

**Title: Landscape Art and Attention Restoration Theory.**

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**Author Bio:**

Bridgette Minuzzo is an Adelaide based visual artist with over twenty years of experience in project-based art practices; public art, community art, commissions and exhibition work. A University of South Australia PhD candidate (under examination August 2019) Bridgette investigated the effects of installing semi-abstract landscape paintings on peoples' attentional states and mental wellbeing in windowless work places.

**Key Words:** Art, Mixed Methods, Attention Restoration, Cultural Probe, Biophilia.

**Abstract:**

Australian urbanites tend to spend long hours indoors, often in work or study spaces without access to views of nature. Yet in environmental psychology and health sciences it is understood that viewing landscape is beneficial for stress, pain and fatigue reduction, and increases mental wellbeing. In this multi-disciplinary project, the researcher's creative practice is complemented by quantitative and qualitative approaches, informed by Attention Restoration Theory (ART) and health research. Three studies into the restorative effects of landscape art involved paintings installed in office spaces ( $n=17$  workers) and in a lecture theatre foyer ( $n=74$  students) for four weeks. A user-centred consultative tool from product design and urban planning, the Cultural Probe, was adapted to collect longitudinal data. An online survey was used for the larger study. The artist engaged in practice-based research, reflecting on data from each case study to develop iterations of landscape paintings. Study participants provided insights into the way artwork is engaged with and 'used' by members of the public. The research has implications for urban workplace design, study spaces and public art. The paper outlines how the methods and ART framework challenged and augmented the artist's practice, an example of art and design in transition.

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**Introduction**

A multidisciplinary approach to practice-based research can challenge and augment visual arts practice. I will outline and discuss my PhD research as an example of art and design in transition. Based at the University of South Australia’s School of Art, Architecture and Design, my PhD is a practice-based investigation of landscape art, drawing on ideas and methods from other disciplines.

Australian physicist Monro (2017) defines multidisciplinary research as involving ‘the application of tools from one discipline to questions from other fields’.

Multidisciplinary creative research has been around for a while. Messer (2012) argues that interdisciplinary genre blurring in practice-based research has occurred since the 1980s. Yet it is the particular *combination* of disciplines, methods and questions in any project that can lead to new and unexpected outcomes, and to a shift in the practice as illustrated in this instance by Figure 1.

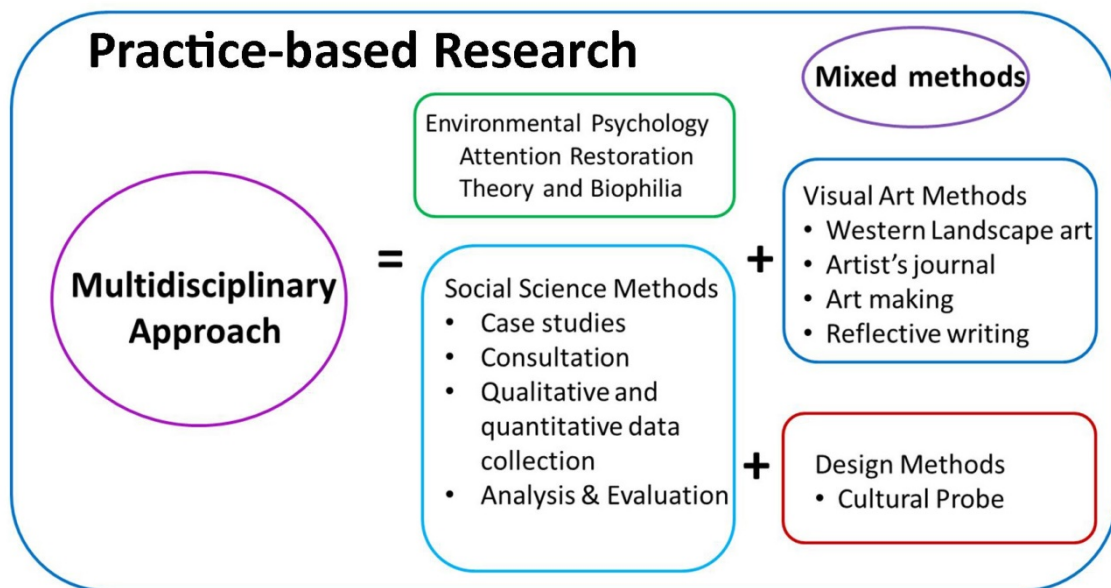


Figure 1: Diagram of the multidisciplinary approach.

This research is an extension of a socially engaged creative practice. In 2009, for example, I established the Art Trolley, a mobile studio created for the Arts-in-Health program at the Flinders Medical Centre. Art workshops are offered each week to patients in wards and dialysis clinics. This arts engagement model has recently been adopted for the Perth Children’s Hospital artist-in-residence program. My current research is also concerned with people spending long hours indoors; the setting

however, has shifted from patients to people working or studying in windowless rooms.

### **Contextualisation**

The motivation for my research comes from a growing concern, regularly expressed in the literature and popular media, about the disconnection of people from the natural environment. Over 50% of Australians live in urban areas, with this urban population increasing annually (Bratman et al 2015, p. 8567). In our cities, people tend to spend most of the day indoors, often in work spaces without access to views of nature. Yet environmental psychology and health sciences have long provided evidence that engaging with green space is beneficial for stress, pain and fatigue reduction, and it increases mental wellbeing (Ulrich 1984; Kaplan 1995; Berman Jonides and Kaplan 2008; Bratman et al 2015). A case in point: recent hospital designs in Australia prioritize window views, green spaces and artworks with nature themes. Some examples are the Queensland Children's, Royal Adelaide and Fiona Stanley Hospitals. Design for nature-connection is found in patient rooms and public spaces however, in hospital staff areas clean wall policies persist in that functional OHS items are permitted but decorative additions to workplace walls are discouraged (Knight 2010).

This is also the situation for staff in many of our university and government buildings. On the one hand, decades of research and current hospital design practices support study findings that views of nature have a positive effect on fatigue and stress. On the other hand, many people still work or study in rooms without a view, looking at blank walls. There is evidence that *representations* of nature can have a similar positive effect on workers' and students' mental wellbeing by reducing fatigue and stress (Flannery 2005; Wilson 1984; Heerwagen and Orians 1993). This calls into question the persistence of clean wall policies in the spaces we work and study in.

You might wonder why a visual artist is concerned with hospital design and the wellbeing of workers and students. This is the type of unexpected transition in practice that can occur with a multidisciplinary approach. Researching Biophilia, evidence-based healthcare design, restorative effects of nature, attentional states, visual perception and Western landscape art has influenced the research trajectory. Ideas from other fields changed the way I perceive art and landscape, and prompted a focus on the restorative potential of art. The disciplines of environmental psychology and social sciences informed the research argument. Research methods

were developed in collaboration with a population health scientist, Dr Catherine Paquet. Attention Restoration Theory is used as a conceptual framework for the practice-based arts research, combined with quantitative and qualitative data collection.

The aims of the study are threefold. To provide new understandings about: 1) how landscape paintings can contribute to attention restoration, 2) how landscape imagery is utilised by viewers in windowless spaces and 3) what sort of landscapes are considered by people to be restorative.

### **Attention Restoration Framework**

The principle of Attention Restoration Theory is that there are two default attentional states: directed attention, which we engage for reading and writing tasks, and involuntary attention, which is a resting state, occurring when we are in a natural environment or looking at a landscape image (Kaplan 1995). Directed attention is mentally fatiguing yet can be easily restored by a short period of involuntary attention as shown in studies by Lee (2015, p. 188) and Berto (2005, p. 257). In other words, when you are indoors working or studying, and are mentally fatigued, you can feel more alert by simply looking out of a window to a view of trees, hills or sky. If this is not possible, looking at a *representation* of landscape has a similar restorative effect.

The benefit of considering the restorative effects of landscape art is that it provides another way to understand the value of engagement with the arts. Investigating the restorative possibilities of artworks adds to discourse on Attention Restoration Theory. Environmental psychologist Stephen Kaplan (1995, p. 174) defines a restorative environment as having: 1) a level of **fascination** or absorbed interest, 2) a sense of **being away** or momentary release from a prior mind state, 3) **extent**; which means the environment appears to be a whole other world, and 4) **compatibility** with the viewer's preferences.

### **Application of the Framework**

The reflective and iterative processes of practice-based research; the literature and material investigations, consultation, evaluation of data and reflection are summarized in Figure 2. For three separate case studies I created landscape paintings which were installed in offices and study spaces for a month. Participants were consulted pre and post the study on their levels of focus, mental fatigue and

stress. During the course of each study participants recorded their engagement with the artwork.

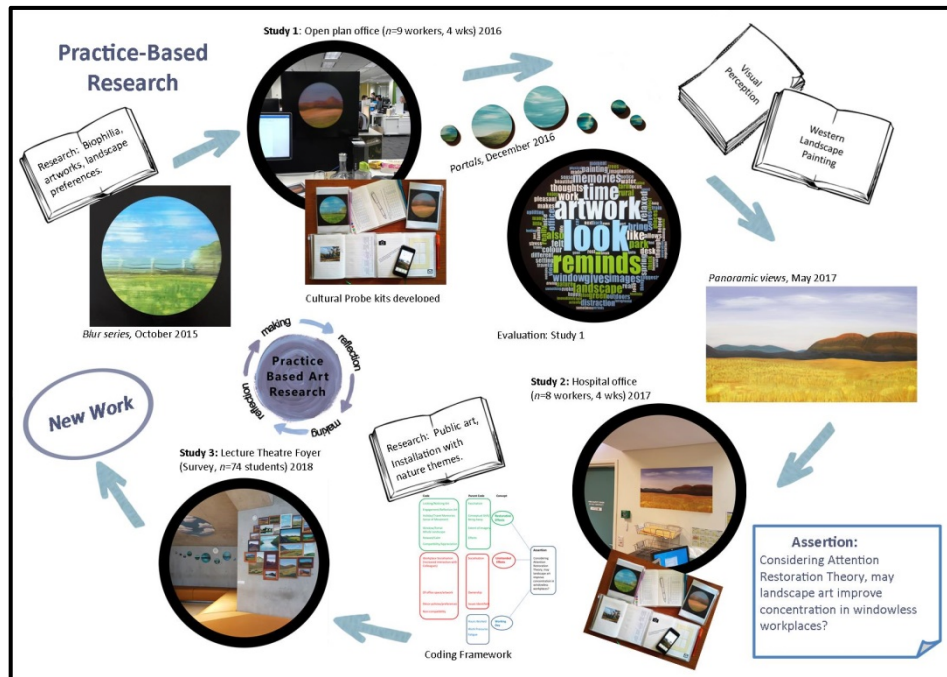


Figure 2: Diagram of the practice-based research process and methods.

Applying Kaplan’s Attention Restoration Theory criteria (Kaplan 1995) to the conceptualisation of artworks was challenging. I approached this like a commission brief; the works were conceptualised in response to the four parameters: fascination, being away, extent and compatibility. Original hand-painted, semi-abstract artworks were made to stimulate absorbed interest or fascination. Participants’ responses reflected active engagement: ‘I liked the colours and techniques used’ and ‘It’s great to see the difference in intricate details compared to the distant view’.

A landscape picture, as a representation of another place, can transport the viewer through memories and associations. A landscape can evoke the sense of ‘being away’ or momentary release from a prior mind state. To increase the ‘being away’ effect, I worked with semi-abstract imagery, to represent many places, not one specific place (Figures 3, 4 and 6). Participants described travel associations: ‘Reminds me of the Flinders Ranges and a walking trip in the Scottish Highlands’ and ‘Like scenery viewed on long road trips in central Australia’ and ‘It looks like I’m looking into my memories.’



Figure 3: *Road from Oratunga to Blinman*, 2017. Acrylic on board, 500 x 500 mm.

To address the criteria of extent, giving the sense of a whole other world, I experimented with a series of framing devices: circles, horizon views, panoramic and a series of works (Figures 3, 4 and 6). Participants associated the circle-shaped landscapes as a 'window/portal' which 'looked like train/ship windows, implied travel'. Participants' comments compared the paintings with a real window view 'feel like I'm looking through a window to different (less concrete!) reality'.

Compatibility was a difficult aspect to address, as aesthetic appreciations are subjective; people like different things. Participants in all studies had a choice of responding to one of three to four paintings or installations. The paintings referenced local South Australian landscapes (familiarity is a component of compatibility), used a palette of blues and greens (ecological valence shows a preference for these colours in nature imagery, Palmer and Schloss 2010) and were wild untouched places, devoid of people, as in the landscape traditions of the Romantic Movement and the Sublime. Most participants responded with positive rankings for compatibility and used word such as 'like', 'peaceful', 'calm' and 'relaxing'. Examples of comments are: 'The rolling hills are very relaxing to look at in my busy, crazy day' and 'Gives me a moment to pause and be mentally still' and 'I love natural artworks and find them aesthetically pleasing and calming.'



Figure 4: *Portal No. 1*, 2017. Acrylic on board, 350 mm diameter

In total, over 90 participants were surveyed in windowless rooms at three campuses and a hospital. For the first two case studies, I utilized a user-centred consultation tool, the Cultural Probe. Gaver, Dunne and Pacenti (1999) developed the Probe to elicit comprehensive insights from sample groups to design prototypes. The Cultural Probe consists of a journal with open ended questions, some tasks and a camera. I adapted the Cultural Probe to collect viewer perceptions about landscape artwork and attention restoration (Figure 5). An artwork can be like a Cultural Probe in how it affects people, by stimulating personal insights and responses. The benefit of using the Cultural Probe was also its challenge; there is a lot of qualitative feedback to process. I developed a coding framework and data were co-coded.



Figure 5: Cultural Probe kits from Case Studies 1 and 2; a landscape painting (i.e. Figures 3, 4 and 6), mobile phone camera and journal with questions about the artwork, fatigue and work focus.

Case Study 3 involved many artworks installed in a lecture foyer space. Students completed an online survey in the foyer after attending a lecture. The benefit of this situated research is that most Attention Restoration studies simulate the setting, the tasks and/or the nature imagery. To differentiate my study, I installed original paintings in actual work places, with people going about their daily work tasks. ‘Context is half the work’ is the motto of the socially engaged Artist Placement Group based in the United Kingdom (APG 2016) which resonates with my situated case study approach. Other non-art knowledges, materials and approaches are relevant to art making and vice versa.

## Discussion

Although the sample sizes are small, the data are indicative and support other studies on preferences for nature imagery and Attention Restoration. Landscape art was found to be beneficial in windowless spaces by stimulating involuntary attention and thus directed attention was rested. A majority of participants reported a reduction in stress and mental fatigue after looking at the artwork. A brief engagement (less



than 5 minutes) was sufficient to produce a twenty to forty percent reduction in stress and mental fatigue levels, as reflected in pre and post measures. When stressed or fatigued, people took a short break to momentarily experience a sense of being connected to a natural environment. The paintings triggered associations and memories of familiar places which participants reported had a calming and relaxing effect, as reflected in the qualitative responses. Nature imagery (landscapes or gardens) ranked as significantly more restorative than other genres of paintings in the survey: still life, cityscapes, portraits or abstract art.

The investigation into Attention Restoration is also of personal interest, and has relevance for my research and arts practice. Understanding about attentional states and fatigue has encouraged me to install landscape imagery and plants in study spaces, to schedule blocks of focused work with nature breaks: cycling, walking my dog and field trips to spend time in, and document natural environments.



Figure 6: *Flinders Ranges Revisited*, 2018. Acrylic, mixed media on board, 300-400mm

Using the Attention Restoration framework gave me freedom to expand my ideas about landscape painting. My investigations included cutting up paintings, exploring shape, grouping paintings as installation, and experimenting with abstraction techniques. The case studies gave insights which informed the next iteration of paintings. The consultation data validated the visual communication; people understood things about the paintings that I intended to communicate.

Brain imaging shows that an *aesthetic* experience *also* activates the involuntary attention mode; however the effect is directly correlated with personal relevance (Vessel, Star and Rubin 2012, p. 9). In other words, preferences for art are

subjective, and for restorative effect, compatibility is essential as Herzog, Maguire and Nebel (2003, pp. 168-169) also noted. Yet this neural activation of engaging with art may have a different and additional quality to that of engaging with nature. An aspect not discussed by Kaplan is that restoration can occur as an increase in state of arousal from low to high as well as a decrease from high to low (Frankenhaeuser and Johansson 1986). Restoration can occur as a decrease from stressed to calm or fatigued to rested, as well as an increase from weary to mental stimulation. This is significant; it is proposed that one of the benefits of *landscape art* over a window view or photograph of landscape is that the artwork enables mental stimulation as the individual generates personal associations and interpretations of the artwork.

Artworks have the potential for what Hyman (2010, p. 257) terms ‘imaginative multiplicity’. Most participants reported that the artwork evoked memories of holidays, time with family, being outdoors or travel. This is an aspect of ‘being away’, yet the participants generated not one, but many associations and interpretations of the artworks. The participants were looking at the landscape paintings, but thinking about places not actually depicted in the painted representation. When engaging with the landscape paintings they demonstrated both restorative effect and imaginative multiplicity (see Figure 7).

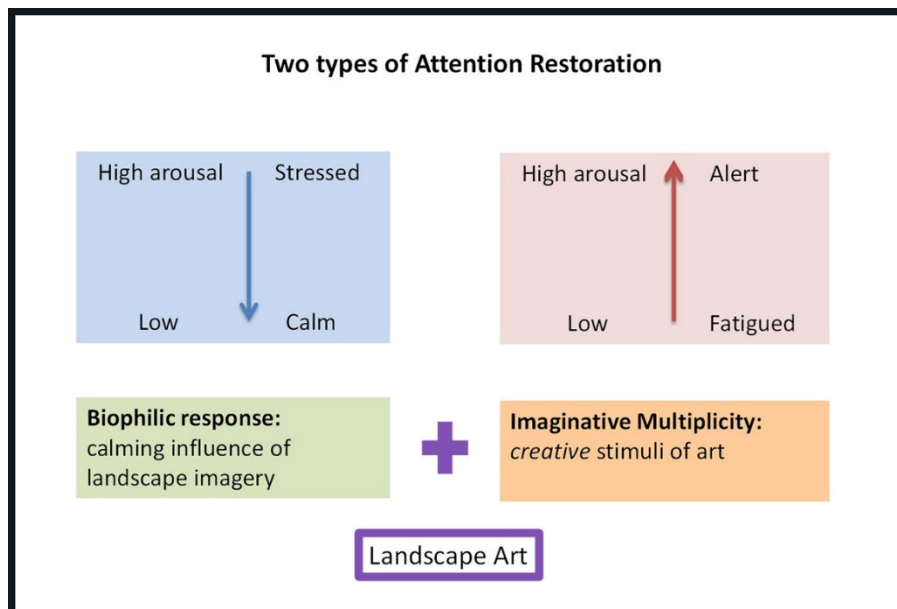


Figure 7: Attention Restoration effects of landscape art

The research findings have implications for improving people’s experience of urban design, workplaces and study spaces. Developing new ways to value the arts and provide another evidence base to support arts engagement is imperative in times of continuing cut-backs to arts funding. In 2018 the Liberal Government in South

Australia slashed \$4.9 million from the State arts budget (2018-2019) with a further reduction of \$32 million over the following four years (AICSA 2018). There is a real need for advocacy that negotiates, in pragmatic terms, for the benefits of arts engagement.

### **Conclusion**

The ideas and methods informing this visual art research are from the disciplines of art, design, environmental psychology and social sciences. Exploring landscape art from the perspective of nature-connection and restorative effect provided a novel approach for conceptualising work. A painting became a portal, a window view, a panorama, a sequence, an installation, a blurred view on a long road trip. Insightful responses from members of the public verified my intended visual communication.

At the same time, the art research is generating new insights about the benefits on cognitive function of viewing landscape art, adding to the discourse on Attention Restoration. Considering the restorative potential of art provides a new evidence base to support and advocate for arts engagement. Landscape artworks can be both a restorative and a *creative* stimulus for viewers, inspiring interpretation and creative thinking. Work and study environments can be designed or adapted to consider attention restoration. Instigating a more restorative environment can be as simple as introducing a landscape image.

Without the insights of a multidisciplinary approach, I would not have discovered that arts engagement has significance other than cultural and aesthetic value; landscape art can be beneficial for our work weary brains.

## Reference List

- AICSA 2018, 'State Budget sees cuts to the arts and significant changes to Arts South Australia', September 5, 2018 <http://aicsa.net.au/state-budget-sees-cuts-to-the-arts-and-significant-changes-to-arts-south-australia/>
- APG 2016, 'Context is half the work, a partial history of the Artist Placement Group', 1966-1980's, Pub: 3 Aug–5 Oct 2016. Website accessed Sept 21, 2018. <https://en.contextishalfthework.net/about-apg/artist-placement-group/>
- BERMAN, MG, JONIDES, J & KAPLAN, S 2008, 'The cognitive benefits of interacting with nature', *Psychological Science*, vol. 19 , no. 12, pp. 1207–1212.
- BERTO, R 2005, 'Exposure to restorative environments helps restore attentional capacity', *Journal of Environmental Psychology*, no. 25, pp. 249–259.
- BRATMAN, GN, HAMILTON, JP, HAHN, KS, DAILY, GC & GROSS, JJ 2015, 'Nature experience reduces rumination and subgenual prefrontal cortex activation', *Proceedings of the National Academy of Sciences*, vol. 112, no. 28, pp. 8567–8572.
- FLANNERY, MC 2005, 'Jellyfish on the ceiling and deer in the den: the biology of interior decoration', *Leonardo*, vol. 38, no. 3, pp. 239–244.
- FRANKENHAEUSER, M & JOHANSSON, G 1986, 'Stress at work: psychobiological and psychosocial aspects', *Applied Psychology*, vol. 35 no. 3, pp. 287–299.
- GAVER, B, DUNNE, T & PACENTI, E 1999, 'Design: cultural probes', *Interactions*, vol. 6, no. 1, pp. 21-29.
- HEERWAGEN, JH & ORIAN, GH 1993, 'Humans, habitats, and aesthetics', *The Biophilia Hypothesis*, pp. 138–172.
- Herzog TR, Maguire P and Nebel MB 2003, 'Assessing the restorative components of environments', *Journal of Environmental Psychology*, vol. 23, pp. 159–170.
- HYMAN, J 2010, 'Art and neuroscience', in FRIGG, R. & HUNTER, M. (eds), *Beyond Mimesis and Convention: Representation in Art and Science*. Dordrecht: Springer Netherlands, pp. 245–261.
- KAPLAN, S 1995, 'The restorative benefits of nature: toward an integrative framework', *Journal of Environmental Psychology*, vol. 15, no. 3, pp. 169–182.

LEE, KE, WILLIAMS, KJ, SARGENT, LD, WILLIAMS, NS & JOHNSON, KA 2015, '40-Second green roof views sustain attention: the role of micro-breaks in attention restoration', *Journal of Environmental Psychology*, vol. 42, pp. 182–189.

MESSER, J 2012, 'Practicing interdisciplinarity', *TEXT*, vol. 14, October 2012.  
*Journal of Environmental Psychology*, vol. 42, pp. 182–189.

MONRO, T 2017, 'Research does solve real-world problems: experts must work together to make it happen' *The Conversation*. September 8, 2017 accessed 2.59pm AEST <https://theconversation.com/research-does-solve-real-world-problems-experts-must-work-together-to-make-it-happen-42824>

PALMER S E and SCHLOSS KB 2010, 'An ecological valence theory of human color preference', *Proceedings of the National Academy of Sciences*, vol. 107, pp. 8877-8882.

ULRICH, R (1984) 'View through a window may influence recovery from surgery' *Science*, vol. 224, no. 4647, pp. 420–421.

VESSEL, EA, STARR, GG & RUBIN, N (2012) The brain on art: intense aesthetic experience activates the default mode network. *Frontiers in Human Neuroscience*, vol. 6, p. 66.

WILSON, EO 1984, *Biophilia*. Harvard University Press.