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Emergent Knowledge in the *Third Space* of Art-Science

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Abstract: The locus of encounter between art, science and the public can be conceptualized as third space–a generative site of shared experience. This article reports on a group-based psychosocial method led by imagery and affect–the visual matrix–which enables researchers to capture and characterize knowledge emerging in third space, where disciplinary boundaries are fluid and there is no settled discourse. It presents an account of the visual matrix process in the context of an art-science collaboration on memory and forgetting, and shows how the method illuminates aesthetic and affective dimensions of participant experience, and captures the emerging, empathic and ethical knowing that is characteristic of third space.

Keywords: art-science, visual matrix, psychosocial, third space, third culture, aesthetics, curating, evaluation.

Researching Third Space

The notion of a third culture bridging science and the humanities has long been discussed [1–4]. We argue that the "third culture" of art-science, a heterogeneous field of collaborative scientific and aesthetic investigations [5–8], is distinguished by its intersection with the public, and its capacity to connect audiences and stakeholders to researchers in ways that are mutually enhancing. Art-science takes the form of a "public experiment" [9], or "living laboratory" [10]. This paper discusses how a new method –the visual matrix–enables examination of the transdisciplinary "third space" that arises through interaction between art, science and the public. This third space is psychological, social and physical: requiring unique forms of research and support.

The topic is important for 21st-century cultural organisations who support and present art-science. Often theorized as "third places"–civic spaces of informal learning and cross-cultural encounter [11]–we extend this notion of "thirdness" to their epistemic role as public sites of transdisciplinary knowledge production [12,13], requiring new research methods that capture emergent knowledge [14]. Increasingly, cultural organisations seek to establish themselves as

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"epistemic organisations" for the production and representation of knowledge [15]. However, they struggle with public presentation of interdisciplinarity [16–18]; contextualization of transdisciplinary research [19,20]; and experimentation within new spheres of operation, formats of exhibition and models of engagement. To innovate cultural organisations need to understand art-science research and its multiple points of engagement with community or interest groups.

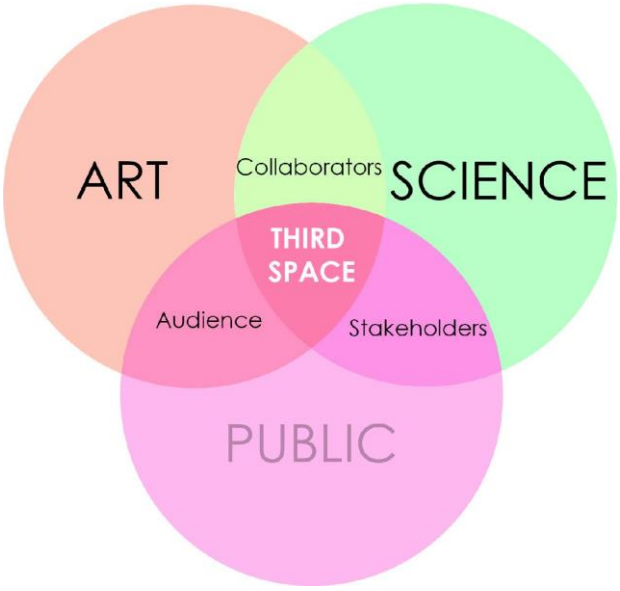

Fig. 1. Intersecting domains of third space. (© UNSW Art & Design)

Collaborators in art-science programs report that their value is significant [21], without being able to fully account for its impact. An ethnographic study of UK Arts and Science Research Fellowships reveals "familiar narratives" and "conventional, oppositional distinctions between art and science in describing their integration" [22]. We argue that since art-science arises in the interaction between disciplines, methods for investigating it cannot be confined within disciplinary practices.

Here we report on the pilot study for a research program that applies a psychosocial method for researching aesthetic experience–the visual matrix [23]–to art-science exhibitions [24]. Psychosocial studies occupies a transdisciplinary space in-between social and psychological sciences and engages with arts and humanities to capture the situated complexity of human experience as it is felt, represented and reflectively processed [25, 26, Supplemental Material 1]. It also responds to what is beyond awareness, investigating how social relations are internalized and reproduced, using methods attuned to the "unthought known" [27] where the not-yet-articulated is registered in the interactions and symbolic forms of social life. The visual matrix specifically investigates these forms in their affective and aesthetic dimensions as they arise (psychologically) in the minds of participants and are communicated (socially) in a group setting. The method is unique in that it creates a third space in which the art-science encounter is re-enacted, enabling researchers to witness new knowledge emerging.

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Amnesia Lab

The focus for this study was the *Amnesia Lab* exhibition in Sydney 2014, which displayed work on memory and forgetting, by artist Shona Illingworth, with cognitive neuropsychologists Martin Conway and Catherine Loveday and visual media theorist/curator, Jill Bennett. The long-term collaboration included Claire, a former nurse, living with amnesia from a brain lesion, who worked with the team [28, Supplemental Material 2].

The visual matrix focused on a particular experimental work-in-progress within the exhibition–a sound installation based on an electroencephalographam (EEG) measuring activity in Claire's brain. This comprised 32 speakers suspended in cranial formation corresponding to electrodes on Claire's skull during the EEG, emitting electronic sounds (Fig. 2).

Fig. 2. EEG Sonification, Shona Illingworth, UNSW, 2014. Supported by The Wellcome Trust. (© Shona Illingworth)

Visual Matrix

The visual matrix [29, Supplemental Material 3] creates a group-based setting for 8-25 participants to generate associative thinking in response to an aesthetic stimulus. Here, 15 participants interested in art-science, with various disciplinary backgrounds were invited. Having visited the exhibition, participants were seated in "snowflake-formation" [30] to minimize eye contact and discourage group dynamics, and any assumption that the facilitator(s) would lead the matrix. This "containing" [31] arrangement encourages a free-associative process where *not-yet-thought* ideas take shape. For 50-60 minutes participants offer verbal descriptions of images, thoughts and feelings *produced in them* by the exhibition, and by contributions of others, without formal turn taking. If they begin to analyse their experience the facilitator offers an image, modelling associative thinking.

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After the matrix chairs are re-arranged into a semi-circle where participants begin the process of analysis to be completed later by the researchers. They "map" motifs, imagery and affective intensities, capturing the matrix substance and feeling as an interconnected whole (Fig. 3).

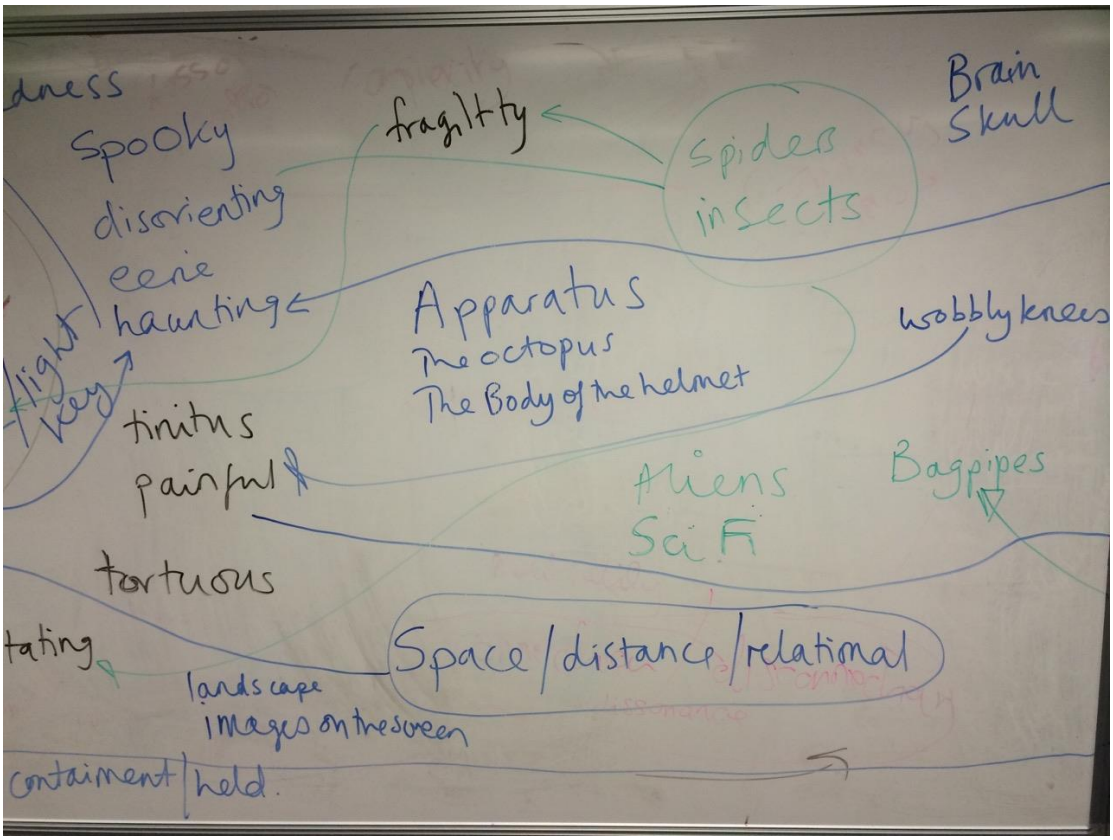

Fig. 3. Post-matrix 'mapping', UNSW, 2014. (© Lizzie Muller)

The method had been used in public art and arts/health contexts, but not in art-science projects [32]. Our aim in this pilot was to assess how it captured shared experience generated by art-science in a public setting. The method addresses two problems in researching the experience of art-science: first that qualitative methods generally fail to capture "in-the-moment" aesthetic experience as it unfolds, instead relying on "after-the-event" accounts; second they also often individualise experience. As Froggett et al point out, art is largely appreciated in the context of social relationships and the shared space of the public realm [33]. Art-science is collaborative and hence dependent on shared space and on the public as interlocutors in establishing its significance. As Froggett has argued:

> "Between the metrics of participation and … the intrinsic nature of an artwork lies an area that poses particular challenges for research–that of audience experience in its sensory, emotional, aesthetic and cognitive aspects. This is the ground where individuals and communities can be moved or transformed by a process, object or concept" [34, p.9].

The visual matrix enables participants to symbolize aesthetic experience imagistically and affectively. Participants' contributions take shape by associating *first* to a visual stimulus (the

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exhibition) and then to one another, producing an interwoven "collage" of images, thoughts and feelings through "in-the-moment" linguistic expression rather than talking *about* experience. Instead of individualised impacts, it enables deepened, shared engagement.

Analysis

Interpretation of the transcript draws on Bion's theory of thinking (1970) where ideas linked to bodily states require symbolization to become thinkable [35]. Personal experiences of participants interweave in a *shared* process. Symbolization depends upon capacity for "thirdness" in the thinker–produced out of creative interaction between self and object [36]. The matrix supports thirdness and hence development of new imagery and language.

Because the matrix is a collaged, inter-woven, "rhizomatic" whole, associations generate clusters of imagery, ideas, and affective intensities that form "nodes" of experience from which new associations arise [37]. The analysis attempts to capture rhizomatic connections, shifting moods of the matrix, and their significance. Here we demonstrate the analytical process using transcript extracts of matrix and post-matrix discussion. Verbalisations are not attributed to speakers in the transcripts, as contributions form a collaborative whole. In early stages of analysis researchers read the transcript aloud, immersing themselves in the matrixial flow, returning intermittently to the audio-recordings for affect and rhythm.

In the opening to the Amnesia Lab matrix, participants are troubled by an installation that does not immediately yield its meaning. Eventually a "searching for Claire" and for the quality of *her* experience, configures. The first words frame the elaboration of ideas that unfolds:

> *Tracing. Tracing.*
>
> *Tracing.*
>
> *Mmm.*
>
> *…inside the EEG, was reminiscent of being inside some kind of buzzing hive, or swarm of insects…*
>
> *… brought to mind insect activity, scurrying, whining, …*
>
> *… like screaming. It had a sense of pain to it…*
>
> *… there was something quite spider-like, actually, about the speakers hanging on the wires.*
>
> *Spider-web.*
>
> *Spiders' legs.*
>
> *Octopus for your head.*

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Participants are discerning something hidden whose contours can barely be deciphered. Aversion is expressed through imagery of insect infestation and invasion. This passage is "experience near" [38]. Associations to "leggy" creatures are prompted by trailing wires seemingly transmitting buzzing and swarming. There is a disquieting sense of the alien–invoking an engulfing monster/machine and de-centred "hive mind", where consciousness disperses into electrical impulses. The scurrying and whining are poised on the edge of a scream. "Legginess" associates to "octopus", unseen creature of the depths who, like the spider, lives by entrapment. "Octopus for your head" associates to the mind's depths and its outward extension. Slowly, a curious mood emerges:

> *"I found the sound very intriguing, quite disturbing, uncanny, spooky. But the more time I spent in it, the more I began to find it quite musical–waning on the edge of sleep."*
>
> *"Yeah, I, at one point, was thinking–it sounds wrong, like a slightly mistuned radio signal."*
>
> *"Mmm."*
>
> *"Almost could hear something."*
>
> With "waning on the edge of sleep" and "mistuned radio" the matrix begins searching for Claire:
>
> *"…. this presence of Clare, she–I–she's–she's not–you know, you can't see her, she's a kind of ghost, or spectre, or something in your experience of that exhibition, I kept trying to picture her and think what she might be like, and does she have agency in this experience? What's her–my relationship to her in this moment?"*

The matrix traces a haunting, tentatively apprehended through the technology, along with the reality of memory loss: uncanny, elusive and out-of-focus.

The "mind" of the matrix

A working visual matrix enters a day-dream like state described by Bion (1970) as "reverie" which "digests" experience emotionally [39]. The containment fosters "negative capability", "…when a man is capable being in uncertainties, mysteries, doubts without any irritable reaching after fact or reason" [40]. This allows participants to stay with the lived experience of memory loss, engaging with the unknown in the face of an unwelcome sense of the alien.

In "finding Claire" participants begin to form an empathic and ethical relation to her as she becomes ever more present, demanding recognition as a centre of subjective experience, rather than a haunting.

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> *"… I felt really–a sense of loss, in her soundscape I was listening to hear where she was sort of firing…"*

> *"… the accessibility of her to me was also me to her, and there was this blockage there, and I thought I was engaged with her amnesia…"*

When consciousness of searching for Claire stabilizes, the inquiry gains confidence. Participants begin contrasting "inside" and "outside" perspectives.

> *"I stepped outside when I was inside, and I was on the right side of the helmet, and then I stepped back inside and it's like you–I–I had this feeling of moving inside and outside of–of her brain ..."*

The analysis stays close to the imagery and affective shifts of the matrix in apprehending its emergent object. It moves slowly outwards from the matrix in a series of panel discussions, sequentially asking "what is presented?" "how is it presented?' and "why is it presented thus."

"What" refers to content: insects, spideriness, haunting. "How" relates to quality of expression, tone, rhythm–a halting "mmmn, mmmn" slows the associative flow, fostering a meditative mood. Early on this matrix achieves a containment that accommodates the disturbing ideas it generates. There is no rush, it takes time to struggle with the material. This is a transmission of affect from the installation itself, which defies rapid assimilation, demands attunement, and yields a gradual transformation.

"Why" questions imply context, and a reminder that art can create conditions in which the human subject is recognised through technological mediation. They raise an ethical question–whether one can access the experience of another?

> *… I found it almost excessively intimate, as if I was inside this woman's brain, and she didn't give me permission to be there, and I was wondering what I was listening to. I thought to myself maybe I'm a thought inside her brain*

Because a visual matrix moves constantly between experiences of individuals and the group it generates a search for empathic connection and ethical questions relating to the locus of experience and its knowability. There is subject/object reversal here that turns the "normal" audience member with stable identity/memory into a thought within Claire's encompassing brain. The inside/outside motif also alludes to distinctions between art and science: knowledge that depends on empathy, identification and aesthetic sensibility (art) and the attempted objectivity of a knower positioned as external to its object (science).

A further question arises from the idea of being a thought inside another's brain–whether subjectivity is unitary and bounded, or dispersed and permeable, and if the latter, then what can be "held" in a mind? The transdisciplinary encounter produces knowledge poised between the lure and the risk of approaching the other.

In-between experiences

In art-science knowledge becomes unsettled. Led by imagery rather than discourse, the visual matrix captures language forming in-between domains and supports its development. In a

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collaging of interrelated imagery, it holds together contradictions and differences, whilst mapping affective intensities that cumulatively reveal shared experiences.

Expert knowledge is vital but restricts participants' horizons. The matrix encourages "third position thinking". Britton (1998) describes this as the capacity to observe the self, while being oneself, and from this position and one's own point of view to hold self and other continuously in mind [41]. Thirdness does not efface individuality in the service of collectivity, or vice versa. Associations may originate in personal or disciplinary knowledge but, paraphrasing Britton, participants can view other disciplines from the perspective of their own, and holding art and science continuously in mind, allow a third perspective to emerge.

The visual matrix was originally developed to help those without expert knowledge to articulate their experience of artworks. This pilot suggests it may also help experts articulate experiences beyond their professional stance, thus allowing formative as well as summative evaluation, and supporting transdisciplinary knowledge.

The third space of art-science fosters collaborative thinking in an encounter between different epistemic perspectives and domains of study. The challenge is to keep open a space of dialogue between scientific and artistic modes of thought, in a setting that supports thirdness, so overcoming disciplinary encampments that serve as an intellectual defense against the unknown.

In revealing complexity of experience as it is re-enacted, the matrix can also illuminate how artistic intention is transformed into audience reception. Shona Illingworth participated in the matrix and first stage research analysis, observing:

> *As an artist you have very little access to the experience that people have in your work… there's a big space that's missing that gets filled with opinion… [The matrix asks] not just "did it work"–but about a deeper engagement with the concept.*

Conventional evaluation assumes that audiences encounter the finished work and then report on impact. In *Amnesia Lab* the visual matrix was part of an ongoing research collaboration exploring the complexities of living with memory loss and aiming at public engagement in a subject little understood by either science or art. The visual matrix facilitated this engagement, enabling understanding of its aesthetic process.

A proposition to explore is that a visual matrix produces knowledge characteristic of all third space: emergent, empathic, searching, infused with sensory and affective experience, at ease with uncertainty. It is also relational, presuming a provisional standpoint that holds the other continuously in mind. The third space is not "collective" but *is* shared, effacing neither individuality nor disciplinarity, but nevertheless creating conditions in which new knowledge can emerge.

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