EXPLORING CULTURE IN A DIGITAL WORLD

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Abstract

This is a technical paper describing the pedagogical and technological requirements for the Wondervision Project. It examines how digital technologies can be used to connect cultures in a way that is respectful and results in deeper understanding of culture. The Indigenous culture of Australia is the learning context, with the expectation that this work will build bridges towards reconciliation. The challenge of this work was to design rich, technology-driven learning experiences to enable all learners to better understand the culture of Aboriginal peoples through the Visual Arts. This paper reports on the resource development phase of the project with data collection to form the second phase in late 2014.

Wondervision: The Project

Wondervision is a project of the University of the Sunshine Coast Art Gallery. The context for this work is the substantial collection of Western Desert Art held at the university and the university's desire to implement its Reconciliation Action Plan. Pedagogically, the project developed upon earlier work that investigated virtual art galleries. In 2006, a virtual presence was investigated to explore the possibilities: to see what could be achieved. In 2012, this work was revisited. Technologies had advanced, many lessons had been learned and pedagogical advantages identified. In the next phase of the project, the following research questions will be investigated:

1. How have the resources contributed to teachers embedding indigenous perspectives in the learning they design?
2. To what extent do the different resources in different digital learning environments engender changing attitudes to learning?
3. How have these resources contributed to reconciliation with our Indigenous peoples?

In the following, aspects of the virtual art galleries project and earlier ICT-mediated projects by the author and consequential resource development are explained and their purpose examined. This background provides messages related to the lessons learned that impact upon the Wondervision project, explicitly or implicitly.

This paper reports on the journey thus far. Teaching resources are currently being used within twelve primary schools. Data collection is yet to occur. Where comments are included in the paper, they are initial in nature. Early comments are positive in light of the relatively new Australian Curriculum (2012) and the importance placed on learning about Aboriginal and Torres Strait Islander cultural perspectives. Schools are looking for appropriate resources across all curriculum areas.

Influences on the Project

In advance, the traditional custodians of our local lands must be acknowledged. Their interest in this project and willingness to share direction has strengthened this work.

This section explores the pedagogical and technological influences on the Wondervision project. It discusses related research, pedagogical publications and theoretical perspectives. The themes in this section are active engagement through higher order thinking and appropriate targeting of materials to the audience designed for differentiation.

Past Experiences

From early work, it was established that Information Communication Technologies (ICT)-mediated learning provided considerable pedagogical advantage. In 2006, the Remote Access Microscopy Project (Hunt, 2006) was established. It involved delivering imaging (image over Internet) from a scanning electron microscope to students in remote locations. The project developed from a keen interest in providing enriched learning support for science in remote and rural schools. Support was provided to participating schools by way of face-to-face classes with the author and the live broadcast from the microscope. Students:

- accessed information from the Internet and remote experts (the microscope operator),
- made their thinking visible (through modelling and presenting),
- became co-researchers in the project (investigating fire ants),
- collaborated with each other and the remote expert (students as co-researchers), and
- became passionate about learning (evidenced by their final presentations and their myriad questions seeking further knowledge).

More importantly, the author realised that there were a number of issues to consider in developing projects like these. If such ideas (virtual presentations) were to be sustainable and replicated, teaching resources to support the remote engagement would need to be supplied. These teaching resources need to build upon the strengths evident in the digital environment.

Considerations necessary to engage learners in meaningful learning experiences have been developed (Keogh & Naylor, 1997, p.13). These considerations, reflected in the resources developed are:

- Contexts establish a sense of purpose, relevance and connection in the learner's mind with the new learning of the unit.
- Learners need to be actively involved in activities: 'hands-on and minds-on' (the intellectual component).
- Activities should be conceptually accessible to the learners, set in appropriate language; challenging but within reach.
- Activities should have a sense of 'wow, let me have more of this' about them (the live imaging).

These conditions and a collaborative approach to learning represent the way to facilitate learning experiences more effectively in this digital age. In an unpublished report to the Department of Education, Training and the Arts (Hunt, 2009), teachers reported that a significant advantage provided through the use of ICT resided in its potential for students to collaborate in their learning. Finholt (2002) identified three types of connectivity to consider in collaboration. These interactions form the basis of the technical aspects of the Wondervision project, presented in parenthesis:

- People-to-people connectivity (University of the Sunshine Coast [USC] staff to students: face-to-face and via FaceTime app.)
- People-to-information connectivity (students access elements of the USC Art Gallery collection)
- People-to-facilities connectivity (students connect to the art gallery in real time from remote locations)

Finholt suggested all three connections must be utilised, leading to the generation of new knowledge and ideas about the problem or issue being explored.

In working with these conditions, further key ideas include children working independently, learning to think at higher levels of analyzing and synthesising and working through literacy to engage in science. More recent works by the author have developed these ideas, resulting in the publications of teaching resources: *Conversations about Science* (Hunt & Thrupp, 2007), a CD and an eBook, *Thinking and Working Scientifically with ICT* (Hunt & Thrupp, 2012). These publications were developed using the language of Bloom's Taxonomy revised (Frangenheim, 2006) and Driving Questions (University of Michigan, n.d.). An example of the use of Bloom's language and driving questions is shown in Table 1 (Hunt & Thrupp, 2012). To make the nature of the task explicit for learners, the language of Bloom is presented as bold text. These resources were developed in both digital and print format.

Table 1

Sample Task Using Bloom's Language and a Driving Question

WHAT IS A 'LIVING CELL'? (Driving question)
Task 1: Use the Internet to **research** and **construct** an illustrated glossary of the parts of a living cell. **Differentiate** between animal and plant cells. This websites will get you started: http://www.cellsalive.com/
Task 2: **Construct** a 3 dimensional model of either a plant cell or animal cell. To get started, go to this website: http://library.thinkquest.org/19037/making_a_cell.html

Source: Hunt & Thrupp, 2012

The pedagogical considerations within the design of these resources included problem-based learning with a driving question, independent learning approaches with individuals and groups moving at their own pace, deep learning, literacy learning, self-direction and self-regulation, and multiple pathways to learning the same content, all within the context of science.

The Wondervision Project adopted these conditions of learning as key to the effectiveness of learning associated with Western Desert Art and Reconciliation, a significant main component to be described here. In the design it was clear that the development of digital artefacts since earlier projects was of importance, especially aspects of mobility and size. This description outlines the digital learning resources developed for this project, upon which effectiveness is to be the basis of data collection.

Developing the Digital Resources

In this section the pedagogical framework for the resource development is discussed and illustrated. Included is an analysis of the digital environment in the schools to be engaged (Table 2), together with a description of the type of digital resource that has been made available to schools in an area in close proximity to the university. Notably, the key differences with the Western Desert Art aspect of the Wondervision project from earlier projects are cultural sensitivity and ownership issues. These aspects build complexity into the project that had not been experienced in the development of earlier resources but is inherent in many projects of this type.

Background

In the years prior to the project, the university had been gifted and now displays art works by Indigenous people of the Western Desert of Central Australia. Now, the works are housed within two spaces within the university: works by male Indigenous artists and, separately, works by female Indigenous artists. The University Art Gallery manages both collections though not housed within the physical confines of the gallery. The gallery hosts visiting collections in addition to its own collections. The initial vision was the sharing of these cultural resources with schools, for three purposes. These included:

- building partnerships between the university and schools,
- creating advantage for schools in accessing cultural resources otherwise not accessible, and
- the cultural learning for children and the Reconciliation Action Plan of the university.

On this basis, a program was created that includes the virtual gallery and resources to support teaching in schools related to the virtual gallery and specifically, knowledge of Western Desert art and the cultural learning inherent in it. Digital photos of artworks were readily available for use in resource design and creation. Licencing agreements were granted for use of the art works in photograph from the artists. With this pathway readied, the task turned to designing for learning by students in schools, digitally to

overcome distance and accessibility (artworks were in some instances in parts of the university not accessible to large groups of children).

Coincidentally this project commenced at a time when new Australian syllabuses directed and emphasised learning of Aboriginal people and Torres Strait Islander peoples across all areas of the curriculum. It became quickly apparent that resources such as this would be greeted with enthusiasm by schools and teachers.

The Frameworks: Planning, Contextual and Pedagogical

The Wondervision project drew upon the influences of earlier projects and the resources of the university's art collections to develop teaching resources in a 2013 digital context in schools. Much had been learned about schools in the district to be engaged, and, given what was known about the digital environment of schools, this would influence the nature and form of the materials.

Consideration had to be given to the need to be inclusive of as many schools as possible. Hence a range of digital delivery options were agreed (Table 2). With the knowledge that schools were embracing iPads (Smart Classrooms, 2013), resources were directed towards developing a series of eBooks to maximise the potential of these devices. However, as not all schools would have iPad access, alternative delivery strategies were developed (see Table 2).

Table 2

The Delivery Options

iPad Schools	Non iPad Schools	Low or No Bandwidth Schools
Create interactive iBooks that were media rich: audio files, video clips, pop-up windows and java zoom panels.	Create interactive PDF files: This was limited to hyperlinks to the Internet and media on CDs.	Resources will be provided on CDs or as postcard sets. The postcards are a minimalist resource accessible without ICT.

It was anticipated that iPad schools would have a more seamless experience, as all files were located within the eBook. Anecdotal conversations with early adopter schools suggest this to be the case. Other schools were provided the media on CD/DVD.

This project was designed to give teachers the *whole* package and provide them with a resource and model to include Indigenous perspectives in their classes; through art, students would investigate cultural ways of Indigenous people including beliefs and relationships. The resource development plan was built on the *Orientating, Enhancing* and *Synthesising* (OES) planning model (Table 3) (Education Queensland, 2014), a way of providing a purposeful and structured sequence of engagement for students. This pedagogical design requires a differentiation of types of learning experiences across a unit of work, from engaging and motivating, to engaging in new learning and finally, to evaluating new learning. Table 3 describes the activities at each of these phases of engagement.

Table 3

Phases of the Engagement

Orientating	Enhancing	Synthesizing
Students engage with the people, the places and the events surrounding the Western Desert Art movement. This connects with historical events from the lives of the artists and their country.	Students investigate with one or more of the Western Desert Artists, the people of the Western Desert and their stories.	Students relate this learning to the local Aboriginal peoples, Gubbi Gubbi and Waka Waka.

Orientating activities. These activities situate the Western Desert Art program in the place where these Western Desert artists lived and worked, physically and culturally. Historical images were carefully selected to connect students with the Western Desert, building for students a sense of understanding and wonderment of these artists, working differently in the way environment and culture influences their art. The model, as shown in Table 1 could be adapted to other activities, the common theme being the use of Bloom's explicit language. The author found in other research (Hunt, 2007, Hunt & Thrupp, 2012) that making tasks for students explicit through using the language of Bloom, provided students with a clearer idea of what they were expected to do.

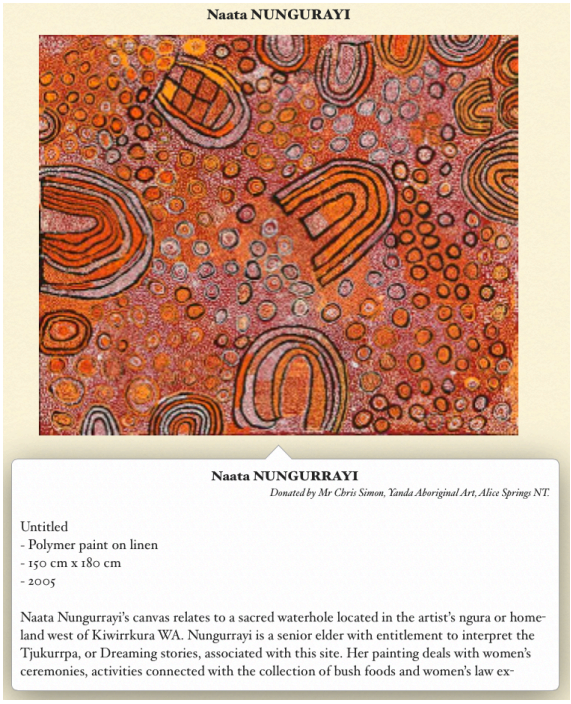
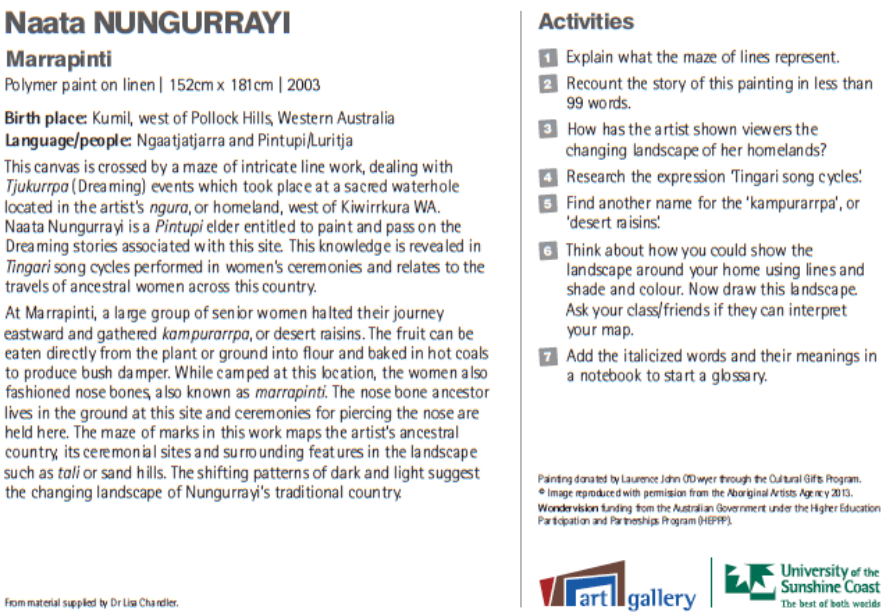


Image 1. Screenshot from eBook. Image used under licence from Aboriginal Artists Agency Ltd.

In Image 1 by Naata Nungurrayi the icons seen are associated with women's business. In the eBook, tapping the image accesses a short bio file and explanation of the external culture of the artwork embedded in a pop-up window. Both the painting and the biography are used as the basis for the learning experiences. Importantly, the eBook version provides richness through connections to other sources, placing at the children's fingertips, multiple pathways to learning and extensions for learning.

In the postcard series for Years 5-7, the reverse of the card contains bio-data and tasks for learning (Image 2). The bio-data and tasks are similar to those found in the eBooks. However, the eBooks contain other interactive elements.



Naata NUNGURRAYI

Marrapinti

Polymer paint on linen | 152cm x 181cm | 2003

Birth place: Kumil, west of Pollock Hills, Western Australia
Language/people: Ngaatjatjarra and Pintupi/Luritja

This canvas is crossed by a maze of intricate line work, dealing with *Tjukurrpa* (Dreaming) events which took place at a sacred waterhole located in the artist's *ngura*, or homeland, west of Kiwirrkura WA. Naata Nungurrayi is a *Pintupi* elder entitled to paint and pass on the Dreaming stories associated with this site. This knowledge is revealed in *Tingari* song cycles performed in women's ceremonies and relates to the travels of ancestral women across this country.

At Marrapinti, a large group of senior women halted their journey eastward and gathered *kampurarrpa*, or desert raisins. The fruit can be eaten directly from the plant or ground into flour and baked in hot coals to produce bush damper. While camped at this location, the women also fashioned nose bones, also known as *marrapinti*. The nose bone ancestor lives in the ground at this site and ceremonies for piercing the nose are held here. The maze of marks in this work maps the artist's ancestral country, its ceremonial sites and surrounding features in the landscape such as *tali* or sand hills. The shifting patterns of dark and light suggest the changing landscape of Nungurrayi's traditional country.

From material supplied by Dr Lisa Chandler.

Activities

1. Explain what the maze of lines represent.
2. Recount the story of this painting in less than 99 words.
3. How has the artist shown viewers the changing landscape of her homelands?
4. Research the expression 'Tingari song cycles'.
5. Find another name for the 'kampurarrpa', or 'desert raisins'.
6. Think about how you could show the landscape around your home using lines and shade and colour. Now draw this landscape. Ask your class/friends if they can interpret your map.
7. Add the italicized words and their meanings in a notebook to start a glossary.

Painting donated by Laurence John O'Dwyer through the Cultural Gifts Program.
© Image reproduced with permission from the Aboriginal Artists Agency 2013.
Wondervision funding from the Australian Government under the Higher Education Participation and Partnerships Program (HEPPP).

art gallery | University of the Sunshine Coast The best of both worlds

Image 2. Bio-data and tasks from a Years 5-7 postcard.

In the post-card series, the image forms the picture of the post-card whilst on the reverse side is printed the bio-data and tasks for students to complete (Image 2). Some richness is lost in this format.

Enhancing activities. The activities in this phase of engagement focus on ten chosen artists. Each was chosen for their overall contribution to Western Desert Art and the story told by their artwork. This 'story' represents the external culture of these people. The internal culture is forbidden to the uninitiated.

The learning experiences are designed for children to engage with the thinking and life of the artist to understand his or her culture through art. In addition, some learning experiences are designed for children to use the techniques of these artists to reflect on their own culture. The learning experiences provide a rich mix of locating and reading information, creating works of art, and

analysing art works toward conceptualising wider learning than art. The learning focuses on art, history and geography through engaging with art.

Both the eBook and postcard format enable children to work in groups, collaborating as they work through the learning experiences, moving at a pace that suits the ability of children in the group and responding in a way that meets the learning needs of these children.

Synthesising activities. This understanding of history and geography then becomes the basis for further investigations to draw links to local Indigenous peoples, the Gubbi Gubbi and the Waka Waka. With a small group of undergraduate teachers and local artists, the author has also recorded audio and video footage in a range of scenarios: legends, creating of artworks, dance and bush-tucker journeys. This has resulted in a collection of audio and video files that can be embedded in eBooks.

The Package

In summary, these resources are designed to provide a full curriculum package that provides for independent learning, differentiated learning and active learning based in the artwork of Western Desert artists. All materials are designed for collaborative group work in which groups of students are provided with an artist's work and a series of learning experiences. There is a strong emphasis on developing literacy, both textual and digital. The digital materials provide the richest option offering a fully scaffolded learning environment with links to the Internet. The postcard approach has limitations.

The comparison of these resources in the implementation and outcomes achieved is one aspect of the research designed as the next phase of the project. These resources, designed to support a Virtual Art Program to stream on demand, are currently in trial in 12 schools (providing access to over 2 000 students), using the FaceTime application on iPads provided to teachers participating in the Wondervision project. In this first phase of the research, teachers are documenting the value of learning experiences for children.

There is strong anecdotal evidence that teachers find these resources helpful as teachers and children find ways to respond. These include: requests for further materials with comments regarding the usefulness of the materials and its approach in enabling access to learning of Aboriginal perspectives; teachers sending artworks to the author as examples of how the resources have been used; a video narration of students explaining the meaning of their personal artworks created in the Western Desert style; and a curating program that allows students to send stories of their "classroom gallery" to the author using FaceTime technology.

The next phase of the research involves a survey and will lead to interviews of all teachers to be completed in the second half of 2014.

Concluding Comments

In designing these resources, major issues in resource development have been acknowledged:

1. The richness of the digital environment in providing for learning is to be recognised.
2. Sensitivity in supporting children to view the work and culture of Australian Aboriginal peoples through a non-Western lens.
3. The ethical stance of resource developers in recognising owners, their intellectual property and gaining permission for use.

A range of digital technologies has been developed to connect with the University's Art Collection:

- real time video streaming with a virtual curator (trialled and in production);
- interactive electronic books (2 currently available);
- hard copy post cards and activities for two age ranges (Preschool-4 Sample at Image 3); and
- small video clips with a cultural perspective: stories, dance, art classes and bush tucker.

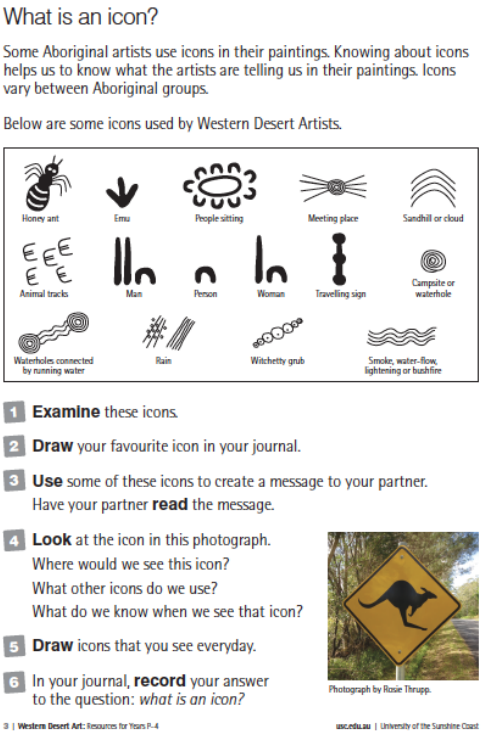


Image 3: Sample from an A4 P-4 postcard, note the bolded text of Bloom's verbs
Source: Hunt and Thrupp (2013). *Western Desert Art Activities for Years P-4*

This technical and pedagogical phase of Wondervision has concluded. At this point, the resources are being reviewed and refined in response to teacher and student feedback. Following in the second half 2014 will be the research phase, investigating the questions described earlier.

Acknowledgement of Country

The author acknowledges the traditional custodians of the land on which he works and lives and pays tribute to the strength and resilience of these people, past, present and future.

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