

Science, research and social change in Indigenous health — evolving ways of knowing

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Abstract

History tells us of the overwhelming destructive influence of exotic culture, politics and knowledge forms upon the worldview and wellbeing of Indigenous Australians. The power of dominant culture to oppress, control and dominate traditional Indigenous ways of knowing and being has been identified as a being a crucial influence on the health status, future hopes and aspirations of Indigenous Australians. Fundamental to this assertion is that the alienating effect of the belief in and application of the scientific method in relation to learning and knowing is a phenomenon that is incompatible with the law and cultural ways of traditional Indigenous people.

The establishment of the Centre of Clinical Research Excellence (CCRE) is predicated upon and responds to a deep need in our community today to synthesise the ideological and epistemological premises of an increasing range of cultures and world views. It recognises that clinical research, for example, is important to the health of Aboriginal and Torres Strait Islander peoples, but also that the way such research is designed and carried out is also crucial to its potential to effect change in and improve the state of Indigenous health in Australia.

This paper examines knowledge principles and processes associated with research in Indigenous communities, explores emerging research trends in science and proposes an epistemological framework for synthesis of traditional approaches with those of the scientific paradigm.

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What is known about the topic?

The recent establishment of a Centre of Clinical Research Excellence (CCRE) in Aboriginal and Torres Strait Islander Health in South Australia is a significant achievement, predicated upon fundamental principles of knowing and being in the world which, to date, may not have been well understood or articulated.

What does this paper add?

This paper discusses important principles encompassing thinking about dominating and dominated cultures, conflicting ways of knowing and understanding reality, ownership and control of culture, self-determination and the need for a constructive synthesis of different worldviews, ideologies and technologies in the interest of improving the health status of Indigenous Australians.

What are the implications for practitioners?

Indigenous Australians need to be involved in the processes of research through understanding and applying scientific and medical knowledge in combination with appropriate approaches to community interaction and more traditional ways of knowing and learning.

AS AN ENGLISH teacher in a secondary College in Tonga in 1980, I observed an interesting social and educational phenomenon. Students would emerge from the jungle, immaculately dressed in pressed uniforms to sit, 50 to a class, in bare concrete rooms, sometimes without desks or chairs and with only pencil and paper to hand waiting for the *palangi*'s (foreigner or white person) education to inform and infuse their being almost by osmosis. These students knew how important it was to get an education, to be able to read and write and think like *palangi* and they were convinced that the alternative, life in a jungle village, was undesirable. Island people had been nurtured within Western churches and mission schools to aspire to the good life of the *palangi*.

With this in mind and with understanding of the literature on the impact of dominant culture education and power structures on the aspirations and life opportunities of dominated and oppressed people,¹⁻⁵ I became involved in the development of a Centre of Clinical Research Excellence in Aboriginal and Torres Strait Islander Health in South Australia.

The vision for the new research Centre was that it would conduct relevant and meaningful clinical research and support Indigenous researchers to gain formal academic qualifications which might help them to translate research findings and knowledge into practical health care models for application in Indigenous communities across Australia. While this approach carried with it a long legacy of Western scientific dominance of traditional culture and may still be seen by some as a continuing and deliberate strategy by dominant culture to control, manage and ultimately destroy native culture,⁶ new views are emerging that enable a coexistence of science and traditional culture without the loaded ideological implications of power, dominance, capital and control.

... Indigenous people are deeply cynical about the capacity, motives or methodologies of Western researchers to deliver any benefits to Indigenous peoples ... [but] because of such deep cynicism there are [now] expectations by Indigenous communities that researchers will actually "spell out" in detail the likely benefits of any research.⁶ (p. 118)

Principles of engagement

Before the establishment of the CCRE, much research carried out in Indigenous communities had been based on an imposed, quasi-experimental, scientific research model, which for many Indigenous people was foreign, meaningless and degrading.^{1,7} Consequently, much of this research failed to contribute to building healthier more informed communities, which, in turn, motivated the establishment of new approaches to ethics approval for research being conducted in Indigenous communities. Under these new

guidelines for research involving Indigenous people it was essential that no matter what form the research took, it was required to contribute to improvements in the community and not just be carried out for its own sake or for the benefit of research bodies.¹ Research had to meaningfully contribute to the development of real knowledge, skills and capacity building within the communities. Importantly, research needed to be in the hands of and controlled by Indigenous people if it was to be effective; a key principle underpinning the establishment and funding of the Centre.

Science as a dominant language and culture

The evolution of objective science is continuous and we are constantly changing and refining our concepts of matter, time and space to encompass the quantum physics of people like Rutherford, de Broglie, Heisenberg, Einstein, Hawking and others.⁸⁻¹¹ Underlying this progress in science is the idea of open, inductive and critical logic based on the principles of verifiability and refutation.¹²⁻¹⁴ The very foundation of modern society, Popper argued, was the idea of the scientific paradigm as characterised in his major work, *The open society and its enemies*.¹³ Ideas, principles and knowledge forms had to be repeatedly put to the test to find if there were any circumstance in which they could be refuted and rejected as inadequate theories.

When it comes to health and matters medical, this dominant scientific paradigm is powerful and difficult to challenge. An enormous evidence base around medical treatments and outcomes exists. Theories are rigorously tested using repeated, quasi-experimental research models that are based on sound mathematical principles. We know the causes and course of disease, and we know which treatments work best under which conditions; and over time we have learnt how to refine such approaches to become better and better at the business of health science. In short, we know how to do science.

However, does such a knowledge and experience base mean that we understand what is going

on in the microscopic or subatomic realms? Is the new orthodoxy of science telling us the whole story about the complex processes of learning about and maintaining our individual and social wellbeing? Are there other factors that our controlled trials might be neglecting that, if taken into account, might add a new dimension to the way we treat diabetes in Indigenous communities, for example? If such uncertainty exists among adherents of the dominant paradigm in which Western cultures have been educated and schooled for centuries it stands to reason that cultures for whom this science is relatively new, such as Indigenous communities, must surely face a much more imposing challenge to understand and work within its umbrella. It is time to get serious about Indigenous health, and this means taking a new look at the way we work with Aboriginal and Torres Strait Islander people to achieve improvements in health status. The translation of scientific thinking into relevant practice will be an important aspect of this process.

A further example of how our methods may lead to confusion is the way we study, analyse and attempt to improve the health status of “at risk” populations. Does our scientific approach to human metabolic fitness, as a case in point, take into account all inputs around the metabolic processes occurring in the body or only focus on and measure certain levels and types of food and energy inputs against levels of exercise and activity outputs?¹⁵ Does the modern physiological approach to metabolic fitness take proper account of the importance of psychological factors or genetic factors when deciding what one should eat or how they should best manage their lifestyle to maximise their health and wellbeing?

The same question might well be posed in relation to the application of standard science to improving the health status of Indigenous communities. Does our particular and well researched approach to knowing adequately connect with and inform Indigenous realities in a way that enables people to take control of their lives and use new information and knowledge to improve their health? What other factors might we be ignoring in our models? Some suggest that

understanding the so-called science of illness management is really secondary to more fundamental elements such as physical and emotional security and the ability of people to belong within communities and feel valued and respected in their culture. People need to know they are in charge of the basic aspects of their day-to-day lives.² This is not only the case for Indigenous communities. The findings of the Whitehall study in England highlighted a clear connection between health status and the degree of autonomy or control, or lack of it, that public servants have over their work situation.¹⁶⁻²⁰ Even well paid and highly educated public servants were becoming ill at alarming rates, suggesting that economic factors alone could not explain trends in health status generally.

If you are expending effort and the reward for this — whether in the form of income, self-esteem or status — is inadequate compared with the effort expended, then that imbalance between effort and reward is bad for you. People who report high effort and low reward have higher coronary heart disease incidence than those with low effort and high reward, even when you adjust for low control.¹⁷ (p. 137)

Although there may be questions about the overall effectiveness of the scientific paradigm, it appears to be more encompassing and successful in its description and categorisation of reality than other historical paradigms. It is more successful epistemologically and therefore dominating of other worldviews that may not have such replicable and far-reaching powers of predicting and describing. We no longer believe that people die because of evil spirits, but look in our water, food and air for the contaminants and microbes causing such problems.

The scientific paradigm has come to dominate our lives, our thinking, our technology and our very being in the world. As Heidegger wrote,

The power concealed in modern technology determines the relation of man to that which exists. It rules the whole earth.²¹ (p. 50)

We trust science to fly us around the world, to cure our infections, build our bridges and mod-

ern buildings, to shape and reshape our environment, change the course of rivers and even of history itself, and to unlock the binding energy of matter for our personal use. Even though we do not fully understand what matter or energy is because even the best science works only with approximations of reality rather than with absolute truth,²² we do know how to work with our models of matter and energy to build technologies that function for our benefit. But in this headlong race to encompass, describe, understand and control every facet of our lives through scientific research and technology, what are we losing? What other ways are there of seeing and understanding, contributing to and informing our cultures meaningfully?²³

An alternative epistemology

It has been argued elsewhere² that the evolution of epistemological concepts takes significant time and that our own modern understanding of the science of health care is a recent achievement which took many centuries to evolve and refine. Not all that long ago Western culture did not generally agree with or understand concepts such as human reproduction, the propagation of diseases such as bubonic plague, the existence and function of bacteria, let alone the origin of life and of the human species (something that is still not understood well at all). When we, the inventor of science, see the evolution of our own understanding in such a light, it is not difficult to see that other cultures such as Indigenous communities might also take similar periods of time to work with and understand the principles of modern medicine, science, mathematics, cosmology and religion since such world views are so different from their traditional understanding of reality. Indeed, Trudgen² suggests that even today fundamental mathematical concepts, such as percentages, are not easily understood by some Indigenous groups. Adapting such concepts and integrating them into traditional cultural ways will take time. As will the evolution and development of research methodologies that can accommodate Western and traditional understandings

and knowledge forms to ensure that they are intelligible to and meaningful for both Western and traditional groups in Australia.

The CCRE charter is to progress the nexus between what is known and works in one community and what is understood and used successfully in another. Therefore, in the spirit of this challenge, while working to assist the development of modern research practices in Indigenous communities, it is also important to learn about other more traditional approaches to “doing research” with a view to finding a synthesis of the two schools of thought. The task of the CCRE is therefore as much one of learning about other approaches to knowing and understanding as it is to teach Indigenous researchers about quasi-experimental and scientific design.

This implies a need to decode or translate the work done in science in a way that makes it meaningful to Indigenous people. In essence, the task is to progress what Heidegger conceived of as a synthesis of calculative and meditative thinking,^{21,24} or what Illich called the “dawn of Epimethian man”⁴ in which a range of knowledge forms and processes need to be brought to bear in a systematic approach to emerging problems. No one view of reality can suffice in this situation and the interrelated nature of communities, behaviour, knowledge and understanding implies that a more systemic approach to problem solving needs to be taken.

At the root of such an approach is effective communication, ensuring that people from different communities and cultures with different ways of understanding health and wellbeing actually understand each other's concepts rather than simply paying lip service to them. This is a significant challenge from the perspectives of formal research and epistemological exploration, for, as Capra notes in relation to our evolving systems and theories of knowledge:

In the Cartesian paradigm, scientific descriptions are believed to be objective, ie independent of the human observer and the process of knowing. The new paradigm implies that epistemology — understanding of the process of knowing — has to be

included in the description of phenomena. This recognition entered into science with Werner Heisenberg and is closely related to the view of physical reality as a web of relationships.²²(p. 39)

As we do research, we may be recording only a reaction to our research process rather than the way things really are. In the recent coordinated care trial in Australia, for example,^{25,26} the research process led to systems change before the analysis of any of the data produced,²⁷ while the care planning process being designed and tested served to modify clinician behaviour and service utilisation patterns. The very process of exploring patient needs in relation to pharmaceutical services uncovered extensive unmet need and drove up demand for services through patients being encouraged to comply with best practice protocols.²⁸ Such complex feedback processes are now being proposed as the basis of a self-regulatory system for the earth itself!²²

What might these fundamental epistemological questions have to do with the way we establish and run a research centre in Indigenous health? Firstly, these relatively recent innovations and developments in human knowledge forms and understanding of reality reinforce the notion that science is an evolving art form. Also, the answers we have are only approximations that would benefit from other perspectives or approaches. The health care science upon which we base most of our health programs might therefore be improved through input of ideas and approaches from other perspectives, such as those of Indigenous Australians. This could, in turn, help to improve the uptake of modern health care regimens in more traditional communities and lead to improved health status in those communities.

Secondly, we need to be cognisant of the fact that most community-based research impacts in various ways upon the research context. Our attempts at research in Indigenous communities, for example, are not value free or neutral, but act upon the communities and the people involved in the research process to change these contexts.

While the need for Indigenous cultures and Indigenous health workers to be educated in the scientific paradigm of research and medical practice is recognised, it is also important to acknowledge that such knowledge acquisition and assimilation takes time and needs to be supported through the development of mutual respect for other ways of knowing and understanding what being healthy means. Although the process of understanding and using the language and tools of science is developing in Indigenous communities, many believe that the failure of education programs generally has left Aboriginal and Torres Strait Islander people vulnerable and poorly prepared to deal with emerging social and economic structures in Australia. This vulnerability manifests as phenomena outlined by Noel Pearson when he notes that young Aboriginal people have been inadequately “armed” with the tools they require if they are to have real choices about how they improve their health and wellbeing.

... the problem ... is that people did not develop the capabilities to make an effective choice. There wasn't proper education, health, infrastructure, social safety and order, and so on, necessary for young Aboriginal children to exercise effective choice. We first need to arm young Indigenous people — whether they come from the remotest communities and the smallest outposts in this country — we have to arm each and every one of those children with the ability to choose. And that ability to choose comes from a proper engagement in mainstream education and a proper investment in their health, and the proper capacity to choose. And that involves also, mobility, the capacity to be mobile.²⁹

Trudgen agrees that the process of educating Indigenous people in the forms of new knowledge is a complex one.

To be credible, new knowledge must build on other knowledge that has already been accepted by the group. New knowledge that cannot be corroborated in this way will be assessed and then rejected as intellectually incomplete.² (p. 201)

Further, he reminds us that new knowledge must come from those who are seen to be its owners, an axiom with major significance for how the science of health care is taught in communities and by whom. For example, Trudgen argues that attempting to educate communities by bringing new knowledge via the young or by selected champions from among Indigenous leaders has the effect of alienating those people from their community because these harbingers of the new epistemology are seen as peddling processes and information that do not belong to them.

... if the new knowledge is forced on the group through a method that is not acknowledged by them as valid, the new information will most likely be rejected out of hand. For new information to be accepted by any group, the process is more important than the content.² (p. 210)

The real owners of scientific method and the scientific paradigm, therefore, need to find more effective ways of teaching and promoting this knowledge and information in Indigenous communities.² Freire makes the same point.

... so called "leadership training courses" ... are based on the naïve assumption that one can promote the community by training its leaders — as if it were the parts that promote the whole and not the whole which, in being promoted, promotes the parts ... As soon as they complete the course and return to the community with resources they did not formerly possess, they either use these resources to control the submerged and dominated consciousness of their comrades, or they become strangers in their own communities and their former leadership position is threatened. In order not to lose their leadership status, they will probably tend to continue manipulating the community, but in a more efficient manner.³ (p. 171)

It is important that efforts to educate and support different communities and individuals in their development do not result in the purveyors of new knowledge, skills or technologies either inadvertently or deliberately setting about to

make things worse for the people and the communities they encounter.¹ As Trudgen suggests, when people are given information and support and can take control of their own situations, problems seem more easily managed. Attempts by external cultures or agencies to promote certain ideological or methodological approaches to education or health care are apt to do more damage than good.

... when people have heard all the relevant information in a language they understand, initiated a response or intervention that fits their cultural ways, and then physically brought into being what they have decided upon, "the problem" seems to fade and almost disappear. When people have control over their lives, they know they are as human as dominant culture people. This allows them to be proud and to be actively involved in their destiny. Control is the essence of good health.² (p. 219)

Conclusion

Ways of knowing and being are as numerous as the cultures and material conditions of the societies that evolved them and these approaches to knowledge acquisition and understanding are not easily or quickly changed. While it is now incumbent upon Indigenous culture to learn and assimilate the scientific paradigm of knowledge generation in order for these communities to benefit from modern medical and public health know how, it is also important for those teaching and devolving the ways of modern science to be cognisant of other world views in the process of making meaning in the modern idiom. This common understanding of culture and values will, argues Trudgen, help to create more "Indigenous friendly" learning environments in which people in both cultures can learn how to work together more effectively. But in all of this his main point is that

It is the dominant culture knowledge that (Indigenous people) are having trouble learning, so they need dominant culture personnel to train them. But the dominant

culture personnel who come as teachers, trainers and resource people cannot do their jobs precisely because they have no training to communicate, teach or instruct in a cross-cultural/cross-language setting.² (p. 232)

If Indigenous people are to understand and benefit from modern medical knowledge to the extent that other cultures currently do and are to use this knowledge effectively to improve the health status of their communities, it is important that they gain access to the full range of learning and life opportunities that this knowledge can bring rather than, as has been the case in the past, having to function with less than a full complement of “arms”, as Noel Pearson puts it. Effective approaches to learning must be discovery-based, relevant to the needs and world views of learners and designed to address real communities’ challenges.

Initiatives such as the CCRE in Aboriginal and Torres Strait Islander Health are designed to enable and support mutual, relevant and collaborative learning processes and to improve the knowledge and skills of Indigenous people through the application of appropriate and meaningful research, training and capacity-building programs. By arming Indigenous people in this way it will assist them to assume responsibility for the management of their health systems and help to improve community health status through pursuit of relevant and appropriate research and technologies.

Postscript ...

Capacity building for indigenous people needs to go beyond “action planning” and “engaging leadership,” concepts that are often the first steps in Western models. Before indigenous people can effectively engage in building healthier communities, the wounds caused by colonization, historical trauma, racism, and disparities in health, education, and living conditions need to be acknowledged, treated, and healed. There needs to be a positive collective identity, with trust for each other and for the process.

A mechanism is needed for building the essential skills the Western scientific community may take for granted and, conversely, for educating the Western scientific community about Native science²¹ and indigenous “ways of knowing”. Indigenous people need to come together in a way that is comfortable, familiar, and respectful of different cultures and traditions.³⁰ (p. 598).

Competing interests

The author declares that he has no competing interests.

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