
Community Engineering*

Chris Keenihan

Regency Institute of TAFE, Days Road, Regency Park, Adelaide, SA 5010, Australia

The genesis for *community engineering* is from research initiated and conducted by the Regency Institute of Training and Further Education (TAFE) on behalf of the Australian National Training Authority (ANTA) into vocational education and training for Aboriginal and Torres Strait Islander people. This paper discusses the preliminary research and subsequent innovative implementation phase of the project that is presently being conducted at Meningie, South Australia, in co-operation with four Ngarrindjeri Aboriginal communities. The execution phase commenced in August 1997 with the creation of an Aboriginal controlled employment and training company. The company has contracted 20-25 trainees into an accredited two-year Construction Worker Traineeship and 6-8 trainees into an accredited one-year Small Business Operations Traineeship. Aboriginal trainees are learning and applying in their own community, under TAFE instruction, accredited industry standard engineering trade-based skills. The construction training is being applied on local infrastructure development at nominal commercial rates and the small business training is being applied in running the employment/training company.

BACKGROUND

According to Graham Jenkins, the Ngarrindjeri people are a confederated nation of 18 clans who originally occupied the Lower Murray Lakes of South Australia for thousands of years [1]. They were a distinct group with their own culture, physical appearance, language and democratic government. The rich resources of the Lower Murray Lakes, now declared a wetland of international importance, allowed the Ngarrindjeri to live in semipermanent communities and dwellings. They are/were outstanding artisans in wood, leather and basket weaving.

Arguably the most famous Ngarrindjeri person of recent times is David Unaipon, an inventor, who is acknowledged on the Australian \$50 note.

INITIAL RESEARCH

The research component of this project commenced with one of the 1995/6 Australian National Training Authority (ANTA) national initiatives investigating vocational education and training for Aboriginal people. The Regency Institute successfully managed one

of the projects, titled *A Cultural Context for the Development for Career Entry Technical Training for Aboriginal People* [2].

The research was conducted as an interpretative study with approximately 200 respondents from across Australia. The research phase concluded successfully with six reports, one for each stage of the project, and a Summary Report published for general distribution.

The following fundamental recommendations were made to ANTA in the Summary Report:

- That community engineering programmes be established as Aboriginal community-based education, training and employment strategies involving community enterprises, leading to the acquisition of portable and industry recognised accredited *mainstream* skills.
- Integration and application of English literacy and numeracy with each Aboriginal community education, training and employment programme.
- Co-ordination of existing Government Department education, training and employment strategies, leading to real employment choice and opportunities for Aboriginal people.
- Initiate a multiskilled approach in the communities to address the education, training and employment

* A paper presented at a special session of the *1st UICEE Annual Conference on Engineering Education*, titled *TAFE Engineering & Technology Education*

needs of Aboriginal people.

- Provide the financial resources and infrastructure to enable the appointment of community education, training and employment advisers for community consultation, implementation and maintenance of programme standards.
- That programmes of Aboriginal community education, training and employment provide the student with *user choice*.

As a direct consequence, Regency Institute was funded (March 1997) under an ANTA Demonstration Strategy initiative to implement these recommendations in at least two Aboriginal communities.

IMPLEMENTATION PHASE

The Demonstration Strategy description negotiated with ANTA was to:

- develop and implement new initiatives;
- increase the number of Aboriginal people participating and successfully completing accredited engineering trade courses;
- promote initiatives in increasing the opportunities in long term employment for Aboriginal people.

The proportion of Aboriginal and Torres Strait Islander people holding a trade qualification or apprenticeship as their highest qualification is half that of all Australians. [3].

The principal project outcome of an accredited engineering programme in the context of the project is to include:

- a pathway to gaining an engineering trade certificate;
- employable skills in engineering trade areas;
- skills to aid Aboriginal community development.

The performance indicators for evaluating achievement of the project outcomes include:

- increased participation and attainment rates for Aboriginal people in engineering trade courses;
- improved employment outcomes for Aboriginal people in higher level engineering courses;
- improved uptake of Aboriginal people in engineering trade areas.

Under the ANTA Demonstration Strategy initiative, Regency Institute is presently conducting *community engineering* in co-operation with the Ngarrindjeri people of South Australia on local com-

munity infrastructure development.

The concept of *community engineering* should be interpreted as any trade-based knowledge or skill; for example, engineering trade areas include electrical, plumbing, carpentry, bricklaying, concreting, motor mechanics and other related trades. A *community engineering* trade-based educational programme gives the trainees the opportunity to gain and practice in their *communities* nationally accredited skills which equate directly to industry standards.

ATSIPTAC strongly encourages the on-going development and delivery of customised VET programmes, including apprenticeship and traineeship programmes, which deliver real skills [4]¹.

The Ngarrindjeri Aboriginal community has formed an employment/training company (Kurangk Pty Ltd) and contracted approximately 30 trainees. The trainees are employed in an accredited two year Construction Worker Traineeship, Levels 1 and 2. Six of the trainees are completing a Small Business Operation Traineeship.

ATSIPTAC sees apprenticeships and traineeships as one important opportunity for Indigenous people to develop vocational skills, and in so doing, further tackle entrenched socio-economic problems [4].

The objective of Kurangk Pty Ltd at the completion of the training phase is to form a building company and employ the majority of this intake of trainees.

Project management

The project management is a co-operative initiative between the Ngarrindjeri Land and Progress Association, Kurangk, Australian Council of Trade Unions (ACTU)-Lend Lease Foundation, TAFE and four Ngarrindjeri Aboriginal communities.

Promotion

The project outcomes will be promoted to other Aboriginal communities as a result of the joint project management initiative with the ACTU-Lend Lease Foundation. This Foundation was established in 1981 to assist young Australians to gain *real skills* and *real jobs*. The highest priority in recent years has been to assist people within Aboriginal communities to achieve practical skills and enterprise development opportunities.

¹ATSIPTAC is the Aboriginal and Torres Strait Islander Peoples' Training Advisory Council [5].

Issues

In developing the project, care has been taken to:

- fully involve the local Ngarrindjeri communities in all decision-making processes (a training advisory committee of community representatives is operative);
- develop and implement culturally appropriate learning strategies (Aboriginal people are presently conducting the on-site training);
- enable all training/employment to be achieved in the local communities (Narrung, Camp Coorong and Hack Point);
- ensure that English literacy and numeracy reflect the vocational levels achieved;
- articulate all learning outcomes to nationally accredited units of competency and industry standards;
- deliver quality outcomes in the Aboriginal communities;
- develop employment strategies with *real* job outcomes;
- benchmark with other similar projects/programmes (in joint project management with the ACTU-Lend Lease Foundation);
- ensure the educational outcomes are the same as for non-Indigenous Australians (all training is to industry standards);
- meet all equal opportunity and occupational health and safety regulations and standards.

Community benefits

The Ngarrindjeri community is gaining valuable skills and assets and is having a major input into the design and construction of these community assets.

Barriers to participation and outcomes include a lack of ... Indigenous control over all aspects of education and training [4].

In the Meningie area, where this project is being carried out, it is a relatively unique happening that the four Ngarrindjeri Communities are co-operating in this training/employment programme.

Recidivism

A questionnaire was completed voluntarily by ten construction trainees. Felonies and misdemeanours included:

- Assault on police
- Common assault

- Contempt of court
- Accessory to a crime
- Breaking and entering
- Drug and alcohol abuse
- Motor vehicle offences

Sentences ranged from 18 months jail, hefty fines and long term bonds. The project is working co-operatively with the:

- Parole Board
- local Judiciary
- Police

to minimise the probability of trainees re-offending. There is complete co-operation by all bodies in supporting the trainees in their new endeavours and this has required that the bodies move outside their established operational contexts to address the context of the project environment.

All the trainees now have a direction and are participating extremely well. It is expected that few offences will now be committed.

Many of the respondents remark that *it is good to be doing something useful*.

Training projects

The training is presently being conducted on the following projects using TAFE and private trainers:

- Two essential services sheds at Camp Coorong and Meningie
- Tourism/cultural centre at Hack Point
- Refurbishment of several homes at Narrung
- Maintenance works at Camp Coorong

INNOVATIVE ASPECTS

The following innovative approaches highlighted in the ANTA funded research (1996) are being trialed in this *community engineering* project.

Units of competency

Within the competency standards framework, units of competency drive the learning programme. The following advantages are gained:

- Multiskilling
- Accredited and transferable skills leading to real employment opportunities
- Integration of English literacy/numeracy
- Maximum range of choice

- Practical application of the skills
- Meeting the immediate needs of the trainees and their communities
- Maximum flexibility
- Accreditation of prior learning
- Community control of user choice

The units of competency enable the students to choose their own outcomes and to be assessed on those outcomes. The application of practical skills delivery in smaller digestible packages makes the programme achievable.

Practical application in communities

Overwhelmingly, the respondents of the ANTA research requested that the initial training programme be conducted and assessed within communities. This is being achieved in this project.

Young Aboriginal people deserve adequate training and education which does not force them to leave their community, abandon their traditional responsibilities, or jeopardise their position with CDEP (Community Development Employment Programme) [6].

Meeting the immediate needs of trainees and communities

Communities and trainees are experiencing a range of skills in engineering trade areas. The communities are benefiting from having trainees learning and applying a range of skills and this is evidenced by many local people commenting very positively on the progress and attitude change by trainees.

The industry of Aboriginal community/economic development is the major client of Aboriginal and Torres Strait Islander vocational education and training [7].

This project is embedded in the community and is controlled by the community, though with sensitive mentoring in the context of mutual respect and collaboration.

Allows flexibility

The trainees have a range of personal obligations. The flexible localised approach allows for family and community obligations to occur with little effect on the education process. The basic unit of competency approach allows for bite size skills to be learned and recorded without the obligations and time restraints involved in completing the longer requirements of a

course. Each student is able to work through a programme independently, via a flexible delivery approach in a competency-based programme.

Recognition of prior learning

The present programme is recognising the Aboriginal students' current engineering trade and English literacy and numeracy knowledge and skills, and accrediting those skills through the Recognition of Prior Learning (RPL) processes.

Multiskilling

The industry standard skill areas are:

- Roof, water and sanitation plumbing
- Electrical
- Carpentry (first, second fixing and window fixing)
- Wet trades (tiling)
- Plasterboard fix and flush
- Concreting
- Painting and decorating
- Bricklaying
- Small business operations

The participants will receive a nationally recognised certificate of competence in each vocational area attempted across a range and variety of industries.

This approach to training has the capacity to test the *Skills Passport* concept in providing Aboriginal and Torres Strait Islander trainees with a mechanism to verify the skills and competencies achieved.

... people in remote communities wish to acquire those skills so that jobs can be done by local people, rather than by outsiders [8].

Integration of English literacy/numeracy

The English literacy/numeracy learning is embedded in the training, ensuring that the students gain the appropriate levels of English literacy/numeracy to enable them to perform skills to industry standards.

... that deficiencies in English literacy and numeracy have limited achievement in many of the courses that Aboriginal people have undertaken ... strongly emphasises the need to integrate English literacy and numeracy, so that it forms part of the total learning package [7].

The experiences of the Murrumbidgee College of Agriculture (Yanco) strongly support the integration of

literacy and numeracy into the learning programmes [9].

KEY FEATURES

The key features of the project include:

- the creation of skills acquisition and employment opportunities for more than 30 Indigenous people;
- an underpinning co-operative partnership involving TAFE and other training providers, local Aboriginal communities, corporate sponsors, government agencies and the ACTU-Lend Lease Foundation;
- flexible on-site training, packaged to support a *community engineering* concept;
- acquisition of competencies aimed at producing qualified utility people suited particularly for rural and remote communities;
- delivery of training by qualified Aboriginal instructors;
- effective progressing of CDEP participants through traineeships to sustainable employment;
- enhancement of community assets/potential, through the practical work-based training approach;
- development of a model for wider application in Australia.

CONCLUSION

This project involves a major first in the Meningie area, with the four Ngarrindjeri Aboriginal communities co-operating in training/employment/community development.

The communities involved are gaining valuable skills, employment potential and the enhancement of assets. Most importantly, the local people are having a comprehensive input into matters that directly affect them.

It is expected that at the completion of the two-year training programme the following will be achieved:

- The formation of an Aboriginal building and maintenance company.
- 30 or more people will have mainstream employable skills.
- Future training will continue and be conducted by the community.
- Tourism opportunities will increase significantly.
- Employment opportunities will increase significantly.
- CDEP participants will be able to progress via the

traineeship to sustainable employment.

- Further horticultural industries, like grape-growing, etc, will commence.
- Recidivism will decrease significantly

REFERENCES

1. Jenkins, G., *Conquest of the Ngarrindjeri: the story of the Lower Murray Lakes tribes*. Rigby, Adelaide, South Australia (1979).
2. Keenihan, C., A cultural context for the development of career entry technical programmes for Aboriginal people. Regency Institute of TAFE (1996).
3. Teasdale, J. and Teasdale, R., *Pathways to where?: Aboriginal and Torres Strait Islander participation in vocational education and training*. NCVER, Adelaide (1996).
4. *New Apprenticeship and Traineeship Opportunities for Aboriginal and Torres Strait Islander Peoples: Community Development through Skills Development*. Aboriginal and Torres Strait Islander Peoples' Training Advisory Council, ANTA, Qld, 10 (1997).
5. *Role, Function and Membership* (discussion paper). Aboriginal and Torres Strait Islander Peoples' Training Advisory Council, ANTA, Qld (1995).
6. Calma-Holt, R., *Real jobs for young indigenous Australians. Proc. Northern Territory Land Council in Jobs for Young Australians* (1995).
7. Butler, E. and Lawrence, K., *Access and equity within vocational education and training for people in rural and remote Australia: a background report*. Report to the Australian National Training Authority. Project managed by Techsearch Business Services, University of South Australia, 85 (1996).
8. Coles, B., *Educational and vocational training needs of the Aboriginal labour market in rural and remote areas of the Northern Territory. Evaluations and Investigations Programme, DEET, AGPS, Canberra*, 56 (1993).
9. *Murrumbidgee College of Agriculture Yanco, Aboriginal Rural Training Programme Final Report*. NSW Government, NSW (1992).

OTHER READING

1. Australian Government, *Incorporating English language and literacy competencies into industry standards: Employment, Education and Training*

Act 1988. Report of NBEET, AGPS, Canberra (1993).

2. Groome, H. and Hamilton, A., Meeting the educational needs of Aboriginal adolescents. Commissioned Report 35, NBEET, AGPS, Canberra (1995).
3. Harland, C. and Sellinger, G., Toward effective training in remote areas. Report on the Review of Trade-based Training in Aboriginal Communities, NCVER, Adelaide, South Australia (1986).
4. McPherson, W., Destined to fail – but we beat it! Vocational education and training for indigenous people working in rural and remote areas of Queensland and New South Wales. *Equity in Vocational Education and Training - It's Your Business, DETEC and TAFE NSW Conference*, Sydney (1996).

BIOGRAPHY



Chris Keenihan is an Advanced Skills Lecturer in mechanical engineering, Regency Institute of TAFE, South Australia. Chris holds a Master's degree in education studies and an Associate Diploma in mechanical engineering. He commenced his working life as an apprentice at the Defence Scientific and Technology Organisation in South Australia, specialising in metallurgy and vacuum technology. Since joining Regency Institute he has pursued his interests in Aboriginal education. Chris has a long community involvement with people with disabilities and with Aboriginal people.