way to perceive the world in which they live, new ways to listen and new ways to respond to what they discover. Through engaging with this Project, the contributors also acquire knowledge and skills to express themselves through recorded and replayed sound, and a fresh appreciation of the varied roles that sound plays in our private and public experiences.

This report directly addresses the conference theme of education and presents the developments to date of the Project, addresses pedagogical issues, including course content, assessment and methodology, and outlines future directions.

2 Project Participants

Established with a mandate to serve the communities in its local regions, the University of Newcastle's vision now encompasses a much broader sphere of concern than simply the Hunter and Central Coast of New South Wales.

Universities around the world are increasingly taking the form of global corporations and attract a diverse cohort of students. Classes in the Soundscape Studies course typically are a combination of students who have spent their lives in the area, those who have moved to Newcastle from other parts of Australia and students from overseas.

Annually between 25 and 40 students, the majority aged between 19 years and 23 years, participate in the Newcastle Soundscape Project. The high figure for one year to date is 56 contributors. The variety and structure of the degree programs served by the Soundscape Studies course adds to the range of differences encountered within classes and brought to the NSP.

To over-simplify, but without wanting to unfairly stereotype the individual attributes each student brings to the Project, generally speaking the Communication students have some experience recording and editing audio and/or pictures gained through completing other audio and video courses. The Design students are highly computer literate and like the Fine Art and Music students, are aware of and sensitive to issues of aesthetics. Music students are also familiar with ways of organising sound and modes of listening. Each student brings to the course and the Project, a range of past experiences and theoretical knowledge, some domain specific, some of a general nature.

3 Underlying Principles

The prevailing view is (or at least has been) that universities produce graduates who *are* say, teachers, doctors, lawyers, engineers and so on. This is especially true in areas of vocational education. An alternative view is that universities are in a position to more clearly, reliably and transparently demonstrate that students in their courses and degree programs produce objects, products, and tangible items. In the audio field, this means we do not try to do what the market place will do and define our graduates as radio producers, sound designers, film mixers and the like. Rather, we can with some confidence assert that by successfully completing the courses in our programs, participants will be able to solve real-world problems that have been and will be encountered as they produce, amongst other things, radio programs, soundscapes and video programs.

In order to provide a clear focus for audio courses, a key defining principle is that: teaching, demonstrations, field trips, readings and assignments support and build on what the problem based learning experience offers and/or asks of students. This approach helps to guide the order and presentation of lectures, the number and nature of assignments, and the objectives of the students. Specifically, it provides

students with a coherent learning and production process and framework within which to work. This problem based course starts "with problems rather than with exposition of disciplinary knowledge. (It moves) students towards the acquisition of knowledge and skills through a staged sequence of problems presented in context, together with associated learning material and teacher support." (Boud and Feletti, 1991)

Problem-based learning "is an approach to structuring a curriculum, in which students are typically confronted with … problems as stimuli for learning." (Feletti, 1993) Such experiences may be "the basis for the whole curriculum, or as an enrichment exercise to encourage the transition from theory to practice within a discipline". (Wallis, 1989)

If one's perspective is the entire degree program, then the Newcastle Soundscape Project fits into the latter category. From within the course, the problems that are formulated by the students in response to the 'trigger material' provided are seen as the basis for the entire course syllabus.

The following section of this paper summarises the information provided to students, which gets them started on the process of defining the problems they will be working on in order to find out more information. Under this model, it is then the needs of the students that initiates and defines the learning, which will take place. (Wallis, 1989)

At the start of the course, students are invited to reflect on their approach to their learning and listening experiences. Specifically, they are asked, 'Do you concentrate on what you 'can get out of it? What it will give to you?' Or, 'Do you come to learn, thinking about what you might lose? Is there anything that you will happily 'give up' in order to discover and understand something new?'

An indication of the sorts of things to give up, or at least challenge and as a result, move forward, include many of those thoughts, opinions, beliefs and behaviours that are currently held dear. In other words, the familiar and comfortable frame of reference that prevents us from learning something new about the areas in which we desire to know more, to be self-fulfilled and to be capable.

What habits, prejudices, concrete thoughts, preconceptions, misconceptions, and generalisations, do you subscribe to in relation to sound, audio, radio, music and soundscapes? Students often respond to these questions with a quiet look of shock, or at least surprise and body language, which says, "don't ask me first." Further questioning helps them to recognise some specific elements of cultural conditioning they have adopted as being "normal" in these areas. For instance, when recording sounds what do we mean by 'clean sound'? And, with cleanliness being next to godliness and so on, why do we tolerate the presence and deliberate use of distortion in some of the music we listen to?

Many factors are involved if one is to successfully complete this task. One of the underlying principles of all good education is to provide the wherewithal for people to enjoy the benefits of lifelong learning, in other words to become good learners. For Postman and Weingartner (1969), the characteristics of 'good learners' include: self-confidence in your own ability to engage successfully with problem-based learning activities; the willingness to trust your own judgement; the capacity to change after discovering you are wrong; not being concerned when it takes time to settle on an answer; an ability to appreciate the context in which a solution is presented, and the ability to readily distinguish between fact and opinion.

As students participate in the NSP they are encouraged to consider and write down, or even record themselves talking aloud about these concepts, about their present paradigms. In doing so, they are encouraged to pay attention to the language they use and how this influences perceptions and reflects the depth of their observations.

Language. Most students report that they first encounter the concept and the word, 'soundscape' as a course descriptor in the literature they consult as they make choices regarding the structure and direction of their degree program. Interestingly, to some students, this unfamiliarity acts as an attraction, whereas for others it can be a 'detraction'.

As indicated earlier, the students engaged with the NSP come from a range of backgrounds, experiences and are armed with some, a little or no knowledge of the language of sound and the practice of sound recording. So, another of the underlying principles is to provide a background for each student in the language of sound production, acoustic ecology and the study of soundscapes. The resources applied to this task will be familiar to you and include domain-defining works by R. Murray Schafer (1977, 1994), Barry Truax (2001) and the Journal readings stored on the web site of the World Forum for Acoustic Ecology (WFAE).

Listening. Amongst the Project participants there is also quite a spread of familiarity with the surrounds in which they will be asked to become keen and critical listeners. And listening is absolutely one of the key underlying principles of the Project. In this we follow and acknowledge that:

"Listening is the key issue in communication via sound because it is the primary interface between the individual and the environment. It is a path of information exchange not just the auditory reaction to stimuli. … The individual listener within a soundscape is not engaged in a passive type of energy reception, but rather is part of a dynamic system of information exchange." (Truax, 2001)

Students are encouraged to view themselves as tourists in order to listen to the sonic world with

renewed interest. This instruction aims at challenging and hopefully breaking, old listening habits. It is part of the process of developing critical listening skills, or in Schafer's (1977) terms of "ear cleaning – a systematic program for training the ears to listen more discriminately to sounds."

One Ear Cleaning course is designed to assist students to, "listen like mad to the sounds of their own environment and the sounds they themselves inject into their environment". (Schafer, 1988). The headings used in this work: "noise, silence, tone, timbre, amplitude, melody, texture; and rhythm" give some indication of the elements of sound and the sonic environments to which we are exposed and to which students are directed to listen.

Ferrington (1994) delineates that amongst other things, this kind of listening experience involves:

- "isolating sounds from the entire acoustic field;
- identifying sounds;
- contextualising what you hear;
- analysing the tonal properties of what you hear;
- interpreting what sounds mean;
- inserting components that are not immediately part of the sound but come from your broader knowledge; and finally,
- through introspection, deciding how to respond."

4 Project Description

The course that coordinates the NSP runs for 14 weeks, with two hours of workshop based face-to-face teaching contact per week.

Given our experience of students not knowing or having vague notions about the meaning of "soundscape," the first pieces of information to be distributed to students are definitions of the term and a list of essential readings, as indicated above.

If students are not certain about the term 'soundscape' they have in my experience, been able to discuss other 'scape' terms, including, 'landscape', cityscape', 'Netscape', and 'escape'. Such discussions are very useful in helping a group to explore what they already know, to express this with their peers and to practice identifying and following connections between and across concepts and domains.

The following definitions provoke discussions, further questions and opportunities to identify problems.

"SOUNDSCAPE: The sonic environment. Technically, any portion of the sonic environment regarded as a field of study. The term may refer to actual environments, or to abstract constructions such as musical compositions and tape montages, particularly when considered as an environment."(Schafer, 1977)

"…the "sonic environment" can be regarded as the aggregate of all sound energy in any given context, we will use the term "soundscape" to put the emphasis on how that environment is understood by those living in it – the people who are in fact creating it."(Truax, 2001)

4.1 Components of the Project

In addition to the set tasks of the course, this section will also briefly identify the technical facilities that are made available to students as they work on the NSP.

Field Recordings. Students use original recordings in their soundscapes for the Project. They record sound objects, sound events, soundmarks, keynote sounds and ambiences in a range of acoustic spaces.

Recordings are stored directly on DAT. A range of microphones are used: dynamic and condenser, with omni-directional, cardioid, hypercardioid and stereo patterns.

One difficulty encountered at this stage is the small number of available microphone types, for example, hypercardioid shotguns, complete with baffles for high wind conditions. This makes it very difficult to give each student an equal number of opportunities to use the full range of transducers. However a booking and quota system is in place to try to regulate such anomalies.

Production Plan. This document presents a considered design for the conceptual, pre-production, production, post-production and presentation phases of each person's soundscape for the NSP. In part, students are required to show an awareness of the choices they have made and/or will be required to make in each stage of the Project. Identifying and discussing the reasons for and consequences of choices made on aspects of the Project include, those concerned with sound design, place(s), sound sources and technology.

Sonic Montage. Students construct a soundscape to represent their response to an image of their choosing. There is no limitation on style or treatment of representation, but the image must be of a work that has been part of curated exhibition.

This aspect of the course provides students with an opportunity to experiment with sounds they have recorded, to become familiar with the operations of a digital mixing console (Yamaha 01V) and digital audio workstation (Pro Tools).

These soundscapes are replayed to the class and discussed with their peers.

Accompanying documentation includes a brief note about the selected artwork, the artist, and the exhibition, a statement of the producer's objectives for the soundscape and a copy of the image.

Soundscape Newcastle. Contributors create a unique representation of a recorded soundscape based on their listening and recording experiences in and around Newcastle and the surrounding regions.

Refer to the Appendix to this report, *An Incomplete Alphabetical Sketch of Newcastle* to get an idea of the spaces, places and sounds, which stimulate and challenge responses from students.

Students develop their plans for the Project through discussion with peers and academics. Developments of the concepts expressed in the Production Plan are encouraged. Technical standards and production values are encouraged to be of a high standard.

In addition to the master tape students provide a written description of their soundscape and a critique of their project, which is related to the refined Project description. These notes and the final mix of the soundscape are presented to their peers.

A final note in this section should be made on the response of some students to presenting their soundscapes to their peers. This can be an ordeal for some students. The 'assessment' of their work by their classmates is for some students a potential cause of discomfort, embarrassment and anxiety. The process requires careful handling and patience.

A positive outcome of the experience of listening to other's soundscapes is that students further develop their ability to express their responses to what they hear. Moreover, the experience helps them to learn more about their own listening habits and skills, which in turn reveals something about themselves, their thinking and their inner connections and perspectives on the world.

4.2 Notes on Assessment

These brief descriptions give a sense of the structure and content for each aspect of the course. As the above components are part of a university course, students are presented with many more details and a significantly greater amount of information than presented in this report. Similarly, the assessment criteria, marking tools and reporting documents are more complex and detailed than will be covered here.

An over-riding requirement of the Field Recordings is that a high percentage of them are 'useable'. Technical aspects of the recordings, which are assessed include: recording levels; signal-to-noise ratios; mic choice and placement; suitability of duration of recordings and the presence of a clean start and clear end for each selection.

These criteria are not exclusively applicable to the production of soundscapes and can be used to assess recordings for projects in areas such as radio, film and video.

A greater effort is made to balance conceptual and technical considerations when assessing soundscapes. The written plan and description of the producer's intentions for the soundscape are necessarily taken into consideration. The assessment of soundscapes is a complex process and the importance of technical excellence must be tempered with an appreciation of the producer's intention for their soundscape. For example, one may reasonably take the view that it is not appropriate to criticise a producer for presenting soundscape which does not have a balanced frequency spectrum, when the intention is to produce a representation of the dark, cold, desolate and lonely feelings of a fishing crew returning to harbour after an unsuccessful winter's offshore expedition.

After presentation of soundscapes to the participants, and the discussions that follow, at least three 'passes' of the final mix are required before final comments are written in response. Notes are taken during and after each pass. One playback provides an overview, a linear sense of the whole soundscape and how it meets the objectives of the Project. Another listen provides an opportunity to compare what is heard with what is stated as the intention for the work. A third listen helps to confirm impressions and responses. There are occasions when more time is required to fairly respond and assess the submitted work. This can be quite time consuming when presented with over 30 soundscapes.

Specific qualities of the Project on which to reflect include:

- The relationships between the written concept and the presented soundscape.
- The positioning of sounds to create clear relationships of perspective, space and distance.
- The use of editing to accentuate rhythms of the selected sounds.
- Technical aspects such as a balanced frequency spectrum, width of dynamic range, amount of movement across the stereo panorama, and the variety of sonic features and treatments exhibited in the mix.

5 Conclusion

This Report has briefly outlined the developments so far of the Newcastle Soundscape Project, which currently defines and provides an effective focus for the course, Soundscape Studies at the University of Newcastle. Within this institution the NSP provides links between Communication, Design, Fine Art and Music. There is much scope to expand connections, especially within the Faculty of Science and Information Technology and to perhaps establish connections and acoustic ecology programs in conjunction with the School of Environmental and Life Sciences.

In greater Newcastle, it is providing a listening response to her communities, activities, places and spaces, "without trying to report on them." (Westerkamp, 1994) There have been times when

soundscapes representing Newcastle were played on air, via the University's community radio station, and back into the cars, offices and houses of the city. Maybe they will again one day. For the first time this year, a group of Newcastle Information Technology students are developing an internet radio site for the School DCIT. The Newcastle soundscape project is well placed to provide interesting and varied content for this venture.

Other areas in which the NSP could expand and improve include:

- the expansion of the theory base which informs the Project, to include environmental studies, and information systems, in conjunction with the present communications and music theories;
- the production and distribution of compact discs of soundscapes produced in Newcastle;
- inviting others to contribute soundscapes to the Project; and
- securing grants to help make these developments a sustainable reality.

The last word from one of the course graduates:

I enjoyed participating in (the) class discussions and was introduced to new concepts and schools of thought concerning sound and acoustic ecology. I hear the world in a new way. Every sound is more meaningful and my life is enriched. (LJ, 1998)

References

Boud, D. & Feletti, G. (1991). *The Challenge of Problem Based Learning*. London, Kogan Page.

Feletti, G. (1993) Research on Problem Based Learning: What is Needed? In, Ryan, G. *Research and Development in Problem Based Learning vol. 1*, Sydney, Australian Problem Based Learning Network.

Ferrington, G (1994). *Keep Your Ear-Lids Open*, Journal of Visual Literacy, vol. 14, no. 2, pp 51 –61. Ohio State University.
Accessed on WFAE web site (old):
interact.uoregon.edu/MediaLit/FC/WFAEResearch/earlids

Postman, N. & Weingartner, C. (1969). *Teaching As A Subversive Activity*. Middlesex, England: Penguin Books.

Schafer, R. M. (1977). *The Tuning of the World*. New York: Arcana Editions.

Schafer, R. M. (1988). *The Thinking Ear*. Toronto: Arcana Editions.

Schafer, R. M. (1994). *Our Sonic Environment and the Soundscape: The Tuning of the World*. Rochester, VT: Destiny Books.

Truax, B. (2001). *Acoustic Communication, 2nd ed.* Westport, Connecticut: Ablex Publishing.

Wallis, B. (1989) Experiences in Problem Based Learning. In, *Problem Based Learning The Newcastle Workshop*. Faculty of Medicine, The University of Newcastle. pp 35 – 53.

Westerkamp, H. (1994). The soundscape on radio. In D. Augaitis & D. Lander (Eds.), *Radio Rethink*. Banff, Alberta, Canada: Walter Phillips Gallery.

Web Sites

Newcastle City Council
http://www.ncc.nsw.gov.au/

PROBLARC (2003) The University of Newastle
http://www.newcastle.edu.au/centre/problarc/

The University of Newcastle:
http://www.newcastle.edu.au/

World Forum For Acoustic Ecology
http://interact.uoregon.edu/MediaLit/wfae/home/

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APPENDIX: An incomplete alphabetical sketch of Newcastle

- Australia's sixth largest city
  - East coast, 160km north of Sydney
  - Capital of the Hunter region
- Bicycle and walking tracks
  - Around Lake Macquarie
  - City to University corridor
  - Fernleigh North – South link including tunnel
- Bird song
  - Native birds
  - Chickens, in suburban backyards
- Cathedral
- Coal
  - Mining
  - Black
  - Export
  - Big ships and long freight trains
- Coffee Shops
- Convict Lumber Yard
- Customs House
- Dogs
- Drag Racing – illegal street meets
- Earthquake in 1989
- Entertainment Centre
- Families
- Fort Scratchley
  - Guns fired during WWII
- Galleries
- Greyhound Races
- Harbour
  - Newcastle Cruising Yacht Club
  - Fishing
  - Rowing
  - Stockton ferry
- Hang gliding
- Hoons and Hot Hatchbacks
- Horse Racing
- Hunter River
- Lake Macquarie
  - Largest salt water lake in Southern Hemisphere
  - Boats, sailing, water skiing, jet-skis
  - Fishing, - recreational only
  - Swimming
- Maritime History
- Nobbys
  - Rescue helicopters
  - Ocean baths
  - Sunbathing and swimming
- Parks
  - Blackbutt Reserve
  - Civic Park
  - Glenrock State Recreation Area
  - The Harbour Foreshore
  - The Wetlands
- Performing Arts and Music
- Pubs
- RAAF
  - Fighter Jets
- Rugby League
  - Newcastle Knights
  - Tribe of fans
- Sand dunes
- *Shoot Out* annual short film festival
- Showgrounds
- Silverchair
- Skateboards
- Sport
- Steel
  - BHP steel making operations now closed
- *This Is Not Art* annual festival
- Town Hall and Civic precinct
  - Civic Theatre and Concert Hall
  - Clock chimes
- Trains
- University
  - 4000 staff
  - 20000 students
  - Bushland campus
  - Conservatorium Concert Hall
- Urban
  - Cars, trucks, motorbikes, buses
  - Building construction
  - Suburban sprawl
- Vineyards
- Williamtown airbase and commercial airport

- Ocean (South Pacific)
  - Surf and Surfing
  - Surf Life Saving
  - Beach Volleyball