

DESERT KNOWLEDGE CRC

Lifecycles of Sustainable Settlements

PhD project 5.601
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Capacity for Innovation in Desert Settlements for Extending Lifecycles of Built Environments.

Extending lifecycles of housing in the built environment through local capacities and effective service delivery is critical to sustaining the viability of remote desert settlements. Capacity for innovation is a fundamental attribute that enables people to actively participate in this process.

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Why is this research important?

The 'lifecycle' of housing technologies determines the length of time that occupants are safely and comfortably protected from the extremes of climate. Equally important, the lifecycle of hardware amenities supporting the various functions underpinning daily 'healthy living practices' (*National Indigenous Housing Guide*), learning and wellbeing if short can significantly discount any gain in the lifecycle of house structures.

How will housing lifecycles be increased?

Appropriate choices for the materials and methods used in construction and design of the built environment requires local knowledge and capacity to predict the consequences of those decisions. As repair, support and service for housing is difficult and expensive to provide when it is needed, local knowledge, tools and capacities are critical for technological self-sufficiency. Such expertise contributes to more effective communications with service providers, broad community knowledge about technology options, and further increases the lifecycles of housing and the sustainability of healthy living practices in remote, arid settlements.

How will this capacity be developed?

This study is exploring the benefits of delivering technacy education to remote settlements. Technacy, according to Dr Gregor Ramsey in his *Report on Future Directions for Secondary Education in the Northern Territory (2003)* and in numerous other studies, is as fundamental to education as literacy and numeracy. He asserts the ability to engage holistically with technology provides "critical skills for negotiating the varying and ever changing technologies increasingly integral to daily life, even on remote communities."

As a theoretical framework, technacy is supported by robust principles that transfer readily into practice. It provides a holistic approach to problem solving and interpretation of technological activity.

How will technacy support innovation?

Where technacy enables holistic problem solving and engagement with technology, it supports the emergence of alternative concepts within the framework. This allows people to design and develop original solutions and innovations for local contexts, appropriate for local needs and purposes.

At what stage is the research?

Innovative concepts emerging from review of literature and examination of successful educational models need to be triangulated with qualitative field work to gauge local opinions and attitudes towards housing and education.

What are the known challenges?

A major challenge is providing education to dispersed, isolated communities who have limited resources and normally cannot economically sustain nor reliably attract specialists in traditional trades. The knowledge and skills required in communities are largely determined by the types and choices of housing and amenity technologies placed in desert homes suggesting that innovations can be curbed to favour new and more locally sustainable technological knowledge and skills over time. Another challenge is engaging and retaining Indigenous learners in contextually effective educational programmes between years 6 and 9 of schooling: the continuity gap.

How might the challenges be addressed?

Innovative problem solving within a technacy framework continues to evolve ideas as possible solutions to address these challenges and provide effective outcomes.

Imagination and creativity must be applied to reveal ideas beyond traditional concepts of educational delivery. It is expected that a range of these solutions will be needed to suit diverse needs across different settlements and contexts.

Conclusion – New Knowledge These concepts will contribute to significant new knowledge:

- ❖ A unique Australian philosophy that endorses, and fosters ideas within the complexity of desert living through broad innovation and technacy education strategies;
- ❖ Educational programmes that inspire Indigenous children to be innovative;
- ❖ "Learning by becoming" that enables technacy education to be delivered towards relevant benchmarked outcomes.