

Oral/ Traditional Thought versus Scientific/ Eurocentric Thought: Implications on Indigenous Fijian and Indo-Fijian Science Learning and achievement in Schools

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Introduction

In this paper, I am going to argue that an oral or traditional type of thinking such as that of the Indigenous Fijians is very different from contemporary scientifically oriented or Eurocentric way of thinking such as I have myself experienced by my studying science to high levels. These differences may have some implications on the differential achievements in science for Indigenous Fijian and Indo-Fijian students at school. In some ways I have personally found it more difficult to estimate the differences accurately because I share in both oral and scientific oriented culture. Some of the differences which I am going to discuss might not be considered by other people, particularly those of oral cultural background, to be as marked as I now estimate them to be, or as much the cause as I estimate it to be of the likely cause of differences in levels of achievement in school science of Indigenous Fijian and Indo-Fijian students.

In presenting my arguments, I will first of all discuss the ways of disseminating beliefs and validating knowledge. I will then move on to explain that the awareness of alternatives is very important in moving from an oral to a scientific oriented culture. In the next part of my argument, I will try to answer the question whether a single individual can belong in a thorough-going way to both kinds of culture. Here, I will use my experiences in both cultures to try and answer this question. Finally, I will point out that writing and literacy is the main enabling condition for the ignition of science and imply that if a culture is well used to literacy from many generations back, it will have an advantage within school learning, as compared to a culture that remains significantly oral, and has had very few generations to adjust to the possible uses of writing.

Ways of disseminating beliefs and validating knowledge.

As international, hegemonic and seemingly universal as scientific knowledge may be, there nonetheless is a plurality of knowledge systems, and each knowledge system, including that of science, has a historical and cultural context. Fiji's educational system presents fragments of Indigenous Fijian, Indo-Fijian and other minority knowledge systems that have come from different cultural and political circumstances. It also presents aspects of the knowledge system of science. Children acquire much of their knowledge outside of school. A key question is what do they make of this great mix of influences? On the basis of observations that I have made, and my experience as a person belonging to an oral culture, I intend to discuss whether Indigenous Fijians are held back in science because they are influenced by their culture to have an alternative understanding of how official knowledge gains its validity. I also examined the case of Indo-Fijians in Fiji and will argue in this paper that they more readily accept the kind of understanding a scientist has of how official knowledge must gain its validity.

Science can be characterised as having a singular orientation to literal, objective truth. One consequence of this orientation is that practitioners of science recognise a difference in principle between on the one hand what people may think or say and on the other hand what it would actually be correct for them to think or say. In science, no matter who says what, it potentially could be wrong. The key question is: how good is the evidence for it? In other words, because science is constituted by a recognition that anyone can err, science concerns itself crucially with the question of evidence. In science, it is not supposed to be the status of a person so much as it is the quality of the evidence that the person can adduce, which can argue that what *that* person thinks should become the way of thinking of other people as well.

By comparison, the traditional ways of thinking and talking in an oral culture can quite fail to mark out a distinction between what (as it happens) is thought or said and what (in fact) is actually objectively true. In an oral culture, people have a way of thinking and talking that is geared very much towards everyone being in agreement with their elders or with one another as a community. Such a way of thinking may have useful functions, but it is scarcely oriented as science is to objectivity and to literal truth.

It is actually difficult to say whether or not such traditional ways of thinking and talking can be fairly classified as systems of *belief*. It's not clear whether the word 'belief' should even be used here because the English word tends to have a meaning that is directly associated with objective, literal truth. 'Believes' is often thought to mean simply 'believes true' i.e. 'believes literally true' i.e. 'believes objectively to be the case'. But the thought structures surrounding the English word 'believes' have adjusted to what they are now during cultural development over tens or hundreds of generations in the presence of literacy and theoretical inquiry. The English-language conception of 'belief' may also be tied to scriptural, "revealed" religion, and thus to the expectation that to "believe" (in a religious sense) is to accept as literally true the word of the Bible. Needham (1972) has argued that belief as a category is a recent cultural development and was first formed by the practice of people's publicly affirming faith in God. 'Belief' (in the relevant sense from scriptural religion) is supposed to be a strongly *literal* mental attitude, and it is not clear that all cultures sustain that kind of literalness of thought.

Where Indo-Fijians and Indigenous Fijians in Fiji are at with respect to these issues is an important question, and I intend to devote a lot of attention to this question in the course of my further work. I believe that the situation is shifting generation by generation but that present-generation Indigenous Fijians still in large numbers for much of their lives participate in traditional thought structures that are not like those of science.

In a traditional or oral culture such as the Indigenous Fijian, knowledge and information is usually spread by way of mouth usually from the elders to the younger generation who trust and obey whatever is relayed by the elders, so that they become willing to say precisely the same things. In this sense members of the younger generation tend to believe what their elders say without question. What is not clear is whether this kind of belief is the same as "believing to be literally true".

Following and obeying whatever is said by the elders is part of their custom and is seen in every part of their communal living from the whole village situation to each individual family. For example in the village, there are channels in which information is passed on from the chief to the various clans to sub-clans and down to individual families. Such channels for flow-of-information are still very much in use in most Indigenous Fijian villages today. Whatever the chief says is obeyed and not questioned by the whole people in the village. The same custom is seen in every individual family where the children or the young obey and follow whatever is said by the elders or the parents without questioning. To question in any way whatever is told or instructed by elders is regarded in Indigenous Fijian culture as bad manners and as showing disrespect. Children are often taught firmly by their parents to avoid doing such things at home.

In looking at this situation, it can be seen that knowledge or information is received and in some sense believed simply because of the trust that the younger generation holds in whatever is said by the older generation. Since the older generation is taken to know more because of the length of time that they have lived and have been experiencing things, the younger generation trusts what they say. While the younger generation willingly says the same things that their elders have told them, and thus willingly thinks along similar lines, it is not completely clear that they thus form a *literal* belief in what their elders have told them. They operate with notions of trust in authority, but it is unclear, partly for this reason, whether they hold those things that they trust on authority to be part of literal, objective, truth. It is not that they would positively deny that those things are true; the point rather is that they think within categories significantly different from the scientific ones of literal, objective, truth.

In an oral culture it is desirable that most of the beliefs that there are should be held in common, and that they should be memorable. In the case of the beliefs of people in a scientifically oriented culture, there are no such requirements. It doesn't matter at all in scientifically oriented cultural conditions whether more than a tiny minority of people ever come to consider, say, that gamma ray bursts come from remote cosmic cataclysms over distances of billions of light years, or that paramecia have evolved considerable internal sophistication even while remaining unicellular, or that benzene molecules gain in chemical stability because of resonance in the outer bonding electrons.

The fact that such proclamations are highly esoteric and thus the concern of specialists helps to ensure that their worth will be judged simply on the basis of evidence. The functioning of thought in the context of oral culture is quite different. This is better explained by considering the awareness of alternatives.

Awareness of Alternatives: Crucial For the Take-Off Into Science.

In a traditional or oral culture like Indigenous Fijian, the process of belief dissemination develops little awareness that there may be any alternatives to the established body of beliefs. By contrast, modern or scientifically oriented cultures officially make a virtue of challenging received ideas and inventing viable alternatives. Indigenous Fijian society is significantly 'traditional' or thus structured in some ways oppositely to that of Karl Popper's (1972) vaunted 'Open Society', whereas scientific oriented culture is ideally 'open' in Popper's sense, or as I shall say, 'modern'. I believe that Indo-Fijian culture is significantly more 'modern' in the relevant sense than Indigenous Fijian culture, or at least that it is important to investigate whether such a difference exists in broad terms. My concerns here very closely resemble Popper's, for Popper believed that only an opening of society could produce the transition needed for the take-off from tradition to science. To Popper, this transition implies a growth in the awareness of alternatives. Popper also implied that this transition requires that communalism be replaced by individualism.

For my own part, I believe that it is the awareness of alternatives which is crucial for the take-off into science. Pace Popper, both communal and individualistic societies can assimilate science and can even involve themselves in its advancement. But an individual from whichever sort of society does not acquire the dispositions of a scientist without first developing awareness that whatever may be the established body of beliefs there always are potential alternatives to it.

Traditional and oral culture like that of Indigenous Fijians can reason excellently in the idiom of their beliefs but they hardly reason outside, or against their beliefs because they have no other idiom in which to express their thoughts. In other words, the absence of any awareness of alternatives makes for an absolute acceptance of the long-established beliefs of their people, and removes any possibility of questioning them. For example, in any Indigenous Fijian village there are certain sacred grounds, such as where ancestors first settled and also burial grounds of high chiefs, which people are not permitted to use or even set foot upon. These places are typically regarded by Indigenous Fijians as *taboo*. People are often told by their elders that these areas are out of bounds and people are not supposed to go there for if they do, something unfortunate is going to happen to them.

I recall a time in my village when groups were working communally to clear the bush in order to create a plantation, when one of the young men happened to weed very close to the ancestral house site called 'yavutu' which is sacred to the people of the village. An unfortunate thing then happened to this young man, when he lost all his hair after two weeks; but not until this event happened did people in the village attach significance to his having weeded very close to the sacred ground. However, when his hair fell out, this is what they blamed for it. There was no other alternative explanation given by the village people as to the cause of this unfortunate event; instead, people's thought automatically centred on the belief which is told to them by the elders.

When I spoke to people of the village about this, they tended to put aside the hypothesis and explanations that I tried to bring up, such as that there must have been some sort of disease suffered by the victim or he must have got some blood problem which could cause by natural means the loss of all his hair. Their reasoning seemed resolutely to centre on their traditional belief without considering other things outside that. This is what I mean when I say that a traditional and oral culture like that of Indigenous Fijians hardly reason outside or against the established beliefs. They have but the one belief system in which to express their thoughts. They hardly think that their thought is wrong because it is in the texture of their thought that whatever is told by their elder is always correct. The degree of fear and respect that one acquires in relation to a sacred place or object is determined by the peoples' past experiences, and of what people believe they are being told. A disturbance of the sacred is for most of them a disturbance of their own thinking and feeling. It creates tension and conflict within the person as well as in the community. Thus it can be seen that most Indigenous Fijian ways of behaving are those which are consistent with the concept of the group. They do not often take their individual belief away from the belief of the whole community. Until such time as this concept of the group is changed, they will continue to maintain and preserve whatever the group believes.

Another example to illustrate my point is the Christian belief which is often emphasised to Indigenous Fijians that prosperity, peace and good life, could be achieved only if the people first served the Kingdom of God and gave willingly unto his work their attention, labour and wealth. The people continue to serve the church and provide all that they can to support church activities in the hope that their needs and aspirations will be fulfilled if they do all these. Some of them even owe money for their children's school fees yet ensure first that they have completely paid their church dues. They have been brainwashed by Priests and church Ministers to believe in the Christian principle. The belief which emphasises that the individual must work hard for his own good and assume responsibility for his own welfare has been dropped by the people. To try and take away this thought system from them would be very difficult just because of their belief that whatever is told by the Priest or Minister is true because of his hierarchical position in the church and because he is regarded as the '*man of God*'.

Indigenous Fijian society is in fact very structured and hierarchical. People know their role and position in the village and in the community as a whole. Knowledge is gained when it is passed on from the elders to their children. Anything that is told by the elders is expected to be received on that authority and this knowledge is thereby accepted by the children. This is how information and knowledge is gathered and distributed in an oral culture such as the traditional culture of Indigenous Fijian people. Children do not ask back about why certain things happen or do not happen or are the way they are. As long as it is told by their elders or people of higher authority it is expected that that way of telling about things should be generally accepted within the community. The younger generation tends to fall in without question to those ways of telling about things, partly because they readily make out in their own experience good sense in what is said.

One good example of this is the story Indigenous Fijian elders tell about the meat going bad if it is hung outside in moonlight. Indigenous Fijians in villages have the habit of hanging out meat to drain away the blood so that the meat remains dry and can be preserved for a longer time especially when they do not have refrigerators for storing it like what is done today. However, younger children are often advised by the older generation not to hang the meat out in moonlight because the meat might go bad. Indigenous Fijian village people more or less universally accept this. If there is some sort of scientific explanation for this phenomenon — something to do say with the meat's absorption of moisture from its surrounding atmosphere when light shines on it, then it should follow that meat will also go bad if it is also hung outside with some other light shining on it rather than the moon light only. However, if Indigenous Fijian village people are asked whether the same thing will happen if meat is hung outside when a light bulb is on, they will not agree — simply because they are not being told this by their older generation. So they think that whatever is told by the older generation is authoritative, is always true and in most cases they do not ask back or find out the reasons.

This type of knowledge system is completely different from the way science knowledge is transmitted. Scientific knowledge depends on careful marshalling of evidence through processes of hypothesising, making predictions, observing, measuring and classifying, communicating and questioning, recording and testing of results, inferring and drawing conclusions. Ideally everything has to be proved by facts or at least strongly supported by evidence after doing the above methods in order for the findings to be deemed valid and agreed upon universally. The kind of assent given is full-scale literal belief, precisely because the standards set for acceptance are so high.

This type of thinking surely reflects what is happening inside the Indigenous Fijian classrooms where students rarely ask questions or even bring up questions during their free time to teachers. They treat whatever the teacher told them to be authoritative. The teacher from the student's view point represents the elder person or the highest authority in the school environment and students do not usually ask back questions to find out about the validity of the facts since everything which is told by elders or people of higher authority is accepted as authoritative. Scientific belief on the other hand depends on evidence and not on authority such as the teacher's personal authority, or the authority that a text book has merely because it was written by a high ranking scientist. It is scientifically legitimate to question anyone, including the teacher or the author of the textbook, if the weight of evidence supports doing so.

In scientifically oriented thought system, there is a highly developed official awareness that criticism can be a good thing, and that people should be free to consider alternatives to the established body of belief. Ideally all angles are taken in looking at a problem and an established body of belief ideally does not monopolise what can be thought.

A very important question one may ask after considering all the aspects discussed above that separate oral cultures from scientifically oriented ones is whether or not a person can belong to both cultures. This is discussed here according to my own experience.

Can a single individual belong in a thoroughgoing way to both kinds of culture?

I believe that a single individual can belong in an almost but not quite thoroughgoing way to either kinds of culture, but that in doing so, it is likely that the person may lose some familiarity with his or her own culture. It may be like learning half of the things here and half of the things there that at the end, the person may not succeed in achieving the aims of the new culture without losing parts of his or her original culture.

This is probably why certain Indigenous Fijian elders are double-minded about schooling. Some of them feel that school dropouts when they return to the village do not any longer follow their traditional village lore as they should, and at the same time, have lost many of their traditional customs because of their long absence from the village or community. Consequently, when they drop out from school and return to the village, they are at a loss with respect to all the traditional ways, yet at the same time cannot apply what they have learned in science at school to practical issues facing their villages. In short, to some Indigenous Fijian elders the knowledge of school dropouts seems a dead loss. Nothing of any good came from the time spent in formal education and much was lost. They blame this on the school, or worse, on schooling in general.

The children who are successful neither in the village nor at school may well be confused as to which type of culture to follow. That this kind of confusion seems common is why I personally think that a single individual cannot fully belong to both kinds of culture. However, I believe that an individual person can cross from thoroughgoing membership in a traditional or oral culture to a thoroughgoing membership in the literal or scientific oriented one so long as he or she takes great trouble about it and does not shut himself or herself up into limited alternative explanations of his or her beliefs. To set the stage for change from a traditional or oral to a scientific outlook, there should be a highly developed awareness of alternatives to the established body of belief.

I personally believe that such a crossing may not have to be made by a larger community if it is to happen at all. I am considering myself as an example in proving what I have mentioned here. I am the person in my village with the most significant amount of formal education and in most cases whenever I come across incidents like what I have already mentioned or stories told by elders for example, which are contrary to my thought, I always enquire about it and in most cases I tend to disagree with what they believe. They will say that I do not believe it because I am not in the village sufficiently much of the time to follow the traditional system of their beliefs. This again indicates that their traditional way of thinking is not at all open to alternatives. It is as though their beliefs and thought hang together somehow in a closed container that cannot be extended.

As I have already stated, they do not often think that their traditional thought may be wrong. My own way of thinking is oriented more towards the scientific ideal which implies that even experts are fallible. I seek to believe what is well evidenced rather than what is generally held simply on the personal authority of the elders. On the basis of my own crossing from the one to the other culture to this extent, I am inclined to think possible the crossing from thoroughgoing membership in a traditional or oral culture to a similarly thoroughgoing membership in the culture of science. I personally believe that any person can cross over from the traditional or oral culture to the scientific culture as long as there is a presence of a vision of alternatives. However, the question which some may ask is: What enables a person to change or to cross over from the traditional or oral culture to scientific culture?

The answer I think of is that literacy, education, motivation and will-power enables a person to change or cross over. In my case, it is my high level of literacy and education which is the result of motivation from my parents, combined with my will-power that came later when I discovered that educational achievement could lead to other kinds of success. In addition, I have needed a vision of alternative thinking and to achieve this, a person needs to have besides the tradition-bound sense of understanding or thinking also a broader and different sense of understanding and thinking. As a result of literacy and education, people can be made more likely to look at things in alternative ways and not only concentrate their thought system on a very limited area conditioned by their pattern of ritual behaviour and belief. Yet how successfully education can have such a broadening effect depends in part on the background people bring to it.

Education is the way forward but is not easily able to have its full effect given the hold of traditional thought forms amongst Indigenous Fijians and how antithetical these are in some ways to Western knowledge. For Indigenous Fijian students to move from a traditional or oral culture to a scientific oriented one there is a need to break this barrier by encouraging the education of the Indigenous Fijian people.

I myself believe in what I said that we are likely to lose some of our culture if we cross over from one culture to another because I am also experiencing this with my life. I can say that while I am a very well educated person in my village, I can also admit that my being absent from home for a very long time due to my trying to gain literacy in the form of higher education opportunities, across all the years from my early childhood days until now, has cost me a lot in terms of my knowledge of and familiarity with traditional Indigenous Fijian customs.

In light of the above discussion, I will highlight the following questions that I intend to try and answer in this paper. What causes the thought system of oral cultures like Indigenous Fijians to be 'traditional' and not 'modern' like Eurocentric or scientific cultures? Could it be related to literacy? If so, in what sense? Could this have an implication on Indo-Fijian and Indigenous Fijian science learning in schools?

Literacy and intellectual 'openness'.

Writing and literacy are thought by some people to have been the key enabling conditions for the very ignition of science. Such authors contend that writing and literacy are in large part responsible for the rise of distinctively modern modes of thought such as we observe in science and in other contemporary fields such as law and politics. This of course support the view that in literate cultures, people's consciousness of language itself is very much structured by their writing system.

In his 1994 book *The World on Paper*, David Olson examines how writing has affected the development of our modern understanding of language, nature and ourselves. He reverses the traditional assumption about the relation between speech and writing, by arguing that writing provides an important model of the way we think about speech and that for those in literate cultures, their consciousness of language is very much structured by their writing system. He argues that writing provides our dominant models for thinking about nature and the mind and shows how our science (our understanding of the world) and our psychology (our understanding of ourselves) are by-products of our ways of creating and interpreting texts.

According to Olson, writing and literacy are necessary conditions for the rise of distinctively modern modes of thought as epitomised by philosophy, science, justice, and clinical medicine. The importance of writing to the advancement of philosophy and science has in recent times been examined and defended in a series of major works by such writers as McLuhan (1962), Goody and Watt (1968), Goody (1978), Ong (1976), works which trace a new orientation to language, the world and the mind, to changes in the technology of communication.

In a society that has thoroughly assimilated the technology of writing, knowledge tends to be identified with what is learned in school or from books. Literacy skills in fact provide the route of access to that knowledge. People who cannot read and write are thus cut off from knowledge. This reduced condition, the condition of the illiterate person in a modern society, is pathetic. For this reason 'illiterate' becomes a highly negatively charged word. Of course, the non-literate condition of people in oral societies is for this reason best distinguished sharply from the condition of illiterate people in any modern society.

According to Olson (1980), literacy imparts a degree of abstraction to thought which is absent from oral discourse. This is also supported by (Baker, Barzun, & Richards, 1971) who think that literacy is of the highest importance to abstract, theoretical thought. Havelock (1982) provides evidence that the Greeks evolved a philosophical disposition only as they gradually pressed the Greek language into uses it would not have had in an entirely oral culture.

I very much believe in the same way as Olson (1994) where he thinks that writing helps us come up with different modes of thinking because the presence of a text can allow us to interpret, discuss and criticise things very easily compared to if it was to be given orally. This is possible because writing can allow us to set two pieces of text side by side in order to check them for identity or to look for relations between them. It would be difficult to do this orally because of the limited amount of information that can be stored in any one person's memory. Thus while writing is used to preserve information much as oral memory arts do, it helps us to easily identify the items of information in a systematic order in relation to other items of information available.

It is often difficult to do this orally especially when there is more information given out orally. The other important thing to mention is that being equipped with a writing system, one is capable of preserving in writing everything that could be said orally. This in fact tends to set the stage for the evolution of a new, literate form of discourse, and hence for a new mode of thought.

My argument tends to agree with what is proposed by Goody and Watt (1968) relating literacy to the rise of a certain new style of reasoning. It is true that the work by Goody and Watt was later criticised by Scribner and Cole (1981) who, when they distinguished literacy from schooling, found little evidence for a general effect of writing on reasoning. However, Goody's later work, (1987) strengthens his original claims regarding the distinctiveness of the alphabet and he tends to stick to his earlier notion that a written record has decisive practical advantages for carrying out a variety of cognitive functions.

It is for this reason that I think there are differences in what is stored mentally when one speaks as opposed to when one writes. For example, Hildyard & Hidi (1985) in their study on oral-written differences in the production and recall of narratives amongst children who are still acquiring literate competency found that there are structural differences between the written and oral productions of elementary school students. Their study showed that because writing permits closer attention to detail and makes repeated scanning possible, children who write are better able to recall their productions than are children who narrate. This showed that in writing, children learn to notice the wording and develop the ability to examine, vary, and edit their wording in order to make the discourse or text a more precise reflection of the intended meaning. Similar findings were also reported by Hildyard and Olson (1982), Horowitz (1968) and Sachs (1974). They all found that children's recall of what they read is qualitatively different from how they recall language they hear.

In considering this fact it can be said that if a culture is well used to literacy from many generations back this will confer an advantage within school learning, as compared to a culture that remains significantly oral, and has had very few generations to adjust to the possible uses of writing. It may be for this reason that people from long-literate cultures are more likely to find school subjects such as science easy to grasp especially when it is taught at school, as compared to the experience of people from cultures that were until very recently predominantly or exclusively oral. In short, I can say that with particular reference to Fiji, Indo-Fijians could be significantly advantaged in school science learning over Indigenous Fijians because they have been culturally influenced by the system of reading and writing for many generations before their arrival in Fiji during the indentured system.

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