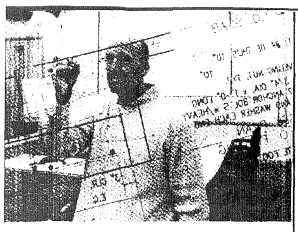

Geography Fieldwork: Making a Difference By Using a 'Backward Design Process' to Enhance Learning

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Abstract

The effectiveness of learning through fieldwork for three classes of Year 9 students on two extended fieldwork camps across two years is examined. The importance of the alignment of curriculum, pedagogy and assessment is discussed in relation to the 'backward design process'. In this process the desired results and acceptable standards are determined first before other learning experiences are planned. In this study, the desired outcomes from the extended fieldworks (up to 4 weeks) were firstly, reconnecting the students with nature; secondly, achieving specified curriculum outcomes derived from syllabuses; and thirdly achieving specific Action Statements of the Education Queensland's *Middle phase of learning state school action plan* (2004). The findings supported the use of the 'backward design process' as a highly effective way to design learning, and particularly with fieldwork.

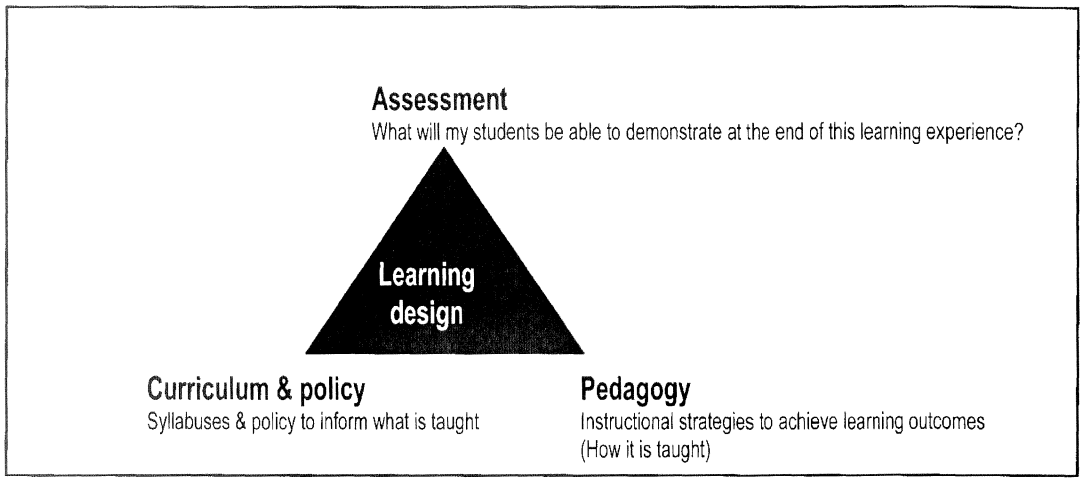
Introduction

Geography is often the main subject in schools in which fieldwork is conducted. In this paper the importance of using a 'backward design process' in general, and for extended fieldwork in particular, is examined using recent extended (three or four weeks) fieldworks of Year 9 students at North Keppel Environmental Education Centre (NKIEEC). The concept of a backward design process is covered in depth by authors such as Wiggins and McTighe (2001). Basically in designing learning experiences the teacher(s) consider firstly what a student should know and be able to do at the end of the experience (what they will look like), and in particular, what will be the acceptable standards and evidence that the students have achieved this. Authors such as Ballantyne, Packer and Everett (2005) have argued the importance of achieving valuable learning outcomes from fieldwork. Similarly Brody (2005) has considered the importance of learning in natural settings. This paper examines such matters in the context of the Middle Years of Learning (MYOL) programs of NKIEEC that are now in their third year of operation, specifically using the backward design process.

Learning design requires the careful consideration of **curriculum** documents such as the relevant syllabus(es), and the alignment of the outcomes of those with school and schooling authority **policies**. In addition, there needs to be professional consideration of **pedagogical practices** that lead to maximising student learning (see Marzano, Gaddy & Dean, 2000), and careful consideration of how students will be assessed so that they can demonstrate what they know an can do in the particular topic or subject area. Authors such as Wiggins and McTighe (2001) argue that **assessment** should be the first consideration, and that from the outset of planning learning, the design of the assessment instrument(s) should be known. In their view, assessment is paramount as it answers the question of 'What will students look like in terms of what they know and can do at the end of this learning experience?' A conceptual model of this is provided in Figure 1 wherein the 'learning design triangle' the 'pinnacle' of assessment is supported by pedagogy, and curriculum and policy. The inter-relationship of professional educators 'balancing' these three dynamic elements to ensure that action learning (Bordow & Bordow, N.D.; Dick, 1997), and that continuous quality improvement in learning and teaching occurs is critical. In Figure 1, the Learning design 'triangle' is deliberately coloured black to indicate the many and varied interactions that occur between the three key elements of assessment, curriculum and pedagogy.

The 'backward design process' was used in planning the extended residential programs for Year 9 students at NKIEEC in 2006 and 2007. The Centre itself is on a lease on North Keppel Island on a national park surrounded by the World Heritage waters of the Great Barrier Reef (see nkieec.eq.edu.au), situated 12km off the Central Queensland coast near the town of Yeppoon

Figure. 1: Learning design components



(Great Keppel Island is about 5km south of North Keppel).

What Should Students Look Like at the End of the Extended Fieldwork?

Middle years of schooling (approximately Years 5 to 9) have long been 'the neglected years' with much more attention and monies for the senior years and early childhood years. In Queensland, the Department of Education and the Arts released a significant policy document in 2004 '*Middle phase of learning state school action plan*'. In this there are thirteen Action Statements for State schools to pursue with regard to the middle years of learning including: 'The middle phase curriculum will be reviewed to provide a greater focus on in-depth and authentic learning across Years 4–9', and 'State schools will identify and trial arrangements that ensure a greater degree of alignment between curriculum, pedagogy and assessment practices in upper primary and lower secondary schooling and improve the transition between Years 7 and 8'. In the 'backward design process', these *Action Statements* along with the nine *Values of nature* including utilitarian, aesthetic and naturalistic (Hossack, 2005; Purnell, 2006), were the key areas where students would demonstrate what they know and can do. The acceptable evidence (assessment) was continuous throughout the fieldwork program but culminated in each individual student giving about a one hour presentation on their learnings from the program when back at their school to their parents, teacher(s) and the NKIEEC staff. Such presentations often took the form of an interactive discussion with the child and the adults and a 'sophisticated' PowerPoint presentation as part of the process that the child had developed about their learning. Unlike previous findings about changes in behaviours of students from fieldwork (see Gralton, Sinclair & Purnell, 2004), NKIEEC staff, teachers, parents and students themselves concluded that their learning experiences had positively changed their attitudes, beliefs and behaviours to make more positive contributions to their communities both socially and environmentally (see also, Volk & Cheak, 2005).

What was involved in the Extended Fieldwork?

Figure 2 provides an overview of the 2007 program. This was designed for 24 students from two schools (one from Central Queensland with eighteen Year 9 students and the other from Brisbane with six Year 9 students). This program is similar to the 2006 one which was of three weeks' duration.

As can be seen in Figure 2, the program was intensive and very diverse. Participants experienced many things that they had not previously considered nor experienced and reported that there had been much 'value-adding' to their own personal development, learning and self esteem.

An example of one of the activities may be viewed in Figure 3.

What is important in these two programs is that there was much more involvement of NKIEEC with the students pre and post the fieldwork as well as the students working extensively with their teacher who accompanied them for the entire fieldwork. The advantages of such pre and post camp experiences have been examined further by authors such as Smith-Sebasto and Cavern (2006).

What Students, Parents, Teachers Said About the Fieldwork

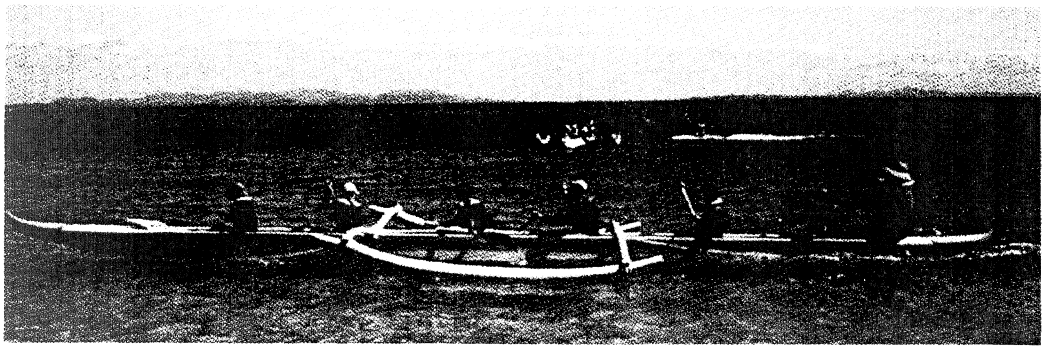
A number of interviews and a focus group were conducted with participants in the programs. Probably one of the most notable statements about the outcomes of the fieldwork programs came from the Year 9 teacher from the school

Figure 2: Overview for 2007 Year 9 MYOL four week fieldwork program

Time	Focus areas (excluding Curriculum)	Examples of activities	
Week One	Goal Setting – Group and Individual	Centre familiarisation Workplace Health & Safety Positive Behaviours Dreamtime personalities/Myers-Briggs – 2 days Projects revisited (i.e. Values of Nature, promotional PowerPoint, Sustainability for participants – opportunities to develop everyday) Program discussed Challenges presented as discussions only (possible outrig to Humpy Island (20kms one way) and campout+ 2 others)	
	Setting the Scene	Group activities that focus on cooperation, communication, trust Solitude (themed throughout program – everyday activity for entire program) Diary Writing explanations (everyday activity for entire program) Cultural history of North Keppel Island – 4,000 plus years of settlement by the Kanomi people with usually around 50 living on the Island – similar to today's sustainability in terms numbers of people for NKIEEC)	
	Skilling sessions	Snorkelling GPS Hand-held radios Minimal impact camping Photography	Minimal impact living First aid- Queensland Ambulance Service (QAS) ICT programs for presentations Outrigging
Special Guests for Week One		World-renowned digital photography expert providing explanations and focus areas, with examples –" How to promote an event/experience through a presentation" Person X – personality typing Parental involvement on the first weekend of the program – with a focussed activity – eg students leading a small group of parents through one of the problem-solving activities – like whale watch or the tennis-ball game – Low ropes with parents lead by staff Sometime as free time with parents to explore the Island and talk about their week etc.	

Week Two	Values of Nature – Theoretical + Practicals components	The Arts – watercolours/pastels African Drumming Fish and Flowers dissection Identifying values of Nature Bush Tucker Sustainable Fishing
	The Holistic Journey (Weather dependent)	Possible options to include either walking or outrigging to a destination, camping out as a whole group and then returning This will be a three day experience – students will be employing skills gained in week one (week 1) in various elements
	Walking With Heroes	Focus on Environmental heroes – Person Y to be one students to invite and determine other hero (with support from principals prior to actual program)
Special Guests for Week Two		Six persons in a range of areas including cultural, historical and environmental
Week Three	Sustainability	Intro to QESSI (Queensland Environmentally Sustainable Schools Initiative (see Department of Education, Training and the Arts, 2006; Tilbury & Cooke, 2005) Greenhouse Challenge Possum debate State of the Planet An Inconvenient Truth State of the School report developed by students – with pre-camp work that looks at sustainability areas at Gladstone State High School
Special Guests for Week Three		Experts from QESSI and Great Barrier Marine Park Students from the last "Graduation Day" + students from QESSI schools and Executive Director of Schools
Week Four	About ourselves	Characteristics of adolescents
		Adolescents – and implications, mental emotional, social
	Project development	Presentations to be provided on "Educational Implications on Characteristics of Adolescents" "Sustainability at Our School", The Values of Nature, and/or a local issue
	Final presentations	Prepared and practiced
Special Guests for Week Four		Consider parents, Middle Phase specialist, doctor, psychologist/ guidance officer

Figure 3: Outrigging off NKIEEC



who was the key teacher from that school involved in both the 2006 and 2007 programs. He had particularly taken note of the grades achieved across subjects in Year 9 by the 2006 group that participated in that three-week residential fieldwork program at NKIEEC prior to and then following the program. He compared these results with those of students who had not participated in the extended fieldwork program and reported that all students who had participated in the fieldwork had their grades significantly improve across subject areas such as Geography. The teacher reported that this not only occurred for the remainder of Year 9 but into Year 10 to date. For those who did not participate in the extended fieldwork he reported that there was no evidence for that group improving their academic results.

Parents reported better environmental behaviours from their children such as improved water conservation practices such as shorter showers, greater energy efficiency (e.g. turning off lights when no one was in a room), and reduced waste production. Interestingly, a number also reported an increased interest by their child/children in other aspects of their schoolwork such as reading and writing, and greater attention to the world around them – increased 'Mindfulness' (see Prince of Wales Hospital and University of NSW website at www.blackdoginstitute.org.au). This greater presence of mind and understanding about things around the students including nature was also reported by the students as a significant outcome of their experiences from the program.

Students reported a range of things from learning a great deal more than they had anticipated about the environment, themselves, how to interact better socially and how to better learn. Comments from students, parents and NKIEEC staff were not dissimilar to those reported in Purnell (2006) but the depth and breadth of coverage of the learning experiences was noted. That is, action learning with previous programs through reflection resulted in continuous quality improvements that will no doubt contribute to future programs of a similar nature. It appears that the work done in the MYOL programs at NKIEEC over the past three years would support even longer fieldwork experiences such as perhaps a full school term as is done in some other schools and sites. The unique location of NKIEEC with its cultural heritage does make it an ideal setting for such extended fieldwork trips with ready access to local coastal waterways and other attractions such as like Carnarvon Gorge.

Conclusion and implications for Practices

The high levels of planning by the staff and other adults to be involved in extended fieldwork programs cannot be underestimated in the importance of successfully achieving the 'backward design process'. Answering, first up, questions like, 'What do we want students to look like (be able to know and do)?', and, 'What is the acceptable evidence that the standards required have been achieved (assessment)?' are critical in the learning design process. Having staff committed to working throughout the fieldwork to assist the students to develop the appropriate knowledge and skills is a critical factor. In the case of these two fieldwork programs, the desired outcomes of reconnecting the students with nature, achieving specified curriculum outcomes, and contributing towards the achievement of the *Action Statements* of the Education Queensland's *Middle phase of learning state school action plan* (2004) were achieved. The findings supported the use of the 'backward design process' as a key process and highly effective way to design learning, and particularly with fieldwork. More general use of the backward design process in learning should contribute to better learning outcomes for students.

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