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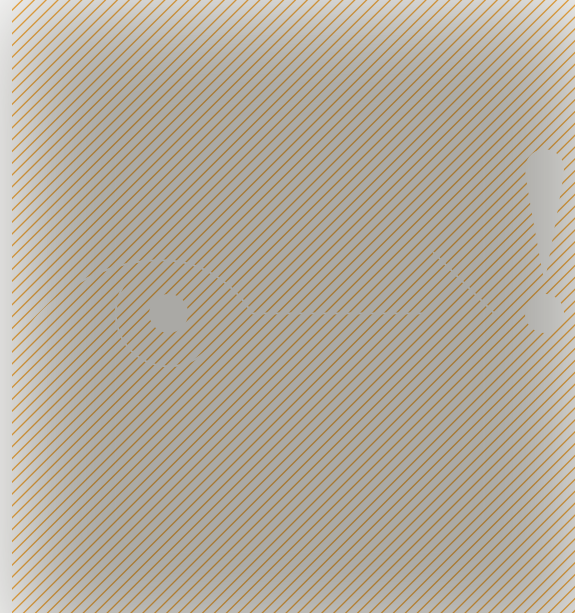
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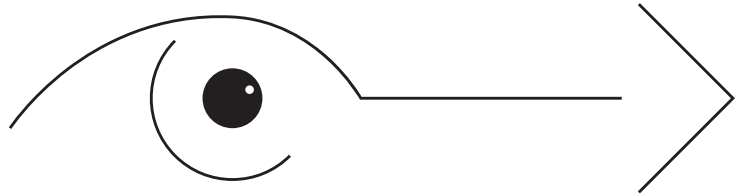
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Visible Language

the journal of
visual communication
research

Student Special Issue

december 2018



Before there was reading there was seeing. *Visible Language* has been concerned with ideas that help define the unique role and properties of visual communication. A basic premise of the journal has been that created visual form is an autonomous system of expression that must be defined and explored on its own terms. Today more than ever people navigate the world and probe life's meaning through visual language. This journal is devoted to enhancing people's experience through the advancement of research and practice of visual communication.

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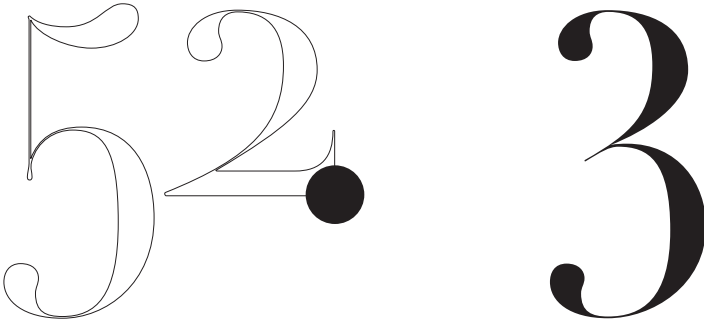
Mark Hunter
College of Design, Architecture, Art, and Planning
University of Cincinnati
PO Box 210016
Cincinnati, OH 45221-0016

Mike Zender, *Editor*
Dr. Maria dos Santos Lonsdale, *Associate Editor- Typography*
University of Cincinnati, School of Design, *Publisher*
Mark Hunter, *Publication Manager*
Merald Wrolstad, *Founder*
Sharon Poggenpohl, *Editor Emeritus*

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Visible Language
Student Special Issue



the journal of
visual communication
research

Guest Editor:
Maria dos Santos Lonsdale

December 2018

Contents

Informing personal branding through self-assessed handwriting analysis:
proposal of a supportive online platform

Laura Bakalka, Catarina Lelis

9 — 29

Informative and decorative pictures in health and safety posters for children

Sara C. Klohn, Alison Black

30 — 51

Two-dimensional vs three-dimensional guide maps:
which work best for museum visitors?

Andrew McIlwraith

52 — 73

eInk versus paper:
exploring the effects of medium and typographic quality on recall and reading speed

Jeanne-Louise Moys, Peter Loveland, Mary C. Dyson

74 — 95

Exploring illustration styles for materials used in visual resources for people
with aphasia

Jeanne-Louise Moys, Carmen Martínez-Freile, Rachel McCrindle

Lotte Meteyard, Holly Robson, Luke Kendrick, Maitreyee Wairagkar

96 — 113

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Garment label design and companion information to communicate fashion sustainability issues to young consumers:

Ana Perez, Maria dos Santos Lonsdale

114 — 139

Designing on Ntaria Country:
telling stories with new tools

Nicola St John

140 — 161

How can the principles and practices of information design help us produce useful live art documentation?

a unique user-centered, experience-design challenge

Rosanna Traina

162 — 183

Spaces that Speak:

Exploring Creative Opportunities in the Communication Design of Conversational Spaces

Nina Lysbakken

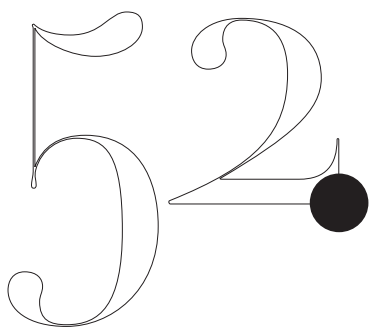
184 — 207

Editor's note:

All the articles for the Student Special Issue went through our standard double-blind peer-review process. The only concession to our normal research publication standards was occasional allowance for fewer research participants than might otherwise be necessary.

We hope to repeat this student special issue at various times in the future as a way to support our mission of advancing communication design research and scholarship.

mz



Student Special Issue

Visible Language is happy to present a Student Special Issue that includes articles on student research into Typographic and Graphic design involving user-centered research methods. The importance of focusing on user-centered approaches emerges from a need identified through years of experience as a lecturer, researcher and design practitioner. Design solutions that are driven merely by opinion and intuition, without having involved the target user throughout the different stages of the design process, nor having been tested and developed through several stages of iteration and re-design, might be prone to failure. Design that is developed for the user and with the user stands a greater chance of high and long-term impact.

The objective of the Student Special Issue was to support early career scholars by giving them an opportunity to experience the publication process, and to encourage supervisors/tutors to be involved in the publication process with joint authorship where appropriate.

In this Student Special Issue we have included a wide range of research themes that show the potential of the field of Typographic and Graphic Design to produce novel user-centered design and research solutions that are directly applicable to real life contexts. These include research on: the interrelation between handwriting and personal branding; children's engagement with health and safety posters; the effectiveness of two-dimensional versus three-dimensional museum guide maps; the appropriateness of different styles of illustration for visual resources used in combination with assistive technologies for people with aphasia; the effects of reading from paper versus an eink display on recall and reading speed; the potential of garment label design and companion information to communicate fashion sustainability issues to young consumers; the application of digital drawing within remote Indigenous contexts; the documenting of live art by locating and empowering the document user.

The publication of this Student Special Issue would not have been possible without the support of Mary Dyson (Department of Typography & Graphic Communication at the University of Reading, UK), the hard work of a strong body of reviewers from various parts of the world, and the patience and skill of Mike Zender, editor of *Visible Language*, in making sure the layout and images were a good representation of the research and design outputs.

Maria dos Santos Lonsdale, *Guest Editor*

Designing on Ntaria Country: *telling stories with new tools*

Nicola St John

Indigenous creative expressions are ingrained with knowledge, through an inherited visual language of signs and symbols learnt from within culture, grounded in country and identity. The power and strength of this knowledge remains embedded across diverse creative mediums, contemporary tools and technologies. Yet the application of digital drawing within remote Indigenous contexts remains largely unexplored. This research sought to understand a Western Arrernte perspective of digital drawing, through examining the digital creative outcomes of Indigenous youth from Ntaria – a remote community located on Western Arrernte Country in the Central Desert of Australia. Reported here, are findings on the students' use and understanding of these new tools as they moved from analogue to digital drawing for the first time. Introducing design tools to young adults from Ntaria enabled an exploration of digital drawing as a vehicle to develop 'designerly styles' as they re-imagined drawing in a digital way. What emerged from this project was a space for young adults from Ntaria to express their identity and give voice to their contemporary experiences. Ntaria 'designerly styles' are embedded within Western Arrernte cultural practice and reaffirm traditional visual language within a digital landscape. Results further reveal digital drawing can engage and foster the development of design-based creative practices for young people living in remote contexts, as well as longer-term economic and enterprise opportunities.

Introduction

Indigenous¹ knowledge and culture is a rich living entity, one that has, and continues to evolve through creative applications. Designs, patterns, and stories take many forms that are reinforced and replicated through traditional ritual, dance, song, body painting, rock engravings and sand drawing - some of the oldest ongoing traditions of art in the world (Morphy, 1998). Contemporary mediums and formats, notably watercolour and acrylic painting, radio, film and new media, have again reinforced cultural and spiritual practice. The integration of these new creative tools, technologies and mediums emphasizes that Indigenous culture, despite significant diversity and change, is simultaneously connected to the past while being engaged with the present (NGA, 2018). The ongoing engagement with new creative mediums within Indigenous communities, documents the development and ownership of creative process and practice that has ensured the longevity and relevance of diverse Indigenous culture into the future (Strehlow 1956; Bardon 1999). New practices emerging from these introduced creative tools have also become sites of agency, resistance and expressions of self-determination for Indigenous people (Eglash, 2004; Verran & Christie, 2007). This research seeks to explore if another creative tool can continue the rich legacy of Indigenous creative production in remote Australia, focusing on a digital drawing tool within the field of communication design.

This research is situated within the discipline of communication design, as a 'visible part of the ongoing living narrative of culture' (Woodward 2008) it offers an approach for inquiry that places cultural, social and aesthetic aspects of design at the center of expressions of communication and storytelling practices. This approach allows us to unpack how young adults from Ntaria understand and utilize digital drawing. As different cultures will have different understandings and cultural representations of design, so too will their appropriation and integration of a design tool. This paper is focused on utilising vector graphics as a digital drawing tool. Vectors are composed of a number of basic geometric objects such as points, lines, shapes, and polygons and can specify, in a resolution-independent fashion, a wide variety of content. Vector graphic applications support the continuous building and changes of files, allowing for distinctive creative possibilities. Their relatively small file size additionally allows for digital transfer across often slow and unpredictable Internet connections within remote Australia. There is currently little knowledge on the use and application of digital drawing within remote Indigenous contexts (Ginsburg, 2008).

¹ The 2017 AIATSIS Ethical Publishing guidelines suggest that 'the term 'Indigenous' can be used to encompass both Aboriginal people and Torres Strait Islander people, though preferably not for one or the other when it is known which group is being spoken about'. It is used in this paper where it is possible but not necessary that both Aboriginal and/or Torres Strait Islander people are referred to. As the study site is located in a remote area of Central Australia, those referred to in the study are 'Aboriginal' Western Arrernte people.

Additionally, there is scant information on how young people in remote Australia are shaping the creative, cultural and communication uses of new tools and technologies (Kral, 2011).

Within other colonial spaces, there are a growing number of scholars exploring different cultural understandings of communication design. From North America, Sadie Red Wing, a graphic designer and member of the Lakota Tribe advocates for native designers to practice 'visual sovereignty' in their work by using the visual language that is unique to their specific cultural heritage (Anderson, 2017). In Zimbabwe, Saki Mafundikwa's research seeks to rediscover the visual language of Afrikan iconography (2006). From a South African context, Piers Carey addresses ways that communication design colludes in a process of marginalization of Indigenous people (Carey 2011). Within Australia, Indigenous academics such as Norm Sheehan advocate for 'respectful design' as a way of working with Indigenous knowledge within the design industry (Sheehan, 2011). While influenced by the developing decolonising dialogue both internationally and nationally, this research looks specifically at Western Arrernte representations of design, giving voice to Ntaria understandings and ways of working.

The Australian design industry has historically had limited understanding and lacked influence from the important creative source of Indigenous people. Through looking at the practice of design through the lens of young adults from Ntaria, we can reframe the 'act' of designing in relation to Indigenous ways of being, knowing and doing (Martin, 2003). Additionally, understanding a Western Arrernte approach to design could work to challenge current Euro-centric understandings of how digital drawing tools are introduced, and communication design is taught. Within Ntaria School, there has been a distinct absence of any design education or training, which is mirrored throughout many remote communities. A Western Arrernte approach to communication design education is explored here, through the introduction of digital drawing to young adults in Ntaria. It is hoped these voices from Ntaria can contribute to, and highlight the value of, communication design tools and educational programs being integrated into more school curricula across remote Australia.

Ntaria: People, Place & Culture

The remote Indigenous community of Hermannsburg, known locally as Ntaria, was the physical location of this study. Ntaria is located on the traditional country of the Western Arrernte people, an Aboriginal tribe of Central Australia, believed to have been living on their lands for more than 20,000 years. To try and do justice to this place and its people, a brief history of Ntaria, as well as common factors affecting young people are described below - providing a necessary context for the research. It is also important to acknowledge Western Arrernte history and experience is not static, it is ever present, changing and adapting to contemporary realities.

The Western Arrernte people were forced to transition from a hunter-gatherer society to a local economy centred on a German Lutheran Mission, following European invasion in 1877 (Austin-Broos, 2009). The

violence, dispossession and transition of Ntaria history, has entrenched many of the Arrernte as a fourth world group. This marginalization from wider Australia reinforces experiences of not just cultural difference but also unequal and disparagement within Australian society (Sutton, 2001).

There is also an extensive history of creative practice in Ntaria. The introduction of new tools and technologies have allowed for new modes of expression and a means to express these tensions and changes to social and economic life. The introduction of watercolour painting, acrylic paint, canvas and pottery have allowed the Western Arrernte, 'to reconstruct their evolving identity in positive ways' (West, 1996). The success of the Hermannsburg Watercolour movement and the Hermannsburg Potters is testament to the ongoing cultural practices, economic and community development generated from creative industries.

As this study is set within a school context, it is also imperative to note common social circumstances for Indigenous youth. Young Indigenous people increasingly experience educational and behavioural difficulties. As rising statistics show, this tension and conflict manifests in anti-social behaviour, rising teenage pregnancy, substance abuse and high levels of risky behaviours and violence, poor school attendance, low retention rates and uneven levels of English literacy and numeracy (Eickelkamp, 2011).

Indigenous youth are keen consumers of global youth culture, and now act as intermediaries between old knowledge and new sites of cultural production, particularly through digital technologies. While researchers have explored 'youth media' in remote Indigenous contexts, there is little information on how Indigenous youth are shaping the creative, cultural and communication uses of digital drawing tools (Ginsburg, 2008; Wilson and Stewart, 2008). Research has also predominately focused on the barriers Indigenous people face in mainstream society (Heath and Street 2008). This project seeks to reposition the focus on marginalisation and difficulties and instead look towards understanding opportunities, in this instance, through the use and application of digital drawing.

Ntaria School is classified as a 'remote school' within the Northern Territory and is guided by both state-based and national curriculum. Within the senior years, this is based within the Northern Territory Certificate of Education and Training, which focuses on foundational English literacy and numeracy and an employment pathways program, to provide vocational education and training to students. Although there are no specific art or design programs currently taught within the senior years at Ntaria School, students undertake creative programs through Aboriginal-run art centres and learn watercolour painting and pottery, taught by local Western Arrernte artists. Therefore, the teaching methods between learning English language and numeracy (from non-Indigenous teachers often utilising English as an additional language pedagogies) verses Western Arrernte creative practice (often taught by family members in Western Arrernte language) are considerably different. Introducing digital drawing within Ntaria School therefore needs to recognise that Ntaria students continue to learn in and through their own language and culture, while acknowledging the design workshops are located within a formal educational setting.

Vector Graphics as design tool

The use and application of acrylic painting, new media, radio and film have been defining moments within Indigenous creative production, reinforcing and re-creating new ways to express cultural and spiritual practice. This research is concerned with the use and application of a communication design tool, specifically exploring vector graphics. Scant attention is given specifically to vector graphics within design research, although they are one of the most prevalent, and versatile forms of visual representation. Most literature on vector graphics assume the reader has prior knowledge of the technology needed in order to create digital graphics, and provide little direction on how to use the tools specifically (Harris & Withrow, 2008; Ganovelli et al. 2014; Glitschka, 2010; Elmansy, 2012).

Digital drawing is the foundational knowledge necessary for design, as vector graphics can relate to a wide range of styles, techniques and technical design professions - communication design, product/industrial design and digital media design for example (Glitschka, 2010; Elmansy, 2012). The use of these design tools within remote Indigenous contexts presents more complex layers of cultural and social understandings. How will Ntaria youth make sense of this tool, mediated through Western Arrernte ways of being, knowing and doing?

Research approach

Research questions

The study from which this article is derived sought to understand how Western Arrernte young adults imagine and apply vector graphics within a remote desert community.

- The following research questions guided this study:
- 1. How do young adults from Ntaria integrate or imagine digital drawing – specifically vector tools - within their contemporary creative practices?
 - 2. Can the tools of communication design produce 'designerly' styles amongst young adults from Ntaria?

Methodological Framework

Research within an Indigenous community should be carried out in a manner, which is respectful and ethically sound from a range of Indigenous perspectives. Therefore, the methodological framework is centered from a decolonizing approach; necessary within Indigenous research given the existing social inequities that Indigenous peoples continue to experience. As a non-Indigenous researcher working within an Indigenous community, I needed to ensure the project did more than just follow ethical principles

and guidelines, but that I become a collaborator in projects and processes that respect and promote the aspirations of the young adults from Ntaria involved in the project.

Indigenous methodological frameworks recognise that knowledges are “socially situated, partial and grounded in subjectivities and experiences of everyday life” (Moreton-Robinson & Walter, 2009, p.2). This requires a reinterpretation of traditional Western methodologies and the development of ways of conducting research that are based on Indigenous ways of knowing, being and doing.

From a design perspective, collaborative, participatory and action-based research methodologies are generally identified as being compatible with the goals and emerging reform agenda for research involving Indigenous peoples (Smith 2013; Denzin 1989; Martin, 2003; Nakata, 2011). These approaches, particularly participatory action, are well suited to creative research that requires ongoing participation, collaboration and reflection. As Denzin describes, ‘These are narrative, performative methodologies, research practices that are reflexively consequential, ethical, critical, respectful, and humble’ (Denzin in Denzin, Lincoln & Smith 2008, p.936).

Through there are many approaches to design and participatory research that could have been used to address the complex methodological realities of this project, Youth Participatory Action Research (YPAR) was chosen. This approach values the voices and knowledge of youth, challenges the injustices that many marginalized youth experience, and empowers participants to make changes in their communities (Cammarota & Fine, 2008). YPAR recognizes that young people are often socially constructed in ways that do not match their realities or potential. It allows young people to ‘contest, challenge, respond to, and negotiate the use and misuse of power in their lives’ (Ginwright & James, 2002, p.35). Research is therefore conducted with youth; around the issues they find most important in their lives.

This positioning was embedded within an Indigenous pedagogical framework (Yunkaporta, 2009) and how this can be applied to communication design teaching and learning within a remote Indigenous community. The eight-way Aboriginal pedagogy framework (Yunkaporta, 2009) was created to assist teachers in coming to Indigenous knowledge and using it in the classroom. It comprises eight interconnected pedagogies that see teaching and learning as fundamentally holistic, non-linear, visual, kinaesthetic, social and contextualised. The framework involves ‘repetition and returning to concepts for deeper understanding’ (Yunkaporta, 2009). The creative process, and its inherent reflective nature sits well within an Indigenous pedagogical frame, and lends itself well to a visual approach to learning, through story-sharing, symbols and images. Research Methods: The Ntaria approach

Aware of Indigenous calls for research to be useful and for researchers to be accountable to Indigenous peoples (Bishop, 2005; Marker, 2003; Smith, 2013; Wilson, 2001), the research project was developed in consultation with Ntaria School and the student participants over many months and community visits. This time also allowed me (as the researcher)

to become ‘known’ to the students and allowed space for me to understand the interests of the participants and integrate this into the research. Participants shared their experiences and stories with me only after we became more ‘relatable’ to each other, through building relationships, spending time and feeling comfortable. The more time I spent, what things were shared and how it was shared further changed and developed.

Design workshops (Martin & Hanington, 2012) were held with 20 Senior Students at Ntaria School, aged 14-18 over a period of 9 months. With the uncertainty of community life and important cultural events, the project molded to fit within its context and the circumstances at Ntaria. This long time frame was critical to give the students the space, freedom and time to explore, learn, collaborate and share their knowledge.

Prior to the workshops beginning, students were asked to share any creative work with the group. It was important to know what kind of drawing and creative expressions participants made before their design workshop experience. This also enabled the comparison of any ‘designerly’ styles. The comparison, between the aesthetics and outcomes of the students’ previous creative work, were conducted through a visual analysis and supported by observations and interviews.

Students were introduced to working with vector graphics predominantly on iPads, utilizing the Adobe range of tablet apps. Students began drawing pencil/marker on paper and used a variety of ways to transfer these images to a digital interface. Apple pencils were also used as a drawing tool on the iPads. Students had previously used the iPads within classroom activities (predominately through literacy and numeracy educational apps, taking photos and short videos), but had not engaged with digital drawing, design or vector graphics.

The workshops were participatory and explorative, usually focused on completing a design task while ensuring work was embedded within local knowledge and storytelling practices. Sessions were often taken out of the classroom, to gather materials such as local plants, and capture colour palettes from the local landscape. These outdoor sessions also had the tendency to turn into ‘bush trips’: long walks collecting bush foods, sharing stories of being on Country, often many kms in the School ‘troopy’ or 4WD bus. Perhaps an excuse to get out of the classroom, these adventures instilled a sense of quiet and calm amongst students, having space to think about the meaning and relevance of the signs and symbols they used in their design work and how they related to their contemporary lives. These trips also broke down barriers of teacher/student or researcher/participant and allowed me to become more relatable. This time, not designing, but walking, being, thinking was imperative to the project, my role within it, and the subsequent stories that were shared.

Data Analysis

Two levels of analysis were undertaken to explore the students understanding of digital drawing and development of ‘designerly’ styles. The participants were involved in different ways in all levels of the analysis. This is not

uncommon in qualitative research or with research with differing language and cross-cultural understandings, as 'the interviewer is understood to work with the respondent in flexible collaboration to identify and interpret the relevant meanings that are used to make sense of the topic' (Reid & Flowes, 2005, p. 122).

A thematic analysis (Clarke & Braun, 2013) was first undertaken, through which key visual concepts (such as the use of traditional symbols and icons, and the non-traditional use of shapes and colours) from the students' design work were identified and compared to narrative concepts (such as storytelling practices, student understandings and perceptions of identity and wellbeing), based on repetitive patterns, themes and ideas. While some scholars debate the validity of visual research as lacking scientific rigour and credibility, Hewson (1991) argues that despite its complexity, much can be gained from the interpretation of visual material. Knowles and Sweetman (2004, p. 7) maintain that visual data can "reveal what is hidden in the inner mechanisms of the ordinary and the taken for granted." Alexander (1994) argues that analyzing visual material requires the researcher to possess an understanding of visual language, the culture in which it is generated, and the conventions of the material they are researching to identify and decode meanings.

The second level of thematic analysis was completed by the Ntaria students, which gave important direction to the initial thematic work. This was an important way of ensuring that important themes were not just identified by one non-Indigenous person. This directed the focus of the analysis to the themes that were collectively decided should be the focus and were particularly important in communicating meaning and understandings in a cross-cultural space (Pringle et al. 2011. p. 21). This analysis happened through both casual and planned interactions, but enabled both myself and the students, as a collective, to discover some important insights by allowing time and giving space to think about the work and what it meant.

Defining Western Arrernte 'designerly' styles

The specific purpose of vector graphics within this study, was designing forms of visual communication. To define the Ntaria digital drawings as developing 'designerly' styles, it is necessary to explore a 'designerly' aesthetic within a specific Western Arrernte cultural understanding.

Firstly, it is important to provide a framing for the Ntaria drawings as communication design outcomes. Jorge Frascara's discussion on communication design as an 'activity' defined by its communication purpose, technology used and social impact provides us with an understanding of how the Ntaria digital drawings can be understood and situated as design outcomes utilizing a 'designerly' aesthetic (1988). For Frascara, design should be 'concerned with the efficiency of communication, the technology used for its implementation, and the social impact it effects, in other words, with social responsibility. The need for communicative efficiency is a response to

the main reason for the existence of any piece of graphic design: someone has something to communicate to someone else' (1988, p.20).

Frascara's framing allows us to situate the Ntaria digital drawings, through their communicative purpose, technology used and their social impact firmly as sites of communication design. The purpose of the drawings was to communicate students' cultural knowledge and contemporary identities, being able to share this knowledge through design outcomes using common tools of the discipline.

From an aesthetic perspective, a shared definition of a 'designerly' style emerged through the collaborative teaching and learning process with the Ntaria students. Within a Western Arrernte context, a 'designerly' style is understood as one that utilises a design tool (in this instance vector graphics), and produces a different style (use of shape, colour, line, composition, layering etc.) to an analogue drawing or painting (hand drawing, acrylic painting, watercolour painting etc.). The Ntaria students expressed the differentiation of design predominantly through the 'surface' of their digital drawings, as deeper meanings associated with often powerful, ancestral knowledge remained independent of the tool or medium. Additionally, they were positioned as 'designerly' through the 'outcomes' of design, purposely designing t-shirts and posters allowed the students to experiment with contemporary aesthetics and the specific communicative purpose of their outcomes.

Examining 'designerly' styles from a post-colonial lens, Indigenous peoples have been colonized to think that they are artisans and artists, producing artefacts and craft, not designers creating designs (Thomas, 1999; Morphy, 1998). Therefore, defining the Ntaria digital drawings as 'design' is in itself an act of decolonising Euro-centric principles and is an important step in creating more culturally-diverse understanding of communication design (Meggs, 2011). It is expected that working with vector graphics will influence the drawing styles and creative outcomes of the Ntaria students. Drawing in a digital way presents numerous opportunities in creation, adaption and outcomes. Exploring new tools and imagining new digital possibilities introduces students to new ways of working, as they learn and practice drawing with vector graphics.

Results

'With design, you use different shapes':
learning design tools

Before the workshop program began, students creative practice centered on sand drawing, hand drawn sketches, watercolour and acrylic painting (Figure 1).

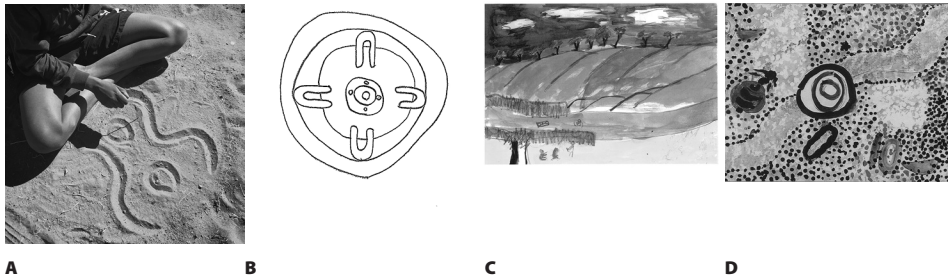


FIGURE 1

Ntaria students' creative works before the design workshop program began. Their prior creative art education focused primarily on sand drawing (A), pencil drawings (B), watercolour landscape painting (C) and acrylic painting (D). Reoccurring shapes, such as the wavy line, 'U' shape (commonly depicting a person sitting), concentric circles (commonly depicting a meeting place or a waterhole), honey ants (a local bush food), dot painting technique and depictions of landscape are common within a Western Arrernte visual language and depict stories of ancestral creation, hunting, knowledge sharing and local landscapes.

Learning activities within the design workshops focused on vector drawing tools within the Abode Draw and Adobe capture applications on iPads. Activities encouraged students to use a selection process in choosing colour, drawing technique, style and design, which fostered critical thinking and active participation. 'Shapes' were introduced to students as a key design concept, reflected in the Adobe Capture and Adobe Draw software. The 'shapes' provided within the apps: circle, square, triangle, line: although seemingly ubiquitous, were new to the Ntaria students. When drawing by hand, a perfect circle is almost impossible, while the square and triangle are not common shapes within traditional Western Desert visual lexicon. To students, these 'shapes' exist only within these digital interfaces, and they had to learn how to apply them both within a design and a Western Arrernte context. Through exploring the possibilities with drawing digitally, new styles emerged that took advantage of these new digital vector 'shapes' (Figure 2).

As students spent more time working with vector shapes and digital brushes, they became aware of the opportunities present within this digital medium, such as the expanded choice of colour, block colouring, layering, and easy shape and colour manipulation. Their hand drawings subsequently changed, as they sketched ideas to recreate within a distinct digital medium (Figure 3).

The young adults from Ntaria, described design as allowing you 'to create stuff' as opposed to creating 'art.' Through the design workshops the students 'created' t-shirt designs, which were subsequently digitally printed. These fashionable outcomes enabled students to express themselves within current youth mediums, while experimenting with both traditional and contemporary influences, symbols and styles (Figure 4).

"Art and design are different, because you can create stuff. The style looks different. Different colours." (Participant 2)

"I like to do designs on the iPad. I like to make shirts or anything. It makes me feel proud. I can put my culture on my t-shirt." (Participant 3)

Drawing in a digital way, created the freedom for young people to express themselves in their own way, and reveal their lived experiences, influences and identities in contemporary ways.

The transferability of digital drawing skills were also picked up by students:

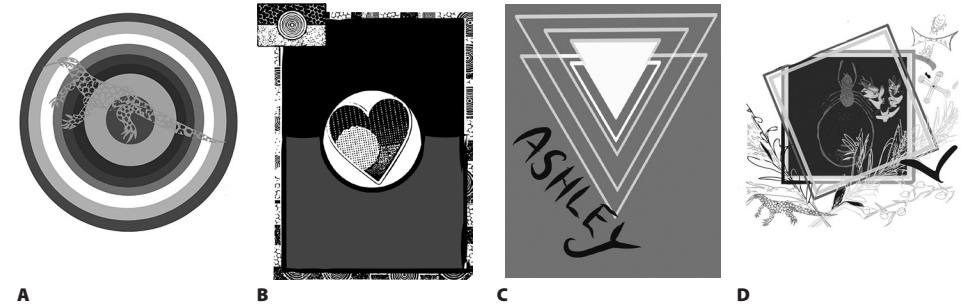
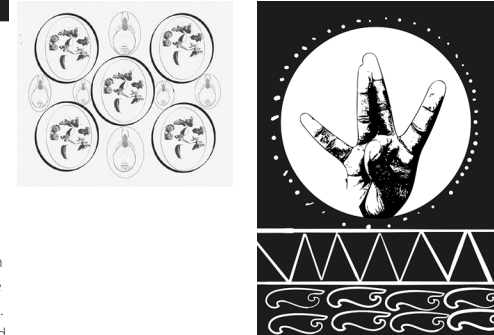


FIGURE 2

Students early experimentations of utilizing new shapes within the Adobe Draw app, including perfect circles (A), squares (B), triangles (C), and vector traced 'shapes' from collected leaves (D), plants (E), hand drawings and photographed hand gestures (F). The use of new 'shapes' are still largely embedded within Western Arrernte iconography, such as the use of local plants and bushfoods. These digital drawings, completed within the first few weeks of the design workshops highlight how the students did not make a total aesthetic departure when working with a new tool, but that new shapes, made possible from working within a digital medium, were integrated within an established cultural and visual language.



"We are all interested in learning to draw new ways on iPad and computers. So we can design graffiti on the streets. So we can design stuff. So I can design stuff for my car, and I can design my car. So we can design clothes and tattoos and stuff." (Participant 1)

From drawing on an iPad with new shapes and designing t-shirts, students were able to see how these skills could lead to designing their own car. This seemingly large jump, from creating a perfect circle on an iPad to a 3D modelling of a car is testament to the adaptability of vector graphics. More importantly it demonstrates the capabilities of the students as they explore working with digital drawing for the first time. The use of 'design' within their vocabulary is also important to note. While ideas and understandings of art and design often blended together within the workshops, with many students replicating traditional painting on the digital devices, there was an understanding that design was *different* to art. While the students were exposed to the term 'design' as the project was described as a 'design workshop', they were able to adopt 'design' for outcomes outside of classroom activities and outcomes, such as 'designing' tattoos and cars. Their understandings of 'design' evolved through teaching and learning collaborations within the classroom, but also through their own understandings of how 'design' tools and practices could be applied and integrated within their own world.

'It's too hard': user experiences of the pen tool

Transitioning students use of vectors through shapes and brushes on the iPad to working with the pen tool in Illustrator was perhaps an unrealistic

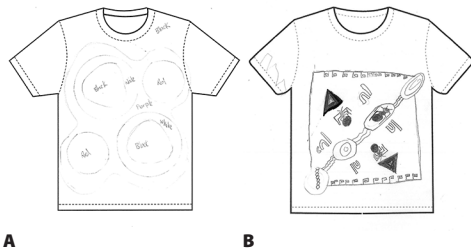


FIGURE 3

Students hand drawings changed and adapted once the possibilities of digital drawing become known and integrated into their practice. Colouring was no longer done by hand (A) and new shapes such as the triangle and square emerged and were integrated within an inherited language of traditional signs and symbols (B).

expectation for students completely new to design and working digitally. Drawing with pencil/paper to Apple pencil/iPad was an intuitive step for most students, yet this did not translate when working with Wacom/laptop or trackpad/laptop. Working in a different design interface with new tools, such as the pen tool, created additional challenges.

The portability of the iPad allowed students to have the device flat on the desk, like a canvas, change orientation, hold it in their lap, change body position, move around the room, or change the distance from their face to device. Designs could easily be shared by holding up the device, or passing it around. Yet working on a computer was fixed, with the distance between trackpad or Wacom and screen so much greater than drawing directly on an iPad screen.

"It's harder than drawing with my finger. My fingers easy. But on the laptop it's hard. The lines look different. You have to practice a lot." (Participant 3)

Students were quick to dismiss the pen tool for the more instant results they were seeing on the iPads. Although both were working in vectors, the more mathematical pen-tool, based in curves, points and paths requires considerable training to master. In addition, the pen-tool involves a process of points and paths to complete a shape. Starting and stopping mid-way through is tricky, especially without considerable technical knowledge and helpful shortcuts. For students, tracing an object with the pen tool was fraught with difficulties, in understanding the nature of curves, learning keyboard shortcuts and being able to easily start and stop. If a mistake was made, it meant having to start again at the beginning.

"The hardest part is when you make mistakes. That's the hardest part. Drawing that way. That's hard." (Participant 4)

The students were proud of the design work they were achieving on the iPad and with the transition to the pen tool not producing as neat or instant results, the students' preference was to continue drawing on the iPad. As they couldn't physically see, nor understand what the benefit of the pen tool was within this context, the general preference was to work with the familiarity of the iPads and work directly finger to screen or with the aid of the Apple pencil.

The benefits of working with vectors are not solely fixed on working with the pen tool. Adobe Draw and Adobe Capture apps allow users to work in a vector format without the need for the mathematically intensive use of the pen tool. Within this remote desert context, the pen tool had little meaning or relevance compared with other digital drawing



FIGURE 4

Students model their t-shirt designs, printed from their digital drawings. Bold graphic shapes and block colours were now being utilised by students, interweaving their contemporary experiences, such as playing footy (A) and the appropriation of the Aboriginal flag (B). Again, these new influences were located within Western Arrernte visual language, with dot painting techniques being recreated through the iPad and cultural signs and symbols remaining embedded within their designs (C).

approaches. The students could achieve the aesthetic results they wanted on the iPad surface, without the need of any more advanced techniques. The professionalism of the Illustrator programs on the laptop did not suit the context of use and as such, students maintained a preference to work on the iPads throughout the workshop delivery.

'Design is a little bit different': creating 'designerly styles'

Working with a new creative tool requires making decisions, reasoning, expressing ideas and taking action. Vector graphics acted as a vehicle to explore student's decision making with digital outcomes. Their digital expressions and the way they transfer their knowledge onto a digital medium is a record of the designers' thinking. Students were able to experiment and create 'designerly' styles through the tool kit of the digital medium. The use of flat shapes and blocks of colour enabled new digital styles to develop through the use of vectors, which students often referred to as stylistically 'neat'.

"Design is a little bit different. It's a little bit neater. When you paint you use a brush, it's a bit rough ... Design is neat for me." (Participant 2)

These 'neat' lines, shapes and blocks of colour enabled a bold visual style to develop. Examples of the students' digital drawings are shown below, along with their accompanying stories. Through these drawings, 'designerly' styles are emerging, through neat bold applications of colour, smooth line-work, composition, layering, straight lines, perfect circular dots, replicated shapes and contemporary objects, such as footballs and the Aboriginal flag (Figures 5-7).

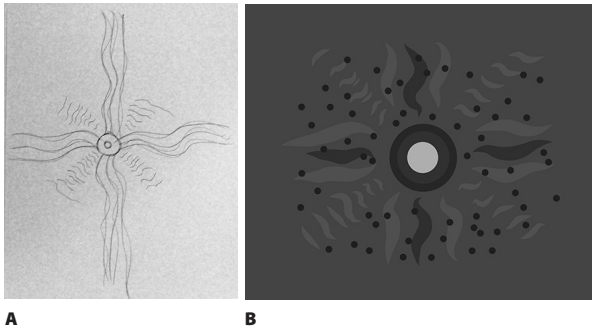


FIGURE 5

Waterhole story, Digital Drawing, 2017. Pencil drawing of waterhole story (A), in comparison to digital interpretation (B). Working within the digital medium allowed this hand drawn sketch to be reinvented as a bold digital drawing. The bright bold colours are a departure from the traditional ochre hues used by students in their previous acrylic paintings. The line work and use of dots conveys a sense of rhythm through its composition and digital brush strokes. The student has recreated the waterhole story to suit the digital medium and made use of shapes, lines and colours available through working with digital tools.

Students were also able to reinforce their cultural identity and knowledge by embedding traditional symbols and signs through digital drawing. In Ntaria, storytelling practices predominately use traditional symbols. For example, a person sitting is drawn by a simple curved U-shape, based on the imprint left by a person sitting cross-legged in the sand. Concentric circles may be a meeting place, camp, a watering hole; a wavy line might be a track, a river or snake. The stories often involve a journey and the combination of story and drawing is required to extract it's meaning. These important signs and symbols, an ongoing traditional based in cultural and spiritual knowledge are being recreated and reinforced within digital drawing practices. Although students are more exposed to global contemporary culture than ever before, the Ntaria students prioritised traditional symbols, which in turn acted to reinforce their distinct cultural identities. The majority of students' designs depict events and stories of ancestral creation and traditional knowledge. Drawing with vectors, allowed a new shape and form of Western Arrrente ritual knowledge to emerge (Figures 8 and 9).

"With design, I can make anything. I can tell stories, like sitting around the fire." (Participant 2)

Drawing with a new digital tool and experimenting with new outcomes meant there was no 'right' way or 'correct' style, with students having to invent what design meant to them within the context of Ntaria. The Ntaria students, while retaining their cultural knowledge, embedded within a rich visual language, were also free to experiment with new aesthetics, influences, and creative practices. The digital drawings gave young adults from Ntaria a voice, having the freedom and creative agency to simultaneously to be able to express their traditional past within their contemporary futures.

Discussion

Implications of tool choice

In response to the first research question, on the Ntaria students understanding of working with vector graphics, what was found was a huge op-

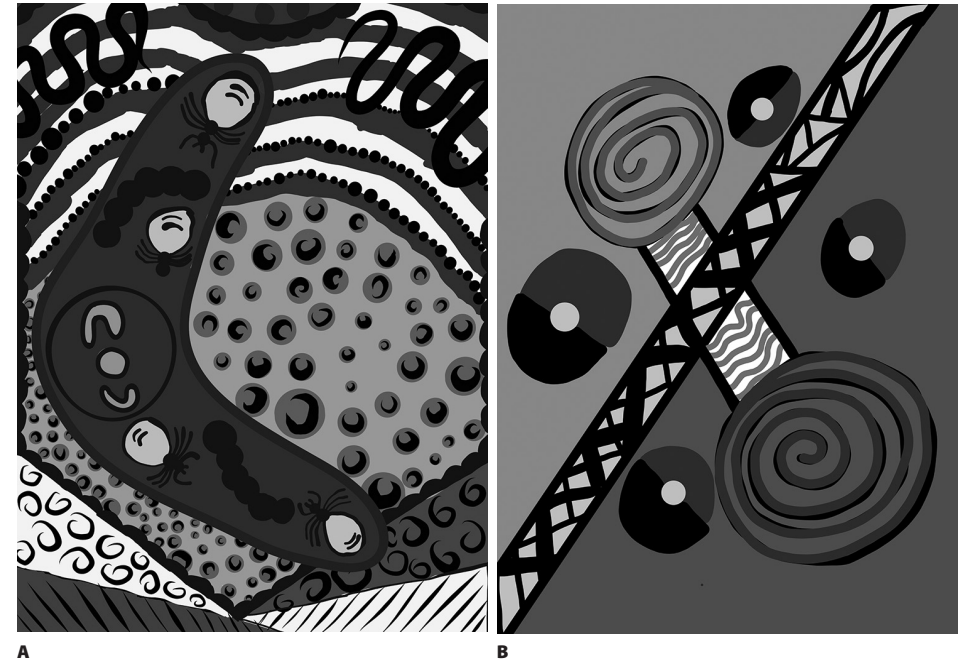


FIGURE 6

Students continue to express stories of country and Western Arrrente culture and identity through the use of vector-based tools. Digital drawings, 2018. (A) "My design is of different bush tuckers around Ntaria. It's beautiful country. Tjaapa and Yirrampa are Witchetty grubs and Honey ants. When I design I tell stories about my dreaming". (B) "This story is about fishing at the seaside where my mother comes from and telling stories with family. Then when we come back to Ntaria I play footy with the men."

portunity for students to engage in a new creative practice through digitally mediated mediums. User experiences revealed a preference to work directly on an iPad screen, rather than a Wacom tablet or a track-pad on a laptop. Students preferred drawing in a way where the results were instantly visible, such as drawing directly on an iPad screen. The structure and format of working with the pen tool significantly delayed this instantaneous nature of shape creation and required numerous steps and a complex process. The iPad offered more understandable benefits and a simpler technique for students. Through designing with digital tools, young people are exploring new forms of communication, participation and creative outcomes. It can act as a 'form of empowerment'; giving young people a voice and a new mode of expression (Cammarota & Fine, 2008 p.47).

It was clear that the outcomes of the design workshops have potential market currency: students were able to digitally print their design work on a range of materials and sell them within the community. These outcomes also held social currency within the school, as younger students were keen and eager to participate, with older community members interested in what the students were designing, what stories they choose to tell and how it all related back to Ntaria life.

"We are learning. Getting new skills. We are designing and making our own things. It's important for people to know our culture. To respect our culture. To respect us." (Participant 6).

There is increasing dialogue within remote Australian communities around providing alternative solutions through new appropriate tools and new approaches to economic and creative development. There is a desire to develop skills and maintain culture-based creative economies (CAT, Strategic Plan). Communities themselves are now increasingly exploring

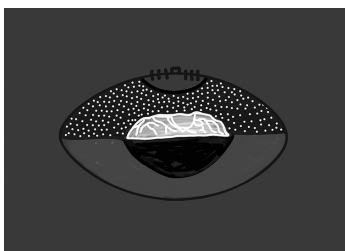


FIGURE 7

Uluru Dreaming, Digital Drawing 2017. "This is a design of Uluru that I used to have a dream about. It's a good place. The red is for the sand, and the sky is full of stars. It is a special place. AFL is also a good sport to me - I like to play. I drew this because I was thinking of my dream."

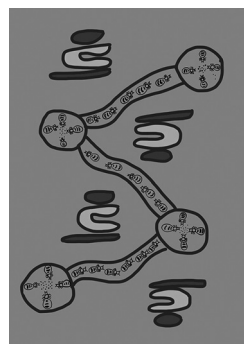


FIGURE 8

Honey Ant Story, Digital Drawing, 2017. "This is a design of people sitting down digging for honey ants. The ants are going to their houses and finding which place they are going to camp. Honey ants are important because they are good bush tucker. They are good to eat!"

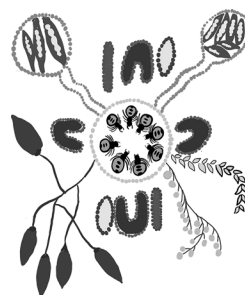


FIGURE 9

Bush Tucker Story, Digital Drawing, 2017. "My favourite things to do are sharing stories, going hunting, looking for bush tuckers. My ideas come from the bush. From going out hunting and my Grandparents talking about stories."

new and emerging activities that mesh the traditional and contemporary in an effort to sustain both culture and future.

Emerging voices through design

Regarding the second research question, young people from Ntaria continually show themselves to be adept at integrating cultural forms into digital mediums. The 'designerly' styles emerging from Ntaria combine traditional iconography with contemporary realities. Kral argues that Western desert youth remain deeply rooted in their own cultural schema; a schema connected to kin and country and the enduring relationship between place, identity and tjukurpa (Dreaming) (2011). They perceive significant differences, but also continuities, between digital and traditional modes of communication and, for the most part, are keen to incorporate new technologies into their lives.

As this research is still ongoing, there are limitations to analysing the Ntaria drawings in relation to a Western Arrernte cultural and aesthetic understanding, and thus providing a specific cultural definition for 'designerly' styles and communication design practices. This research hopes to further expand and explore in more detail how Indigenous Knowledge (Martin, 2003) can merge with designerly knowledge (Cross, 2001) within a remote Australian context.

Through the prism of these digital outcomes, we can see an affirmation of Indigenous cultural tradition. Yet it is being told through new shapes, colours and 'designerly' styles afforded through the use of a digital drawing tool. Exploring the possibilities of drawing in a digital way, young people can reinvent their cultural symbols, songs and stories to suit a contemporary youth aesthetic. Western Arrernte knowledge, country, and

histories are rich repositories of narrative that current generations can utilize in new ways of storytelling. Not just by learning to draw in a new digital medium, but by representing their living culture in a contemporary way. Design can be employed as a way to strengthen culture: through telling stories in new ways, learning new skills while developing students' digital literacy. Through the design workshops, students are discovering what Indigenous design means within Ntaria, how the tools of design can take on a new meaning, and the potential of design to create future employment and enterprise opportunities within their community.

Outside of the Ntaria community, this research also hopes to show the value of communication design education in remote contexts. Through exploring the Ntaria students' experiences and understandings of digital drawing and communication design, it is hoped the students' voices can contribute to the development of more locally-informed and culturally relevant design programs within Indigenous schools and communities.

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References

- Alexander, V. (1994), "The Images of Children in Magazine Advertisements from 1905 to 1990," *Communication Research*, 21 (6), 742–765.
- Anderson, M. (2017) Why Can't the U.S. Decolonize Its Design Education? *AIGA*. Accessed 25 January 2017: <https://eyeondesign.aiga.org/why-cant-the-u-s-decolonize-its-design-education/>
- Austin-Broos, D. J. (2009). *Arrernte present, Arrernte past: Invasion, violence, and imagination in indigenous central Australia*. Chicago, IL: University of Chicago Press.
- Bardon, G. (1999). *Papunya Tula: Art Of The Western Desert*. J.B. Books Australia.
- Berndt, RM & Berndt, C. H. (1967) *The First Australians*, 2nd edn, Ure Smith, Sydney, NSW.

- Bishop, R. (1998). Freeing Ourselves from Neo-Colonial Domination in Research: A Maori Approach to Creating Knowledge. *International Journal of Qualitative Studies in Education*.
- Bishop, R. (2005). Pathologizing the lived experiences of the indigenous Maori people of Aotearoa/New Zealand. *Pathologizing practices: The impact of deficit thinking on education*, 55-84.
- Bolter, J. D. (1984). *Turing's man: Western culture in the computer age*. UNC Press Books.
- CAT Ltd Strategic Plan 2016-2021, Centre for Appropriate Technology. Accessed July 2018: <http://cfat.org.au/cat-corporate-documents/>
- Cammarota, J., & Fine, M. (2008). Youth participatory action research: A pedagogy for transformational resistance. In *Revolutionizing Education: Youth Participatory Action Research in Motion* (pp. 1-11). Routledge Taylor & Francis Group.
- Carey, P. (2011). From the outside in: A place for indigenous graphic traditions in contemporary South African graphic design. *Design Issues*, 27(1), 55-62.
- Chilisa, B. (2012). *Indigenous Research Methods*. SAGE publications: California.
- Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The psychologist*, 26(2), 120-123.
- Crilly, N., Blackwell, A. F., & Clarkson, P. J. (2006). Graphic elicitation: using research diagrams as interview stimuli. *Qualitative Research*, 6(3), 341-366.
- Cross, N. (2001). Designerly ways of knowing: Design discipline versus design science. *Design Issues*, 17(3), 49-55.
- Denzin, N. K. (1989). *Interpretive biography* (Vol. 17). Sage.
- Denzin, N. K., Lincoln, Y. S. & Smith, L. T. (2008). *Handbook of critical and indigenous methodologies* Thousand Oaks, CA: SAGE Publications'
- Eglash, R. (Ed.). (2004). *Appropriating technology: Vernacular science and social power*. U of Minnesota Press.
- Eickelkamp, U. (2011). *Growing up in Central Australia: new anthropological studies of Aboriginal childhood and adolescence*. Berghahn Books, New York

- Elkin, A.P. (1974), *The Australian Aborigines*, Fourth edn, Angus & Robertson, London.
- Elmansy, R. (2012). *Illustrator Foundations: The Art of Vector Graphics, Design and Illustration in Illustrator*. Taylor & Francis.
- Fascara, J. (1988). Graphic Design: Fine Art or Social Science? *Design Issues*, 5(1), 18-29. doi:10.2307/1511556
- Ganovelli, F., Corsini, M., Pattanaik, S. and Benedetto, M. (2014). Introduction to Computer Graphics: A Practical Learning Approach. CRC Press.
- Ginsburg, F. (2008) 'Rethinking the digital age' in P Wilson and M Stewart (eds), *Global Indigenous Media: Cultures, poetics and politics*, Duke University Press, Durham and London, pp.287-305.
- Ginwright, S. and James, T. (2002), From assets to agents of change: Social justice, organizing, and youth development. *New Directions for Youth Development*, 2002: 27-46.
- Glitschka, V. (2011). *Vector Basic Training*. A systematic creative process for building precision vector artwork. New Riders, Peachpit, Pearson Education, America.
- Harris, J. and Withrow, S. (2008). *Vector Graphics and Illustration. A master class in digital image making*. Rotovision SA, Switzerland.
- Hewson, R. (1991). DECIDING THROUGH DOING: THE ROLE OF SKETCHING IN TYPOGRAPHIC DESIGN. *SIGCHI Bull.* 23, 4 (October 1991), 39-40.
- Knowles, C. & Sweetman, P. (2004). *Picturing the social landscape : visual methods in the sociological imagination*. Routledge, New York, NY
- Kral, I. (2011). 'Youth media as cultural practice: Remote Indigenous youth speaking out loud'. *Australian Aboriginal Studies. Journal of the Australian Institute of Aboriginal and Torres Strait Islander Studies*, Vol.1, pp. 4-16.
- LeVine, R. and New, R. (2008). *Anthropology and Child Development: A Cross-Cultural Reader*. Maldon, MA: Blackwell Publishing.
- Mafundikwa, S. (2007). *Afrikan alphabets: The story of writing in Africa*. Mark Batty Publisher.
- Marika, W. 'Painting Is Important', in *Long Water: Aboriginal Art and Literature*, ed. U. Beier, Sydney, 1986.

- Marker, M. (2003). Indigenous voice, community, and epistemic violence: The ethnographer's "interests" and what "interests" the ethnographer. *International Journal of Qualitative Studies in Education*, 16(3), 361-375.
- Marker, M. (2006). After the Makah whale hunt: Indigenous knowledge and limits to multicultural discourse. *Urban Education*, 41(5), 482-505.
- Martin, B. & Hanington, B. M. (2012). *Universal methods of design: 100 ways to research complex problems, develop innovative ideas, and design effective solutions* (Digital ed). Beverly, MA Rockport Publishers
- Martin, K., & Mirraboopa, B. (2003). Ways of knowing, being and doing: A theoretical framework and methods for indigenous and indigenist re-search. *Journal of Australian Studies*, 27(76), 203-214.
- Meggs, P. B., & Purvis, A. W. (2011). *Meggs' history of graphic design*. John Wiley & Sons.
- Moreton-Robinson, A., & Walter, M. (2009). Editorial. *International Journal of Critical Indigenous Studies*, 2(1), 1-1.
- Morphy, H. (1998). *Aboriginal art*. Phaidon Press.
- Myers, F.R. (1979). 'Emotions and the self: A theory of personhood and political order among Pintupi Aborigines', *Ethos*, vol. 7, no. 4, pp. 343-70.
- 1991, *Pintupi country, Pintupi self: Sentiment, place and politics among Western Desert Aborigines*, University of California Press, Berkeley, CA.
- Nakata, M. (2011). Pathways for Indigenous education in the Australian curriculum framework. *The Australian Journal of Indigenous Education*, 40, 1-8.
- NGA, National Gallery of Australia, Aboriginal and Torres Strait Islander Collections. Accessed August 2018: <https://nga.gov.au/collections/atsi/>
- Pringle, J. Drummond, J. McLafferty, E. Hendry, C. 2011 'Interpretative phenomenological analysis: a discussion and critique', *Nurse researcher*, vol. 18. no. 3, pp. 20-24.
- Reid, K., & Flowers, P. L. M. (2005) Exploring lived experience. *The Psychologist*, 18, 120-23.
- Sheehan, N. W. (2011). Indigenous knowledge and respectful design: An evidence-based approach. *Design Issues*, 27(4), 68-80.

- Smith, L. (2013). *Decolonising methodologies: Research and Indigenous peoples*. New York: Zed Books
- Sheehan, N. W. (2011). Indigenous knowledge and respectful design: An evidence-based approach. *Design Issues*, 27(4), 68-80.
- Strehlow, T. G. H. (1947). *Aranda traditions*. Melbourne University Press, Carlton, Vic, 1947.
- Stanner, W.E.H. (2009), *The dreaming and other essays*, Black Inc. Agenda, Melbourne, Vic
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Thousand Oaks, CA: Sage.
- Sutton, P. (2001), 'The politics of suffering: Indigenous policy in Australia since the 1970s', *Anthropological Forum*, vol. 11, no. 2, pp. 125-73.
- Thomas, N. (1999). *Possessions: Indigenous art, colonial culture* (p. 217). London: Thames & Hudson.
- Verren, H., Christie, M., Anbins-King, B., Van Weeren, T., & Yunupingu, W. (2007). Designing digital knowledge management tools with Aboriginal Australians. *Digital Creativity*, 18:3, 129-142.
- West, M. (1996). 'Kin, Country and Clay' in *Hermannsburg Potters*. Museum & Art Gallery of the Northern Territory.
- Wilson, S. (2001). What is Indigenous research methodology? *Canadian Journal of Native Education* 25(2): 175-9.
- Wilson, P., & Stewart, M. (2008). Indigeneity and indigenous media on the global stage. *Global indigenous media*, 1-35.
- Woodward, M. (2008) Special Issue Call for Papers. *visual:design:scholarship*
- Yunkaporta, T. (2009). *Aboriginal pedagogies at the cultural interface* (Doctoral dissertation, James Cook University).

Author

Nicola St John is a PhD candidate at Swinburne University of Technology, Centre for Design Innovation. Her research explores the transfer and impact of innovative digital technologies on creative practices in remote Indigenous communities in Australia.