

# Māori culture and biotechnology: Conflicts and similarities

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**Abstract:** The interface between biotechnology and the Māori culture in New Zealand has been characterised by conflict and disagreement. The views of Māori and non-Māori working in the science community in New Zealand are compared and contrasted to see what steps need to be taken for Māori to be able to take advantage of the opportunities that this technology provides--particularly when applied in conjunction with the natural resources which are play a major role in the cultural identity and sustenance of Māori. The findings indicate that the interface between the Western scientific view of biotechnology and the indigenous view is likely to remain characterized by conflicting ideas and defensive approaches.

**Keywords:** biotechnology; Māori culture

## Introduction

This paper analyses the current state of biotechnology in New Zealand and the interface between this science and Māori cultural values. In the past this interface has typically been one of conflict and dispute but in recent years Māori have begun to recognise in some instances that there is a positive application of this science in terms of benefit to Māori and New Zealand. Though there may be a slight shift in the acceptance of this science, widespread acceptance is still a long way off by Māori or New Zealand as a whole. The approach is to examine not only differences and conflicts but also similarities and unity of purpose, with the intent that highlighting these aspects may shift the focus away from the conflicts which to date have impeded collaborative efforts. It is likely that these conflicts will always exist.

### ***Defining Māori and Indigenous Knowledge***

In referring to the work of Ellen and Harris (2000) Jones and Hunter (2004) have delineated the characteristics of indigenous knowledge as being:

1. Local
2. Orally transmitted
3. A result of everyday interactions
4. Devoid of a theoretical framework
5. Redundant in order to facilitate retention
6. Constantly in a state of change
7. Shared through the community
8. Integrated

Indigenous knowledge is the local knowledge that is unique to a culture or society, this knowledge is passed on from generation to generation, usually by word of mouth and cultural rituals, and has been the basis for agriculture, food preparation, health care, education, conservation and the wide range of other activities that sustain a society. Indigenous people have a vast knowledge of the eco systems in which they live and of ways of using natural resources

sustainably. Today there is a risk of this knowledge being lost and with it valuable knowledge about ways of living sustainably (Gough, 2005).

### ***The relationship between Indigenous people and nature***

Indigenous people believe that their relationship and sense of unity with the environment is a fundamental aspect of their identity. This is evidenced by their relationship with land, forests, waterways, ocean and air (Durie, 2004). For example, Vine Deloria (1994, pp. 172-173) pointed out that “most tribes were very reluctant to surrender their homelands to the whites because they knew that their ancestors were spiritually linked to the land”; which highlights the natural resources as being collective and intergenerational. In discussing the meaning that the land and its resources have for Māori, Jones and Hunter (2004) make the same point and also highlight effects such as tribal disassociation from ancestral origins, and alienation from identity.

For Māori tribes, tribal location and significant tribal markers such as mountains and rivers became an intrinsic part of their Māori identity. Māori people maintained respectful and spiritual connections with the land and the earth’s natural resources. Māori identity was intimately associated with the location of tribal boundaries, and therefore with the land. (Walker, 1989)

### ***Indigenous knowledge vs. science***

Indigenous knowledge cannot be validated by science; neither can science be assessed according to the precepts of indigenous knowledge. This is because each are built on distinctive methodologies. Durie (2004) notes that a debate over which is the more valid only serves to detract from the interface of these two persuasions and the opportunities that may arise. Science has at times been accused of intolerance towards other persuasions, especially those such as indigenous knowledge that cannot be validated according to set criteria to assure validity. Indigenous knowledge though not ascribing to scientific principles still runs the risk of being rationalized according to these principles. The knowledge then can become meaningless as it will then be out of context. The way science views nature is at odds with the way indigenous people view nature, as a result of this indigenous people have in turn often dismissed science as a legitimate knowledge base due to its inability to explain spiritual phenomena. The debate between science and indigenous knowledge has long been both sides assuming that one argument is more relevant than the other, such as polarized debate does little more than further entrench positions in defense rather than provide new insights (Durie, 2004).

Snivley and Corsogilia (2000) examine the conflicts between Indigenous science and Western Science from an educational perspective. They contend that in most classes around the globe, western modern science has been taught at the expense of traditional ecological knowledge. Westerners freely acknowledge most other facets of indigenous culture such as art, music, literature and political and economic systems, but somehow have failed to appreciate indigenous science. Indigenous science is rich in time tested approaches that foster sustainability and environmental integrity. Snivley and Corsogilia further argue that since indigenous cultures have made significant contributions to western science, then this supports the view that there are different ways of arriving at legitimate knowledge.

Tauli-Corpuz (2000) proposed that rather than there being one conclusive view on biotechnology, indigenous people have expressed a number of different views with regard to their position on biotechnology. One view is to consider that if developments in technology and science are inevitable, then indigenous people should forge the best possible contracts in order to share benefits derived from the resources and make rules on access which are mutually beneficial. A similar view is that there is nothing wrong with biotechnology and therefore, indigenous people

should not be opposed to it. The problem does not lie with the actual science or technology but who has control over it. A third view is to critique biotechnology, and to oppose its further development. To protest the manipulation of life forms is one way to do this, most indigenous people appear to support this third position. While indigenous people are not alone in holding such views, they are often the groups that are being accused of being against progress. Tauli-Corpuz (2000) discusses the contrast between the different worlds, indigenous people that have gone through the experience of being colonized have had their resources and land taken away in the name of development and progress. It is not surprising therefore, that they are resistant to further appropriation of resources through the Human Genome Project.

### ***Exploring the current interface***

Durie (2004) points out that it is crucial for Māori researchers to apply the methods and values of both systems in order to gain a better understanding of Māori health and illnesses. There are an increasing number of indigenous researches who utilize the interface between science and indigenous knowledge as a source of inventiveness. These researches have access to as well as an understanding of both systems and will often use one to complement the other. The focus in this instance will shift from proving the relevance of one over the other to identifying opportunities arising out of combining both.

Cram, Phillips, Tipene-Matua, Parsons and Taupo (2004) state that Māori are not anti-science, rather Māori embrace science in order to help them fulfill their goals for their people and the environment. Indigenous people other than Māori have demonstrated this view, as Judy Gobert who is of Blackfoot, Nakota and Salish descent, explains: "We see science as a tool - a tool to preserve our land, our water, our air, and our plants - not as a weapon, not as a way to make money." (Cited by Cram et al., 2004, p. 15)

Recently Māori have challenged Western thinking about science; examples of this are the issues whakapapa and genetic engineering, and indigenous approaches to sustainable management when managing for biodiversity.

Waiti and Hipkins (2002) explain that due to these challenges to western thinking it is important for all scientists to have an understanding of Māori cultural values. Though it's in the background native knowledge systems remain intact and in practice by indigenous people. There is a growing appreciation of the contributions that indigenous knowledge can make in areas such as medicine, resource management, biology and human behavior (Barnhardt & Kawagley, 1998).

### ***Genetic modification in New Zealand***

Fletcher (2005) discusses the emergence of genetic modification as a salient issue coincided with significant changes in New Zealand Society, both politically and particularly with the relationship between Māori and Pākehā. During the time that genetic modification was becoming an issue Māori were engaged in the ongoing process of land claims and customary rights to environmental resources, and monetary reparations. This was particularly relevant when it came to the Genetic Modification Food issue, in that Māori could possibly bring claims against the Government if genetic modification conflicts with customary rights over flora and fauna (Fletcher, 2005). There have been some efforts on behalf of the crown, via the Royal Commission on Genetic Modification to consult with Māori and the New Zealand public. New Zealand's unified anti-nuclear policy illustrates that perhaps New Zealand's view of the environment does not differ as greatly to Māori as some may believe, particularly compared to other western vs. indigenous scenarios.

In a submission regarding the application for AgResearch to field test a Genetically Modified Organism Angeline Greensill stated that:

We take it for granted that everything in our environment is unique and in balance. Everything possesses mauri or a life force and is to be respected. Because everything is interrelated and inter-connected, a mutilation, modification or unnatural desecration of any part affects the whole. (Cited in Cram et al., 2004, p.15).

A study carried out by Cook and Fairweather (2005) noted several concerns regarding the attitudes regarding Genetic Modification in New Zealand; and they suggested that public views regarding biotechnology were based on rather general values that were strongly held. They also examined the alignment between these attitudes and world views and found evidence of a link between attitudes of biotechnology and the worldview items of spirituality, attitude towards nature and post materialism. In studies on the philosophy of attitudes, Eagley and Chaiken (1998) describe this form of attitude strength as ‘inter-attitudinal’ strength in that it is very linked to other attitudes and values, this aspect makes the attitude resistant to change as it is embedded in broader values and attitudes. Therefore in order to change the attitude, the magnitude of immediate benefit would have to be large in comparison to the resistance from the other values which are all interconnected and linked.

### ***The issue of Intellectual Property***

Cram et al., (2004) raise the issue of informed consent and intellectual property rights. The Mataatua declaration sought to address this issue, not only for Māori but for all indigenous people. As noted by Jones and Hunter (2004), that there is a legal debate as to whether intellectual property rights should be extended to cover indigenous knowledge or whether this knowledge should be enshrined as a public good, the debate occurs due to intellectual property laws in most countries being ‘established and enforced on the basis of western capitalistic models. Because indigenous knowledge is being measured against this Western framework it fails the test for patenting as it cannot be proven that it involves an inventive step, or is capable of industrial application. Indigenous people are actively appealing this current stance; however the fact remains that intellectual property law does not cover indigenous knowledge, and the innovations that have occurred within that context.

The New Zealand government has identified this as a concern; as is evidenced by comments made by the ministry of economic development who have stated:

Experience suggests that further work needs to be done to address the concerns raised by Māori and other indigenous people about the impact of intellectual property laws on traditional knowledge both in terms of cultural preservation, and economic development opportunities.” (Jones & Hunter, 2004, p. 13)

This has led the ministry to examine the relationship between intellectual property rights and indigenous traditional knowledge. This will be done via a three staged work programme, carried out in collaboration with Te Puni Kokiri and a number of other public agencies who have an interest in these issues (Ministry for culture and heritage, Creative NZ, Department of Conservation, Ministry for the Environment, Ministry of foreign affairs and trade).

## **Methodology**

A series of interviews were carried out among eight professionals within the science community. Four of the participants were Māori and four were non-Māori. The interviews were carried out over a period of three months, December 2007 – January 2008. The respondents were in most instances contacted through their organisation. Some efforts were made to obtain a demographic

spread with primary considerations being gender, age and region. The length of the interview ranged between thirty minutes and an hour and a half. The objectives of the interview were to establish the individual views about: (a) the use and development of biotechnology science; (b) the nature of the interface between biotechnology science and the Māori culture; and (c) the future of this interface, whether issues could be overcome and what opportunities there were to be had in collaborative efforts. The interview was based around set questions but also included other questions dependant on the respondents industry and experiences.

The data was analysed using a thematic analysis. The study has two particular limitations. One is that the sample group was small and not randomly selected. The second limitation is that because the interviewer is Māori this may have influenced the nature of participant responses.

## **Results**

### ***Views on biotechnology***

All the participants expressed positive views regarding the introduction and development of biotechnology science. Many explained the advantages this science has for medical developments as well as for more commercial developments such as tearless onions that are currently being developed. However, while two of the four Māori participants initially expressed positive views on biotechnology, they expressed reservations concerning the application of this science within certain fields such as genetic modification and stated that in New Zealand the current legislation was strict about where and how this science can be applied. The application of these sciences requires approval from a moderating organisation. All of the participants said that New Zealand is conservative as a whole regarding the area of genetic modification and that feelings against this branch of science are particular to one or two groups in New Zealand.

Three of the participants (one Māori and two non-Māori) commented that the strict legislation around the implementation of branches of biotechnology are too restrictive and considerably slow down the progress of scientific development. Two participants stated further that this acts as a deterrent for many research companies who choose to take their research off shore where they are able to develop biotechnology science with less restraints than those that are placed on them here. This has resulted in scientific investment and important findings being taken offshore, in addition to that science professionals that want to specialise in this branch of science also end up being attracted by offshore research companies who can afford them a lot more freedoms than are permitted here.

### ***Views on the interface between biotechnology and Māori cultural values***

There was agreement among all participants that there are clear clashes between Māori cultural values and biotechnology science. All participants recounted instances where there had been dispute over proposed plans to conduct experiments using biotechnology and it had been delayed or stopped altogether. The non-Māori participants said while they respected the view of Māori and their cultural values in respect to biotechnology issues they felt that this should be more flexible when there was a benefit to be had out of biotechnology science particular when it comes to medical developments. So while they agreed that Māori have a right to their culture, their beliefs and they respected that they felt that this should be flexible to some degree if these values impeded the progress of what they viewed to be something "greater" or "more important".

The Māori participants to some extent, agreed with regard to the interface being characterised by conflict and disagreement. Two of the participants stated that the consultation process is flawed in that Māori are not being adequately informed of the science being conducted and when they are

the consultation process is not adapted to a matter which is appropriate for the audience to which it is being delivered. Scientific terms and methods are not explained, they said because the science being conducted is not clearly explained it is more difficult for Māori hapū and iwi to make an informed decision regarding whether or not they will give consent or whether or not to protest a proposal. One of the two that expressed this view stated that in some instances he suspects that Māori protest biotechnology because they can. He further explained that for so long in the history of Māori, things were taken and done without their consent. In this instance the government have implemented a procedure in biotechnology that requires consent of Māori and that they may be saying no because they are being given the opportunity to do so. Another Māori participant disagreed with this view but did agree that the approach and the method of is important. That participant stated that he speaks to Māori about biotechnology plans because his organisation knows that he is more likely to get a favourable response than others. Four of the respondents (two Māori and two non-Māori) recounted instances when in consultation with Māori who were against biotechnology, that Māori would generally agree that if biotechnology science were to be used to save a loved one that they would have no objection to it.

### ***The future between biotechnology and Māori cultural values***

The Māori participants were generally more positive about the interface in the future, they all agreed that once the results of biotechnology is seen to have a positive impact in fields such as medical research that Māori in their opinion will have fewer reservations about the science. They were careful to say that genetic modification will take longer because that is the branch of biotechnology science that is most at odds with Māori cultural values—particularly with regard to taking the life essence (mauri) of one thing and using it in another. Two of the Māori participants said though that even with genetic modification, that most Māori are will accept this being used for medical research.

One of the Māori participants held that it is not correct to call one view Māori and the other non-Māori, and stated that there are many Māori who are fine with the concept of biotechnology and many non-Māori who are not. He said that this generalization of Māori opposing biotechnology research comes about because they are the only group that are allowed to oppose it during the consultation and proposal processes. He said if this was an open forum then it would be evident that there are many groups that oppose this science, whether it be for environmental, religious or other reasons. All the Māori participants said that as workers in the science community and in understanding the science behind things, they have a greater awareness of the benefits to people. As a result, all of them were in favour of the development of biotechnology science. One of the non-Māori participants did express frustration over the conflict and how it can impede the progress of biotechnology. This participant was of the opinion that the lack of information plays a big role in this misunderstanding.

### ***Current and future opportunities***

All of the Māori participants expressed positive views regarding opportunities that can arise out of collaborative efforts. Two of the non-Māori participants agreed with this view and stated that there are a large number of current opportunities that are presently being un-utilised because of the focus on the conflicts rather than on the similarities and how the two groups can work together. Three of the Māori participants agreed that biotechnology on taonga species as an area for future opportunities. Māori are already aware of many of the traditional uses and that science is able to further investigate the possible applications of many species. Both groups of participants agree that these are areas of opportunity for Māori to leverage their resources through the use of science technology with the aim of creating economic opportunities. One of the non-Māori participants said that though opportunities exist with Māori and science that if Māori do not take these opportunities that it is likely that science will be conducted anyway and that Māori

will not have the same access to the benefits scientific or economic that they would if they had a more direct involvement.

## **Discussion**

The results of the interviews show that in some instances there were different opinions but in many cases these differences were not exclusive to non-Māori or Māori. There were instances where opinions were shared across the two groups. Key areas where all were in agreement were that the conflicts and disagreements that have characterised the interface between Māori and science are to some extent dissipated whenever it is apparent that the science is going to be used for medical research. The participants have found through feedback from communities in the consultation process that many are willing to bear the impact this science has on their cultural values when it is for something that they feel to be highly beneficial, in this instance medical research. It is not a case of Māori deciding that there is no conflict or that their beliefs have changed it is just in some situations they are willing to bear what they view to be the negative impact of engaging in this branch of science.

All participants agreed that there are opportunities presently and in the future to be had out of a collaborative effort between Māori and the science community, particularly in exploring the properties and applications of native species to some extent this is currently occurring but the participants feel that there are still opportunities being missed. Participants also agree that one of the main reasons that these conflicts are occurring is due to the lack of information being given about the science, its benefits and applications, or when information is given the presentation of that information is not always suitable.

The Māori participants agreed that it is likely that some conflict will remain because Māori are unlikely to compromise when it comes to cultural beliefs and the same goes for scientists wanting to expand and develop their research into areas which may be at odd with Māori values. However, all but one of the participants agreed that if the benefits of the research are significant enough then Māori may be willing to accept the impact of the science in return for the benefits that the research will bring; however, if Māori are not active participants in this process then it is unlikely that they will be in a position to benefit from this research as much as if there was greater participation and involvement.

## **Conclusion**

The interface between the Western scientific view of biotechnology and the indigenous view is likely to remain characterized by conflicting ideas and defensive approaches. However, it is recognized that it is possible to effectively use both scientific and indigenous knowledge in a manner that does not conflict with indigenous cultural beliefs. Indigenous groups that have been able to retain natural resources are able to implement scientific technology in areas that can benefit in areas of education, medical and finance. The interview findings show that those in the science industry agree that this is the case for Māori, in terms of utilizing their natural resources in scientific applications. Further, that in order to implement these technologies in a manner that does not conflict with indigenous cultural beliefs, then it is necessary for Māori to be informed of the benefits of the research. Finally, if they decide that the benefits of the research are worthwhile, then it is likely they will be more willing to consent to the research and the technology being used.

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