NEWS and VIEWS

Indigenous ways of knowing and the Australian Curriculum: Science

Michael Michie

The consultation draft of the new national science curriculum was released at the beginning of March. Developed by the Australian Curriculum, Assessment and Reporting Authority (ACARA), the curriculum is one of four nationally-endorsed curriculum documents being developed through agreement between the federal and state and territory governments. Some members of the Indigenous Science Network have been on the various committees responsible for developing the curriculum.

However, its release has not been without a touch of controversy. The Australian newspaper on 27 February 2010 came up with the headline, “Curriculum puts Dreamtime first”, followed by the by-line:

“School students will learn about the Aboriginal Dreamtime stories, Chinese medicine and natural therapies but not meet the periodic table of elements until Year 10 under the new national science curriculum.”

The article continued in a similar vein, making judgements about the curriculum, some positive, some negative, some ill-informed, but seeming to have a go at the inclusion of Indigenous and other cultural knowledge at the expense of good traditional science.

Subsequently, The Australian published a second item entitled “Dreamtime ‘spiritual’, so off science course” on 4 March. In this article, the chairman of ACARA, Professor Barry McGaw, said he was unaware that the Dreamtime had been included in the curriculum and that the reference would be removed from the national science course. He justified this as a science graduate and former science teacher by stating, “I think Dreamtime is a religious or spiritual interpretation of the beginnings of life.”

Another comment by Federal Education Minister Julia Gillard was, “While Aboriginal culture will form a part of the new curriculum, it’s not appropriate that it form part of a science course, and that’s why when this error was found, it was changed.”

So much for consultation. The chairman and the minister have obviously made political decisions by pre-empting this action rather than leave it to the consultative process and the work of experts.

I find Barry McGaw’s definition of the Dreamtime to be very limited and stereotyped. I agree that the Dreamtime can be interpreted as looking at origins but it has a much wider scope. The spiritual side of the Dreamtime is integral to it, not just an add-on, so the indigenous knowledge can’t be separated from it. The Australian quotes from the curriculum, saying “Aboriginal people’s Dreamtime stories ... explain significant characteristics of the Earth’s surface and interactions between living things”. It was written in the context of
the natural environment and living things, as an example of using other cultural knowledge. I also thought that McGaw’s ideas about the nature of science were dated, particularly from a science education perspective.

Recently the Australian Broadcasting Corporation broadcast a TV program entitled “Human journey: Australia”. It was about tracking the movement of Australian Aborigines out of Africa about 60 thousand years ago. It made use of lots of sophisticated science, including genetic testing. At the end of the program they were talking with some Aboriginal people at Gunbalanya, just north of Kakadu in the Northern Territory of Australia, and looking at their art work. One of the art pieces was of a female creation being and the story behind it was that she came from across the sea, which was much the same story the scientists were telling.

I’m suggesting that the two stories, the western science story and the indigenous story, are complementary and this is not the only case of finding complementary stories. In northern Australia there are many interactions between western science and indigenous knowledge which are becoming increasingly valuable to both sides and this is repeated elsewhere in Australia and worldwide. Late last year I attended astronomy presentations at the Darwin Festival and IATSIS in Canberra which looked at the interactions between western science and indigenous knowledge.

I believe that this is what the Indigenous Science Network stands for, the interaction of the two world views. If we are to have indigenous perspectives in the curriculum and to engage indigenous students in western science, issues like this need to be addressed, not sweep under the carpet through political actions and misunderstanding.

The curriculum itself

The new science curriculum is divided into three interrelated strands: Science inquiry skills; Science as a human endeavour; and Science understanding. Each strand is of equal importance. Indigenous cultural knowledge is part of the Science as a human endeavour strand. The scope of the curriculum is from Kindergarten to Year 10, with a brief note that Years 11-12 built on from it. The Science understanding lists content but not according to disciplines and is perhaps more integrated than the previous national science curriculum.

You can obtain a copy of the curriculum by visiting the ACARA website (http://www.acara.edu.au/default.asp) and following the links. You will be asked to register as part of the consultation process.

The first article from The Australian (27 February) is no longer on their website. The second article (Dreamtime ‘spiritual’, so off science courses, 4 March) is still available at The Australian website, at http://www.theaustralian.com.au/news/nation/dreamtime-spiritual-so-off-science-courses/story-e6frg6nf-1225836724718.

Two other articles about the science curriculum can also be accessed at The Australian website:


Reviewer: Julie Crough, Tropical Savannas Management CRC, Charles Darwin University

*Open Science: Sharing Knowledge in the Global Century* is a new book based on the premise that “knowledge is the common heritage of all people”. However, while the production of knowledge doubles every five years, it is not shared freely with humanity. Science, in particular, is often locked away as Intellectual Property or not communicated beyond scientists. Authors and science communicators, Julian Cribb and Tjempaka Sari, contend that open science demands early and constant feedback between science and society, with a two-way exchange of knowledge.

In *Open Science*, the authors call for the urgent need to “open up” science and human knowledge to the global public in the face of the “big six” crises facing humanity: the crisis in water; the crisis in resource scarcity; the crisis in land degradation, contamination and species loss; the crisis in food scarcity; the crisis in health; and the crisis in climate change. “Each demands profound change in human behaviour on the part of almost every individual on the planet, and for this to occur, the knowledge of both the problem and what to do about it must first be shared,” the authors assert. To effectively achieve such knowledge sharing, *Open Science* offers practical and low-cost ways to share knowledge in a highly networked world where most people still have little or no access to technology. It features useful tools and techniques on good science writing, communication and media strategies, and sharing knowledge with target audiences in industry, government, the community and to the wider public.

*Professor Julian Cribb is an Adjunct Professor in Science Communication at the University of Technology Sydney, Australia and a Fellow of the Australian Academy of Technological Sciences and Engineering.*

*Tjempaka Sari is a senior officer of the Indonesian science agency LIPI and a leading science communicator who is dedicated to sharing knowledge in her country.*

*International Journal of Environmental and Science Education*

I am happy to inform you that the latest issue of IJESE has now been released and you may access all journal content freely from the web site: www.ijese.com or http://www.ijese.com/currentissue.htm

Mehmet Bahar

*The World of Science Education: Arab States*

Saouma BouJaoude, American University of Beirut and Zoubeida R. Dagher, University of Delaware (Eds.). Rotterdam and Taipai: Sense Publishers.

Each volume in the 7-volume series *The World of Science Education* reviews research in a key region of the world. These regions include North America, South and Latin America, Asia, Australia and New Zealand, Europe and Israel, Arab States, and Sub-Saharan Africa.

The focus of this Handbook is on science education in Arab states and the scholarship that most closely supports this program. The reviews of the research situate what has been accomplished within a given field in an Arab rather than an international context. The purpose therefore is to articulate and exhibit regional networks and trends that produced specific forms of science education. The thrust lies in identifying the roots of research programs and sketching trajectories—focusing the changing façade of problems and
solutions within regional contexts. The approach allows readers to review what has been done and accomplished, what is missing and what might be done next.

Please find a free preview at: The World of Science

**Science Education as a Pathway to Teaching Language Literacy**


In this era of mandated high stakes and standardized testing, teachers and schools officials find themselves struggling to meet the demands for improved student achievement. At the same time, they are also expected to teach all subjects as required by national and state curriculum standards. Because of these competing demands, science is not even taught or taught less often in order to make more room for mathematics and language arts “drill and practice” and “teaching to the test.” Anyone concerned with providing students with a well-rounded education should ask whether these drastic measures—even if they were to show improvement in achievement—justify denying children access to the unique opportunities for intellectual growth and social awareness that the effective instruction of science provides. Will these students have enough exposure to the science curriculum to prepare them to do well later in middle and high school? How is this current situation going to help ameliorate the pervasive achievement gap in science, and how is it going to motivate students to pursue science-related careers?

Please find a free preview at: Science Education

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**EURASIA Journal of Mathematics, Science and Technology Education**

Volume 6, Issue Number 1

I am happy to announce that the new issue of the EURASIA Journal has been released. You may access all issues and articles free from the journal website: [http://www.ejmste.com/](http://www.ejmste.com/)

Fatih Tasar

**International History and Philosophy of Science Teaching Group**

The March newsletter of the IHPST group is now available on the web at: [http://www.ihpst.org/newsletters.html](http://www.ihpst.org/newsletters.html)

1. Science & Education Current Issue (Volume 19 No. 3)
3. Journal Special Issue: Philosophical Considerations in the Teaching of Biology, Call for Papers
4. Journal Special Issue: Philosophical Considerations in the Teaching of Chemistry, Call for Papers
5. First Latin American IHPST Regional Conference, August 19-21, 2010
6. The Experimental Side of Modeling, Second Workshop, March 30-31 2010
7. Newton and Empiricism Conference, Pittsburgh, April 10-11, 2010
8. International Conference: History of Science in Practice, Athens May 6-9, 2010
9. American Association for the Advancement of Science, Section L Programme (HPS), Washington DC, February 18-21, 2011
10. Opinion Piece: Confronting Idealism in Recent Cultural Studies
11. Book Reviews
12. Current Research
13. Publications for Sale
14. Coming Conferences
Australian Critical Race and Whiteness Studies Association (ACRAWSA)
ACEAWSA has a home page and their own Ejournal which can be accessed at http://www.acrawsa.org.au/index.html.

ESERA 2009 conference proceedings
I would like to inform you that last year’s ESERA conference proceedings of presented and submitted fulltext papers can be downloaded (for free) in e-book format (pdf) from www.esera2009.org and shortly they will also be available from the ESERA website: www.esera.org

Fatih Tasar

CONFERENCES

XIV World Congress World Council of Comparative Education Societies (WCCES)
“Bordering, re-bordering and new possibilities in education and society”
Istanbul
14-18 June 2010

‘Border’ is a key concept for analyzing the relationship between education and society at all levels. Borders can be national, regional, social or psychic; they can be fixed or shifting. Borders and ‘lines’ can be material (walls), psychological (in peoples’ minds) or metaphorical (the ‘glass ceiling’ for women’s careers). Discussions of borders are part of discussions of space, and of space-time.

For more information visit http://www.wcces2010.org/.

International Conference on Multiculturalism and Global Community
24-27 July 2010
Tehran, Iran

Culture: Diversity or Integrity
1. Multiculturalism and Global Peace
2. Asia: Diversity or Unity in Cultures
3. Intercultural Dialogue: Approaches and Outcomes
4. Media, Communication and Common Good
5. Globalization, Religion and Common Good

Islam: New Challenges, New Perspectives
1. Islam and the Crisis of Modern Man
2. Islam and Other Faiths: Truth or Salvation
3. Islam and Woman: Rights and Commitments
4. Islam: Traditionalism or Modernism
5. Islam and Revivalism: Needs and Necessities
6. Islam: Spirituality, Morality and Jurisprudence
Iran: Realities and Appearances
1. Iran, Religious State and International Challenges
2. Iran and the Middle East
3. Iran and New Generation: Gap or Conflict
4. Iran and International Society: Contraction or Expansion
5. Cultures and Religions in Iran: Heterogeneous or Homogeneous Society

The deadline for submission of abstracts is April 10th. Abstracts must be submitted via email to: conference@mcgc.ir

For more information please follow this link:
http://icmcmcgc.org/index.php?service=14477_1_de71c78229e7b7181ef4631d09a9d2f5

Indigenous Studies Indigenous Knowledge 2010
The 2010 Indigenous Studies Indigenous Knowledge Conference series will be held in Brisbane from 27th September to 1st October. It will be hosted by the Oodgeroo Unit, Queensland University of Technology.

A key purpose of the ISIK Conferences is to draw colleagues from across the field of education and research to discuss and share developments in areas of Indigenous knowledge and Indigenous Studies.

For more information visit http://www.isik.org.au/ (This conference was previously advertised to happen in Alice Springs in July.)

Contemporary Ethnography across the Disciplines (CEAD)
University of Waikato
Hamilton, New Zealand.
17-19 November 2010
http://cead.org.nz/site/ethnography_conference/

We are excited to host the first Contemporary Ethnography across the Disciplines (CEAD) conference and hui at the University of Waikato in Hamilton, New Zealand. This, the first in what will be a quadrennial international conference, will take place on 17 - 19 November 2010. We welcome scholars, professionals, and students from all disciplinary backgrounds to share in the rich diversity that the conference and hui promises.

We have determined three major content strands or themes for the CEAD conference and hui:

1. Emerging Methods
2. Practice and Advocacy
3. Social Justice and Transformation

Further information about the themes explains what they might mean to discussions concerning a contemporary ethnography that holds promise for positive societal and global change, a contemporary ethnography that is vital and forward-thinking, a contemporary ethnography that matters!

Additionally, on 16 November 2010, we will hold pre-conference workshops. Follow the link for more information on topics, world-class presenters, and costs. Be sure to bookmark this page.

We are excited to offer international participants the opportunity to experience the rich cultural tradition that is Aotearoa, New Zealand. We welcome your participation in our global ethnography conference and hui.

Seventh International Conference on Environmental, Cultural, Economic and Social Sustainability
** Call for Papers **
If you intend to present a paper at the Conference, your participation begins with submission of a paper proposal. For information on proposals, presentation types, and other options, see: http://onsustainability.com/conference-2011/call-for-papers/#ppt. To submit a proposal, see: http://onsustainability.com/conference-2011/call-for-papers/. Please note that if your proposal is accepted, you will then need to register for the Conference.

** Registration **
Those who submit paper proposals should register following the acceptance of the proposal. Conference delegates who do not intend to present may register at any time. For registration options or to register for the 2010 Sustainability Conference, see: http://onsustainability.com/conference-2011/register/.

** Themes **
http://onsustainability.com/ideas/themes/

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** CALENDAR OF EVENTS **

This is mostly a summary of upcoming conferences. More details may have been given in this or previous bulletins as shown. A web-based contact is usually included. Inclusion of conferences in this list is not to be read as an endorsement of the conference.

2010

*April 2010*
21 April: Kingitanga Day, University of Waikato

*June 2010*


21-23 June: Global Studies Conference, Pusan National University, Busan, South Korea http://www.GlobalStudiesConference.com (Aug09)


29 June - 2 July: Eighth International Conference on New Directions in the Humanities, University of California, Los Angeles (UCLA), USA. http://www.HumanitiesConference.com/ (Aug10)

**July 2010**
4-7 July 2010: CONASTA, University of Technology Sydney, [http://www.conasta.edu.au](http://www.conasta.edu.au) (Feb10)

6-9 July: Seventeenth International Conference on Learning, Hong Kong Institute of Education, Hong Kong [http://www.LearningConference.com](http://www.LearningConference.com) (Oct09)

19-21 July: Tenth International Conference on Diversity in Organisations, Communities and Nations, Queen's University Belfast, Northern Ireland [http://www.Diversity-Conference.com](http://www.Diversity-Conference.com) (Oct09)

24-27 July 2010: International Conference on Multiculturalism and Global Community Tehran, Iran ([http://icmcgc.org/index.php?service=14477_1_de71e78229e7b7181ef4631d09a9d2f5](http://icmcgc.org/index.php?service=14477_1_de71e78229e7b7181ef4631d09a9d2f5)) (April10)

**August 2010**


**September 2010**

**November 2010**

**2011**

**January 2011**
5-9 January: epiSTEME-4: Fourth international conference to review research on Science, TTechnology and Mathematics Education, Homi Bhabha Centre for Science Education (TIFR), Mumbai, India, ([http://www.hbcese.tifr.res.in/episteme](http://www.hbcese.tifr.res.in/episteme)). (Feb10)

5-7 January: Seventh International Conference on Environmental, Cultural, Economic and Social Sustainability, University of Waikato, Hamilton, New Zealand [www.SustainabilityConference.com](http://www.SustainabilityConference.com) (April10)

**April 2011**
2-6 April: National Association for Research in Science Teaching (NARST) annual conference, Orlando FA, USA

**2012**

**March 2012**
24-28 March: National Association for Research in Science Teaching (NARST) annual conference, Indianapolis IN, USA