Autoethnography to artography:
An exhibition of cognition in artist teacher practice

University of Cambridge
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Homerton College

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With art education being marginalised a need exists for its cognitive value to be reinstated. This thesis responds by exemplifying cognition in artist teacher practice. The focus on artist teacher practice enables cognition to be addressed across educational sectors. It provides intervention at a point where perceptions can be heard and changes implemented in a space where researcher and researched co-exist.

This thesis takes the form of an exhibition. It contains visual, digital and narrative content and is designed to interrupt conventional thesis structures, whilst showcasing cognitive construction in artist teacher practices: professional, pedagogic and academic. As an exhibition, the thesis communicates cognitive transformation in a methodological space between autoethnography and artography. In doing so an artist teacher's doctoral journey is captured relationally alongside a culture of similar others. Documentation of living artist teacher practice captures how cognitive curation, through connectionism, is possible whilst modelling how an understanding of cognition is useful to reinstate value in art education.

The thesis as exhibition presents visual, reflexive and textual stories that are communicated through theoretical, personal and cultural lenses to open the space between autoethnography, artography and artist teacher cognition. These vantage points disrupt and facilitate the narrative, enabling cognition to be unpicked, challenged, presented and re-represented in artist teacher practice and art education. Cognitive forms in art education are conceptualised, factors that influence cognition are suggested and uses for cognition in art education are shared, some of which are relevant and transferable across educational disciplines.

Through narrative analysis of the exhibition, this thesis can contribute emergent means for understanding cognition in artist teacher practice and art education. The manifestation of cognition in interdisciplinary and intercultural spaces between art, education, selves and others is revealed alongside emergent ways of conducting arts-based empirical research that connects and disrupts theory, pedagogy and practice. The contributions and disseminations made in this thesis concerning cognition in artist teacher practice and art education begin to expose and raise the profile of cognition in the contentious discipline of education.

Declaration

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the Preface and specified in the text. It is not substantially the same as any that I have submitted, or, is being concurrently submitted for a degree or diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. I further state that no substantial part of my dissertation has already been submitted, or, is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. The length does not exceed the word limit as given by the Degree Committee of the Faculty of Education.

Rebecca Heaton
10 May 2018

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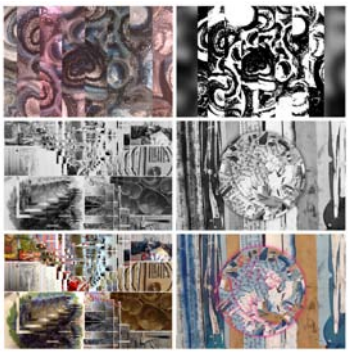

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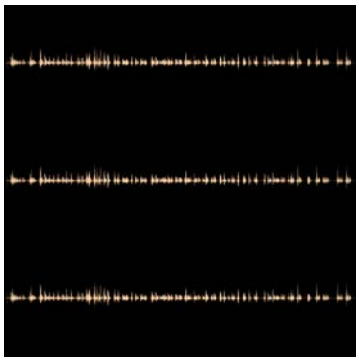

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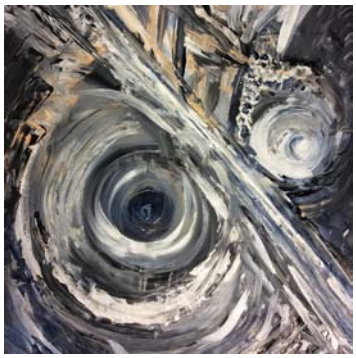

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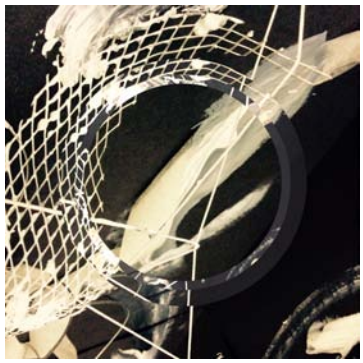

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I owe thanks to my home institution for part funding and supporting this study, the artist teacher participants involved for their willingness to engage in learning together and colleagues, internal and external, for their advice, criticality and direction.

To my partner Andrew, thank you for supporting our family for the duration of this study, for listening, reading and for caring for our son and I. You have been amazing! The birth of our son added new life to this journey. Thank you also to my parents, for helping to care for our son and for believing in and inspiring me throughout my career. I hope I continue to make you proud.

I am truly grateful to all who have contributed to and navigated this doctoral journey with me. Your contributions are this exhibition.

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Glossary and notations:

Artist teacher	*A multifaceted individual that exists and practises artistry in a specific discipline and teaching or education.*
A/R/Tography	*A methodology or method of research where the '/' is used to acknowledge, present and give emphasis to the identities that create the term- artist/ researcher/ teacher whilst using 'graphy' to associate and connect art with text as a narrative.*
a/r/tography	*A methodology or method of research where the in-between spaces of an artist/researcher/teacher's identity are acknowledged in living inquiry.*
Artography	*A methodology or method of research and/or means of living as research or researcher, that values the identities and disciplines of artist, teacher and researcher in an equal, embodied, holistic and affective manner.*
Auras	*Visual augmented reality (AR) experiences generated when digital content is connected with a real world image or object.*
Autoethnography	*A research approach that interrelates personal and cultural experience through emotive and/or analytic means.*
Autopsychography	*A means of inquiry in a self-narrative form that tracks creative paths in the lived experience.*
Cognition	*The act, process and acquisition of knowledge and understanding in conscious and unconscious states.*
Cognitive curation	*A means to understand, navigate, track or document the development of one's own cognition.*
Cognitive mapping	*A way to represent how cognition is navigated or understood.*
Cognitive voice	*A way of expressing, generating or disseminating, through conscious or unconscious means, one's cognition.*
Cognitive web	*A map of cognitive components, influencers, connections and acts.*
Connectionism	*The recognition of the relationship between components of cognition as part of an interactive network of mental and physical functions able to generate knowledge.*
Connectome	*A map of one's internal cognitive connections.*
Knowledge	*An information network gained through experience.*
Mooc	*A free course to share with a large number of people online.*
Padlet	*An online collaborative message board.*
QR Code	*A machine readable bar code that stores information about an object or artefact it is virtually connected to.*
Reflexivity	*A process where reflections occur upon reflections.*
Space	*Space with a capital 'S', accompanied by a number, refers to a chapter of this thesis, but when the Space is referred to mid-sentence a lower case 's' is used.*
space	*A noun used to refer to a movement, physical or conceptual area, interval of time or portion of something.*

Thinglink	*An online and interactive tool that facilitates the sharing of content through text, links and images.*
Tweet	*A message, image or link etc. posted on the social network site Twitter.*
Videoscribe	*A tool to create whiteboard animations.*

Notations for quoted material:

‘ ‘	*Single quotation marks indicate when an artist teacher participant’s verbal contribution begins and ends.*

SPACE 1: EXHIBITION INTRODUCTION AS PRACTICE REVIEW

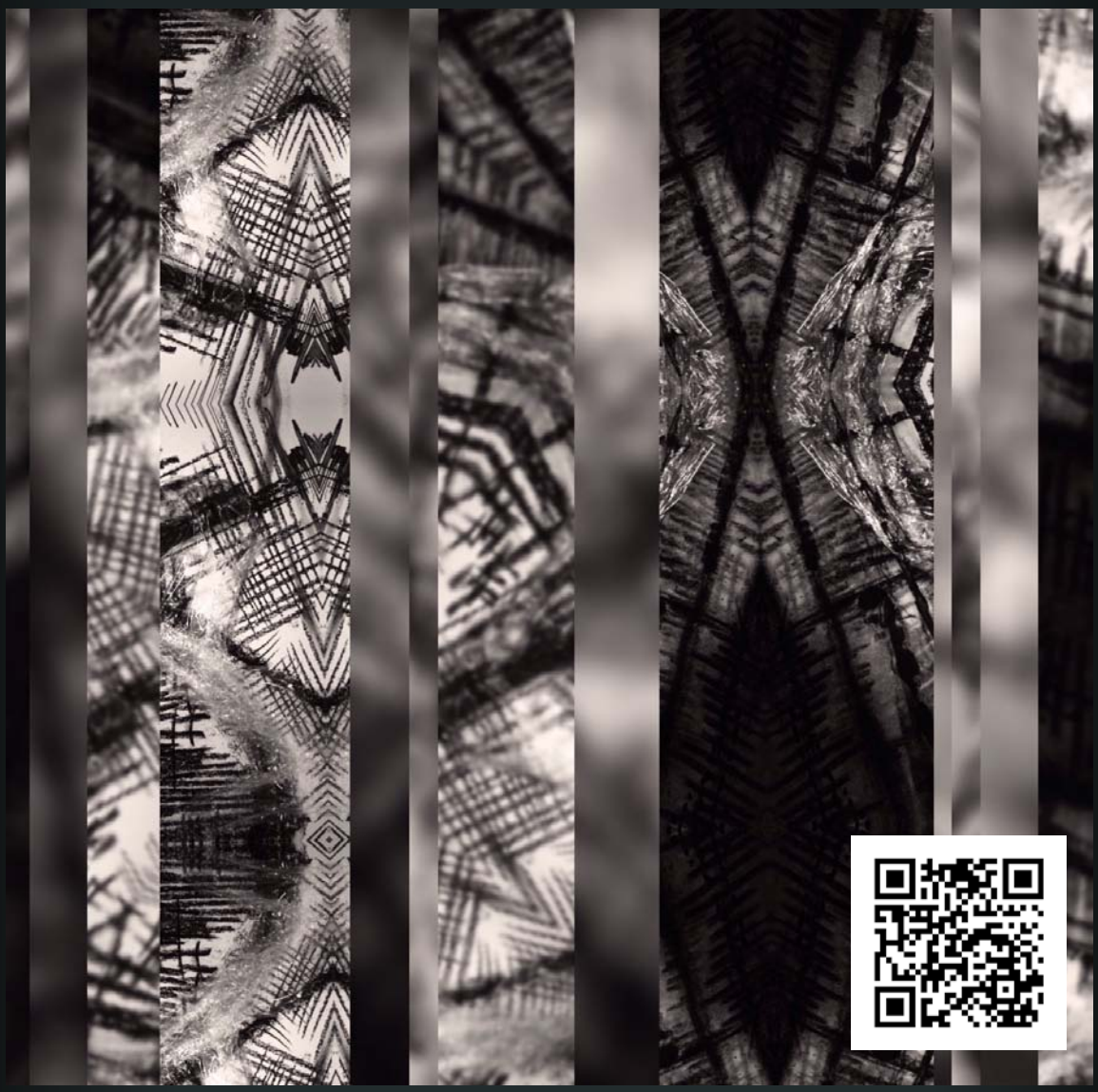
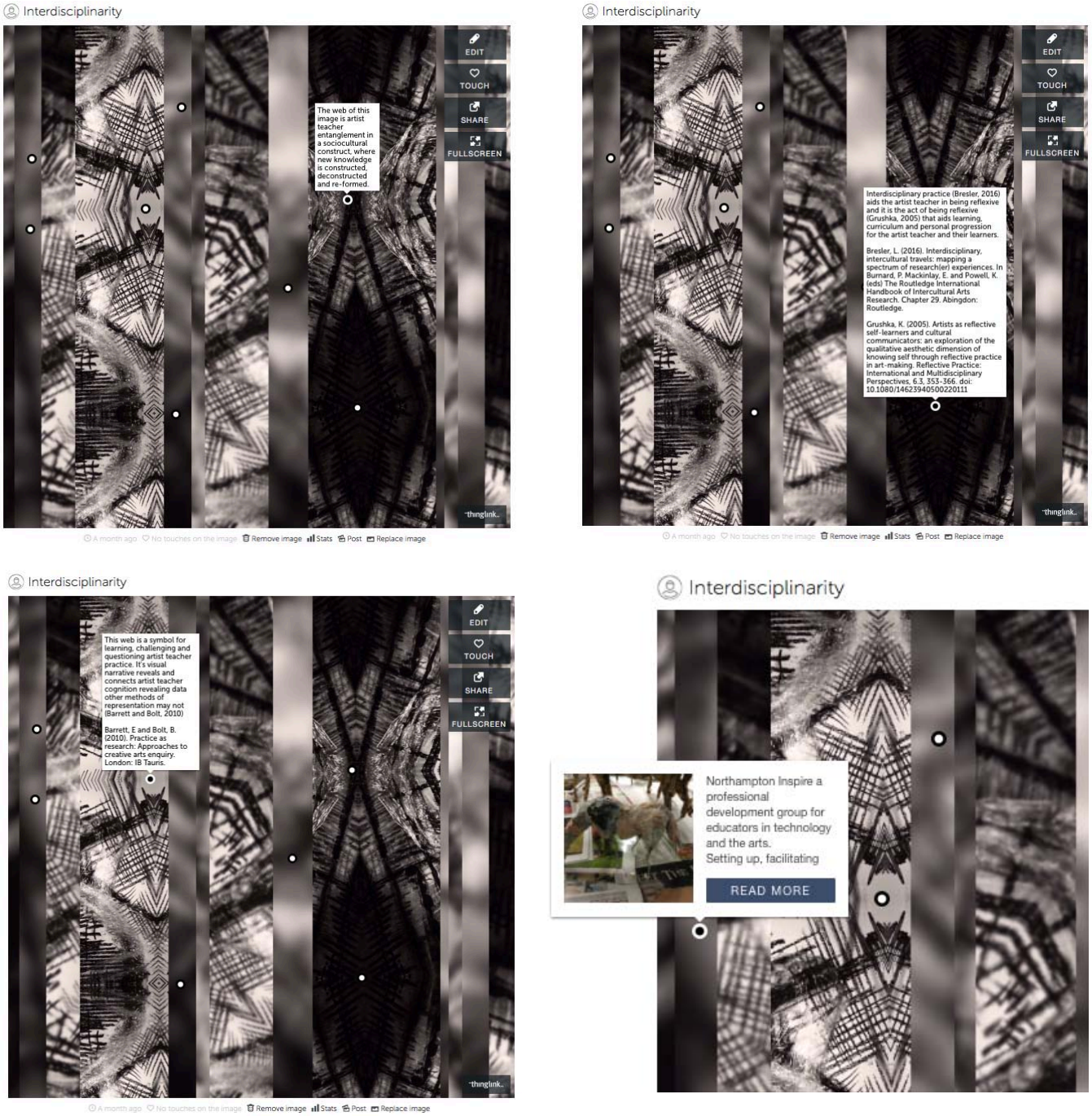


Figure 1: Interdisciplinarity



Figures 2-5: Interdisciplinarity Thinglink Screenshots

The Thinglink (ThingLink Inc., 2010) figures two to five, forms part of *Interdisciplinarity*, figure one. Thinglink is a relational digital platform; here it informs its audience about the art *Interdisciplinarity* positioning artist teacher cognition in a personal, theoretical and cultural context. The Thinglink provides links to comments, reflections, partnerships and art I have created as an artist teacher alongside learners and educational practitioners I engage with to communicate an understanding of my artist teacher context. These are discussed further in the space content.

The text below provides a personal analysis of *Interdisciplinarity* - figures one to five.

I developed *Interdisciplinarity* to build on art created in the exhibition pilot. I share it to honour connections between research, pedagogy, practice and policy in artist teacher cognition, whilst demonstrating visual metaphors reside with you and adapt as such connections develop. *Interdisciplinarity* is comprised of layers; it started as physical mixed media art created from charcoal, pen, mesh and film. Through digital manipulation using the app Fragment (Pixite Apps, 2016), it metamorphosed to represent my artist teacher self, entangled in a social, yet educational construct. The art was initially created in response to a professional development workshop I ran that united educators from the disciplines of art, education and technology. It was important the art demonstrated alteration, because as a group we changed through shared experience and action. In the pilot I intended *Interdisciplinarity* to represent how cognition shaped art education. The web structures allude to this.

For this exhibition I added a relational layer to invite my audience to engage; the QR Code and Thinglink (ThingLink Inc., 2010) offers this. The QR Code accesses a digital platform for display and interaction. Here the audience can access personal, theoretical, and cultural thoughts about art and cognition through engagement with text, imagery and webpage links. When interacting with *Interdisciplinarity,* opinion I have about artist teacher cognition is revealed and the audience can take aesthetic or conceptual understanding from the art. *Interdisciplinarity* represents this exhibition space, recognising the importance of interdisciplinary practice to artist teacher cognition. In the narrative that accompanies the art of this space I discuss how cognitive and interdisciplinary connections shape artist teacher practice and I introduce this exhibition as research.

Space 1: Exhibition introduction as practice review

This thesis is an exhibition that interrupts and exemplifies cognition in artist teacher practice (Hoekstra, 2015; Thornton, 2005). It positions artist teacher practice as research and documents my artist teacher experience of cognition alongside that of theorists and eighteen artist teacher participants. In this exhibition conventional thesis chapters form spaces that are constructed from art, multi-sensory content and written text. Spaces are subdivided into collections and exhibits. Each space begins by sharing an artwork representing the space theme. Each space artwork contains a QR code allowing audience interaction, a QR reader on a digital device is required to scan the code to gain access to the digital content. In essence this exhibition demonstrates why cognition should be valued in artist teacher practice and art education.

This first exhibition space contains two collections which provide an exhibition overview and methodological explanation. The first collection has two exhibits. Exhibit One is an exhibition introduction clarifying exhibition purpose, research questions and pilot study findings. Exhibit Two explains the exhibition's structure, knowledge contributions and key concepts. The second collection, focusing on methodology, is divided into three exhibits. Exhibit One identifies the exhibition's research complexities addressing its paradigm, ontology and design. Exhibit Two shares exhibition methods, critically articulating advantages, limitations and adopted approaches. Exhibit Three discusses ethical decisions. Space One, in short introduces and positions the exhibition's research approaches, whilst locating cognition, the thesis subject, in artist teacher practice and art education. This space is the largest in this exhibition because it introduces, summarises and positions this thesis and its research design.

The art of this space *Interdisciplinarity*, figures 1-5, metaphorically represents artist teacher self, alongside a culture of others, a connection explored throughout this exhibition. *Interdisciplinarity* links my exhibition pilot (Heaton, 2015c) with the context of artist teacher cognition studied. It shows complex layers and connections exist in artist teacher cognition and art education; these layers and connections are mobilised in this exhibition. The art has a relational component, a digital Thinglink

(ThingLink Inc, 2010), an interactive infographic, to enable the exhibition audience to experience the life and culture I exist in as an artist teacher.

Collection 1: Exhibition overview

I use exhibition in this thesis to mean practice-based research that values research conduct, act and outcome (Candlin, 2000) as cognate and affective experiences. The term cognition is addressed below and is frequently revisited, affect is explained later. This exhibition has a contextual focus, due to the role I have as a Senior Lecturer in Art Education at an English University and previous positions held as a specialist primary art and generalist teacher for children aged three to eleven.

Cognition is a complex and changeable concept conceptualised throughout this exhibition - specifically in Space Two. Cognition, in this exhibition, means understanding to generate knowledge in artist teacher culture (Efland, 2002; Eisner, 1994; Sternberg & Sternberg, 2012). By exemplifying a personal and developmental understanding of cognition using autoethnography (Ellis, 2004; Ellis, Adams & Bochner, 2011; Delamont, 2009; Duncan, 2004) and artography (Güler, 2017; Irwin, Beer, Springgay, Grauer & Xiong, 2006; Irwin & Sinner, 2013; Winters, Belliveau & Sherritt-Fleming, 2009) I model in artist teacher practice and art education the contribution cognition has on knowledge. Knowledge has many materialisations (Costley, 2013; Fenwick & Edwards, 2014); in this exhibition I refer to it as a network of information acquired through experience (Barrett, 1995; Fenwick & Edwards, 2014). I operationalise a/r/tography, the practice of shifting between identities: artist, teacher, researcher, and positions in sociocultural contexts (Irwin *et al.*, 2006; Irwin & Sinner, 2013; Winters, Belliveau & Sherritt-Fleming, 2009) in this exhibition as artography.

The concept of the artist teacher (Daichendt, 2010; Hoekstra, 2015; Stark, 1960; Thornton, 2005; Thornton, 2011) and the meaning of artist teacher practice (Heaton, 2018; Parker, 2009; Vaughan, Lévesque, Szabad-Smyth, Garnet, Fitch & Sinner, 2017) is revisited in art education literature. This is promising because conceptual revisiting positions artist teacher identity and accompanying practice as a thought provoking, changeable and developmental idea. Artist teachers are capable of

influencing pedagogy and artistic practice (Page, Adams & Hyde, 2011), they can share practice mutually (Stanhope, 2011) and engage in creating and experiencing art (Daichendt, 2010). Artist teachers are interdisciplinary beings, who engage culturally to challenge and progress art education. I use this conceptualisation when referring to artist teachers in this exhibition.

Hoekstra (2015) reminds us that it is problematic to associate artist teacher practice as one connecting art and education as professions. Such a connection undermines educational quality because it overlooks educational experiences on offer, it does not identify experience as the art of practice and so it devalues what an artist teacher offers education. Research by Vaughan *et al.* (2017) undertaken at Concordia University in Montreal, revealed practice and collaboration as emerging themes in their art education department review. The study positioned practice as teaching, learning, viewing, making, philosophy, relational experience and a response to contemporary development. It summarised that practice connects to the community it occurs in or with. Practice, when viewed like this, embodies the acts and experiences, of self and other, in connecting communities. Artist teacher practice is a community act, a partnership and a reflexive experience that fuels and is fuelled by cognition (Heaton, 2018; Page, Adams & Hyde, 2011; Parker, 2009; Vaughan *et al.*, 2017).

Hoekstra's (2015) research suggests pedagogies between art and education should be unpicked and exposed to reveal the significance of artist teacher practice. Vaughan *et al.'s* (2017) study does this in a university department, but it does not expose the influences or implications of pedagogy or practice on the artist teacher directly. I use this focus to expose my artist teacher experience in art and education. I position art and education as separate and combined pedagogies of artist teacher practice. So, when I refer to practice in this exhibition I encompass the positions of Hoekstra (2015) and Vaughan *et al.* (2017), but also exemplify and explain that cognition, conscious and unconscious, needs consideration in the complex artist teacher domain.

Eight spaces and accompanying artworks form this exhibition. Each space mirrors the physical and conceptual environment one exists in or interacts with when entering an art gallery or similar setting. In galleries one often interacts with art collections. I use

the word collection to divide exhibition spaces into sub chapters; the term exhibit divides the collection. I intend this exhibition to be navigated in different ways. For example, through engaging with the space visuals, by dipping into exhibits of interest or by reading the whole narrative. I defend this thesis structure later by discussing how an exhibition can be valued academically, how alternative thesis forms are manifesting, such as portfolios (Coleman, 2017; Cyr & Muth, 2011; Heaton, 2017) and blogs, and how the exhibition structure I adopt aligns with change in academia.

Exhibit 1.1: Exhibition introduction

This space is a practice review (Barrett & Bolt, 2010) that locates and communicates my research and its surrounding experiences. In this practice review I share initial understandings of artist teacher cognition and communicate ways I exist as an artist teacher, sharing autoethnographic understanding and artographic associations (Irwin *et al.*, 2006; Irwin & Sinner, 2013; Winters, Belliveau & Sherritt-Fleming, 2009). I address autoethnography, artography and their connections shortly.

When engaging with this exhibition I intend the audience to participate in a relational art experience. Relational art embodies human relations and social context, where artist is catalyst (Bourriard, 2002). Relational art is important in this exhibition because it provides means to exist as, engage with, and understand research informed practice. When one interacts with this exhibition they become a participant, ideas and reactions occur relationally mirroring the experience one has when interacting with an art exhibition. For example, I provide an opportunity for the exhibition audience to interact with digital components in each space artwork. Engagement is a purposeful decision, the digital art layers reveal how cognitive artist teacher experiences influence cognition and its curation (Efland, 2002).

Curating, or building cognition, involves organisation of known information to generate wisdom, learning and action (Littlejohn & Hood, 2016; Mottram & Whale, 2001). This exhibition captures what cognitive curation is and how it occurs in artist teacher practice - see Space Two. In the following paragraphs I distinguish between knowledge curation and cognitive curation because of idea overlaps. Relationality

affords opportunity for the exhibition audience to engage in curatorial practice, letting them get closer to the artist teacher practice I, and others, engage in.

In Space Two I explain that cognitive curation involves taking responsibility for, organising and recognising thought to generate knowledge (Efland, 2002). Knowledge generated by cognitive curation comes in multiple forms: art, stories, performances etc. and my exhibition audience will encounter these. Knowledge can be practical, familiar, gained from exemplification and can be acquired through theory. Knowledge is implicit and explicit; it can be formulated through uniting perception, representation and production (Mottram & Whale, 2001). Knowledge constructed through perceptual processes can be refined in art education to demonstrate minute processes including imitative, anticipative, evaluative, experimental, emotional, temporal and bodily knowledge concepts (Ojala, 2013). To teach or exemplify all these knowledge forms would be time consuming, but when positioned with cognition in this exhibition, it is possible to see how cognition and curation can facilitate artist teacher knowledge production. The difference between curating cognition and curating knowledge is knowledge is a broader concept. Cognition is knowledge and it can be curated to create knowledge. Cognition can assist, direct and disrupt knowledge curation. Cognitive engagement is a manageable way of curating knowledge for artist teachers. I exemplify how in this exhibition.

As stated this exhibition is informed by relational aesthetics, identified by Nicolas Bourriard in 1996 (Bourriard, 2002). In Bourriard's approach thought and ideas are embedded in the social context where we exist and act. A research exhibition curated through relational aesthetics positions researcher as a catalyst to idea generation, mirroring the artist's role in relational aesthetics (Bourriard, 2002). The researcher, participants and audience become contextual participants. If these people participate in a context, this exhibition, they all have a role in facilitating cognition. To my knowledge such roles and their effect have not been acknowledged or documented in cognitive research in art education, making exposure in this exhibition a unique contribution.

Knowledge construction is well documented in art education (Mottram & Whale, 2001; Ojala, 2013; Tássia, 2014), but cognitive curation is not documented as a term despite providing a way of understanding cognition. I exemplify in this exhibition how artist teacher practice and academic research unite as inquiry, to reveal cognition and cognitive curation in artist teacher practice. Such unity between pedagogic practice and research is controversial, despite its ability to lead to new theories, inquiry and critical methods (Baxter, Ortega López, Serig & Sullivan, 2006). Dual practice, such as that afforded to artist teachers, does not occur in one direction or in a specific way in academic practice.

The exhibition *Rights of Nature: Art and Ecology in the Americas* (Nottingham Contemporary Gallery, 2015) demonstrates how artists use practice to research the exploitation of world resources. This example demonstrates that art can drive research and that research can facilitate art, it exemplifies how art can communicate and critique research, how it can have social, cultural and environmental impact and how art can be and facilitate interdisciplinary connection (Cornelius, Sherow & Carpenter, 2010; Darts, 2011; Song, 2012). I have experienced similar relationships throughout this exhibition where art produced adds cognitive depth and connection between pedagogy and practice (Heaton, 2014a; Heaton, 2016).

When Bourriard devised relational aesthetics he recognised creation was steeped in cultural influence and socialisation (Bourriard, 2002). Along with those who have critiqued his idea (Bishop, 2004; Martin, 2007) I argue action occurring for each individual, artist or participant in these experience is overlooked. Bishop (2004) extends this, querying it is often unclear what participants gain from relational experience. I defend this exhibition's use of relationality asserting the gain is cognitive, intrinsic and affective. A participant or audience may not always understand this. Lack of recognition does not mean experience has not had affect. Martin (2007) acknowledges social exchange and community creation occur through relational art, but questions if and how collaborative meaning is generated. Cognitive creation occurs in layers and on different platforms; for example I share in this exhibition how relational experiences make cognitive connections possible and share

these occur when engaging with artist teacher practice in virtual environments and when making or teaching art.

As Fiona Siegenthaler (2013) noted, in a study addressing an ethnographic turn in contemporary art scholarship, when a relational art experience occurs, for example in a gallery space, emphasis is placed on being involved in or viewing the experience, not on action that led to it. Siegenthaler suggests a focus shift when critiquing relational art is needed, to consider art not solely as catalyst and producer of social scenario but to emphasise action taking place, whilst questioning how this embodies change. Siegenthaler's comment creates an exhibition niche. As artist teacher my cognition is exemplified and exhibition focus concerns cognition's influence on artist teacher practice. Siegenthaler's (2013) research identifies the need for academic artist ethnographers (Foster, 1995) to study idea exchange in relational practice. To respond to change in art practice, Siegenthaler acknowledges research is required where study extends beyond exhibition spaces and 'takes into consideration the factual, social and aesthetic processes and impacts in the field' (Sigenthaler, 2013, p.737). This exhibition does this. It analyses a project period and its reverberation in the life I, and a group of artist teacher participants, have by telling stories to inquire narratively into autoethnographic and artographic space. I discuss this methodological approach in Collection Two.

Exhibition Spaces Two to Six address concepts in artist teacher cognition that have arisen as this exhibition has progressed. These include cognition, aesthetic discourse, digital practice, social justice and cognitive voice. These spaces communicate a theoretical, personal and cultural lens on each concept. The intention is to present academic literature in each study area, alongside personal and cultural experience. A summary of how these lenses connect is provided at the end of each space. Space Seven provides three re-stories of the exhibition narrative presented in Spaces Two to Six. It does this visually, narratively and reflexively to interrupt, present and re-present emergent exhibition ideas. Space Eight acts as an exhibition review and conceptualises and contextualises knowledge emerging. In the next paragraphs I explain the exhibition intentions and purpose.

The exhibition intentions are explained from two angles. I explain exhibition intentions as artographic experience (Gouzouasis & Lee, 2009; Irwin *et al.*, 2006; Irwin & Sinner, 2013; Springgay, Irwin & Kind, 2005) capturing the sociocultural space of artist teacher. Then I present the intentions as autoethnographic research (Delamont, 2007; Eriksson, 2010; Scott-Hoy & Ellis, 2008) in artographic practice to share the relationship between artography and autoethnography as research methodologies and methods. I recognise artography and autoethnography can be methodologies and methods in research. Artography is a living inquiry that can inform, embody and challenge autoethnographic research approaches and methods. It can be a practice woven into research (Sinner, Leggo, Irwin, Gouzouasis & Grauer, 2006). Autoethnography is a methodology and method that can enhance, utilise and provoke questions in artographic practice. I draw out the relationship between these research approaches and tools in Collection Two and build a case for methodological design.

As established artist teacher identity and practice is multifaceted, through this identity I engage in sociocultural settings and experiences. For example, I work with nurseries, schools, galleries and charities to facilitate learning, workshops, art, exhibitions and publications. These experiences occur face to face and virtually. Artography captures this living experience and exemplifies cognition in case parameters. In the case parameters I use autoethnography to enhance understanding of artography by examining experiences it presents in artist teacher cognition. I use artographic practice to reveal a truthful, yet focused documentation of cognition. I use artographic practice to provoke questions about autoethnography to understand the relationship between the two research approaches. One might ask why autoethnography has been adopted as methodology over artography; this is because my awareness of artography evolved as this exhibition progressed. I expand on this point later.

This exhibition's purpose is to exemplify that cognition exists in artist teacher practice, that cognition is curated, and this can build knowledge. This extends pilot findings (Heaton, 2015c) by exemplifying in an auto/self-ethnographic case study (Holman-Jones, 2005; Reed-Danahay, 1997; Rose, 2012) how I as artist teacher use

cognition. To extend the pilot I exemplify ways practice alters as result of cognitive consciousness. To achieve this other artist teachers are a participatory exhibition component (Kapoor & Jordan, 2009; Hayes & Finneran, 2013).

Another exhibition purpose is to substantiate the pilot suggestion that transcognition (Sullivan, 2005) and miscognition (Tavin, 2010b) exist as cognitive forms in aesthetic discourse (Duncum, 2007) and cognition. The purpose is to locate cognition in artist teacher experience and outputs. This will clarify whether aesthetic discourse and reflexive approaches that surround it can be used to gain awareness of transcognition or miscognition. If an artist teacher's awareness of cognition and its influence on practice can be determined in aesthetic discourse pedagogically (Efland, 2004; Smith, 2005), I will identify how to support artist teachers to become cognitive curators. Focus on cognition in artist teacher aesthetic discourse would be useful to contribute to the case for increasing the importance of art education for young people (Adams & Hiett, 2012; Heath & Wolf, 2005; Payne & Hall, 2018), particularly, when in the United Kingdom prioritisation towards literary development in education exists (Neelands, Belfiore, Firth, Hart, Perrin, Brock, Holdaway, & Woddis, 2015).

The methodological exhibition purpose is to exemplify how artographic and autoethnographic methodologies and methods connect to position living inquiry as a substantiated approach in educational research. This will demonstrate the value of innovation in research design whilst exemplifying how lenses communicate a truthful research story. The exhibition should reveal how experience and research can be presented together to communicate intercultural identity. I now discuss the research questions.

The exhibition research questions are presented from two angles. I address first the theoretical questions and then explain methodological ones. This exhibition asks theoretically how I, as artist teacher, recognise, understand and curate cognition. It determines whether cognitive consciousness contributes to such acts and asks whether cognition exists in the pedagogies and practices of art education. The exhibition determines whether transcognition and miscognition specifically, as cognitive forms,

exist in artist teacher practice. Focus is on artist teacher practice because practice is aesthetic discourse (Duncum, 2007).

This exhibition could have focused on artography but due to my emergent knowledge of this term, and relationship as lecturer to exhibition participants, I was aware the participants and I were not familiar enough with artography to warrant this. Instead theoretically I explore cognition's connection with aesthetic discourse - see Space Three. This is so participants can access the term connecting to cognition quickly because it relates to the familiar actions, outputs and ideologies of art teachers. If artography became a theoretical focus the artist teacher participants would need to learn the concept, whilst engaging with cognition complexities. This could be achieved, but with this exhibition addressing cognition adding another unfamiliar and subjective term would complicate the research. Artography is concerned with inquiry, opportunity and the spaces, or renderings, to contemplate knowing (Springgay, Irwin & Kind, 2005). I do engage with artography methodologically.

This exhibition asks methodologically if it is possible to exemplify relational practice in the space between autoethnographic and artographic inquiry. It asks if the methodological relationship between autoethnography and artography in artist teacher practice can formulate cognition and if so how theory and methods engender artist teacher action (Holman-Jones, 2005). As with the pilot I establish answers to these questions by communicating everyday occurrences and projects associated with artist teacher practice as artographic inquiry and capture this through autoethnographic story. This is achieved whilst framing the exhibition theoretically in artist teacher cognition - see Space Two.

I now summarise how the exhibition pilot (Heaton, 2015c) influenced design, delivery and exhibition dissemination, by sharing conceptual and methodological lessons and adaptations. The pilot outcomes are summarised in Appendix 1. The pilot indicated cognitive consciousness aided my ability to question and challenge practice. I became aware I used cognition to learn, but this was not collated: capturing cognition is an exhibition intention. The pilot exemplified miscognition in artist teacher practice - see Appendix 2. Transcognition was identified and in Space Two I discuss how

transcognition has informed the exhibition conceptual frame - figure 22. The exhibition frame is used for two purposes: to exemplify cognitive forms in artist teacher practice and as tool to frame analysis - see Space Seven. The conceptual frame progresses research by Sullivan (2005) and Tavin (2010b), the academics whose theories underpin the frame, by increasing cognitive understanding in art education culture to date, a request made by Sullivan (2005).

The pilot demonstrated that cognitive consciousness influences practice by evoking pedagogic change. This requires substantiation by other artist teachers, so when analysing participant contribution, I observe whether substantiation occurs. In the pilot I revealed transcognition and miscognition could occur concurrently and be exemplified in output. This was a study strength that led to consideration of artography in this exhibition, because artographic acts, when honoured as art experience (Siegesmund, 2012) reveal transcognition and miscognition. The pilot highlighted language forms are accessed through artist teacher practice. This is pertinent when recognising how cognition is understood because I must be open to identifying how cognition occurs in discourse. The hybrid uses of autoethnography and artography assist because they expose multiple communications, such as the textual, visual, poetic or technologic.

From a methodological perspective the pilot (Heaton, 2015c) revealed that autoethnographic documentation methods, visual and narrative, exposed reflexive commentary that revealed I challenge art education concerns as artist teacher. Data variety enabled correlations, so these forms of data capture have been carried forward - see Collection Two. Narrative analysis revealed how an exhibition, as research, increased artist teacher cognitive awareness because it acted as an artistic learning tool (Miles & Huberman, 1994, Richardson, 1994). Narrative analysis enabled data links; links may not have been disclosed if other methods were selected (Barrett & Bolt, 2010). Narrative analysis embodied critical reflexivity (Grushka, 2005) and is utilised in this exhibition.

As pilot subject, narrative analysis increased the awareness of cognition I had. Narrative communication was a learning tool, I could use it to talk through, reflect on,

problematise and recognise cognition in practice. However, the narrative's relationship with visual practice needed enhancement to aid thought access. So, in this exhibition visuals communicate a coherent research story, see Collection Two, to engage with approach strengths and implications. When engaging with the pilot narrative I saw self-movement, in opinion, creatively and in cognitive and methodological understanding. Artography and autoethnography embody movement (Güler, 2017; Irwin *et al.*, 2006; Pink, 2013; Siegesmund, 2012) and I embrace these research approaches.

Exhibit 1.2: Exhibition structure and composition

I curate this exhibition to exemplify research as art form and tool to generate cognition. I use its qualitative nature 'to breathe into words a life experienced' (Ely, Vinz, Downing & Anzul, 1997, p.2) whilst communicating and evoking artist teacher stories. In this exhibit I expand on the exhibition's composition and communicate knowledge contributions. I define exhibition composition as 'the arrangement of elements within a work of art' (Tate, 2017). I curate exhibition spaces to model transformation in artist teacher practice (Ely *et al.*, 1997). Growth, challenge and resilience are communicated through exhibition stories to reveal an 'artist of the self,' (Ely *et al.*, 1997, p.235), a person who has used self as a tool to create, or curate, experience. By exemplifying these elements through exhibition, I showcase a self-exhibition. Next, I discuss how this exhibition is art.

Art is a changeable human expression and creative skill, shared through mind or object (Duncum, 2002; Edwards, 2014b; Fleming, 2012; Hickman, 2005a). This exhibition crafts multi-textual elements, it presents art, writing and digital content to story research. Each element connects and disrupts author's voices (Ely *et al.*, 1997) whilst demonstrating how research themes, concepts and disciplines overlap. Art reveals unspoken voices by exposing subtleties words may not (McNiff, 2008; Rose, 2012). Art is and represents each space. Art is used throughout the exhibition text to share autoethnographic journey; this art forms narrative but is not analysed individually. I made this decision to manage data. The art improves access to the research story communicating a truthful experience (Mason, 2006; Russell, 1999). The art accesses my artist teacher identity, by sharing artist style and concepts. As

mentioned this exhibition is practice-based research that embodies experience, outcome and journey as exhibition. When viewed this way the exhibition becomes data I select and curate. Art is data that illuminates, illustrates, indicates and represents (Atkins & Wallace, 2012) the cognitive journey of artist teacher. This exhibition uses art to exhibit practice and positions content as research practice. I now explain how this exhibition is research.

This whole exhibition is research, not only research in an academic sense but artistically. This exhibition has enabled me to progress cognition by practising, researching and presenting art concepts, skills and methods. For example, exhibition construction has enabled cognitive understanding as concept to be intersected with relational aesthetics. I have evoked conversations about concepts (Choi, 2013) and have used exhibition experience to relationally engage with cognition through writing and making. As a teacher I have learnt, challenged, created and disseminated pedagogies with criticality. These practices are research; professional doctorates embody such practices and acknowledge knowledge contributions in the multi-faceted identities of professionals (Costley, 2013; Salter, 2013).

Exhibition Spaces One and Eight introduce and review this exhibition as art and research. Spaces Two to Six draw out the key concepts the research explores whilst communicating the research story. The literature review is interspersed through the exhibition. Spaces Two to Six also communicate and analyse workshop experiences, Appendix 3, conducted with artist teacher participants on themes connecting cognition with themes emerging in research. A personal blog (Heaton, 2015a) is engaged with through these spaces to document my artist teacher practice, whilst acting as a reflexive research tool. Space Seven re-stories the narrative from Spaces Two to Six. I position this exhibition as research that presents an alternative methodology in art education uniting autoethnography and artography. I now summarise the exhibition knowledge contributions.

Whilst I curated this exhibition, my awareness of a knowledge contribution in research and professional doctorate altered. Research can contribute to knowledge theoretically, methodologically, professionally and personally, and these contributions

can reveal themselves differently. To exemplify this, I use this section to present, defend and summarise exhibition contributions. Prior to this I position knowledge contributions in professional doctorates to reveal how the knowledge I create locates itself.

Professional doctorates enable knowledge creation through linking academic and professional practice (Scott, Brown & Brown, 2004). These links can show professional artistry (Bourner & Simpson, 2014) and can advance knowledge in theory. Despite this the knowledge contribution professional doctorates make is under criticism because contention exists over the nature of a professional doctorate (Bourner & Simpson, 2014), its academic rigour and its contribution to knowledge (Salter, 2013). Research does oppose this view (Heaton, Burnard & Nicolova, 2018; Klenowski & Lunt, 2008; Simpson & Sommer, 2016), demonstrating how professional doctorates create metacognitive shifts for participants, develop purposefulness and instigate creativity whilst enhancing academic, personal and professional practice. These practices are knowledge contributions professional doctorates make (Burnard, Dragovic, Flutter & Alderton, 2016; Costley, 2013). Yet, the value of professional doctorates still requires exposure, particularly exemplifying how knowledge contributions are made in the developing autonomous self (Costley, 2013; Tennant, 2004). I show exposure next through explanation of this exhibition's theoretical and methodological contribution examining impact in research, practice and self.

In theory a tendency exists to separate knowledge contributions from academic doctorates of philosophy (PhDs) and professional doctorates (PDs), with PhDs advancing theoretical knowledge and PDs advancing practice (Bourner & Simpson, 2014). I present how an Education Doctorate (EdD) does both. I have used cognitive theory (Punch & Oancea, 2014) to describe, explain and exemplify cognition in this exhibition; this is consistent throughout, so theory generated is not separate from creation process (Charmaz, 2011; Glaser & Strauss, 2012). Theory is used flexibly to generate relationships with and between data (Coffey & Atkinson, 1996), for example throughout Space Two I explore cognitive theory through lenses.

Theory has enabled cognitive growth on personal and professional levels; it has augmented practice and has enabled cognition in artist teacher practice to be considered. The use of theory in this manner contributes to social world transformation (Daly, 1997). In this exhibition theory generated ripples and ruptures that enable consideration and reworking of cognition in artist teacher, personal and professional, practice. Whilst the theoretical transformations in this exhibition, which concern the way artist teachers understand and use cognition, appears small or 'local' (Eglinton, 2008), their influence enables theory mobilisation, practice alterations and sustained development in academic, personal and professional habitus (Bordieu, 1984) and habitats spanning interdisciplinary and intercultural social spheres (Burnard *et al.*, 2016).

From a theoretical research position, I claim this exhibition exemplifies that cognition exists in varied forms in artist teacher practice. Such cognition is influenced by time, space, affect and cognition itself. Engagement with cognition can influence artist teachers to engage with and alter practice. In Space Seven I explain that between fifty and a hundred references to cognition have been made in this exhibition and exemplification of different cognition types are made. I explain how factors influencing cognition have surfaced and provide examples of how these factors have influenced subtle practice changes for artist teacher participants and me.

In studying for this professional doctorate, I have learnt that research methodologies are fluid, developmental and structurally diverse. This knowledge has helped me to understand this exhibition offers a methodological research contribution. I accept doctoral research is informative, innovative, interdisciplinary and knowledge enhancing (Bourner & Simpson, 2014; Costley 2013) and these factors contribute to achievement. In professional doctorates specifically, research proposes (Cole, Chase, Couch & Clark, 2011) methodologies should be assessed on their influence on academic and professional researcher domains. Success is acknowledged by methodology being applied and critically reflected on in the professional context of the researchers, by the formation of useful methodological conclusions and by reliable methodological interpretations (Cole *et al.*, 2011). Carr, Lhussier, & Chandler (2010) explain professional doctoral students and supervisors can use soft systems

methodology to map, visually communicate and move forward the research and methodologies of researchers, positioning critical reflexivity as central. These research studies teach methodology can be hybrid knowledge (Brown, Lunt, Thorne & Scott, 2004) in professional doctorates, which intersects academic and professional life. Therefore, when I explain the exhibition methodological contribution I explain its influence in consideration of these points.

From a methodological stance the hybrid nature of uniting autoethnography with artography honours and exposes cognition in artist teacher practice. It offers value to the pedagogies and practices of art and education central to the lived experience of artist teacher. I suggest forming this thesis as exhibition embodies the relationship between autoethnography and artography, whilst extending and questioning what a professional doctoral thesis is. In summary it is the reflexive, expressive and experiential qualities uniting autoethnography and artography which enable multiple cognitive forms to be revealed in this work. Exhibition use contained, added focus to and provided a relevant context for overlaps between autoethnography and artography; it also facilitated academic, yet professional, creativity to form, in a personal doctoral thesis structure relevant to the profession and practice of artist teacher.

The methodological exhibition claims influence in higher education. The methodology models the hybrid nature of autoethnography and artography (Siegesmund, 2012) as an embodied and living experience in artist teacher practice. The approach captures, reflects on, revisits and re-envisions cognitive artist teacher experiences. It exemplifies how research can be documented as an exhibition and others can use an exhibition as research if the notion of artist teacher is considered differently, where artist refers to one’s profession. For example, for a veterinary educator their artistry would be veterinary science, and so a research exhibition could showcase knowledge, skills and practices in this area. Exhibition documentation occurs through publication (Heaton, 2018), exhibition (Heaton, 2017) and thesis output.

In terms of methodological self-influence, I have accessed personal criticality in this exhibition, visually, virtually and narratively, through which I saw my autonomous self (Tennant, 2004). Experimentation with a hybrid methodology advanced my professional practice. I became aware new methodologies can emerge and with these came strengths and challenges. I have experienced first-hand how forging cognitive connections, whether methodological, theoretical or practical can formulate a way of knowing, or becoming informed about research, practice or profession. To exemplify, as I communicate in Space Seven, re-writing stories, which this methodology adopts, enabled me to consider cognition and its position in educational research, practice and policy differently. I embodied cognition as practice, allowing my mind, activity I was engaging in and art education to meet (Schatzki, Cetina & Savigny, 2001), as cognitive web.

This exhibition and cognitive webs have influenced self-knowledge. Personal professional development opportunities are afforded (Bourner & Simpson, 2014) because my cognitive knowledge and confidence to use it grew. For example, I have used cognition to publish (Lariviere, 2011), to engage others to publish and to fuel cognitive voice - see Space Six for explanation. To conclude the exposure of the strengths and tensions concerning cognition, a hybrid methodology and exhibition use as research in this thesis, has contributed self-knowledge and knowledge to practice, pedagogy and policy (Burnard, Dragovic, Heaton & Rogers, 2018) in art education - see Space Eight.

In this exhibition, positioned between autoethnography and artography, I am the site of cognition. I am the researcher, writer, maker and curator of the exhibition and cognition used and created. I am subject and object of study. Such a self-orientated site poses challenges and implications, because one can be home and away (Alsop, 2002; Eriksson, 2010). For example, in this exhibition I can be at home discussing my experience of cognition in artist teacher practice, but I can also be away, or somewhere between, discussing cognition in the culture of artist teachers and their practice. So, I explain here how voices, lenses and reflexivity have enabled this site to be navigated, controlled and engaged with.

Voice is a central exhibition concept. When I refer to voice I define it as a way of expressing and understanding learning, a tool to shape cognition and an internal, external, conscious and unconscious medium and process (Miller, 2008; Russell, 1999; Reardon, 2012; Todd & Nind, 2011). In Collection Two I explain the role of voice in exhibition methodology, in Space Two the complexities associated with it and its emergence as a cognitive influencer. Voice has helped self-understanding throughout this exhibition. Visual, narrative and reflexive voices, explained in the next collection and Space Two, have provided cognitive expression and confidence to artist teacher participants and me to project cognitive understanding. The voices have acted to perceive and expose the self from perspectives adding exhibition trustworthiness. For example, in Space Four I explain how an artist teacher participant uses multiple voices to generate internal conversation to progress cognition. Exposure of this point corroborates personal artist teacher experience; I formulate internal conversations to trial ideas, understand and to facilitate cognition.

The use of lenses also adds exhibition trust, like voice. Lenses are used to be analytical (Chase, 2005) and to see research differently; they too can be applied differently in research process. Strong, Pyle, deVries, Johnston and Foskett (2008) used three lenses, which were different research methods, to make meaning. Dewhurst (2011) revisited research using analytical lenses after it was conducted to assist understanding and I used three lenses, the personal, theoretical and cultural to write from, reflect on and corroborate perspectives in exhibition story. Lenses interrupt research; I discuss lenses in this exhibition again in Collection Two.

The use of lenses and voices has facilitated reflexivity in exhibition content shared. Reflexivity as a concept in narrative is discussed in the work of Kim (2016). It is referred to as a kaleidoscopic tool enabling researchers to stand back from research, question reflections (Jenkins, 1992) gaze at self and other and philosophise postmodern meanings of research, practices, acts and ideas. Reflexivity is a critical tool, methodology and way of existing (Grushka, 2005; Kim, 2016); it can be confession and share vulnerability (Foley, 2002). Kim (2016) reminds reflexivity is a skill. In this exhibition I use reflexivity to address subjectivities, to generate knowledge about artist teacher cognition, to frame the way I conduct research, but I

also learn how to be reflexive. I practise reflexivity using voices and lenses, by exposing vulnerabilities, by questioning, posing and positioning ideas and concepts in self and other, spaces and times. These processes form my attempt to use a reflexive kaleidoscope to add integrity to stories I tell.

In exhibition Space Two I discuss the conceptual frame underpinning this exhibition. When writing about the frame I explain artist teacher cognition appears to be a web of cognitive connections that contains layers, theories, acts and practices that lead artist teachers to know, create and exist. I suggest later this connectionist web is cognition and is means to curate cognition. By curation I mean when an artist teacher conceptualises cognition as a web of connections, they become positioned to influence, or control, cognition that takes place. They can start composing, managing and curating it. When an artist teacher is involved in collaborative scenarios, as Vaughan *et al.* (2017) found, which are often intercultural or interdisciplinary (Bresler, 2016; Burnard *et al.*, 2016 & Güler, 2017) projects, practices or pedagogies, the cognitive layers and connections in the artist teacher cognitive map appear deep and complex. With depth and complexity come engaging cognitive experiences, but also confusion for the cognitive conceptualiser. I am communicating the concept of cognition in artist teacher practice, presented in the conceptual frame, has sub layers of meaning and these layers form the concept of cognition in this exhibition. The concept of artist teacher cognition I express is an emergent one. It evolved as the exhibition progressed and I draw on the conceptual frame and this concept in the exhibition to hold the case together.

By referring to a conceptual frame throughout this exhibition I have been able to expose, using reflexivity, the cognitive connections of exhibition experience. I have applied them to others' lives, in disciplines straddling mine and artist teacher pedagogies and practices. The re-stories in Space Seven communicate these points but exemplifications occur throughout the narrative. The conceptual frame of this exhibition is its backbone and it is the knowledge, tool and concept in this exhibition generating stability. Ideas concerning cognition in artist teacher practice are developmental in this exhibition, but the conceptual frame is a contact point drawing focus. Critics may suggest the frame causes subjectivity because it doesn't allow

deviation or emergence of new ideas but when knowledge, and I suggest cognition, are intermediary ideas moveable across contextual spaces (Rainer, 2017), then one constant aids narrative focus.

In doctoral research Bourner and Simpson (2014) remind knowledge can be propositional, procedural, acquired and participatory. In this exhibition I have gained knowledge of cognition and its capabilities. I have become informed of how cognition manifests, of how it is influenced and can be used in artist teacher practice. I have experienced first-hand the performative and socially constructed nature of cognition. Despite this I am still learning about cognition in artist teacher practice and will continue to after this exhibition has concluded, because cognition in artist teacher practice is time, space and socioculturally dependent. The methodology communicated in the following collection explains exhibition conduction and its role in the knowledge this exhibition shares.

Collection 2: Exhibition methodology

In the first exhibit of this collection I explain the methodological relevance of an exhibition in research. I communicate the philosophical research paradigm the exhibition is positioned in, present a case for a hybrid autoethnographic to artographic methodology and introduce the research context and participants. In the second exhibit I examine the autoethnographic and artographic research methods used. I also explain how the voices of ‘self’ and ‘other’ are captured. To conclude I examine the ethical challenges in this exhibition.

Exhibit 2.1: Exhibitions in and as research

The decision to conduct this research as exhibition was influenced by the decision to conduct this exhibition as autoethnography. Art exhibitions are central in artist teacher practice, so articulation of research through this form contributes to a truthful autoethnography. Exhibitions can express ideology, explore social, economic, cultural and political positions and exert experimental agency. Exhibitions are ‘institutions of critique that help us gain insight into our own positions within neoliberal society’ (Gagnon, 2012, p. 33). This exhibition positions artist teacher cognition in the culture

of art education. It exposes artist teacher cognition from different perspectives and uses narrative discourses to share alternate readings and ways of seeing practice as research. In doing so the exhibition questions neoliberal art education (Adams, 2013; Payne, 2017). It positions cognitive thoughts of artist teachers in society and exposes how practice connects and rejects neoliberal concerns. For example, Space Five discusses cognition in social justice art education, an area of art reduced in contemporary art curricula (Adams, 2013).

Livholts (2015), demonstrates an exhibition can be a methodology for discourse analysis. I see interdisciplinary potential in her idea and conceptualise this in art education by showing how curating, narrating and presenting an exhibition can enhance methodology. Because this exhibition is framed between autoethnography and artography I do not claim it is an exhibition methodologically, but it could be because the exhibition is lived research and is conceptually formed to drive creation. I present exhibition potential, to unravel practice to access cognition other approaches may not. Baxter *et al.*, (2008) strengthens this idea discussing how studio art brings forth new enquiries. Studio art is a form of exhibiting; it is active engagement in a research process. This exhibition is the studio in which I think, create and exhibit as artist teacher academic.

I learnt from the exhibition pilot (Heaton, 2015c) that different relational enquiries exist when exhibitions become research, that languages, voices and lenses are exposed through narratives. Exhibition stories access the voice of sociocultural context and connect an exhibition. Experiencing an exhibition as research demonstrates Bourriard's (2002) concept art practice is steeped in cultural influence and socialisation. In the pilot relational experiences occurred in art, e-books, writing and listening. Conducting, presenting and disseminating research as practice enabled cognitive forms, in artist teacher practice to be shared. A research exhibition, as art journals do (Scott Shields, 2016), present artefacts beyond data representation, they dialogue with concepts, data and ideas creating performance connecting theory and practice.

Exhibitions as research are not without subjectivities. Exhibitions as methodologies, methods and representation are subject to similar criticisms as portfolios are when used as assessment tools - a portfolio being a body of work that reflexively stories a journey to academic achievement, in a formative or summative manner (Cyr & Muth, 2011). Portfolios are criticised for their ability to show deep knowledge (Wasley, 2008). They are time consuming to generate, can lack clarity and are challenging to assess (Cyr & Muth, 2011). Portfolios are criticised for presenting what Costley (2013) terms discipline-based knowledge. A benefit of a portfolio, and another reason for exhibition selection in this thesis, is ability to expose cognition (Bransford, Brown & Cocking, 1999). Cognition is exhibition concept, exposed by communicating a reflexive learning journey. This exhibition, as research, as portfolio, demonstrates the artist teacher profession. It exposes its skill set and models personal, professional and academic growth, components Cyr and Muth (2011) outline as advantages of assessed portfolios. Research performances, artistic research practices and their representative states, which exhibitions capture, triumph as research because they navigate, expose and accommodate change (Heaton, Burnard & Nicolova, 2018). This point clarifies why I use an exhibition as research in this thesis. I now explain how I position this exhibition philosophically in research.

I situate and practise this exhibition in the philosophical research paradigm sociocultural theory (Bereiter & Scardamalia, 1996; Güler, 2017; Stevenson, 2017), to exemplify how cognition, culture and social interaction are inherent to artist teachers. Sociocultural theory acknowledges environments, social encounters and research influencing meanings and findings (Bassey, 1999). So, acknowledging artist teacher cognition is influenced by external factors, through socio-cultural theory, means this exhibition can represent artist teacher cognition without being subject to criticisms concerning external influence. With sociocultural theory not being a fixed paradigm, I acknowledge ontological and epistemological movement occurs (Punch & Oancea, 2014), but discuss cognitive development to reveal it.

Sociocultural theory correlates with postmodern thinking (Richmond, 2009). I use this paradigm to demonstrate knowledge construction is individual, collaborative, altered and socially shared. Sociocultural theory, like postmodernism (Richmond, 2009)

considers researcher context and perspective, it allows the researcher to contribute to research (Wertsch & Rupert, 1993). This is detrimental in research of one's own practice. Sociocultural theory and postmodernism do not differentiate between individual and social activity: the two are symbiotic (Cole, 1985). I capture symbiosis in this exhibition by exemplifying how collaboration influences practice.

To state the exhibition ontology, belief system, that scaffolds this exhibition I refer to figure 1. *Interdisciplinarity* is mixed media art created through digital manipulation using the apps Roll World (Wang, 2016) and Fragment (Pixite Apps, 2016). The interconnecting webs represent the belief system and conceptual frame behind this exhibition. They exemplify collaboration where cognition is created by, passed through and between individuals demonstrating how research influences people (McNiff, 2013). The abstract digital art demonstrates processes and ideas are sometimes only known by the creator. Viewers can only speculate meaning, questioning how or why decisions are made. This perception exemplifies unknown knowledge in miscognition (Tavin, 2010b), discussed in Space Two, but adds constructivist realism (Cupchick, 2001) to this ontology. The perception shows how art's reality is known.

Making process illustrates ontology; *Interdisciplinarity* responds to a professional development session I co-organise (Northampton Inspire, 2015) where art and technology are explored with teachers. Project outputs can be observed in Edwards (2014a). In *Interdisciplinarity*, experience is central to professional development and practice from disciplines is shared to encourage creativity and risk taking. So, with collaborative thinking, (Cole & Engeström, 1995) talk (Fernandez, Wegerif, Mercer & Rojas-Drummond, 2001; Mercer, 2005) and art (Hickman, 2007) contributing towards cognition, as discussed in Space Two, people contribute to other's cognition. This can occur through scaffolding and idea challenge (Wertsch, Minick & Arns, 1984; Vygotsky, 2004).

In *Northampton Inspire* (2015) changing group dynamics meant sessions were often led in a group direction. The interplay between personal and group dynamics models ontological challenge. If learning intentions are vocalised development pulls can be

managed. *Interdisciplinarity* shows willingness to accommodate and shape values through collaboration (McNiff, 2013). The example explained models how cognition and collaboration shape art demonstrating the value of a sociocultural ontology in this exhibition. The example epistemologically demonstrates interdisciplinary knowledge construction. The art connects people in sociocultural theory. I bring knowledge to this exhibition. I influence others and they influence me. Autoethnography and artography capture this. I explain exhibition design next.

This exhibition began as an empirical autoethnographic case study, exemplifying artist teacher cognition and manifest as artography. The exhibition binds the case, capturing artist teacher practice as living experience between autoethnography and artography. The exhibition documents reflexively an autoethnographic and artographic account of artist teacher cognition. Case study parameters cause contention (Scott & Morrison, 2006), so I define these.

Autoethnography was selected as initial exhibition methodology because of its ability to align performatively with sociocultural theory (Spry, 2011). Autoethnography took precedence over artography for several reasons. At research outset I had limited knowledge of artography. This has grown (Heaton, Burnard & Nicolova, 2018) and continues to grow. Despite living artographically, it is ethically incorrect and would demean this exhibition to change methodologies. Instead I discuss the connections and space between artography and autoethnography as this exhibition evolves to expose artist teacher cognitive development. Artography is a relatively new and localised research form, approximately twenty-five years old that embraces practice, process and product (Sinner *et al.*, 2006). I was keen to discover if autoethnography accommodates artography's contributions whilst experiencing if autoethnography is artography, or vice versa. I proceed in the following discussion to locate autoethnography in this exhibition and address later methodological overlaps between autoethnography and artography.

Autoethnography methodologically is subject to multiple interpretations (Holman-Jones, 2005; Reed- Danahay, 1997; Rose, 2012). I demonstrate knowledge of these by exposing how I came to understand autoethnography. I exemplify how

autoethnographic techniques assist artist teacher in understanding cognition. I present cognition to develop educational practice. Autoethnography has a dual role as process and product in research (Scott-Hoy & Ellis, 2008; Wall, 2006). It is complex, so I dissected its meaning. I share this experience:

When questioning the complexities of autoethnography I hit a wall. I turned to my first language and produced the art in figure 6. Making art created thought clarity. I became less focused on the term autoethnography instead excited by its multiple forms (Brogden, 2008; Coffey, 1999; Eldridge, 2012; Roth, 2009; Wall, 2006). I saw its ability to bridge layers in personal journeys (Alexenberg, 2008; Mitchell & Rosiek, 2002; Muncey, 2005). I drew parallels between my art and theory I was reading. Wall (2006) and I appeared to use autoethnography to determine meaning: I produced art, she a narrative text. The actions in our cases helped knowledge curation. It appeared we were being analytical developing explanations of social phenomena, a feature of evocative (Rambo, 2005; Roth, 2009) and analytic ethnography (Anderson, 2006). I became aware ethnographers use creative disciplines, such as ethnotheatre and ethnopoetics (Coffey, 1999) to self-express and add value to personal narratives and experiences (Davies, 2008) and so I embodied art in this exhibition.

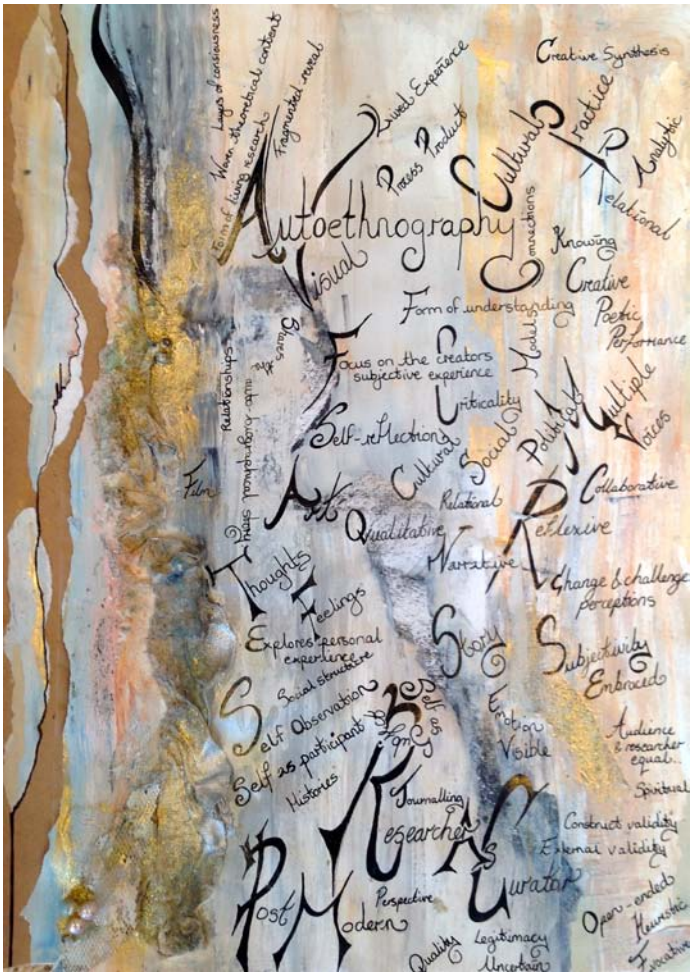


Figure 6: Sketchbook entry: Seeking meaning

Linking art, narrative and theory reinforced the strength of autoethnography to generate knowledge. I learnt new conversations and emotions were evoked through autoethnography (Rambo, 2005). As Holman-Jones (2005) recognises, relationships between theory and method in autoethnography lead to action. I identified with this through making, reading theory and sharing narrative. I recognised cognitive shifts in autoethnography. By reflecting on this understanding, I considered the type of autoethnography to pursue in this exhibition, analytic or evocative, or use of the two (Stanley, 2015). I now discuss evocative and analytic autoethnography determining their exhibition role.

Ethnographic research with value should contribute to personal experience, shed light on or report new concepts and be well crafted. It should be critical, self-reflective and provoke or persuade (Davies, 2008; Spry, 2001). Shared experience is important because portraying emotionality in fieldwork develops diverse representations

(Coffey, 1999). Describing experiences in expressive forms help audiences unpick legitimacy, increasing ethnographic quality (Duncan, 2004). I share how I challenge expressive form to investigate autoethnography.

Art and expressive mediums help us solve problems. They make us look in alternative ways and help us lose control (McNiff, 2008). When I started to explore evocative and analytic autoethnography this was not at the forefront of my mind. I started to read around the terms. I established evocative autoethnography is affective. Its intentions evoke emotional response, put forward narrative presentations, open thought, dialogue and action by looking inwardly, outwardly and around shared experiences (Hoppes, 2014; Spry, 2001). Analytical autoethnography involved 'an agenda focused on improving theoretical understandings of broader social phenomena,' (Anderson, 2006, p.378), meaning relationships were drawn between stories communicated and theoretical frames to create cognition.

After determining these meanings, the knowing I had, echoed with Pace (2012) who recognised artist-researchers adopt reflexive practices to develop theoretical research concepts. I questioned whether analytic and evocative ethnography exist on a continuum or whether they entwine at different points on a methodological journey. Stanley (2015) establishes in her research concerning PhD practices that parallels exist between ethnographic processes and multi-directional pathways. She acknowledges autoethnographies are about knowledge generation and emotive storytelling. These processes are not separate from life; they cross in doctoral journeys. This analogy offered reassurance that analytic and evocative ethnography could and do coexist.

In Space Two I explain cognitive curation means taking responsibility for organising, recognising and building knowledge. I did this artistically to explore analytic and evocative autoethnography. I share this practice:

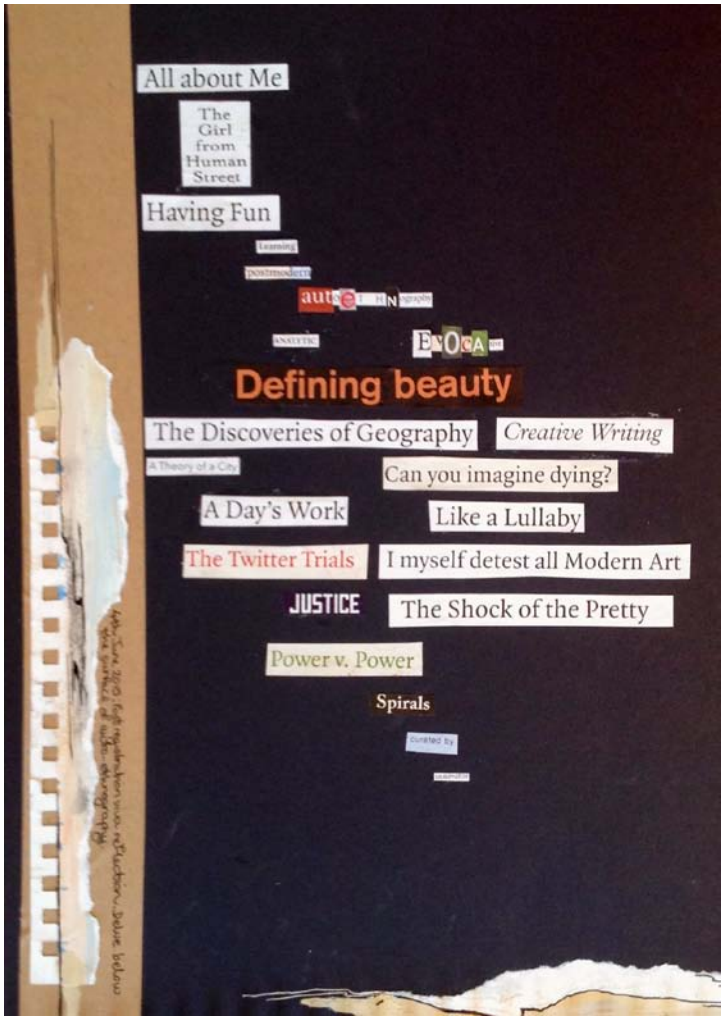


Figure 7: Sketchbook entry: A poetic collage of the self

I played poetically with the autoethnographic experience I encountered as a doctoral learner - see figure 7. Whilst producing figure 7 I hoped to become accepted as someone exploring beneath autoethnography, paralleling with Coffey's (1999, p.199) view that the ethnographer is 'a lone explorer who must learn to come in from the margins.' I am a novice poet, but risked drawing metaphorical meaning between phrases and understanding in analytic and evocative ethnography. Figure 7 demonstrates how I thought about the world; the art adds value to mine and viewer's understanding of autoethnography using expression to pose questions. I recognised art is a product and process of autoethnography (Davies, 2008; Scott-Hoy & Ellis, 2008). I curated, organising words on the page, physically and cognitively, to understand autoethnography. Figure 7 forms evocative ethnography. It invites the viewer into artist teacher practice. The viewer not only observes, they comprehend process encountered (Pink, 2013). Evocative ethnography is criticised when reliant on

emotional response, lacks analysis and is not theoretically aligned (Duncan, 2004). Reed-Danahay (1997) opposes recognising the self adds truth to voice. To limit these concerns, I embed this autoethnography in cognitive theory.

The expressive devices in this research provide autobiographical self-reflections through analysis (Mitchell & Rosiek, 2002). These reflections exemplify cognitive curation. I use imagery, figure 7, to reflect on terminology. To enhance autobiographical reflections in personal practice, I draw on social or cultural conflicts. I experience and make them explicit to add research value (Davies, 2008). For ethnographies to be successful research question should be identifiable throughout research (Hoppes, 2014). I address the questions of this exhibition above and revisit them at the end of each space and in Spaces Seven and Eight. I use expressive creations, a blog (Heaton, 2015a), images and text, as explained in the next exhibit, to establish my way of researching, an effective ethnographic characteristic (McNiff, 2008). By using art to explore autoethnography I recognise art's power to develop and articulate knowledge. As Holman-Jones (2005) and McNiff (2008) acknowledge, first hand creative experiences lead you closer to your research. But autoethnography as a methodology also presents implications. I explain these next.

Autoethnographic methodology is implicated by researcher action; I consider personal artist teacher action in several ways. I examine how my actions relate to artist teacher culture (Punch & Oancea, 2014), by conducting workshops with other artist teachers, explained in the next exhibit, to understand external influence on ethnographer cognition. When I tell the ethnographer's story (Rath, 2012), I do so with truth. I align the story with the cultural context of participants (Holman-Jones, 2005). When the ethnographic story builds and connects, I focus it in place and happenings to address contention by positioning reality (Pink, 2012). I make the autoethnographic to artographic research approach clear, in exhibition title, narrative and to participants. To add ethical rigour, I ensure the research is self-critical, self-reflective and positioned with others (Roth, 2009).

Ethnography possesses criticisms (Delamont, 2007). Due to sharing personal account, it is deemed by some as a self-indulgent process, with an unstable 'truth' that can lack

analytical rigour (Tullis Owen, McRae, Adams & Vitale, 2009). Despite this, researchers see ethnography as viable (Sparkes 2001, Strong *et al.*, 2008). Ethnographic studies parallel with reality, demonstrate vulnerability and promote emotional recall. These qualities help articulate honesty.

The exhibition outcomes are unique to me as an artist teacher, another criticism of ethnography. But because cognitive knowledge extension in art education occurs, see Spaces Seven and Eight, the outcomes become applicable to interdisciplinary contexts. This is because cognitive development through art, education and professional practice is exemplified, demonstrating the value and impact ethnography and case studies have (Bassey, 1999). With the open and close of this exhibition defining case parameters, time is captured where I engage in artist teacher practice bridging art, education and research. This time allows realities to surface and be noticed (Woods 1992). Uncontrollable variables, for example those generated by sociocultural context, implicate phenomena that occur (Yin, 2003) but autoethnography deals with this by using criticality to bring variables forward.

In autoethnography when author position is established, readers can reflect on experiences in conjunction (Sparkes, 1996). I therefore defend first person narrative in this exhibition, I explain voices adopted and communicate how art enhances autoethnographic sharing. To begin I draw on a concept underpinned by Austrian neurologist Sigmund Freud (Freud & Freud, 2001). When investigating human research action, one must be open minded to individual research forms (McNiff, 2008). We are curators of cognitive paths; we create cognition and are responsible for knowledge. We traverse cognition uniquely. I use this exhibition to exemplify this point using personal voice. Autoethnographic narrative articulates the way a research story is told, developing research integrity. I use truth (Speedy, 2008; Tullis Owen *et al.*, 2009), closeness (Wall, 2006) and first-hand experience (Coffey, 1999; Davies, 2008) to voice artist teacher identity and experience.

By narrating this exhibition through voices, I enable the cultural context to be accessed (Miller, 2008; Richardson, 2000). I communicate how I am affected by sociocultural structure (Hamilton, 2008). Narrative is advantageous in

autoethnography because the critical voice becomes internalised when you observe yourself in different roles (Eriksson, 2010; Stanley, 2015). Internalisation in educational theory enhances cognition (Cole & Engeström, 1995; Vygotsky, 2004; Wertsch *et al.*, 1984). If internalisation occurs by narrating autoethnography the value of autoethnography as process increases because it enables researcher and audience to engage with cognitive development examples.

Through the articulation of an autoethnographic voice, researchers acknowledge they have something to say (Buzard, 2003; Wall, 2006). Their voices evolve like a patchwork; experiences, emotions and behaviours are shared in personal and professional ways (Miller, 2008; Muncy, 2005). Voice consideration is important to the artist teacher because as I explain artist teachers take on multiple identities and voices. In autoethnography self-notion becomes a concept of deliberation where layers of consciousness exist (Rath 2012; Russell, 1999). I intended to signal in this autoethnography each time I encountered a new voice, but when too many entities are explored in autoethnography, purpose is inhibited (McNiff, 2008). Instead I acknowledge I take on multiple voices.

On use of first person narration in this exhibition I consider the autopsychographic. Researchers in art education Hickman (2013) and Yuen (2015) propose the autopsychographic as extension to self-narrative in autoethnographic research. The autopsychographic articulates the inner self as research. Experiences are recreated through narrative, visual or text: not recalled. Such experiences articulate growth; they form paths through creative existence. So, in cognition the autopsychographic, as component of autoethnography, explains inner self access to engender development. I draw parallels in this exhibition as it is being written, whilst writing, the autoethnographic cognition I have expanded, through creative involvement. I delved into the autopsychographic, accessing personal cognitive growth. I practised autoethnography because of the relationship I have with the artist teacher cultural context - the autopsychographic focuses solely on self, as opposed to culture. But autoethnography can access one’s autopsychographic to facilitate cognition. In the following discussion I question the relationship between autoethnography and artography.

As I curated this exhibition my cognition concerning research methodologies developed. I gained confidence in knowing and articulating that conceptual and methodological overlaps occur in research approaches, that can be layered, creative and occur to greater or lesser extents dependent upon intention (Bryant, 2015). The use of imaginative research design is becoming regarded as equal to rigour in academia (Ellis & Bochner, 2008), but should not be used at the detriment of research intention. I 'yarn' (Tedmanson, 2015) the cognition I develop when connecting autoethnography and artography methodologically. I use the term 'yarn' as an affective term; also used by Tedmanson (2015) to share research stories in a culturally safe way. She expresses:

> Stories go in circles. They don't go in straight lines. It helps if you listen in circles because there are stories inside and between stories and finding your way between them is as easy or as hard as finding your way home. Part of finding is getting lost and when you are lost you start to open up and listen. (Tedmanson, 2015, p.80)

On reading, this sentiment resonated with my identity and learning story, concerning methodological connection. The last line of the statement Tedmanson (2015) shares captures how I am developing methodological cognition. When getting lost in reading, literature and thought about artography and autoethnography I lose myself and become confused. I wade through, moving around trialling connections between these methodologies. In process I start to hear, see and untangle methodological relationships. As these solidify I gain a confidence, knowledge of interconnections between artography and autoethnography. I create a story, a way of finding methodological meaning by generating a yarn.

As I explain in Exhibit One, this exhibition and its intentions began as artographic experience and autoethnographic research. The autoethnographic research occurs in artographic practice. This shares one methodological connection, also realised in a study concerning picture books and embodiment by Burke and Cutter-Mackenzie (2010). Artography can inform, embody, challenge, use the tools of and weave through autoethnography (Gouzouasis & Lee, 2009). Autoethnography in return can utilise, provoke and facilitate artography. I explain to justify these connections. As a

multi-sited exhibition, this research is personal, interdisciplinary and intercultural. It examines one artist teacher in relation to others by sharing cognitive journeys. Relationships between art, education, and artist, teacher and learner cultures are exposed. Artography and autoethnography capture these sites of inquiry, (identities, disciplines and cultures) through embodiment (Burke & Cutter Mackenzie, 2010; Heaton, Burnard & Nicolova, 2018; Irwin *et al.*, 2006; Stevenson, 2013; Sullivan, 2005). Artography and autoethnography accept art and art making as influential to subject of study (Irwin & Sinner, 2013). In artography art should be and inform research and research should add value to the art (Gouzouasis, 2013). In autoethnography art should create scenarios and outcomes contributing to human understanding (Eldridge, 2012). This too could occur in artography.

Although subtle the difference in these ideas is that the relationship between art and research in artography appears reciprocal - one informs the other, art and research are combined in experience, where art's contribution to autoethnography appears to adopt a directional trajectory, with a focus on emotive or analytical facilitation or production. Both should formulate cognition, but path to arrival will be different. This exhibition adopts different cognitive paths. From an artographic position art is used throughout to demonstrate and formulate cognition as experience. In an autoethnographic way the same art narrates a cognitive story to facilitate artist teachers to address cognition. The autoethnographic stories told are part of experiencing this exhibition as artography. It is interesting there appears to be studies published (Coetzee, 2009) positioned as autoethnography, yet they adopt practices of artography such as performativity, without referencing artography as concept or practice. Performance can be autoethnographic, but it is also a holistic artographic way of being and moving through experience (Cutcher & Irwin, 2017).

I encompass artographic practice in this exhibition through workshops, exhibitions, articles and supplementary materials to disseminate exhibition concepts and stories. I state this because spaces, positions and processes are navigated, reflected on, interpreted and reinterpreted to generate these outputs. Information in artography is created through embodied relational acts (Cutcher & Irwin, 2017; Heaton, Burnard & Nicolova, 2018; Rousell & Cutcher, 2014; Winters, Belliveau & Sherritt-Fleming,

2009). An ethnographic study too exposes relational practice. Thomas (2013, p.10) suggests a ‘relational nexus formed by an artist-teacher- audience loop’ where participants influence research evolution through reflection. In autoethnography, focus on self-questioning and reflection to other demonstrates loop formulation. Artography is also relationally reflexive; it can interlink the artistic and pedagogical through reflexivity (Winters, Belliveau & Sherritt-Fleming, 2009) but does not appear to emphasise exposing relationality because it is embodied. In this exhibition I exemplify and expose relationships with other artist teachers, to show an autoethnographic and reflexive self.

Artography can inform and build autoethnography (Sullivan, 2006). Artography becomes unique from autoethnography through exploration into links and spaces, forming a network through and around art, pedagogy and practice (Carter, Beare, Belliveau & Irwin, 2011; Cutcher & Irwin, 2017; Rousell & Cutcher, 2014). Artography adds life to, acts and travels through personal stories. This can occur by capturing artistic experience, but often experiences embody challenge and challenges illuminate autoethnographic stories (Roth, 2009; Spry 2009) joining the methodologies.

Autoethnography captures living response; at research outset I was not aware of living autoethnography. Tami Spry’s poetry (2009) demonstrates possibility through performativity and led me to consider the performative nature of art and education (Ball, 2003) in research. I examine this with others (Heaton, Burnard & Nicolova, 2018) where artography is used as methodology to interrupt doctoral education. Artography is living (Irwin & Cosson, 2004). Experiencing artography led to the conceptualisation that autoethnography can be live because when one records in an artographic or autoethnographic way, the experience is happening; one may be reflecting or being reflexive and learning, knowing or generating cognition through performing, doing or experiencing. As in this exhibition, autoethnography can be transformational to artographic experience. Autoethnographic process can utilise artographic action to provoke or facilitate thought. For example when writing autoethnography you may make art, as I do, to unlock thought. Making can provoke new directions in autoethnographies or artographies experienced (Cutcher & Irwin,

2017). On sharing this exhibition, I came to realise artography and autoethnography are linked methodologies. This exhibition started its life as autoethnography and has metamorphosed into artography. The exhibition methodology is layered (Bryant, 2015); it is situated in an entanglement of autoethnography and artography due to its living nature. In the following discussion I explain how grounded theory also appears in this exhibition.

Grounded theory (Glaser and Strauss, 2012; Hutchinson, 1986; Punch & Oancea, 2014) is entangled with autoethnography and artography here, but it is not the adopted methodology. I discuss it because grounded theory can be used as a generalised research tool; researchers are adopting parts of its practice (Denzin & Lincoln, 2011) to inform studies. Due to this exhibition exemplifying cognition in artist teacher practice, I acknowledge grounded theory to deduce theory in a small exhibition aspect.

In the pilot I used autoethnography to understand transcognition and miscognition in artist teacher practice. Autoethnography made theory generation a challenge because I questioned if theory generation could occur when voice and position change. I used a conceptual frame as a theoretical constant. Whilst the artist teacher story I shared evolved, the conceptual frame enabled data to be analysed theoretically but consistently through research. Through process I realised that to facilitate cognition for artist teachers and to generate new theories I required a methodology that taught and exemplified cognition, one open to existing or new theory evolving. This is where grounded theory became influential.

As a methodology grounded theory studies a concept, here cognition, so Space Two explores artist teacher cognition and presents the conceptual frame to assist data analysis between autoethnography and artography. In grounded theory the study concept may only be revealed on analysis (Glaser & Strauss, 2012), so when drawing on this methodology I am aware concepts concerning cognition may be revealed beyond the theoretical frame generated. This is where autoethnography as an assistive methodology is advantageous, because the narratives in autoethnography and perhaps artography can reveal unknown knowledge. If new knowledge can be realised in

autoethnography, so can new theory. These new-grounded theories, through the autoethnographic or artographic methodology, can then be substantiated or even exemplified adding value to stories told demonstrating cognition in artist teacher practice. Grounded theory is useful in exploring group behaviour, where there is reduced exploration of concepts affecting lives (Crooks, 2001); as I explore artist teachers this approach is appropriate.

A benefit of grounded theory in this exhibition is it can slice through research to reveal what is happening in a key concept; this enables quick intervention (Glaser, 1978). I use the cognition conceptual frame, see Space Two, to facilitate this, embedding knowledge of cognitive theories at different stages in the autoethnographic and artographic stories. When I analyse use of grounded theory, Space Eight, I reveal process makes autoethnographic and artographic stories reflexive because the exhibition sits contextually in artist teacher cognitive practice (Charmaz, 2000); theories discussed become grounded in cognition and living experience.

Stories revealed through grounded theory reflect observer and observed (Charmaz, 2000). This is like autoethnography. A person's life and experiences can be storied in selves, voices and cultural spaces (Hoppes, 2014; Stanley, 2015), or in artography where roles are explored in living experiences as artist, teacher and researcher (Winters, Belliveau & Sherritt-Fleming, 2009). In these and other social science methodologies a double hermeneutic, a way of interpreting and understanding people and society in a reciprocal process occurs (McKemmish, Burstein, Manaszewicz, Fisher & Evans, 2012). When social science methodologies are combined, as in McKemmish's study (2012) where the double heurmenutic spiral is adopted, to examine designing and doing collaborative community research using warrant analysis, autoethnography and grounded theory data analysis, the final research story can present in multiple forms (Denzin & Lincoln, 2011). The strategy of articulation adopted reveals each hermeneutic story to differing extents forming subjectivity in combined methodological studies. To control this a researcher should specify the methodological lens or position that their research will be articulated from managing movement between stories told and theories generated. I attempt this in the narrative

just experienced. I try to locate connections between autoethnographic and artographic stories I tell and go on to tell in this exhibition, in cognitive theory researched.

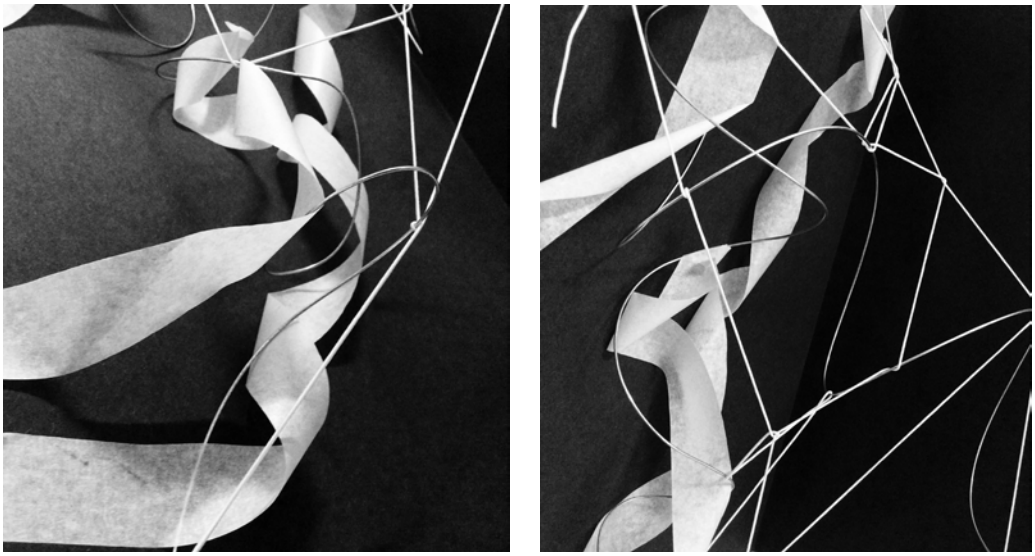


Figure 8: Merging methodologies

The methodology underpinning this exhibition appears abstract, but it does methodologically map and inter-relate (Stewart, 2007) artist teacher cognition from different standpoints. Figure 8 provides a visualisation; three materials intertwine to allude to the exhibition methodologies used to connect and dissect artist teacher cognition. Autoethnography is represented by wire, the cyclical bends representing listening in circles, seeing, hearing and entangling artist teacher voice. The tape is grounded theory splicing through data, thoughts and ideas. The elastic, as artography, interlinks and weaves its way around autoethnography and grounded theory to expose cognition. The visualisation exemplifies how selection of interconnecting methodology parallels with artist teacher practice. Artist teachers are researchers, they examine, create, question, position and transform by transcending through, around and across art, education, pedagogies and practices. So, to select a research methodology that did not achieve this, when exemplifying artist teacher cognition, would not truly represent or expose artist teacher practice. With autoethnography being criticised for being art or science focused (Ellis, Adams & Bochner, 2011) an interconnected methodology models how navigation occurs between approaches. I now inform of the exhibition context and sample.

This exhibition is conducted between two United Kingdom (UK) universities in which I am academic staff in one and doctoral researcher in other. The artist teacher research participants, from my home institution, span two cohorts, 2015-2017, of Batchelor of the Arts (BA) primary education students training to be teachers with a specialism in art. 18 student participants, three male and 15 female, are involved in this research to fulfil Siegenthaler's (2013) request firstly to conduct research bridging change in art practice - in this exhibition artist teachers move from training institution to professional context - and secondly to ensure artist teacher opinions can be gathered over time. Autoethnographers are criticised for minimal work in their context, for studying too few participants in a culture and for spending small amounts of time with them (Buzard, 2003; Delamont, 2009) so the participant involvement I utilise addresses these concerns. Ten participants were in cohort one and eight were in cohort two. Participant names are disclosed in this research where consent has been agreed. Through exhibition engagement you will notice the participants reveal and disclose their identity at different points through the research process, I have captured this to demonstrate how research participants gain confidence and project vulnerability when engaging in research processes.

I also designed participant involvement to accommodate flexibility in workshop attendance because some participants left university part way through the research to start teaching posts and had pressures from personal study demands. When participants are involved in autoethnography, it can be termed 'community autoethnography' (Ellis, Adams & Bochner, 2011; Toyosaki, Pensoneau-Conway, Wendt & Leathers, 2009) a form of collaborative participatory telling, but written from autoethnographer perspective. Participatory involvement in autoethnography is advantageous because it connects story of self with others, in emotional, social and contextual ways (Reed-Danahay, 1997). But it too exposes variations in others, such as similarities or differences in a person's perception, understanding or experience (Ngunjiri, Hernandez & Chang, 2010). The number of participants contributing to each workshop and when is communicated on the workshop plan - Appendix 3. Changes in participant numbers could be a study limitation, but due to participant sample disclosure and autoethnography's focus on self-story the limitation is minimised. Instead diversity in artist teacher voice is shared.

The research location for this study is not static; the participants, are all students or past students at the university where I teach. As an academic artist teacher, I have interdisciplinary and intercultural partnerships with schools, universities and galleries so an exact location for this autoethnography cannot be derived. The sociocultural paradigm I adopt accounts for this challenge by embodying time, space and act fluctuations. The exhibition environment influences cognition, but because the study is conducted in parameters of artist teacher practice the exhibition shows trust.

The exhibition's visual nature increases accessibility because it presents normality in artist teacher practice (Ortlipp, 2008). Visual recordings are seminal to artist teacher practice. But this can complicate research because of subjective interpretation (Coffey & Renold, 2006). Exhibition engagement can occur in different ways, through autoethnographic methods accessed individually or collaboratively, through reading academic papers or visiting exhibitions. These examples demonstrate how interdisciplinary research can parallel methodology and cultural condition (Stewart, 2008), positioning exhibition as living experience.

Research into self as ethnographic site identifies dangers, such as narcissism, complicating self-disclosure and risks concerning public sphere shortcomings (Denzin, 1989; Reed-Danahay, 1997). In this exhibition I do not hide personal opinion but address some issues sensitively to uphold professional integrity. I communicate opinion in the parameters of artist teacher practice. I respect the anonymity of institutions and colleagues associated with this research where required, as I discuss in the exhibition ethics section. Relational ethics are problematic in autoethnographic research (Ellis, 2007).

Exhibit 2.2: Exhibition methods

In autoethnographic research this exhibition becomes auto self-ethnography. Auto and self-ethnography differ; self-ethnography looks at the author's position with others whilst autoethnography studies the researcher's position exclusively (Eriksson, 2010). I refer to autoethnography throughout this exhibition to aid accessibility but identify this distinction to emphasise autoethnography contains complexities. Above I

defended exhibition design acknowledging how methodologies overlap. I focus on space between autoethnography and artography as methodology and method in this exhibition to disclose methodological frame.

At exhibition outset I divided autoethnography as method into three sub categories - visual, reflexive and narrative - and discuss these in the writing that follows. I have come to realise visual, reflexive and narrative autoethnographic methods could form components in artography because each method is an act of artographic practice. The visual, reflexive and narrative methods I discuss each form a methodology and method of autoethnography independently, but in unison create triangulated strength (Bush, 2007) and mirror the approaches of artography. One story can reveal findings another may not, connections can be made between data gathered. Combined qualitative research methods, such as these, add methodological research rigour (Kingsley, 2009). But one must be cautious in using qualitative methods in artography because it strives to be a methodology that does not extend qualitative endeavour (Heaton, Burnard & Nicolova, 2018; Springgay, Irwin & Kind, 2005).

In this exhibition, I use research methods, such as workshops, focus groups and email correspondence, to gain participant voice (Mand, 2012). I justify these later and explain their design to capture research as it unfolds, combatting criticisms surrounding participation in autoethnographic research methods (Delamont, 2007). In autoethnography occurrences unfold and come to consciousness as research progresses. I use three methods to increase probability and accessibility of these occurrences being shown (Punch & Oancea, 2014) to strengthen the methodology. Expressive forms in autoethnographic methods acknowledge how individuals experience the world differently (Strong *et al.*, 2008), increasing exhibition engagement.

With strengths come challenges. In this exhibition I acknowledge challenge as an artist, teacher, researcher and author (Strong *et al.*, 2008) in meaning formulation, so use three sub methods to assist. I try to reveal challenges through exhibition story. As artist teacher I generate large amounts of data because I capture experiences artographically; this is a common problem in ethnographic studies when layered

accounts occur (Ellis, Adams & Bochner, 2011). As shown in Space Seven, I organise data in cognitive themes, events and excerpts to exemplify conceptual points, occurrences and scenarios (Rose, 2012). This focused how I identified cognition occurring and its influence on artist teacher practice. I now discuss the exhibition visual, reflexive and narrative methods, explain additional research methods used and complete the exhibit by presenting data analysis strategies and ethical challenges.

I discuss visual autoethnography first. As explained the art I create presents as a visual metaphor of this research journey in two forms. Each exhibition space is represented by art. The art is reflexive and in Spaces One, Seven and Eight responds to and represents concepts explored in space narratives. The art in Spaces Two to Six also does this, but responds to participant workshops to share personal voice alongside other. The art is discussed with the cognition conceptual frame in Space Seven and through participant workshops to draw out fallacies and verifications (Sullivan, 2005). Eight pieces of art are selected for analysis to reduce and manage data (Banks, 2001). Art is shared throughout exhibition to story the research; art is embedded in narrative to illuminate truth.

Visual autoethnography can increase understanding of learning process, challenge-imposed identities and provide reliability when recounting researcher thought (Kingsley, 2009; Russell, 1999). This can occur because voices of artist, seer and seen can be exposed (Russell, 1999). Voices convey narratives to tell ethnographic stories, such voices can be unspoken and when embedded in art can reveal entities words may not (McNiff, 2008; Rose, 2012). Weber (2008) presents ten justifications for visual image value in research including ability to capture the indescribable, memorability, layered quality, ability to be metaphorically symbolic, to promote reflexivity and social justice. The visual offers a way of thinking about voice in autoethnographic stories (Scott-Hoy & Ellis, 2008) - the art of figure 9 exemplifies this. In Weber's (2008) framework figure 9 demonstrates how Weber's conceptual understanding can transcend to and be valuable in autoethnographic interpretation.

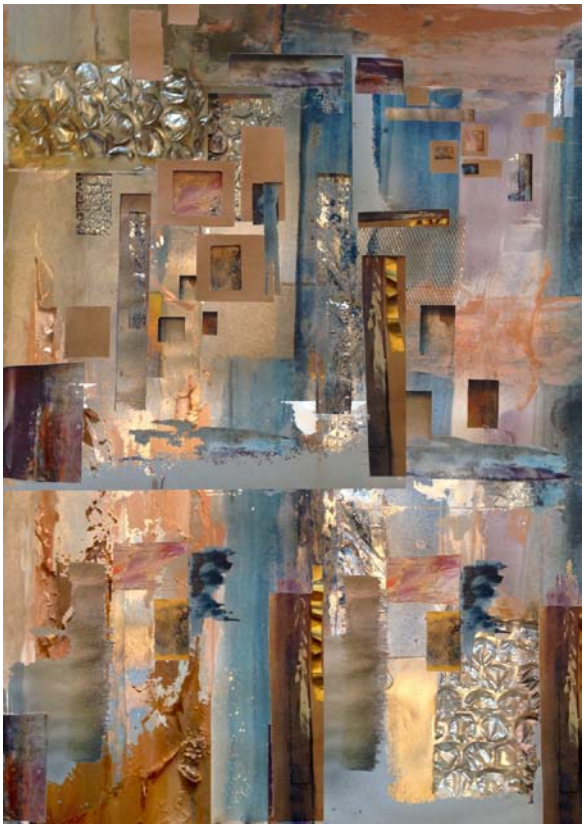


Figure 9: Sketchbook entry: Openings

Using Weber's (2008) construct with figure 9, I can see how, 1) the use of holes and layers metaphorically capture fluctuating voices. 2) How the image has helped establish I can reconstruct and reinvent my identity. 3) The image provides memorable representation of learning concerning layering. 4) It forms part of a story, enabling narrative ethnography to be sequenced. 5) The image may help viewers understand artist teacher cognition. 6) Theory is portrayed in the visual; the image depicts Rath's (2012) concept of autoethnographic layering, new openings emerge as stories progress. 7) Image creation enables cognitive embodiment because I can connect making and conceptual understanding. 8) Understanding can increase because audience can step closer to practice. 9) The image is reflexive, interpretation is open. 10) Image creation evokes questions concerning social justice in autoethnography, such as moral positioning; I consider intention behind images shared.

Image use justification in research enables autoethnographers to analyse contributions of visual content and demonstrates how visual analysis, through narrative, can enhance cognition. Image contribution in research is controversial; Hickman (2008)

suggests for images to be substantiated they should be accompanied by contextual explanation. Art is a distinct language; it can be and share narrative but not in a capacity greater than language can share art. Distinct communication modes, art and narratives, can complicate and complement understandings (Grauer, 1984; Watson, 2009). I explain below some exhibition challenges associated with visual autoethnography.

To minimise problems in visual ethnography and art as research method, such as interpretation, mediated experience and distortion (McNiff, 2011; Pink, 2012; Rose, 2012), I situate this exhibition in a framework for visual, social research (Margolis & Pauwels, 2011: p.5). The framework acknowledges parameters binding visual research and offers a way to refine visual use stabilising subjectivities. To explain, a researcher can locate visual origin and nature, exposing to audience the visual type research will accommodate. I use art I have created, in some cases instigated by or representative of participant views in workshop experiences. Exposure, see space covers, clarifies where and how images are obtained adding trust to use. Visuals can be justified in research design, to expose intention. In this exhibition I use art analytically and theoretically. I interpret analytically to reveal and disseminate narrative story, and theoretically to exemplify, show and create cognitive theory. Format and image purpose can also be articulated to expose status, use and presentation.

In presentation this thesis is exhibition by presenting written and visual narrative. It is exhibition through art because its eight artworks are shared as exhibition - see Space Seven. The art gains exhibition status because it communicates research; it interacts with expressive mediums, like narrative, to expose truth and cognition. The art presents subjectivity. Purposeful creation could be criticised for accommodating a research question, but when located in a visual research frame, such as Margolis and Pauwels (2011), purpose is declared. In autoethnography a researcher must expose research journey (Delamont, 2009; Ellis & Bochner, 2011) this can be done through layering (Rambo, 2005; Rath, 2012). I create art to exemplify artist teacher cognition, so when visuals are positioned in journey their trustworthiness increases. When I interpret imagery, I cross-reference the conceptual frame and research questions - see

Space Seven. This analytic approach reveals and exemplifies cognition explaining effect on the artist teacher sociocultural group (Rose, 2012).

Another challenge in visual autoethnography is validity (Watson, 2009). I articulate this through figure 9, where explanation shows engagement with Weber's (2008) conceptual frame. Stories can be biased and subjective (Miller, 2008), researchers are responsible for stories shared and therefore stories recounted from multiple perspectives increase integrity. Hoppes (2014) shares that autoethnographic stories choose you; as in figure 9. Whilst I acknowledge that content subjectivities exist, explaining the image unpicked how I learn through visual practice, the visual clarifies cognitive understanding of Weber's (2008) frame. I made critical connection between personal understanding and another. I learnt consistency and exposure is required when using visual analysis frameworks to locate studies.

Autoethnography shares stories, evokes questions and theory (Anderson, 2006; Sparkes, 2001; Stanley, 2015; Tullis Owen, 2009); visual autoethnography can contribute in whole or part, but either contribution requires justification. Autoethnography, as with visual autoethnography, is criticised for focus on the powerful (Delamont, 2007). This is not the exhibition intention. The intention of this research is socially and morally just; its purpose is to assist artist teachers to recognise and understand cognition. Art facilitates this. Art in and as narrative demonstrates cognition can be realised differently. Visual autoethnography is a tool and outcome, able to heal minds and hearts (Hoppes, 2014) because of ability to communicate real and internal experiences. Another method I adopt is reflexivity. I discuss this now.

Research surrounding the value of reflection and reflexivity in art and educational research is growing (Cheng, 2010; Grushka, 2005; Heaton, Burnard & Nicolova, 2018; Larrivee, 2010). I use reflexive autoethnography, the practice of repositioning self and self-periphery to question, connect and reflect on experience (Alsop, 2002). I exemplify the contribution reflection and reflexivity make to cognition in artist teacher practice. Reflexive autoethnography grapples with time and space, as stated previously. Alsop (2002) refers to being 'home' or 'away' where autoethnographer either reflects on self or is positioned with other to reflect from distance. She

identifies when one is away, perspective change can be considerable because personal and cultural connect. The contributions of Ellis and Bochner (2000) also facilitate understanding of perspective change because of technique exposure. When layers of consciousness are revealed, and looking occurs between and round self and others, in broad and focused ways perspective change occurs. Consciousness becomes evident here, but subconscious gazing may contribute. Alsop (2002) suggests self-reflection occurs in autoethnography through fieldwork, writing and creative discovery. It could be through these acts cognition surfaces.

In this exhibition reflection and reflexivity are shared like Alsop (2002) proposes. The narrative demonstrates self-reflexive fieldwork through writing and creative discovery. In these practices I step outside the self, alter my centre and relocate to be self-critical; this is embodied experience. The additional research methods I use to accompany autoethnographic and artographic practice, such as blogging as reflexive journal tool (Thorpe, 2004; Ortlipp, 2008) or practice dissemination demonstrate knowing and reflection in action (Pollard, 2002; Schön, 1983). The tools exemplify how I generate cognition, using reflexive autoethnography. Reflexivity exposes connections between researcher, sociocultural group, context and culture delving deep into self (Anderson, 2006; Rambo, 2005; Spry, 2001). Reflection and reflexivity piece memories together (Tullis Owen *et al.*, 2009); the multi-textual commentary created influences research strategies in action (Ortlipp, 2008).

In this space I refer to reflexive autoethnography as a category of autoethnography. This does not mean it acts alone. Reflexivity is not separate to visual or narrative ethnography. In artography reflexivity is a central and affective practice (Hofvander, Trulson & Burnard, 2016; Kamler & Thomson, 2006). When I write this exhibition, I reflect on personal rationale for research conduction and in doing so demonstrate the unconscious sinthome of miscognition (Tavin, 2010a). Sinthome is a term generated by Jacques Lacan developed in 1975. It derives from symptom but places it in an unconscious context. The term suggests an unconscious message not needing to be interpreted, but if reflected on it may progress cognition because as I explain in Space Two, reflection fuels cognition. Ortlipp (2008) suggests reflection shapes the present.

It provides personal narrative acknowledging human experience in ethnographic research (Campbell, 2005).

When I consider how I influence and interpret visual, reflexive or narrative ethnography hermeneutics and the interpretive arc (Bell, 2011) become important. In Bell's (2011) work hermeneutics is 'the practice of interpreting texts' (p.524). I see 'the text' as art: it can contain or be reflection or reflexivity and can be multi-textual and act singularly or as a part. Bell discusses that we interpret and understand texts on different levels. He identifies to reach informed understanding distance is needed, as Alsop (2002) and Ellis and Bochner (2000) allude distance comes in different forms. Interpreting and viewing from multiple positions and engaging with creative forms informs understanding.

Reflexivity can come in doing, such as doing research or creating art. Grushka (2005) makes this hermeneutic link in making. She recognises how an artist sees and critiques practice in a reflective cycle; the position practice is critiqued from changes with environment. Hermeneutics shows awareness that a reflexive researcher has responsibility for meaning created (Eriksson, 2010). When being reflexive I describe reflections, I define interpretations and attempt to understand artist teacher cognition. Reflexive autoethnography present challenges. I expose these next.

In adopting reflexive autoethnography I document how cognition changes. In doing so this exhibition becomes a research memoir (Ellis, 2004; Ellis, Adams & Bochner, 2011). This presents research challenges. Not all the challenges I face are apparent at this point, so I capture these in the exhibition. Navigation presents challenge one, as Alsop (2002) teaches, switching identities and spaces whilst thinking, feeling and being is complex. I am mindful not to remain in one exhibition place and change peripheral centres, using lenses, to expose a broad but focused view of artist teacher cognition.

Opening research can expose vulnerability, a second challenge. This can affect self and others so ethical considerations are required. When representing self or other through reflections political, social and cultural issues and selves may be exposed

(Ellis, Adams & Bochner, 2011; Spry, 2001). These issues may need addressing sensitively, because of research projection through unfamiliar waters. So, reflexive research should be a social, moral and mindful act (Adams & Holman-Jones, 2008). I adopt strategies such as member checking (Carlson, 2010), research gatekeepers and participant involvement to minimise and manage.

A third challenge in reflexive autoethnography is power; a researcher's connection to research experience and influence on it should be communicated (Anderson, 2006). When self affects experience ethnographic triangles, between researcher, field and audience, and power circuits, power moving between agencies, practices and structures exist (Mahadevan, 2012). Ethnographic triangles and power circuits demonstrate ways power transcends reflexive autoethnography. I mean when reflexive autoethnography occurs power can tip towards beings, practices and structures involved. The reflexive researcher deals with this balancing act and navigates to visibility, to reveal subjectivities without dominating (Anderson, 2006). When being reflexive, emotions can be shared to unpick self, power and culture. Reflexive emotions can help and hinder researchers, participants and audiences so the extent they are revealed and when in the research journey requires management (Doloriert & Sambrook, 2009).

I deal with power developmentally. Through reading and experiencing I learn factors implicating power, such as self, personal and professional contexts. Regarding self, in the third year of exhibition curation I had my first child. This life event, although I was not aware at the time, because I was determined to maintain the academic persona I had worked to develop, taught me about internal power, conflicts and exposure. Prior to giving birth, I made the decision not to include this event in this exhibition because it was not relevant to artist teacher cognition, but it was seminal to learning, as Doloriert & Sambrook (2009) say is often the case with life's changes. I had, and continue to have on some occasions, internal turmoil with accepting, navigating and giving over power in life as an artist teacher, academic, partner and parent. When living, as with researching, complex and changing situations and the power one holds as a human can be complicated, diluted or fuelled without consciousness of it. This is what happened to me.

When committing time to this doctoral journey, engaging with my career I felt guilt towards my new family. I questioned my acts in societies, and other's expectations rather than gaining comfort with mine. I had family support to take some power for myself and continued to build an academic artist teacher identity, but despite this the turbulent feeling did and does not disappear. When prioritising family, I felt powerless. In the first year after my child was born I navigated a see-saw of power emotions, trying to find balance. At points I felt I had lost my artist teacher identity. It was when making the art of Space Six I felt I regained identity and power, and I had found a way of dealing with internal cognitive struggles, the year prior feeling like a search for clearings in a misty fog. What instigated the realisation I had pulled back and gained control in the art of Space Six I am uncertain of, but I did identify cognitively, through self-talk, I had found myself. I was managing the balance. Artist teacher practise is power. Art, making, publishing and working is self-power that is integral in my existence. Whether to share this self-aspect is also a contention. Will sharing the emotional-self detract from academic thesis content? Will I be judged for admitting struggles or will an academic modern world accept maternal influence? These questions raise ethical considerations in reflexive autoethnography and model how power questions implicate this study.

The point I make sharing this personal and emotional journey is that power is layered (Doloriert & Sambrook 2009). It can reveal in research at unexpected moments and can shift position between people, times and spaces creating ethical dilemmas. In this exhibition I managed power struggles by acknowledging this, by sharing reflexive events in an artist teacher's cognitive story and by being visible (Anderson, 2006). This is achieved using personalised moments in narrative, through sharing art, by revealing research journey on a blog (Heaton, 2015a) and through research dissemination. As stated the reflexive voice in this research is embedded through all exhibition components. It binds, weaves through, unites and holds autoethnography and artography together. Narrative autoethnography does the same. I explore this next.

I use narrative autoethnography (Ellis, Adams & Bochner, 2011; Legge, 2014) in this exhibition in each space text to story and re-story. I exemplify how I, as artist teacher, navigate cognition. Narrative autoethnography uses text to reveal researcher experience, which can traverse with other's stories and studies (Ellis, Adams & Bochner, 2011). Narrative autoethnography brings forward behind the scenes research efforts and in this exhibition demonstrates cognitive development, by drawing on biography, and depicting a cultural tale (Ellis, 2004). Reflective articulation helps audiences make research sense because narrative builds rapport (Berger, 2001). In this exhibition the audience gains researcher sense because my identity, practices and thoughts are exposed. I generate participant rapport by sharing myself, through teaching, by sharing data such as gaining feedback on art I produce through research outputs and co-creative experiences like collaborative writing. Through rapport I gain knowing (Miller, 2008) because writing and engaging with others assists understanding (Legge, 2014) and acts as negotiation of self and participant practice (Coffey, 1999). Rapport is strengthened because the hierarchical gap between researcher and researched is reduced through participant involvement in art critique (Berger, 2001). In future I would involve participants in narrative critique.

Narrative autoethnography assists researchers in understanding and navigating (Berger, 2001; Trahar, 2009). It aids researchers in negotiating identities (Coffey, 1999). It looks inward to open self, whilst offering outward understanding (Berger, 2001). It is not linear; writing a narrative reveals knowledge in time (Blinne, 2010). Autoethnographic writers (Blinne, 2010; Rath, 2012; Spry, 2001; Stanley, 2015), as I have, narrate stories, but intentionally and unintentionally re-story finding hidden meanings through account exposure or by uniting narrative mediums, like art or poetry. This is subjective, but it is also a way of living as a researcher, as active learner, and inquirer (Legge 2014; Richardson, 2000; Trahar, 2009). Cognition develops as researchers act, learn, create and recreate. Narrative autoethnography cannot escape collective subjectivity (Angrosino, 1998), because stories are open to critique of truth, honesty and authenticity.

I acknowledge the stories I tell represent coexistence (Blinne, 2010), the narratives I share extend the self, and show cognitive navigation. The narratives reveal strengths

and tensions, peace and despair to acknowledge and address subjectivity. Blinne (2010) teaches writing is self-extension informing artistic and creative endeavour and exhibiting self. I agree the written exhibition text holds exhibition together. If I critique Blinne's (2010) autoethnographic article, I could suggest theoretically the academic nature of the work becomes displaced because of over emphasis on emotive autoethnographic telling. Whilst the story shared provoked thought, it was creative, moving and informed by the academic nature of autoethnography; this was not explicit. I reveal an issue in autoethnography here concerning author creative license. The extent to which an autoethnographic author reveals methodological structure and academic literature can be a contention. In this exhibition I weave literature throughout to demonstrate how an artist teacher connects with and lives alongside academic information.

The doctoral structure selected for this thesis is experimental. Other graduates have experimented, such as Coleman (2017) whose doctoral product is an online portfolio of artographic practice and Sousanis (2015) whose thesis is graphic novel. Coleman and Sousanis' theses present alternative doctoral artefacts. Their written narrative, journey and research contributions are integrated in products. The exhibition I share does this in the confines of an eighty thousand-word document and parameters of course legislation for which this doctorate is submitted. One may question why this exhibition does not exist as an exhibition in a purely physical sense. It could and parts of it do (Heaton, 2017 June/July), but institutionally this is not yet accepted practice. However, I presented as panellist at the *Cambridge University 2017 Education Doctoral Conference* (Heaton, 2017 June), which raised and discussed this concern considering theses as portfolios and the academic value and credibility of alternative doctoral products. I share this event for two reasons: one because it is narrative exemplifying where I have played critic to cognitive decisions I have made regarding thesis structure and secondly because it demonstrates training inherent in professional doctorates which generates metacognitive questions in participants (Klenowski & Lunt, 2008; Simpson & Sommer, 2016).

In this exhibition I deliberate whether the product produced represents and challenges the pedagogy I propose, concerning cognitive engagement fuelling artist teacher

practice. Engaging in professional dialogue at the *Education Doctoral Conference 2017* and writing about the experience has reiterated it is necessary to expose and disseminate cognitive performance. Because when embedded in autoethnography and artography these acts evoke agency, power and change (Gatens, 1996). This exhibition responds to Bourner & Simpson's (2014) request for research that exemplifies and utilises action learning in the professional doctoral experience because it exemplifies cognition narratively. In structure the exhibition adopts an unconventional thesis form.

Each space has an underpinning theme, such as cognition in Space Two and digital practice in Space Four. Cognition intersects all spaces weaving the research story whilst providing practice exemplifications. The decision to structure the literature this way was informed by Bayard's concepts of a 'collective' and 'inner' literary library (Bayard 2007 as cited in Kamler & Thomson, 2014, p.50). Differences occur between the literature structure adopted and Bayard's. An inner library, from Bayard's position, concerns the most informative and seminal texts. I see the inner library as theme formation in artist teacher practice that connects with the collective theme of cognition. The literature connections map artist teacher cognition. The map bridges art education at primary, higher education and policy levels (Hart, 1998).

The narrative of Space One storyboards this exhibition (Creswell & Miller, 1997). Collection Two presents and defends the exhibition's methodology. Doctoral methodologies communicate the research approach, form research and reveal student experience (Creswell & Miller, 1997). These acts facilitated the cognition I had about my artist teacher practice and may for other artist teachers or doctoral learners. The interpretative knowledge individuals form when engaging in narrative gives experiential meaning and provides a platform for exploring methodological views (Creswell & Miller, 1997). Narration in autoethnography and artography presents challenges. I discuss these next.

In previous discussion I explain how an ethnographic text facilitates voice, voice shaping cognition. A challenge of expressing voice in autoethnography and artography is communicating which voice is used (Miller, 2008). I acknowledge

multiple artist teacher voices above. I am explicit about voices being acknowledged in methodology and accept new voices could emerge. In Space Six I detail how cognition and voice connect. I explain how cognitive voice can develop artist teacher practice. When communicating voice, or narrating, a researcher moves from safety (Berger, 2001). In doing so they battle with ethical dilemmas concerning guilt or reveal. The self is exposed, and they contend with honesty and expose doubt.

This battle can be beneficial to research because self can be seen in new guises, as I experience - see Space Six where I observe cognitive alterations. But a narrative's story can be subjective. It is one way, and an incomplete one (Legge, 2014), of communicating research. First person narration can move narratives on because it evolves alongside lived experience. I find writing draws out reflexive ability and assists putting cognition to paper.

Yet narratives, in autoethnography and artography, can generate large data quantities and analysis and dissemination can present problems. The way narrative is viewed and used influences the severity of challenge it presents. Narrative ethnography can be viewed as a journey, rather than landing point (Ellis & Bochner, 2006). If viewed this way narrative can be analysed as it unfolds. I adopt this approach. This exhibition shares narratives that can be engaged with separately or together to reveal stories. Stories can be analysed differently, as shown in Space Seven, through deconstruction and reconstruction.

By trialling narrative analysis approaches I show how analysis can occur in autoethnography and artography and reveal a researcher's approach to storying (Ellis & Bochner, 2006). Narrative analysis is criticised when analytic goals are rejected (Pace, 2012). To counteract I analyse the exhibition re-stories alongside the cognition conceptual frame. Narrative analysis in autoethnography and artography privileges creative and reflexive processes. Critics may suggest artography is analysis and to distinguish narrative as part is not required. I suggest narrative is part of artographic act, so to reveal layers of meaning adds depth to its quality. Narrative analysis is important in this exhibition because artist teacher cognition adopts creative working

(Hall & Thomson, 2016; Stanhope, 2011). Narrative reveals insider experience (Stewart, 2003) sharing and authenticating author presence and stories.

A challenge of narrative presence is vulnerability - as explained in Space Six. At the *Cambridge Education Doctoral Conference 2017* I performed poetic vulnerability. Vulnerability can enhance truth in autoethnographic narratives, but in academia showcasing vulnerability is often un-disclosed (Jewkes, 2011). Jewke's (2011) article, as narrative ethnography, positions the emotion and act of vulnerability as intellectual resource. The article explores how weaving self in autoethnographic narratives, particularly the emotive, can disempower researchers and their outputs, often because of others' subjective analysis. The article reiterates, 'an emotional response does not equate to a lack of reason or cognition' (Jewkes, 2011, p.71) in research. In this section I demonstrated challenges and approaches towards navigating emotion. I have alluded to the exhibition analysis strategies and elaborate on these in discussion to follow. I now explain research methods adopted in this exhibition to obtain participant voice.

The voice of other is valuable to communicate in autoethnography and artography because it exposes relationships, captures research unfolding, facilitates self-reflection, increases ethical strength and assists in self-location (Alsop, 2002; Ellis, 2004; Legge, 2014; Roth, 2009). I gathered artist teacher participant voice through five workshops, see Appendix 3, that generates an artist teacher community of practice (Leidtka, 1999; Ozturk & Ozcinar, 2013; Wenger, 1998; Wenger-Trayner & Wenger-Trayner, 2015). The workshops were informed by arts-based research (Burnard, Holliday, Susanne & Nicolova, 2018; Finley & Knowles, 1995; Leavy, 2008) and involved participants in artographic experiences (Irwin *et al.*, 2006; Irwin & Sinner, 2013). Arts-based research and artography can contribute to learner knowledge and can position participants as catalysts to re-think concepts, spaces and methodologies (Heaton, Burnard & Nicolova, 2018). Each workshop is informed by the preceding workshop except for the first that begins by exploring cognition.

The workshops involve blended learning (Oliver & Trigwell, 2005; Sharma, 2010) to expose participants to e-learning and e-research tools and approaches. Blended

learning integrates face-to-face and online experiences using physical and digital tools. The tools aid research logistics. With participants transitioning into Newly Qualified Teacher (NQT) year, it was challenging to select times and locations where all participants could congregate. Blended workshop approaches enabled participants to engage with this research at a time and space that suited them. A benefit, and limitation, is participants can be more self-reflexive, but increased time to reflect leads to procrastination and over-thinking. When research is not conducted face to face, there is danger the task may be overlooked; I found suggesting time frames for completion and linking content of research workshops assisted management.

Workshops enable use of several research methods, so I have used semi-structured focus groups (Bush, 2007; Oddone & Maragliano, 2017) alongside creative experiences (Heaton & Crumpler, 2017; O'Donoghue, 2015) and online research tools, Padlet (Dunbar, 2017; Padlet, 2016) and email (Burns, 2010; James, 2016), to generate data. Blended learning captures voice of other, whilst providing professional development. The data combination used assists in triangulation and verification because creative research methods bring research closer to truth (Richards, 2012). Workshops can be developmental, informed by themes and practices generated by participants, and can provide professional development opportunities immersing participants in enquiry (Ingvarson, Meiers & Beavis, 2005).

The use of focus groups, art experiences, Padlet (Dunbar, 2017) and email (Burns, 2010; James, 2016) as research methods presents strengths and limitations when used in workshops. I conducted focus groups to limit hindrance by researcher presence (Bush, 2007). I interjected in discussion only to re-focus or clarify points or questions; this meant others did not alter findings (McQueen & Knussen, 2002). With focus groups able to facilitate peer discussion, analysis and learning, professional development could occur (Oddone & Maragliano, 2017). This is dependent on each individual focus group experience but when combined with other research methods, such facilitations can surface. Criticisms with focus groups are apparent: un or semi-structured focus groups are always guided by researcher purpose, recordings can detract from truth, time in between conduction, transcription and write up can cause validity issues and focus groups are time consuming and laboured (Burgess, 1985;

McNiff, 2013). Whilst I experienced some issues I kept field notes in a journal, transcribed focus groups promptly and attempted not to inject participant opinion.

As I live this exhibition artographic experiences are embedded. Using this approach to gain other voice was essential to connect artist teacher experiences and mine. As I state in two published articles (Heaton & Crumpler, 2017; Heaton, Burnard & Nicolova, 2018) the acts of experiencing art and art as research enhance cognitive development for artist teachers and learners they influence. I argue art-based experiences, like artography, are required in a contemporary curriculum for artist teachers, irrespective of whether this occurs when studying research methods or the pedagogy and practice of art education. As I advocate arts-based experiences in research I must use, learn and identify worth in practice.

Arts-based experience to extract other voice became essential to this exhibition. Arts-based research fuels dialogue and performance (Bagley & Cancienne, 2002; jagodzinski & Wallin, 2013). This enabled research questions, subjectivities and ideas to be expressed and challenged. When arts-based experiences are combined in workshops I offered, participants' access points to the concept being explored increased, as did the platforms they can reflect and disseminate from. For arts-based research to be warranted meaningful it needs to progress education (Eisner, 2008), address and evoke multiple interpretations and open up new ways of doing and being research (Bagley & Cancienne, 2002).

The arts-based experiences I facilitate encourage concept analysis and questions in art education. The limitations are the concepts the artist teacher participants co-construct may already be embedded in educational research, art produced may be difficult to interpret in the concept or question and thought processes of the artist teacher may appear hidden. To mimimise subjectivities I encourage reflective documentation of art in another medium, acknowledge the concepts raised are specific to artist teacher participants studied and collate journal workshop reflections. Doing this I empower the voice of marginalised artist teachers responding to Bagley and Castro-Salazar's (2012) desire for arts-based research to make people visible, politicalised and able to reach distant audiences. The arts-based workshop experience, although small,

provided a safe place for artist teacher participants to voice, analyse and experience social, cultural and political views about art education.

Digital research tools, Padlet (Padlet, 2016) and email, are used in participant workshops. Digital tool use in qualitative research is developing rapidly and academics (Caldwell & Heaton 2016; Davidson, Paulus & Jackson, 2016; Paulus, Lester & Dempster, 2014) are recognising advantages and barriers in qualitative studies. Barriers include ethical complexities, archiving and researcher knowledge. Advantages comprise combining, or mashing-up, digital tools, interdisciplinarity, communities of practices and the importance of digital tools revealing process. I felt it necessary to use digital tools in this exhibition because the artist teacher participants I engage with and learners they teach would be 'digital natives' (Prensky, 2001, p.1), generation representatives born into and living in digital society. I am in a position where I can model, use and scaffold learners to engage with digital research tools.

One of the workshop tools used is Padlet (Padlet, 2016). This is a tool promoting collaborative and inclusive learning (Price-Dennis & Schlessinger, 2016). It enables participants to see others' contributions to questions. This visual form can make findings explicit (Buckingham, 2009), but participants can be influenced by contributions. Whilst this presents subjectivity, this aspect is no greater than the subjectivities apparent in focus groups; participants become co-creators of data (Haig, 1997). Padlet (Padlet, 2016) in research assists blended learning. It is an online collaborative space accessed simultaneously from individual devices. It can be used by a group in the same location or at a distance. Dunbar (2017) has used Padlet to increase student engagement with music concepts, whilst Weller (2013) investigates Padlet (Padlet, 2016), as a web two technology (where users can develop, alter and disseminate internet technology), to research, teaching and learning with pre-service teachers. I use Padlet (Padlet, 2016) in teaching, but its value in research is ideas can be documented quickly, stored in one place online, accessed from any device and multi-media content can be shared. The barriers concern archiving data online, access to the Padlet (Padlet, 2016) link and analysis of multi-media content. In this exhibition I used a QR code, matrix barcode, to enable easy access to the padlet link. I

am explicit about content analysis - see below - and address archiving through ethical discussion.

Email is used in the final workshop to gather data. Email as research tool has many advantages: it is asynchronous, so participants can respond at different times, it allows for reflexivity, narratives can be written into write ups to reveal truth and pressure on participants in reduced (Burns, 2010; James, 2016). I selected email as a research tool because of its capacity to access between times and spaces. It can bridge off and online experiences, cyber space and geographical locations (James, 2016). Movement capture appeared beneficial because the artist teachers I worked with could access and reflect on the space bridging university and school experiences, changing identities could be exposed and cognition in times and spaces captured.

Where I used email research the power relationship between participants and I became equal, participant responses were considered and the time and space apart reduced pressures to please and reveal honesty. Email use in this research developed as I became informed of digital research methods and participant need, who at the time were under pressure completing degrees and interviews. Participant time, space and anxieties were challenged, and email provided stress reduction from research process. By uniting research tools and experiences in exhibition's workshops I collected a broad and interconnected data set representing the artist teacher voice. In the following paragraphs I demonstrate how this voice and mine was analysed through inquiry.

The data in this exhibition is analysed in several ways to complement the methodological research approach adopted between autoethnography and artography whilst considering grounded theory. As mentioned autoethnography can be analysed through process and product, and such processes and products can be storied. In this discussion I put forward and defend the analysis approach in this exhibition. I adopt a creative analysis approach, see figure 10, and use this exhibition to model analytic strategies that can be applied to research between autoethnography and artography.

Studies exist which demonstrate interconnected research; Steven Pace (2012) links autoethnography with grounded theory when studying human creativity. Simone Pettigrew and Edith Cowan (2000) address marriage between ethnography and grounded theory and Peter Gouzouasis and Karen Lee (2009) model artographic inquiry as thematic analysis. What these authors do, as I show visually in figure 10, is demonstrate how connecting methodological and analytical research approaches facilitate new ways of looking at research. The authors remind research is intended to be transformational. In the analysis strategy I adopt I reiterate Cohen, Manion and Morrison's (2011) message that qualitative research is a repetitive, back and forth process with no specific analysis strategy to present and analyse data. Researchers should be clear about how and why they conduct analysis and not be afraid of others who fear doing research differently (Ellis & Bochner, 2006).

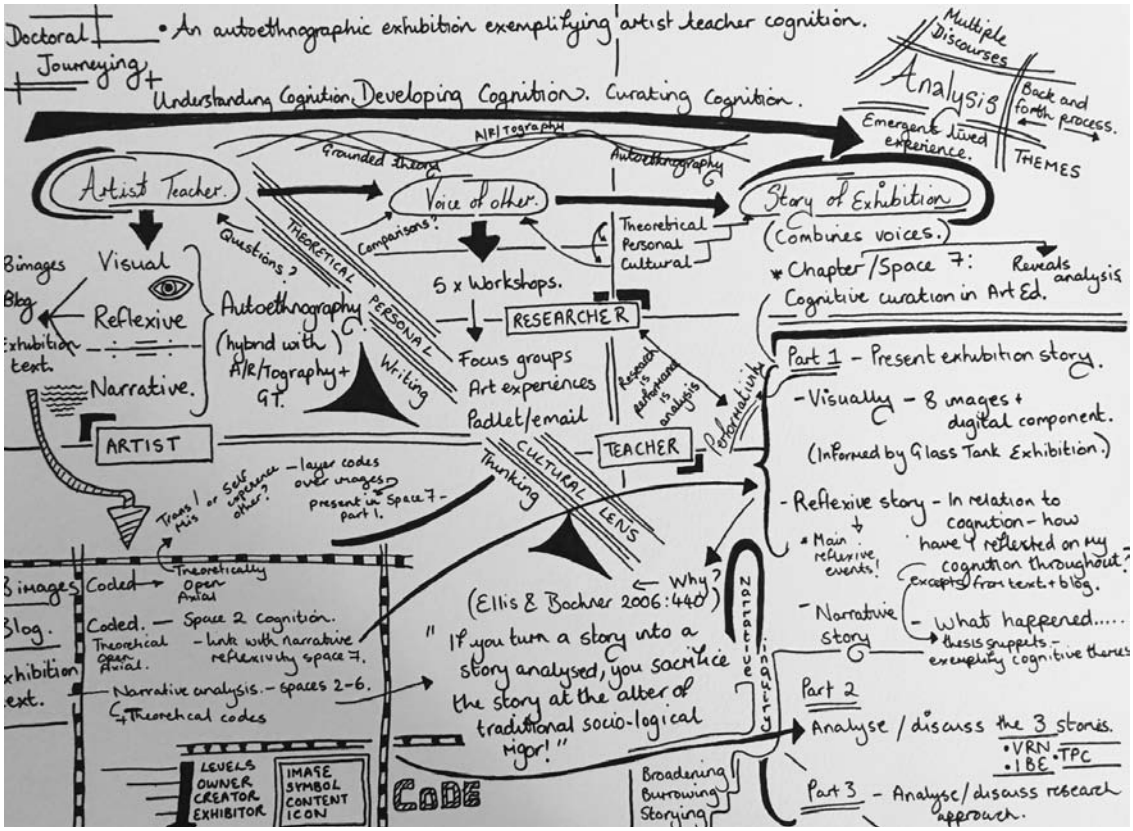


Figure 10: Re-conceptualising analysis in doctoral research

In figure 10 above, I share the turbulent process undergone to conceptualise, re-conceptualise and understand personal cognition concerning exhibition analysis. From the visual it can be seen exhibition analysis here is complex. Connections exist

between stories communicated (visual, reflexive and narrative stories; theoretical, personal and cultural ones; the story of image, blog, exhibition and artist, teacher, researcher,) between the voices shared (artist, teacher, researcher; learner, scholar, educator; vulnerable, expressive and evocative to present a few) and the lenses applied (theoretical, cultural and personal). As I have become informed of analysis approaches connections, overlaps and layers between analytical strategies have emerged. These overlaps and layers aid verification, validity and reliability of concepts expressed whilst acting as tools to disrupt data. Ellis, Adams and Bochner (2011) identify overlaps and layers are common in autoethnographic research, especially when data collection and analysis procedures are simultaneous. What proved complex is how to unpick, communicate, make sense of, reduce and analyse data, particularly when academics identify, 'If you turn a story told into a story analysed, you sacrifice the story at the altar of traditional sociological rigor.' (Ellis & Bochner, 2006, p.440).

This exhibition narrates my doctoral journey. The challenge in communicating this is selecting data to display; this act is data reduction and analytic process (Miles & Huberman, 1994). When narrating I focused on communicating a research story. I used writing to draw out and reflect on cognitive experiences (Gibbs, 2007) - Spaces One-Six. To understand these experiences in Space Seven I re-storied the visuals, reflexive events and references to cognition to reduce, analyse and understand them. I then analysed and made sense of these re-stories by describing themes and patterns emerging in cognition (Cohen, Manion & Morrison, 2011), so these could be communicated to other artist teachers to understand cognition in practice.

Data display formed selection and reduction (Miles & Huberman, 1984). Space seven displays three curated data sets. Eight space images present the narrative as a visual essay. Reflexive events that influenced cognition are curated performatively and a narrative is shared using exhibition text excerpts to exemplify cognition. Each re-story is discussed in relation to research questions and conceptual frame. The purpose of this analysis process was to open data set interpretations, to enable contrasts and comparisons and to transition data from descriptive account, through clarification to theory compilation (Cohen, Manion & Morrison, 2011). Through narrative inquiry

(Chase, 2005; Kim, 2016; Mannay, 2016; Trahar 2009) exhibition Spaces Two to Six communicate cognitive artist teacher story. Conceptual frame use reveals a deeper cognitive layer to the narrative. Space Seven stories and re-stories the narrative, Olson and Craig (2012) describe these analytic acts as broadening, burrowing, storying and re-storying as narrative analysis strategies. In combination these strategies layer, weave and strengthen narrative analysis. I now discuss narrative inquiry as an analysis strategy.

Narrative inquiry is a useful tool to interrogate data, because when writing a researcher can present life lived (Phillion, 2002), but retrospectively (Polkinghorne, 1995) give findings meaning. A researcher can switch between present and historic research representations and can use narrative to reveal reality and knowledge (Trahar, 2009). Narrative can situate a researcher (Clandinin & Connelly, 2000) but also complicate situation by communicating from different positions like listener, teller, onlooker or actor. In writing, a live narrative articulation can occur, so situational limitations, ethical complications and the storied life of researcher can be shared. But stories can jeopardise research, questioning the researcher's role, as a storyteller or analyst, or integrity of writing aims, as therapies or rigorous analyses (Ellis & Bochner, 2000).

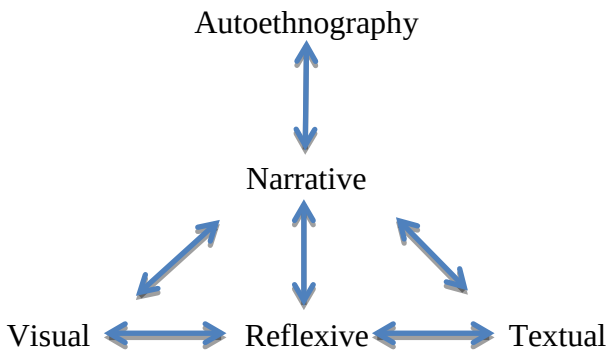
I acknowledge there is no true narrative. Data is always selectively reported; this is a human quality. Stories are written, retold and reworked; this is data reduction and narrative inquiry process, that can generate 'paradynamic cognition' (Polkinghorne, 1995, p.10), cognition where concept networks are created, here through narrative, allowing familiar experience construction by commonality recognition. So, in writing a narrative inquiry or communicating a story, one could write about an experience because of frequent concept occurrences happening and doing so one would develop paradynamic cognition. This could occur in this exhibition because narrative communicated draws out cognitive examples. This is a strength and limitation. The exhibition exemplifies cognitive occurrence and structures cognition in action, but in opposition it could be selective reporting. To counteract, I made clear the exhibition purpose was to document cognition, so a narrative strategy that makes this

comprehensive and pulls together cognitive exemplifications tightens case boundary holding research contributions together.

Narrative analysis can be presented creatively, structured differently, performed, shared, as fact or fiction, and can connect or show difference (Trahar, 2009). As a researcher new to narrative inquiry I played with this idea, not to dilute or strengthen research but to exemplify the strength in narrative and narrative analysis which is its malleability and accessibility. I argue this exemplification is needed in a time when academia and higher education face new challenges, such as those raised by Mewburn and Thompson (2013) concerning the urgency for academics to engage and present themselves, and their work, through new media to gain and regain academic power, credibility and voice. Or by Akalu (2017) who questions what constitutes quality in academia from the perspective of academics contending with practice massification issues. What narrative inquiry does, despite its subjectivities, is represent different social realities that undo people's commitments to known concepts and circumstances (Kim, 2016). It forges space for new ways of seeing, doing and being in research, academia and education. To further expose the exhibition analysis strategies, I breakdown strategies used.

To simplify the analysis strategies in figure 10 I discuss the autoethnographic narrative analysis initially conducted. I position narrative inquiry as autoethnography. Narrative inquiry communicates, interprets and presents visual, reflexive and textual narratives as individual and combined stories to form this exhibition. Analysis happens in process, through communicating, interrogating, connecting and presenting. The back and forth procedure is living. In narrative, autoethnographic presence is shown and this is presented by the arrows in diagram 1, below.

Diagram 1: An approach to narrative analysis in autoethnography, 12.7.17, Rebecca Heaton



Mannay (2016) argues for visual and narrative to be connected in ethnographic fieldwork; one informs the other. In artography the two are embodied as artographic act (Heaton, Burnard & Nicolova, 2018). I argue both are reflexive devices, capable of communicating an autoethnography and artography, but are strengthened, in validity, reliability and interpretation, or in trustworthiness, by other's presence. These narratives are applied in autoethnographic approach and embodied in artography and should be applied in analysis. Therefore in Space Seven I re-story the narrative and ensure a research thread is maintained. The research is held together in methodology, analysis and conceptually through cognition. Foundations of this type avoid misplaced stories (Cohen, Manion & Morrison, 2011). I expose, and so limit through re-stories, the complication that each narrative can bear multiple discourses and meanings (Cohen, Manion & Morrison, 2011).

In visual narrative analysis, analysis of eight space artworks, I analyse from a personal lens explaining the art at the start of each space, from a theoretical lens when discussing the images in Space Seven against the conceptual frame and from a cultural lens when I communicate findings from artist teacher workshop analysis. A cultural perspective on the visual set is gained through work exhibited at The Glass Tank Gallery in Oxford (2017). By analysing visuals, I embed them in narrative at 'inception, reception, interpretation and impact' (Mannay, 2016, p.11) positioning them centrally to this research.

Images can be read differently (Banks, 2001; Cohen, Manion & Morrison, 2011; Pink, 2005). This is advantageous and subjective. One can identify symbols, read

messages, discuss iconography and identify and explain relationships between imagery, people and contexts. This can occur on different platforms, from image-maker and from participants to exhibition (Cohen, Manion & Morrison, 2011). If a researcher using the visual communicates analysis strategy and position, its purpose and position gains trust because clear connections are possible between the art and cultural context. As I explain above, the art I create is analysed descriptively at each space outset and narratively through research story.

The reflexive exhibition narrative is analysed from a personal position through autoethnographic story. Reflexivity is embedded in imagery, text, multi-media and virtual content. To manage this data analysis, I have scanned each space and its supporting content to extract key events developing cognition. I have reduced these by identifying common themes (Ellis, 2004; Kim 2016) that influence, progress and redirect cognitive conception and have storied prolific events. From a theoretical lens I have discussed events with the conceptual frame and research questions and culturally have considered how artist teacher culture contributed. I apply similar analysis strategies to each narrative data set, for consistency.

In textual narrative I communicate a cognitive story. Throughout the exhibition write up I have storied excerpts (Mishler, 1995) from this text that mention cognition. I reduce these to a story of key excerpts by theoretically relating them to the conceptual frame and research questions. In Space Seven you can see how stories and findings relate. Space Eight positions emergent ideas back in the cultural context of cognition, artist teacher practice and education.

The exhibition workshops, Appendix 3, facilitate artist teacher cultural voice. This voice is communicated in Spaces Two to Six through a storied lens. Each workshop generated its own data, so I communicate the analysis strategy for exploring this in each space. I have applied, narrated and coded data using the strategies employed across this exhibition. I am mindful of the limitations of artographic and arts-based research that it can be conducted in many forms (Ettinger, 1987; Heaton, Burnard & Nicolova, 2018; McNiff, 2008) and so outcomes are circumstantial. Spaces Two to Six exemplify this but demonstrate data gathered and accompanied analysis is

appropriate because creative practice is used to understand art as research. The data gathering method and analysis responds to the living site of research (McNiff, 2008). The communication of method and analysis in the space ensures clarity, an area often overlooked in arts-based research. Arts-based reflexivity (Schenstead, 2012) through narrative account, in visual, reflexive and textual forms, synthesises the artist teachers' thoughts on cognition in practice.

To summarise, the data in this exhibition is analysed through autoethnographic layering (Ellis, Adams & Bochner, 2011). Layering could be artographic because, as with this exhibition, when layers are viewed as one they display artographic practice. The data layers explored, through the visual, reflexive and narrative data analysis strategies explained, frame this exhibition as research moving through autoethnography towards artography.

The exhibition disturbs, unpicks and exemplifies how cognition occurs in artist teacher practice. Autoethnography questions self with other and draws conclusions through association and comparison. Artography connects theory and practice (Leavy, 2008) in separate and combined parts of an autoethnography. From a grounded theory position the three narratives are discussed with the conceptual frame developed. This makes it possible to provide exemplifications of cognition types, influencing factors and uses for cognition in this exhibition. Grounded theory through narrative enables explanations and exemplifications of why and how occurrences derive (Pace, 2012), strengthening contributions I suggest. In contrast to autoethnography grounded theory does not ordinarily use techniques such as inter-related voices, lenses, reflexivity and engagement in living research to reach conclusions, but it can exemplify how collecting and analysing data can occur at the same time (Ellis, Adams & Bochner, 2011). So, when uniting these approaches, I suggest emerging theorisations of how cognition manifests in artist teacher practice and enhance them with living exemplifications.

Artography honours living research (Heaton, Burnard & Nicolova, 2018). Its reflexive nature assists social positioning. Knowledge contributions occur in process and narrative analysis is articulation and validation of research conclusions. In the

exhibition artographic narrative quality, seen by combining visual, reflexive and narrative data, is authenticated in terms of Ricardo and Joaquin's (2012) artographic quality criteria. Inventive knowledge contributions are made, see above and Space Eight, in professionally derived artistic contributions, such as art presented as a visual exhibition story (The Glass Tank, 2017). This exhibition started life as autoethnography, but from the space discussion and exhibition to follow, I expose how methodological shifts occur as the research progresses. If I conducted this exhibition again, I would position artography as the dominant methodology, with interconnections between autoethnography and grounded theory because artography acknowledges living performativity in all stages of research process. It acknowledges the process of accepting, transforming and understanding research and policy (Ball, 2003; Heaton, Burnard & Nicolova, 2018; Irwin *et al.*, 2006; Rolling, 2010). Cognition is central to this act and exhibition; this doctoral experience has facilitated the cognition I have.

Exhibit 2.3: Exhibition ethics

This exhibition is conducted in relation to *British Educational Research Association* (BERA, 2011) ethical guidelines to ensure issues such as consent, image rights, anonymity and archiving (Kanuka & Anderson, 2007) are addressed. In research, conflicts between researcher and participant demands exist, so balance is required as control (McNamee & Bridges, 2002). In this exhibit I focus discussion on the ethics of autoethnographic research and I identify how self-study implicates research participants; there is no self without other (Roth, 2009). Through research and publishing involvement I have learnt complex legal implications surround research data, and new media research (Wiles, Prosser, Bagmoli, Clark, Davies, Holland & Renold, 2008), so I navigate this.

Four main principles underpin ethical conduct in the *Code of Human Research Ethics* as outlined by *British Psychological Society* (2013, 2017) in their *Ethics Guidelines for Internet-mediated Research*. These concern 1) Respect for participants, 2) Scientific value, 3) Social responsibility and 4) Maximisation of benefits and minimisation of harm. Whilst the exhibition research is not internet mediated - it does not gather data via the internet directly - it does involve internet use through blogging

to enable content interaction. I use guideline concerns to demonstrate how exhibition ethics are managed. Measures taken to ensure ethical practice in this exhibition concern use of a research gatekeeper to protect participant and researcher well-being, ethical approval granted from the institution in which research is conducted, see Appendix 4, and that in which I study - see Appendix 5. A rationale and letter of consent was provided to participants, informing them about the exhibition and their rights - see Appendix 6. If information concerning educational or community settings was shared on behalf of participants, anonymity was respected (Hughes, Dewson & Unwin, 2007), unless ethical consent was granted using a signed certificate of disclosure.

As Roth (2009) explains, all forms of ethnography are ethical acts. Researchers have a responsibility to self and other to communicate, explore and limit effects of ethical dilemmas. One aspect to limit is idealism (White, 1991). When I share aspects of self, positive communication can dominate. I reduce this by exposing limitations to demonstrate trust (McQueen & Knussen, 2002), I recognise new ethical challenges emerge and address these narratively as they arise.

A second concern is exhibition narrative. Visual, reflexive and textual narratives can be categorised into different data types, for example, found data, researcher created data, respondent created data, or representational data (Wiles *et al.*, 2008). Each data type presents complex ethical problems. For example, in the art of each space, is the data representative of personal thought or the collaboration that led to creation? In the data created through relational experience issues concerning ownership and research position (Siegenthaler, 2013) emerge. The extent of acknowledgement and others' contribution in methodological, practical and cognitive processes is controversial. I am guided by Roth (2009) and acknowledge where others contribute to process, experience and output to manage this contention.

A third issue, power relationships surface in autoethnography and artography; multiple identities influence ethics in relationship structures. When practising roles, the extent of consensual requirement fluctuates in act, art or experience created or encountered. The experience of artography affords participants equal power

(Gouzouasis, 2013), but power relationships can change on dissemination. To recognise power relationships, explanations are given in this exhibition concerning research nature and a right to withdrawal offered. Layers of complexity exist ethically that concern how to deal with contributions surfacing through cognitive self-interrogation, and through processes of reflexivity. I address this further in the debate regarding new media below.

In narrative authors should consider the viewpoint from which a story is shared to allow access to imagination and truth (Speedy, 2008). I argue this is the same for all expressive texts. In art the artist can hide and conceal meaning, consciously or unconsciously. This raises moral concern (Wiles *et al.*, 2008). I communicate in this exhibition, what I deem, a fair representation of factors and circumstances that enhance and impede cognition by narrative presentation. Fairness is an implication. Hickman (2012) analyses ethical dilemmas in autoethnography, and his work provides counter argument to autoethnographic critique (Delamont, 2009). Hickman reminds of the importance of not misusing authorial voice, ascertaining if negative self-projections are shared others may remember them, implicating the researcher later.

Autoethnographic writing is experimental (Wall, 2006) and low value connotations can come with this, but through experimentation transformation can occur, boundaries can be pushed, and alternative viewpoints shared. In sharing there are ethical considerations to make, with autoethnography able to authenticate a writer's life. Those that connect with writer should be involved in authentication. In artography this may occur in experience. Through the exhibition workshops authentication occurs. Artist teacher participants review the exhibition visuals representing each space and authenticate a summary of findings from the previous workshop. This enables subjectivities to surface and provides a substantiation opportunity validating data.

Another ethical concern in autoethnography is that it is near impossible to publish ethically (Delamont, 2007). Communication of personal account will certainly, and does in this exhibition, involve others. Pseudo names protect participants but

autoethnographic texts reveal connections concerning links in a writer's life, through emotional or cultural expressions, so it can be easy to unravel and reveal information about a person. In this exhibition pseudo names are only used when a participant's identity requires protection. This research predominantly involves adults and those involved directly in the research consented to identification. It was interesting, as seen through spaces that follow, the participants became more confident to disclose their name as this exhibition progressed. However, an ethical concern I had not anticipated occurred in this exhibition when blogging. I address this next where I deal with ethical concerns in new media research and blogging specifically.

New media research, research-involving media of the time such as telecommunications, Internet and computer research, is constantly developing and this presents new ethical challenges (Hearn, Tacchi, Foth & Lennie, 2009; Williams, Rice & Rogers, 1988). In ethnographic research challenges relate to research tools such as the integration and dominance of physical and digital practices but can also relate to and be implicated by human characteristics like gender, class and race (Murthy, 2008). In this exhibition when I engaged in blogging, as new media tool I encountered a problem concerning ethical disclosure.

I had not anticipated, when I blogged about artist teacher events to document practice, I would mention names of adults involved in events I participated in. For example, academics that influenced cognition at conferences, or students that influenced teaching scenarios. This led me to question whether this was a breach of ethical conduct; to deal with this I researched the ethics of blogging deeply (Estalella & Ardèvol, 2007; Jarvis, 2005; Kuhn, 2007; Mewburn & Thomson, 2013). What emerged was an acceptance that when blogging ethics should be dealt with case by case and when communicating bloggers should build trust. Estalella and Ardèvol (2007) present three criteria to assist in ethical examination: the scope of data should be examined, that openness requires communication and mutuality should be expressed. Kuhn (2007) makes us aware bloggers are accountable to online communities and when blogging ethically we should consider how interactivity and expresssion are promoted, how factual truth and transparency is disclosed and how humanity is shown. He recognises it is common for bloggers to resist ethical codes.

This could be because blogging is an expressive tool promoting free speech, or as Jarvis (2005) highlights a single person cannot devise blogging ethics for a whole culture of bloggers in different disciplines. Blogging practices are discipline specific.

Mewburn and Thomson (2013) explain in their study of 100 academic blogs. Academics blog for accessibility, knowledge dissemination, collaboration and to debate or progress concepts and ideas. On reading this I repeatedly questioned why and how I was blogging. Was I blogging to collect data, to disseminate or to voice? Was I blogging ethically, truthfully or from a position of power? Through reflecting on practice, whilst engaging with ethical blogging research I became informed of ethical research complexities. I learnt whilst I could take measures to disclose identities when blogging, effect is circumstantial. For example, the names of academics who influenced practice development were named in one blog post - this could be regarded as an ethical breach - but not to disclose these names would mean I was not blogging in a human manner. I would not be not truthfully acknowledging another's contribution and I would not be disseminating academic profile of the person. I would not be fulfilling Kuhn's (2007) requirement to show humanity.

In the case of academics, many are trying to disseminate knowledge through Internet profiles. Not to share this could hide one's knowledge contribution. So, I came to agree with Estalella and Ardèvol (2007), Jarvis (2005) and Kuhn (2007) that anonymity disclosure and ethical consent in blogging is case determined. I learnt where possible measures should be in place prior to research to deal with the ethics of blogging, but if unforeseen ethical dilemmas emerge in the field, disclosure should be communicated and addressed before research continues. I have shared a problem encountered and conclude not sharing academic identity would mean a truthful account of cognitive development would not be disclosed. The academics are not implicated; I could have gained, time allowing, authenticated consent post publication and in future would do this. If communicating academic involvement in a negative light, it would be appropriate to ensure disclosure and authentication, as it would be unethical to associate negative connections in another's practice. This point again exposes the importance of case-by-case and circumstantial assessment to ensure ethical practice when blogging in research.

From a new media research perspective in this exhibition ethical consideration was needed in relation to visual media use, including the digital, to represent and communicate stories and in digital tools, such as Padlet (Padlet, 2016) and email, for workshop data collection. I create the images and digital content used to communicate this exhibition but some involvement with these images is collaborative, such as those informed by participant workshops. I made it explicit to participants this art could be used for publication and dissemination. Participants passed over contribution ownership. They placed trust in me as researcher to manage their contribution. When dealing with imagery and digital content legal implications surround the use of research data (Wiles *et al.*, 2008). These concern the process of taking, gathering or creating images and content, their use and copyright. Masson (2004) reminds not all-legal activity is ethical, and so in this exhibition it has been important to ensure visual and digital content has been sought, created, interpreted and shared in a legal and ethical manner.

Autoethnographers speak of relational ethics (Ellis, 2007; Trahar, 2009), where research connects with and implicates those around us. This too transcends to visual and digital content. When researchers or participants provide visual or digital research contributions, a contribution, whether intended or not, is given to culture (Pink, 2005). This is one way contributions become relational. The visual and digital content in this exhibition serve many purposes. They illustrate and investigate (Ball & Smith, 1992) cognition. They express views of investigator and person under investigation and respond to socio-cultural experiences (Banks, 2005). This is shown in this space's art because personal, theoretical and cultural positions on cognition are communicated. From an ethical perspective, this is complex because it is not always possible for one creating, contributing to or interacting with art to have access to or even see all purposes. The researcher must self-reflect and consider the extent viewing visual or digital data renders work ethical or unethical.

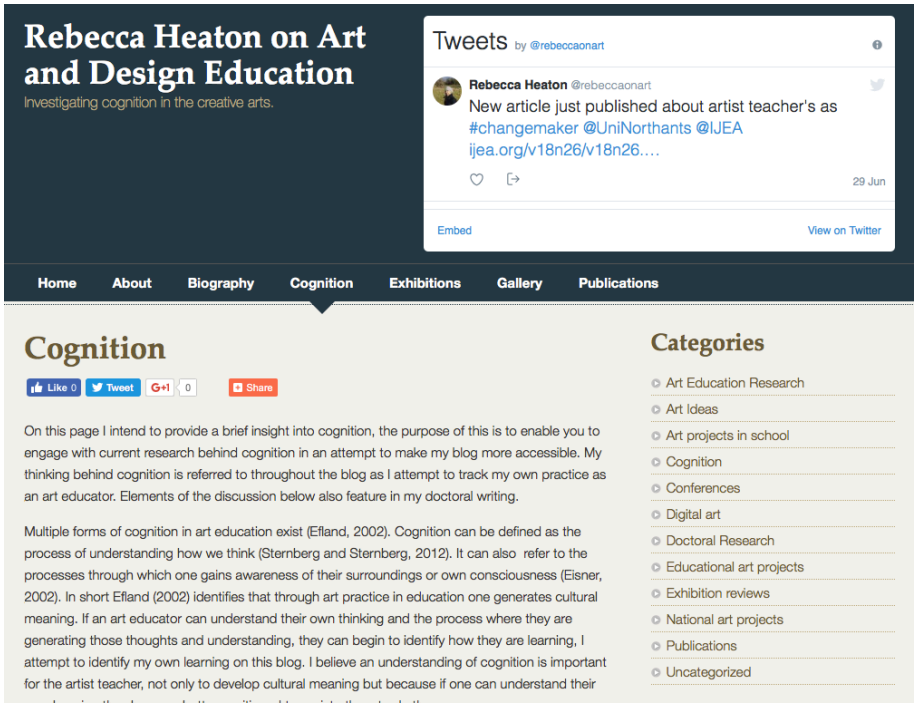
In this exhibition, I concluded what the visual and digital contribute to autoethnographic and artographic research is ability to reveal multiple perspectives, stories and identities and such ability renders it ethical. A researcher can assist the ethical integrity of visual or digital components by revealing and communicating

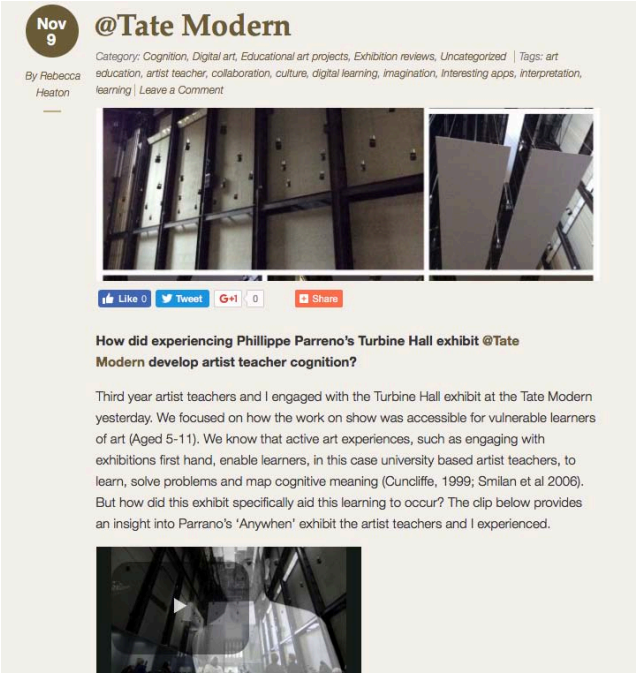
readings and interrogations, increasing accessibility and relationality and assisting cognitive connection. Interrogation does not only need to occur with a text illuminating a visual; Watson (2009) subverts this and uses visuals to analyse text. She explains the advantages are that an image can re-read or present an alternative text reading. The process can remind images are not pure but contain complex author-reader relationships that enable conceptual relationships to be seen. This exhibition could be read through imagery - see visual essay Space Seven. One could argue this is textual analysis because it delves into and disturbs the concepts raised in exhibition narrative. Image capability could be a way of analysing data in this exhibition in future.

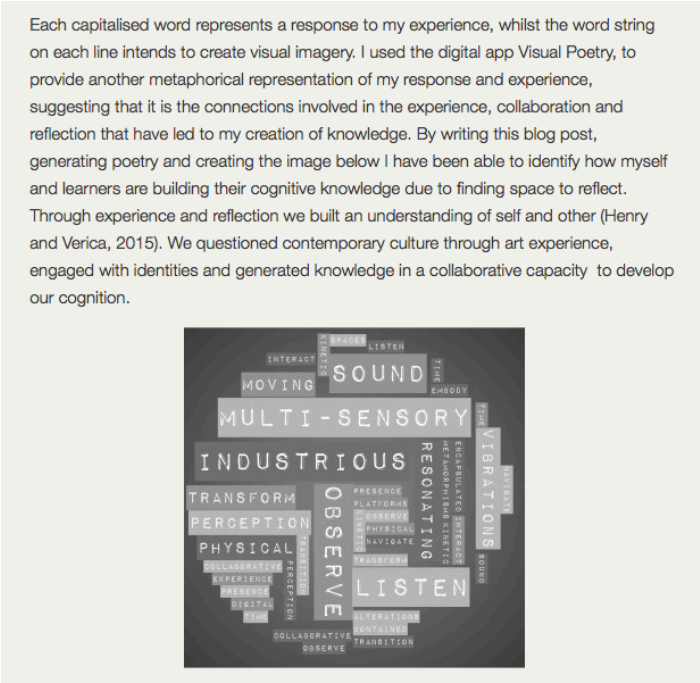
What Watson's (2009) article and the discussion in this section communicates is when new media data, the visual and textual are combined ethical webs emerge that a researcher must unpick to generate reliability and trust in communication. New media data is often reflexive. When used effectively it articulates cause and effect process (Scott & Morrison, 2006), ethnographically building and stimulating connection between thought and action (Sullivan, 2005). The reflexivity that emerges in new media use creates fluidity in stories articulated increasing validity (Reed-Danahay, 1997; Spry, 2001). In workshop five participants provide data via email. Research into email as a research method (James, 2016; James & Busher, 2007) teaches it can provide participants time to reflect, compress time space demands and make responses meaningful. But it could create problems in response rate, time and make research ethically complex in data ownership and transition between physical and digital spaces. Email is trialled in this exhibition, to learn more about it as a research tool. Ethically I have ensured emails are safely stored in an online space bound by institutional data protection protocols and these will be discarded once exhibition is complete and disseminated. The interdisciplinary methods in this exhibition present an array of ethical complexities but where possible I address these to reveal parallels between methodology and cultural condition (Stewart, 2008). In the following space I position cognition in artist teacher practice and art education.

SPACE 2: COGNITION IN ART EDUCATION

Figure 11: Cognition







Figures 12-14: Cognition blog screenshots

Figures 12-14 show screenshots of the artist teacher blog I have developed. The blog forms a digital component of the art *Cognition*, figure 11. The blog's purpose is to share my artist teacher journey, to document events in practice that inform, change or transform my cognition. It also offers insight into the role of artist teacher.

The text below provides a personal analysis of *Cognition* - figures 11-14.

Cognition depicts abstractly personal views of cognition in art education alongside the views of artist teacher exhibition participants. *Cognition* was created after engagement in a research workshop concerning cognition in artist teacher practice, discussed in the space narrative. *Cognition* has been created using layers. The first combines collage with ink. The abstract shapes represent a personal view of cognition. Maps, tracing paper and tape, as collage materials, show cognition contains movement. Cognition develops and is comprised of connections built on experiences. In a second layer paint is applied on top of the collage to forge connections in the art. The paint blends, folds and moves fluidly forging connections, in a similar way to the evolving nature of thoughts, ideas and practices in cognition, discussed in the space narrative.

A third layer of textured paint overlays the previous one. This layer adds the cognitive views of exhibition participants to the art. The views unite with mine. The exhibition participants recognised at research outset cognition involved understanding, thought, development, the conscious and unconsciousness, connections, spontaneity and reasoning. *Cognition* represents these themes symbolically. My view of cognition and the exhibition participants merge to demonstrate cognition is individual, social and experientially informed. The star structure for example, in the top right corner of *Cognition* captures spontaneity. The fluid lines, through the art, show growth, development and connection. The final layer is the QR code which links to my cognition blog (Heaton, 2015a). Blog engagement enables my audience to experience relationality, whilst demonstrating how cognition relates in practice to artist teacher experience. Cognition in artist teacher practice is discussed throughout the space narrative that follows.

Space 2: Cognition in art education

In this space I critique the meaning of cognition in art education. I use three lenses to share theoretical literature, personal opinion and participant voice to do so. I use the space to interrelate cognitive views to understand cognition in art education whilst determining if and how artist teachers curate it. Cheung-On (2010) reiterates a need in art education research to address how artist teachers build knowledge. I respond by determining how artist teachers understand cognition. I define cognition through lens analysis and use theory to suggest how cognition progresses. I find out if and how artist teacher practices alter with cognitive consciousness.

I divide this space into three collections. The first searches for a definition of cognition. The second considers how cognition can be understood, developed and curated. The third summarises what is known about cognition in artist teacher practice. The written content of this space is extensive because the space serves several purposes. It presents and engages with cognitive literature in art education and artist teacher practice. It analyses cognition through three lenses. It presents the first workshop with artist teacher participants, suggests theoretically how cognition progresses and uses information expressed to present a conceptual frame underpinning cognition in this exhibition.

Collection 1: Definitions of cognition in art education

Collection One contains three exhibits defining cognition in art education from different perspectives. The first exhibit provides a theoretical account of cognition, the second articulates a personal response and the third presents artist teacher participant voice. The exhibits correlate to express how I understand artist teacher cognition. The collection exemplifies how artist teachers perceive cognition in practice.

Exhibit 1.1: A theoretical lens exemplifying cognition in art education

The notion of cognition can be dated back to Aristotle (384–322 BC) who indicated perception, experience and logic as cognitive forms (Strathern, 1996). Although cognitive definitions have developed since the time of Aristotle the cognitive components of perception, experience and reason are still foundations in its

definitions to date. In the *Oxford Living Dictionary* (OLD) cognition is defined as 'The mental action or process of acquiring knowledge and understanding through thought, experiences and the senses.' (Cognition, n.d.).

Cognition straddles art, education and its associated sciences; it is well studied (Davis & Sumara, 1997; Efland, 2002; Eisner, 1994; Gardenfors & Johansson, 2005; Marshall, 2016) and is a transdisciplinary research area (Felt, Igelsböck, Schikowitz & Volker, 2013; McClam & Flores-Scott, 2011). To demonstrate transdisciplinary cognition in art education I draw on the definition generated by academic psychologists Robert and Karin Sternberg who summarise cognition as the process of understanding thought (Sternberg & Sternberg, 2012). Thought and thinking are basic human functions that apply to human existence. In art education, existence is affected by the educational time one practises in; the movement influences cognition. To exemplify, in the embodied cognition movement (Spackman & Yanchar, 2014) cognition is viewed as 'an inextricable feature of a dynamical system incorporating mind, body, and situational context' (Critchfield, 2014, p.141). This statement refers to the way the brain perceives and generates actions, recognising they evolve with an individual's place in environments, interactions and situations. So, in art education the artistic movement and/or educational time or environment one practises in, affects cognitive definition, as would involvement with others.

I acknowledge cognition as transdisciplinary to position it in current research, where disciplines like art, education, neuroscience and philosophy connect to forge frameworks, methodologies and revolutionary research. Cognitive transdisciplinary research takes place to generate new knowledge. Campbell (2011) categorises his cognitive research as transdisciplinary educational neuroscience, where education, neuroscience and cognition bridge to empower learners to consciously perceive and change mind processes that develop learning. Blakemore and Bunge (2012) refer to a nexus between cognitive neuroscience and education to enhance educational policy whilst Abraham (2013) makes creative neurocognition accessible, addressing barriers between creativity, cognition and neuroscience. These examples demonstrate the potential of transdisciplinary study surrounding cognition to initiate change, development and knowledge in this complex subject area. The examples help demonstrate why the theoretical position of this exhibition concerning artist teacher

cognition is unique. This exhibition is not transdisciplinary research (Rowland, 2006), but it does cross transdisciplinary fields: cognition, art and education. It involves participants from initial teacher education to validate autoethnographic voice and uses others' voice to generate transdisciplinary knowledge. Discipline categorisation in research is complex; transdisciplinary research is a celebrated and contested area (McClam & Flores-Scott, 2011). I suggest this exhibition is interdisciplinary (Jensenius, 2012) because it synthesises autoethnography, artography and grounded theory whilst integrating knowledge and methods, surrounding cognition, from art, education and research. I now discuss cognition as a concept.

An affinity exists between interdisciplinary thinking and concept acquisition. Concept acquisition, acquiring knowledge through innate, learned or acquired means (Cain, 2013) is theory where conceptualised ideas are categorised to aid access and understanding. If cognition is considered from interdisciplinary perspectives, potential is created for new concepts to emerge. Cognitive conceptions are vast in education; they include meta-cognition, (conscious thinking about thinking) (Flavell, Kiesler & Scarr, 1979), transcognition, (conscious integrated knowledge generation) (Sullivan, 2005), miscognition (subconscious knowledge generation) (Tavin, 2010b), situated cognition, (also referred to as social-cognition,) distributed-cognition and embodied-cognition (knowledge generated through relations in human intellect, environment, objects and actions in social and cultural spheres) (Roth & Jornet, 2013). These cognitive concepts were formed over time through research, inquiry, knowledge and concept mapping (Vitulli, Giles & Shaw, 2014), reflection and application.

I investigate cognition in art education because of complexities with understanding the term, complexities which may apply to other educational disciplines. One cognitive complexity is the ability to differentiate cognition as concept and knowledge. The two ideas are frequently overlapped and lead to terminology confusion. As with *art* the concept *cognition* can be interpreted at different levels (Hickman, 2000) and in different ways as stated above. This presents a second complexity: the abstract term makes it difficult to learn, teach and apply. A further problem is cognition as concept undergoes constant reappraisal. This is useful to ensure educational progression but presents access challenges. To address complexities with cognitive understanding I discuss the distinction between cognition

and cognitive knowledge. I state how the abstract nature of cognition can be addressed and share how cognition aligns with contemporary education.

There is wide recognition, amongst artists and scholars, that to create effective art, artistic, social and cognitive knowledge is required (Atkinson, 2006; Siegenthaler, 2013; Sullivan, 2005). But what defines cognition and cognitive knowledge in art education is complex. Michelangelo expressed in 1542 men paint with minds, not hands (Klein & Zerner, 1966) reiterating the sentiment above which from a sociocultural perspective (Bereiter & Scardamalia, 1996) is at the fore of education today. To build knowledge one needs to understand how learning occurs. Understanding is cognition. Cognition is acquiring knowledge and cognitive knowledge concerns how knowledge is acquired. There are theories in art education alluding to how thinking and knowledge acquisition in the cognitive practices of art education occur (O'Donoghue, 2015; Sullivan, 2005; Tavin, 2010b). These are discussed in Collection Two.

The view I have of cognition in art education is discussed in the next exhibit, but I summarise it here as a concept that adapts, builds and changes through experience and engagement. This exhibition addresses how I and other artist teachers engage with cognition to generate understanding to show its worth in progressing artist teacher knowledge and practice. I now discuss how cognition is defined in art education to justify cognition as the exhibition focus.

In art education multiple forms of cognition exist (Efland, 2002; Gardner 1990; Parsons, 1998). If artist teachers understand these cognitive forms and explore thinking processes behind them in practice, they will understand how learning cognition occurs. This would position them to support learners. I unpick how understanding the sociocultural and situated nature of cognition contributes to cognitive understanding to support artist teachers in understanding cognition in their learning and context.

Research communicates that thinking, (Cole & Engeström, 1995) talk (Fernandez *et al.*, 2001; Mercer, 2005) and art (Hickman, 2007) contribute to cognitive development and this occurs to differing extents dependent upon experience. This idea values

sociocultural experience in cognitive progression, so if artist teachers engage in such practices cognitive understanding could occur. Eisner (2002) referred to cognition as the process by which one gains awareness of his or her surroundings or consciousness. Yet this presents challenge when sociocultural environments fluctuate because one may lack time or capacity to reflect.

Efland (2002) provides a more comprehensive account of cognitive definitions in art education; he demonstrates how art practice aids cultural meaning. Parallels can be drawn in his work with sociocultural ideas (Bereiter & Scardamalia, 1996; Seel, 2012) because mediation is central to sociocultural theory, where mental processing tools, such as language or image creation, unite with interaction to develop cultural cognition (Seel; 2012). Art and its practices can be mental processing tools. For example, from a perspective straddling neuroscience and art history it is suggested the human mind has inert cognitive capacity to conduct mental operations blending artistic practices to generate thought (Turner, 2006). Art in capacity as cognitive tool has been documented in an interdisciplinary study (Zaidel, 2013). Acknowledgement of art as mental processing tool provides a component in sociocultural theory. Art can build cultural knowledge (Duncum, 2004b; Eglinton, 2013; Freedman & Stuhr, 2004) and create cultures (jagodzinski & Wallin, 2013), so when mental process and cultural development unite sociocultural cognitive fruition exists.

Elliot Eisner (1994) agrees the sociocultural nature of art is imperative to cognitive understanding of it. He expressed how cognitive views which limit thinking and knowing to acts of mental processing omit more than they share. Through reference to John Dewey's art as experience (1934, 2009) Eisner acknowledges a contemporary art education should be experiential, he encourages one to remember this concept and establishes cognition is influenced by socio-culture. How one thinks about cognition in artistic experience affects how one perceives it (Stokes, 2014) and so cognition is individual. If cognition is individual, artist teachers need opportunity to engage with cognition, as concept, on a personal and social level so they can understand what it is, how it relates to learning and whether sociocultural factors influence conception. In Collection Two of this space I explore how cognition develops. Prior to this I present a personal and cultural view of cognition.

Exhibit 1.2: A personal lens exemplifying cognition in art education

When I refer to cognition I recognise multiple forms in art education (Efland, 2002; Gardner 1990; Parsons, 1998). I acknowledge my understanding of cognition evolves as I communicate this exhibition, due to interpretivist phenomenology (Taber, 2007). My cognitive view is induced by social construction and I understand it by experiencing cognition in artist teacher role and culture.

Factors influence the personal and social view of cognition I hold. When referring to social I mean how I relate cognition to other artist teachers. Factors influencing definition affect how artist teachers and I learn and process cognition. I discuss in this exhibit my cognitive view at time of writing. I discuss factors influencing cognition and communicate connection between personal and social views of cognition. I view cognition as a changing entity; I provide via my blog (Heaton, 2015a) an evolving definition of cognition (Heaton, 2015a, Cognition, para. 1-4) and in subsequent discussion argue for cognitive curation. I determine the value of cognitive curation in reaching cognitive definition and in its worth as tool to create cognition. I model how cognition occurs, enabling organisation and recognition in cognitive process.

My cognitive perspective, because of emphasis on art making in shaping meaning, resonates with Efland's (2002). The experiences artist teachers encounter enable curation of cognitive paths, leading to knowledge. A personal blog reflection (Heaton, 2015a, Cognition, para. 2), discusses the cognitive view I am formulating. It demonstrates curation by sharing cognitive reflection made when presenting an artist teacher digital self:

> *I believe an understanding of cognition is important for the artist teacher, not only to develop cultural meaning but because if one can understand learning they become positioned to assist others to do the same.*

The post is part of my cognitive path to understand cognition. In it I recognise how knowledge can be shared in sociocultural spheres I practise in. I do this through a reflexive visual voice in figure 15, *Ripples and Splashes*. This art was created to represent an experience at the *Cambridge University Education Doctoral Conference 2016.* It depicts why I refer to sociocultural spheres plurally in the blog post and image because the circular forms demonstrate how artist teacher cognition transcends

sociocultural domains (Wells, 1999). The domains, or circles, are people, spaces, locations and conversations, entities creating sociocultural parameters.

Figure 15: Sketchbook Entry: Ripples and Splashes

In sociocultural domains I gained awareness of thoughts and experiences other doctoral students encountered. Their journeys, research, settings and disciplines connected with and influenced mine. Figure 15 captures this interculturality (Bresler, 2016) in artistic cognition. As I mention in the blog post, once personal understanding is achieved it can be disseminated. I show this through the fluid interconnecting lines in the visual. What I did not acknowledge explicitly in the blog post, which I do in the visual, is people aided knowledge construction, mirroring Eisner's (2002) view cognition is generated through understanding others and their environments. In consideration of Turner's work (2006), the visual enabled connections in cognitive experiences, I used the blog and art, process and product, to

formulate thought. The significance being I generated cognition by uniting mental process, artistic practice and cultural involvement.

If a path existed through the experience one would see cognitive knowledge is not generated as result of experience. Cognition is built as process, practice and involvement connect. I extend Efland's (2002) view of cognition here, art making shaped present meaning but reflecting on meaning making that occurred in sociocultural spheres, digitally, artistically and reflexively, enabled cognitive connection. As predicted when discussing cognition theoretically, in the beliefs of Eisner (1994) and Dewey (2009), cognition is discrete. On review I see internal cognitive connections as individual until shared. I made the cognitive connections to know cognition. These were socially facilitated. As shown (Cole & Engeström, 1995; Fernandez *et al.*, 2001; Hickman, 2007; Mercer 2005) collaborative thinking fuels cognition in experience, but experiences when coupled with reflexivity fuel internal cognitive knowledge paths. By unpicking how I think (Sternberg & Sternberg, 2012) I model the cognitive definition I have and journey nurturing it.

When I consider how artist teachers create cognition, perspectives and relationships between teacher and learner become important. The relationship impacts cognition occurring. As explained through reflexive examination of *Ripples and splashes* the relationships between learners, teachers and lecturers at the *Doctoral Conference*, influenced cognition generated. If I changed the participants, the cognitive path would reconfigure. A learner-centred education involving the 'creation and conferring of aesthetic significance' (Hickman & Heaton, 2016, p.344) allows knowledge critique when everyone, regardless of hierarchical position, is acknowledged as learner or learner-teacher, accounting for knowledge reciprocity. Knowledge critique is only achievable if learner-teacher voices are heard or mapped. Through mapping, cognition can be curated. I discuss cognitive curation next.

To curate cognition means taking responsibility for, organising and recognising thought to generate knowledge (Efland, 2002). In art education cognitive curation involves links between learner, thought and sociocultural position. I model positioning in art practice - see figure 16. I explore cognitive forms in a sketchbook to understand.

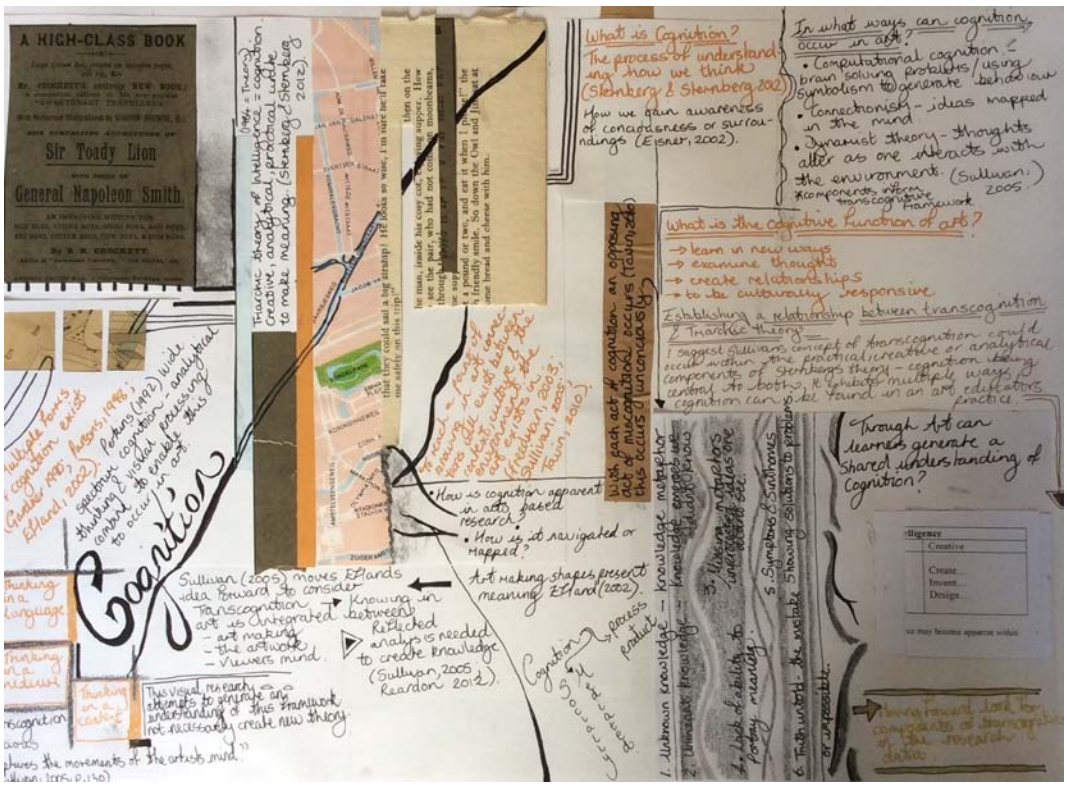


Figure 16: Sketchbook entry: Generating a cognitive picture

In the top right of the image, I ask reflexive questions linking cognitive understanding with artist teacher socio-culture to generate knowledge informed by context. Through art journaling cognitive ideas are raised, such as computational cognition (Sullivan, 2005) where the brain uses symbolism to problematise. I look out for such relationships in practice to acknowledge cognition occurring. Journaling enables documentation of cognitive curation because the page, text and visuals reveal the learning journey in the map I curate. This is true when curation is viewed in the way explained below.

To curate refers to the way one takes on the dual role of curating, organising concepts and being curator (Macdonald, 2009), designer of thought and output. The curator's role is complex; it involves research, exhibit selection, design and ability to communicate public meaning (Haas, 2003). Curator as term is controversial. When used in a professional or academic context it can generate prestige (Macdonald, 2009). A curator has control over position, status and exhibit communication; they explore its cultural position and context relationships (Acord, 2010). I posit we are all curators and creators of our cognition. As a creator we take responsibility for generating cognition. As curators we design and own cognitive processes and paths.

In Space Six I discuss how cognition affords voice to aid curation and in Space Seven I exemplify cognitive curation in this exhibition.

In this exhibition I unite theory and practice to curate cognition. For example, when writing about autoethnographic literature I realised a continuum exists between analytic and evocative autoethnography. The stories one generates through autoethnography cross this continuum as narrative unfolds in time and space. I suggest as autoethnographic narratives are revealed they cross the continuum because as I generate definitions and cognitive concepts in art education, I evoke emotion but apply analysis, such as in Space Seven, when I re-story this exhibition.

In the reflexive extract below, featured on my blog (Heaton, 2015a, How does art speak to enable cognition?, para. 10), I document experience of interacting with a public installation. I provide an example of evocative autoethnographic writing. The extract articulates how the life event of birth influenced cognitive concept being formulated. When building emotion in autoethnographic writing one can formulate theory, or be analytical, as the extract models. It highlights cognitive alteration:

> *This art evoked emotions around loss, as a new mother I interacted with the work in relation to personal circumstance envisaging what it must have been like, in an empathetic way, for the families of the soldiers involved in this conflict. I gained awareness my own realisation of cognition has changed, not only because of academic awareness of cognition but because of changes in personal circumstances. I read the art in a different way as a new mother. Before this life event my interpretation would probably have been different.*

The blog post I wrote (Heaton, 2015a, @TateModern, para. 4) reflecting on a teaching experience I facilitated with undergraduate artist teachers at *The Tate Modern Art Gallery* in London, exemplifies emotion in autoethnographic writing influencing cognition. The extract below, from the post, highlights how I used emotive poetry as personal space to reflect on experience encountered. This influenced my understanding of cognition because I realised how creative space enables you to stand back from thoughts, experiences and self. I realised in expression new ideas are tried and tested building cognition:

> *To document a more personal response to Parreno's exhibit and gallery experience I shared with the university-based artist teachers a poetic reflection:*

Kinetic Multi-Sensory Industrious Sound
Vibrations Resonating Moving Spaces
Metamorphisms Transform Perception

Interact Observe Listen Experience
Alterations Embody Physical Presence
Futuristic Time Contained

Collaborative Encapsulated Organisms
Navigate Digital Platforms
Transition Thoughtful Provocation

Each capitalised word represents response to my experience, whilst the word string on each line creates visual imagery. I used the digital app Visual Poetry, to provide another metaphorical representation of my response and experience, suggesting it is the connections involved in the experience, collaboration and reflection that have led to my knowledge creation. By writing this blog post, generating poetry and creating the image below I have been able to identify how myself and learners are building cognitive knowledge by finding space to reflect.

In the examples above, I show relationships between autoethnography, emotion and cognition. Relationships form because interdisciplinary (Bresler, 2016) and multidirectional pathways (Stanley, 2015) are woven. Cognition crosses and travels through the evocative and analytic autoethnography continuum, because the identities and experiences I have and individuals I connect with generate and progress concept knowledge. The blog posts show how theory mobilisation, in artist teacher experience, progress cognition. This statement reapplies a concept I formulated in another post (Heaton, 2015a, A theoretical web, para. 2) where I share how links between theory mobilisation in educational research can link with art. The post referred to used examples of artists' work to mobilise theory. Metaphorical webs concept build, because ideas are revisited through reflection and reapplied in artist teacher cognition. I can share theory mobilisation as a cognitive progression strategy to understand terminology with other artist teachers. In the next exhibition section, I discuss other factors influential to cognitive conception.

As acknowledged cognitive paths are individual. Factors contributing to paths such as theory, prior study, analysis, reflection, connections, risk taking, voice and space, that I discuss next, are also unique. In identifying factors that influence cognition in personal concept acquisition I can exemplify influencers useful to others. I now share

how cognitive influencers emerge in this exhibition through personal artist teacher practice. I share this information to demonstrate how to curate a learning path around cognition. The purpose to understand my cognitive path whilst exemplifying how artist teacher experience aids concept acquisition.

Previous engagement with cognitive theory presented three main influencers on cognition, the *self* (Eisner, 2002; Seel 2012; Turner, 2006), *context* (Critchfield, 2014; jagodzinski & Wallin, 2013) and *experience* (Dewey, 1934, 2009; Fernandez *et al.* 2001; Mercer, 2005; Roth & Jornet, 2013; Stokes, 2014). The self encompasses conscious and unconscious mental processes, personal thoughts, interpretations and prior knowledge. Context incorporates sociocultural environment and time whilst experience values relationships with objects, people and making. There is overlap between the three main cognitive influencers because each influencer could occur simultaneously or in another. To determine factors influencing cognition in personal practice I review the pilot (Heaton, 2015c). I also detail how I used a three-stage coding process to analyse blog posts capturing my artist teacher practice.

The pilot indicated narrative analysis (Miles & Huberman, 1994, Richardson, 1994) contributed to cognition acquisition. Voicing opinion enabled cognition to be analysed and critical reflexivity (Grushka, 2005) was central. As explained, identity and voice can alter action. If action is influenced by identity then when one collaborates, reflects or concept builds cognition becomes implicated by the identity portrayed at the time and in visual culture experienced (Freedman, 2003; Sullivan 2005; Tavin 2010b). The pilot discussed visual culture's role in shaping cognitive conception. It identified to consciously know or reach knowing in art, connections are made between culture or context the idea exists in. Influencers, like identity or collaboration, contribute to visual culture and so cognition is culturally informed.

Personal and artistic rationales (Duncum, 2004; Steers, 2013) influence concept building. This information was deduced in the pilot through research concerning pupil perception of visual culture (Heaton, 2014b). The research presented opposition between learner awareness of capabilities and those educators deemed suitable. This disparity altered cognitive journey because personal rationales influenced learning. If learners share awareness of how they learn and are involved in learning construction,

they can challenge and form new concepts. Next, I demonstrate how blog analysis has helped form cognition.

I conducted blog analysis in stages. In stage one I coded blog contributions in the theoretical claims above. I documented frequency of self, context and experiences as factors directing cognitive conception - see Appendix 7. I justify blog analysis approach in Space One and share knowledge of blog analysis in a co-published article (Caldwell & Heaton, 2016). In analysis stage one I applied theoretical coding, using self, experience and context as codes. I revealed self and experience as factors frequently influencing cognitive conception. With myself analysing the blog subjectivities occurred. The factor self, linked with the cognitive influencers identity, rationales and reflection. In experience, collaboration became an influencer. With self and experience realised in the pilot I became receptive to these influencers on blog analysis. Whilst this could demonstrate bias, it reveals how learning concept acquisition occurs through cognitive transfer, applying cognition from one experience to another.

When I viewed data considering which posts provided frequent occurrences of cognitive movement, I revealed posts with high frequencies of cognitive influence showed greater experiential reflection. For example, in this blog post (Heaton, 2015a, @How does art speak to enable cognition) where I used narrative lenses to recount artist teacher experiences, I documented seven occurrences shaping cognitive conception. In the extract below, from the post (para. 5), I exemplify in blue self-recognition as cognitive conception influencer, navy sociocultural experience and turquoise context. I share the example to expose the coding process used. I model how reflection on one event can shape cognition:

> *When conducting the aesthetic discourse workshop with research participants I believe I became more analytical of my cognitive development. As I watched participants creating their mind map about aesthetic discourse I drew connections between cognition forms and actions participants undertook. For example, in transcognition I could see participants were beginning to recognise the mind map they were creating as an outcome of aesthetic discourse, the visual was a thought generator it enabled language and discussion to be refocused and thoughts to be revisited, it facilitated the development of shared ideas, a component of transcognition.*

Reflecting on reflections, in this post, I questioned why the experience influenced cognitive conception more than others. Influential factors include the post articulating more events, writing volume, or confidence to articulate cognition. The post (Heaton, 2015a, To curate) where I document curation with a gallery educator and artist teachers also revealed a high frequency of cognitive influencers. When compared, the posts revealed writing reflectively, with confidence and with identities or lenses in mind, facilitates the reveal of cognitive influencers. The post mentioned is the final exhibition post analysed, so the high cognitive influencer frequency could suggest cognition became embedded.

Data generated in stage two of blog analysis, see Appendix 7, was collected through open coding (Punch & Oancea, 2014), and revealed that cognitive influencers, previously unrecognised, altered cognition. Five influencers were generated: *reflection and reflexivity, connections, risk taking, voice and space*. I now discuss these analysing them in literature and the pilot. I recognised reflection and reflexivity as exhibition cognitive influencers when discussing cognitive curation, the pilot and blog analysis stage one. These references make it apparent that reflection and reflexivity are influential to cognitive knowledge acquisition because the acts embed knowledge (Brown, 2004; Grushka 2005). Reflexive acts enable one to consolidate, build and rework concepts in a knowledge quest.

When I reflected on cognition literature (Cole & Engeström, 1995; Fernandez *et al.*, 2001; Mercer 2005; Hickman, 2007) I speculated that combined experiences and reflexive processes create internal cognitive paths to cognition. Experience and reflexivity combined is reiterated as a tool to gain cognition in two blog posts (Heaton, 2015a, To curate; Heaton, 2015a, How does art speak to enable cognition). The posts capture artist teacher workshops, an external examining experience and interaction with public art, facets of artist teacher practice. The posts exemplify how learning reflection reveals cognition.

To enable artist teachers to understand cognition, access to art experiences (O'Donoghue, 2015, Wehbi, McCormick & Angelucci, 2016), reflection and reflexive opportunities need to occur in learning experience. The value of art experiences assisting cognitive development is discussed in an article I co-published

with an artist teacher I taught (Heaton & Crumpler, 2017). The article addresses how cognition develops through reflexive engagement, whilst engaging in the aesthetic discourse of social justice art. Social justice and aesthetic discourse are investigated in Space Three and Five.

I learnt through publication and consideration of reflection and reflexivity as cognitive influencers that reflection and reflexivity as learning devices enable challenge and adaption of cognitive awareness to create new artist teacher practices, practices that transform ideas. Examples occur in the article and in pedagogical design shared in the blog posts (Heaton, 2015a, To curate; Heaton, 2015a, How does art speak to enable cognition). In the posts, learning designs enabling collaboration and reflection in gallery spaces and with gallery staff are shared. In this exhibition I build on and apply cognition to understand by constructing learning connections. Next, I reveal how connections, which emerged as a cognitive influencer in blog coding stage two, contribute to cognitive definition.

In Turner's (2006) work I previously identified visuals aid cognitive connections. Reflection assists connection building and connections are individual. When identifying cognitive influencers in the pilot (Heaton, 2015c), I detailed cognitive connections can be formed through visual engagement by mapping cognition between context, culture and setting. Above, I identified how combining experience and reflection generates cognitive paths. By sharing prior references to connectionism, I demonstrate the mental and behavioural phenomenon where intellectual abilities create interconnected neural networks (Bechtel, 1991; Hardy, 1997; Naidu, 2012). Artist teachers can use cognitive connections to learn cognition by linking cognitive concepts to practice.

Research by Hardy (1997) identified that connectionism, influenced by experience, genetics and context is strongest when coherent groups shape reality. This adds new awareness to my cognitive conception. I expressed previously, cognition is individual until shared. I question if sharing concepts strengthens learning connection in cognition. I touched on this in stage one of blog analysis where collaboration with gallery educators strengthened reflection. It will be interesting to address, through artist teachers' voice in the third exhibit, whether cognitive connectionism appears

strengthened when a collaborative cognitive view is formulated. I model in this paragraph how cognitive connectionism can occur individually, I connect cognitive opinion with theory and experience to strengthen connectionist understanding. This connection is influenced by connectome, a neural brain function that influences who we are (Naidu, 2012).

The connectome, in my case as artist teacher, contributes to my classification of cognition because connections are unique to beholder. The value of understanding how connectionism occurs when building cognition is you identify what influences your learning path. You own learning, a characteristic identified by Eng (2015) to progress learning in the 21st century economy. Eng's (2015) research suggests individuality, connectedness and non-cognitive attributes (motivation, perseverance and adaptability) innovate learning. These attributes resonate with this exhibition because as I build cognition I connect and disconnect the self through Eng's (2015) attributes using connectionism to fuse cognition.

In the blog posts analysed during analysis stage two, connection as cognitive influencer was revealed in all ten posts. Connections or interdisciplinary bridges were referred to and fuelled cognitive conception. Connections occurred through collaboration with schools, galleries and social groups. With ten blog posts utilising connectionism as a cognitive influencer the strength of connectionism to learning is shown. I now discuss how risk-taking influences cognitive conception.

Risk taking can increase creativity and set high learner expectations (Ingalls, 2000). It can enable innovation, resist stereotyped worldviews, challenge, experiment and solve problems whilst developing employability skills (Smilan, Kakourou-Chroni & Ricardo, 2006). Risk taking can help learners understand self and others, positioning self as a knowledge constructor (Henry & Verica, 2015). If one can construct cognition in an environment where art education moves beyond risk taking and considers culture it occurs in (Cunliffe, 1999), a useful understanding of how cognitive development and connections occur will be established. Artist teachers will identify and unpick how cultural environments and experiences influence decisions. In the pilot I identify risk as a cognitive influencer; trying something new fuels cognitive alteration (Pringle, 2011). I suggested cognitive learning coupled with risk

taking (Cunliffe, 1999) made cognitive consciousness successful. I identified it would be useful to reveal if and how reflexive commentary demonstrates risk taking. With risk raised in blog analysis stage two, as a cognitive contributor I determined how my blog reveals risk.

Earlier I acknowledged active art experiences as risk producers and connectionist map enablers (Cunliffe, 1999). When discussing blog content, I refer to examples where connectionism occurs. Three posts revealed risk as a cognitive influencer (Heaton, 2015a, Cognition in a digital artefact; Heaton, 2015a, Collaborative cognition #NSEAD; Heaton, 2015a, To curate). Risk taking facilitated art creation on a new digital platform; this led to cognition concerning a teaching tool, risk generated publication (Heaton & Crumpler, 2017; Heaton 2016, Morris & Crumpler, 2016) and pedagogical development. This information adds insight into how cognitive conception is influenced by cognition in practice. It shares how risk formulated connectionism between cognition, practice and pedagogy. To exemplify I reflect on the blog post articulating article publication and conference dissemination (Heaton, 2015a, Collaborative cognition #NSEAD) and figures 17-18.

The post referred to shares how I adapted research, pedagogy and practice whilst teaching undergraduate artist teachers. My risk allowed flexibility in art experience. I left my identity as artist, teacher, and learner open and afforded freedom to adapt pedagogy and practice as experiences evolved. In this experience with students that involved teaching about contemporary issues and social justice in primary art education, the students and I fuelled each other's learning developing cognition. The extract below shares this (para.4):

> *What became apparent was how spontaneous situations led to new directions in thinking, we had to take risks and be open to following new thought paths. The outcomes have been fruitful and now our ideas will influence other art educators through shared viewing in AD magazine and via this blog.*

The commentary revealed risk taking through narration; it shared how spontaneity progressed cognition in new directions. Risk generated new cognition for students and me. An example is my ability to guide students through publication. The students learnt to publish practice; I learnt to scaffold students' public outputs. Risk developed cognition. Active art experiences are risk producers (Cunliffe, 1999).

Figures 17-18 below visually exemplify risk in cognition. The figures respond to a presentation I delivered with two students at the *International Journal of Art and Design Education Conference* 2015. The figures are titled: *Cognitive development in action*, because they share how social media and making influence cognition. In the top left a flipbook of conference tweets is shared, forming a cognitive conference story. Social media became a cognitive connection. On the right of the image I play with media, visually depicting cognitive paths. I found the conference explosive; it took personal ideas in new directions. I connected research, practice and pedagogy. I consolidated knowledge, clarified, reflected on and challenged concepts. I visualised cognition as a layered, individual and social entity, a conscious and unconscious experience and knowledge generator. Risk facilitated this experience; I took the risk to voice cognitive connections in art.

Figures 17-18: Sketchbook entries: Cognitive development in action

Risk positioned me as a knowledge constructor (Henry & Verica, 2015) and helped visualise cognition as a connectionist web (Bechtel, 1991; Hardy, 1997; Naidu, 2012) influenced by connectomes (Naidu, 2012). Next, I exemplify how voice contributes to connectome influencing cognitive conception.

Voice references are made throughout this exhibition. In Space One I discuss voice in autoethnography and artography. I explain voices evolve and reveal the unspoken. In the pilot I shared how visuals foster other's voices revealing seer and seen (Russell, 1999). I explain how voice affords participation in learning (Reardon, 2012). I exemplify how voice shapes cognition (Miller, 2008). To substantiate I exemplify again.

Voice in research can be problematic. One must be aware of silent details, information or emotions not voiced (Todd & Nind, 2011). One often knows more than is expressed (Polanyi, 1966) so mindfulness of strategies to communicate voice is needed. Cook-Sather (2015) extends these ideas examining metaphoric capabilities of voice. Her research details voice can differ between writer and text. Expression can alter voice and voice can detach one from experience. By communicating another's voice, for example student or learner, a single quality (voice of one) may be portrayed dismissing quality. Authors have authority over voice, they determine vulnerability exposed and take charge of communication (Tierney, 1994). Voices can reveal messages, such as information about people and concepts. When expressing voice, one should hear and listen (Todd & Nind, 2011; Cook-Sather, 2015), aiding research experimentation and diversification (Tierney, 1994).

In blog analysis stage two, voice cognitively influenced cognition in three blog posts (Heaton, 2015a, How does art speak to enable cognition; Heaton, 2015a, Specificity in doctoral writing: Heaton, 2015a, A theoretical web). Voice influenced cognitive conception raising awareness that the communication lens affects cognition. Visual expressions generated cognition through showcase, representation and demonstration. To exemplify I draw on blog extracts and exhibition visuals.

In this post (Heaton, 2015a, How does art speak to enable cognition?) I narrate voice from three lenses. Narration affects cognition because cognition is shaped, directed and designed, reinforcing self-cognitive curation is possible. To exemplify influence on cognitive conceptualisation I use the extract below (para. 6):

> *In this scenario, by using three lenses I model how visuals and the process of making them can portray voice. By using different lenses, different discourses and stories can be created.*

The extract acknowledges narrative lens power to reveal research stories. By using lenses to voice, you participate in discussion (Reardon, 2012). Lenses add diversity and experimentation (Tierney, 1994) to narrative and expose research stories, enabling audiences to connect content (Todd & Nind, 2011). Narrative discussion facilitates cognitive curation. For example, in the blog post when a personal lens is adopted, I identify cognition and participant action connect. When I adopt a theoretical lens, I unintentionally put connection into practice. I recognise artist teacher image creation links to transcognition. I exemplify cognition applied in one lens can be

unintentionally exposed in another. Two narratives connect, but recognition is unintentional and exposed through analysis. Analytic connection between lenses demonstrates cognitive curation; it exposes the way I view cognition, as connectionism (Bechtel, 1991; Hardy, 1997; Naidu, 2012).

Visual voice (Burke, 2008; Heaton 2014b) influenced cognitive conception. In this post (Heaton, 2015a, Specificity in doctoral writing) I exemplify journaling afforded voice, bridging artist and learner identity. I used art to explore cognition and this altered understanding. Art creation helped understand the term. In the blog post I discuss how research alters according to articulated time. Articulation is voice. As one creates art cognition alters. Time and cognition connect when voice is a cognitive influencer. Sociocultural theory (Bereiter & Scardamalia, 1996; Seel, 2012) contends this, embodying time. When discussing Eisner's (2002) cognitive theory, I state a challenge to cognitive development is reflective time and space. Next, I exemplify space contributing to cognitive conception.

The relationship between space and cognition has featured before. Space is complex; it can be interpreted and applied to research differently. For example, this exhibition space associates with sociocultural events; events become cognitive spaces. Space links to virtual content. Online tools provide reflective space. Research by Nalita (2016) illuminates virtual research spaces, examining how technology alters time perceptions on and offline. The work models how email, through time-space compression and expansion reduces and magnifies distances between people and places, creating reflective space, as does blogging. The blog space, where one writes, posts or engages, is reflexive space (Caldwell & Heaton, 2016). On or offline, one can engage with or reflect on blog space experiences.

Space was revealed as a cognitive influencer in blog analysis stage two, when open coding was applied. This post (Heaton, 2015a, A cognitive turning point…) shares how I developed cognition in autoethnography and is the only explicit reference to space found. It is interesting the comment where acknowledgement occurs, see extract below (para.5), emotively reflects, uniting personal and professional existence. The finding substantiates Stanley's (2015) realisation: autoethnographic stories utilising cognition and emotion are not separate from life:

> *On a personal level listening to the radio show has reignited a desire to read, as a lecturer I read for research regularly but hearing about the shortlisted ethnographies generated an inquisitiveness to read differently. It reminded me of the importance to make space and time to read for pleasure and to learn about others' lives.*

Above when discussing voice, I explain how voice reveals messages in stories and researchers should listen to these (Cook-Sather, 2015; Todd & Nind, 2011). The extract above exemplifies blogging did this; making space to listen to the radio enabled reflective space on the way I read. Hearing written reflection brought the need for space and time to develop cognition forward. I do not suggest without space cognitive conception would not occur. It reinforced making space between cognition and experience fuels development because space assists rationalising and reworking. Subjective spaces (Hanley & Brown, 2016), such as I describe, locate self in developmental stories.

By examining five influencers of cognitive conception in stage two of blog analysis, I have exemplified cognition being curated personally. I have exposed learning about reflection and reflexivity, connections, risk taking, voice and space in artist teacher cognition enables the understanding of cognitive paths. To conceptualise cognitive-paths I applied a third blog post analysis stage - see axial coding Appendix 7. I explain next.

Axial coding (Punch & Oancea, 2014) enabled meaning creation between posts. Axial coding as analysis method in qualitative research is used differently (Kendall, 1999; Rabinovich & Kacen, 2010) so finding validity sometimes creates controversy. In grounded theory (Bryant & Charmaz, 2007; Glaser & Strauss, 2012; Punch & Oancea, 2014) one's approach should draw relevance in research conducted (Kendall, 1999). The pilot reflections show links between data experiences occurring, such as blog experiences, and cognitive influencer codes. Correlations between self, experience and context and data experiences suggest how cognition can be influenced. I discuss a grounded theory approach to analysis because, as stated in Space One, cognition splices through the autoethnographic to artographic methodology.

When exploring axial coding, it became apparent my understanding of this analysis practice was limited. I had pilot knowledge but reading raised awareness, that axial coding researchers are generating new implementation models, such as Advanced Relationships Between Categories model (RBC) describing networks emerging from data, with focus on associations linking categories. Links could occur through bi-lateral, tri-lateral or quadrilateral relationships (Rabinovich & Kacen, 2010). Describing links resonated with exhibition research because I felt in links one creates and learns cognition. To critique Rabinovich's and Kacen's work, one could state axial coding has potential to generate infinite numbers of RBC relationships, moving beyond the quadrilateral, because cognition can be explored in a transdisciplinary and interdisciplinary manner (Felt *et al.*, 2013; McClam & Flores-Scott, 2011).

I suggest multiple links occur in cognition. The number of connections in cognition is influenced by data quantity, categories and rounds cognitive research is framed in. Data generated by axial coding is influenced by many factors. New models of axial coding have developed building on approaches of predecessors like Strauss and Corbin (1998) and are extending knowledge. The realisation axial coding, as an analysis tool, was developing led me to reconstruct the approach I adopted to axial code blog contributions. I visually conceptualised axial coding to understand strategies - see figure 19.

Figure 19: Sketchbook entry: Axial coding

Figure 19 represents axial coding; the marks share axial coding can be conducted by linking data. Sub categories can link to home ones and vice versa and connections

can be made by cause and consequence, commonalities and stimulus-response (Punch & Oancea, 2014; Strauss & Corbin, 1998). Data patterns can be revealed, repeated, interpreted and connected during and after data collection (Kendall, 1999). Networks, layers and journeys, in links and codes, can formulate knowledge (Rabinovich & Kacen, 2010) as art making can. I realised making figure 19 researchers, like artists, are tasked with selecting research approaches that add relevance to subject investigated; their practices overlap.

To summarise, in this exhibition I used axial coding to identify if and how cognitive conception occurs when blogging about artist teacher practice. Axial coding drew contained relationships between categories influencing cognitive conception. I identified causal links to determine if posts contained additional cognitive influencers. Cause and effect connections revealed if and how experiences affect one another. To conclude axial coding, I analysed relationships between post categories.

Categories generated as cognitive influencers in open coding blog analysis stage two contain relationships with theoretical codes compiled in stage one. Each category identified in stage two can occur in all codes in stage one. Reflection and reflexivity can aid cognitive conception in self, experience and context because reflection and reflexivity enable awareness of idea gain and transform self-practice. They enable internal knowledge path creation, influenced by experience and real-life contexts. Cognitive connections can be contained in influencers - self, experience and context - because visuals and narratives generate self-realisation of cognitive influence. Identity implicated self. Experiencing cognitive path creation, engaging with schools, galleries, visual culture and learning generated cognitive conception.

As detailed when discussing risk taking, risk is embodied in cognitive influencers - self, experience and context - because risks engender self-innovation. Risks make challenge surface; challenge develops understanding and cognition. Risky experiences produce risk, creating new experiences. Connecting prior or present ones embeds understanding. Risk, in culture, changes and cultures change with risk.

The voice section exemplifies voice can be situated in cognitive influencers: self, experience and context. Self can embody unspoken voice. It can reveal voice through

outputs: visual, poetic or artistic. Self-voice can aid learning, cognition, emotion and represent cognition. Experiences bring other's voice forward. Discursive contexts and times aid perspective understanding.

The space section presents space representation in influencers - self, experience and context. Space fuels artistic expression, where reflection on personal and professional selves develops cognitive learning. Contexts are spaces. On and offline one can reflect, collaborate, and interact. Contexts, such as blogs, are subjective spaces for artistic and reflective experiences so act as cognitive influencers. Now I have shown how cognitive influencers - self, experience and context - contain the stage two blog analysis categories I can draw causal links between posts, identifying whether posts contain additional cognitive influencers only revealed through comparison or explanation.

Causal links were shown in different ways. In blog analysis stage one, causal links of self, experience and context as cognitive influences were shown across blog posts identifying influencers occur through posts. In the same document, but looking at data analysis stage two, blog posts are connected to the cognitive influencers recognised by open coding. Interestingly, cognitive influencers cluster around blog posts written at similar times, suggesting cognitive generation because cognition is applied from one context to another. The strongest influencer was connection, appearing in all but two posts. These patterns (Kendall, 1999) can be critiqued. Just because posts written in a short time offer similar cognitive influencers it does not mean these influencers will affect all artist teachers' cognition or I will use them to influence cognition. This data illuminates how personal cognitive conception might grow.

Causal links were also addressed by considering how sub categories link to home ones. Stage three of blog analysis illuminated all cognitive influencers in blog analysis stage two link to home categories in stage one. I share how these ways of interpreting causal links in axial coding of blog posts to exemplify data can be understood and revealed differently. Analysis must be relevant to study (Rabinovich & Kacen, 2010*)*. To determine relevant causal and cause and effect links, as a second stage of axial coding, I engaged with posts to determine if one post shared common themes with another. I described post links to extract additional cognitive influencers.

I observed sub themes across posts to address frequency and repositioned them in core cognitive influencers to conceptualise findings in original context.

Causal links were contained in all blog posts and connections made between individual posts. The first post connection number increased dramatically and never fell back to the initial level. Four blog posts (Heaton, 2015a, Specificity in doctoral writing; Heaton, 2015a, Roman textile art; Heaton, 2015a, @Tate Modern; Heaton, 2015a, To curate) contained the maximum number of links to other posts possible. This exemplified how blogging about an experience can lead to cognitive curation. Cognitive curation involves organising thought to formulate cognition (Efland, 2002). In analysing blog post links, I curated cognition to understand influencers.

Experience is one theoretical code identified in this exhibition's literature as a cognitive influencer. So, experience being revealed as a host theme with high links exemplifies its importance to cognitive conception. The other key theoretical influencers identified through literature were culture and the self. Culture, as with experience, was identified as a home post link theme exemplifying its position as a strong cognitive influencer. Self was not revealed as a home post link theme, but it could be argued self is a cognitive influencer in blogging. All home post link themes - knowledge curation, experience, technology, learning, reflexivity, culture, stories, connections, collaboration and art - connect with self, substantiated in axial coding data. The data draws themes that influenced cognitive conception through post relationship analysis. The self is revealed through voices, lenses, thought and scenarios. When this data is applied back to theoretical codes established as cognitive influencers, self features in all posts. This exemplifies the strength of self as cognitive influencer. Experience features in all posts but one and context in all but four.

If I reflect on the narrative above, I can put forward the idea artist teacher reflexive blogging utilises cognitive influencers self, experience and context. Blogging is self-endeavour and occurs in the sociocultural context you position in. In position cognitive influencers become meaningful. If one can identify how to create cognition, cognition can be reapplied to progress cognition in experience.

Before I conclude, summarising influencers to the view of cognition I hold, I discuss new influencers that emerged in the final stage of axial coding analysis: technology, learning, stories and art. The relationship between technology and cognition is documented across educational disciplines (Gardenfors & Johansson, 2005; Holvikivi, 2007; Zuga, 2004). In art education technology is a learning process that can develop, embody and provide strategies for studying cognition (Caldwell & Heaton, 2016; Heaton, in press a; Rosenfeld Halverson, 2013). Technology as a technologic influencer resonated with personal perception. Whilst conceptualising cognition I created the videoscribe: http://sho.co/17FPW**,** 23.4.2016, a whiteboard animation - see figure 20.

Figure 20: Cognition Videoscribe frame

This art documents my learning to formulate cognition. I mentally played with concepts and influencers in an unconsolidated term. Writing tells a visual story of how ideas piece together and form connections to create art and cognition. Word size and groupings show idea connections as I organised learning.

On reflection it is possible to see, in art practice, how the new cognitive influencers of technology, learning, stories and art can contribute to cognitive conception. The art above is a subjective space (Hanley & Brown, 2016) where I locate self in development. The art reveals artographic story of cognitive conception not separate from my artist teacher life (Holman-Jones, 2005; Todd & Nind, 2011). Art has enabled link generation between my personal and social views of cognition. The value of this I discuss next.

I acknowledged previously other artist teachers implicate my cognition and explain by exemplifying connection. I start by summarising cognitive forms contributing to my cognition in this narrative. So far, I acknowledge cognition is individual, social, it evolves, can transcend sociocultural domains and understands people and environments. Cognition is interaction between process, practice and knowledge. It can be mapped, curated and created in connections and can be emotion. Cognition appears influenced by self, context and experience. It is established through reflection and reflexivity and presents in visual culture, rationales and subjective spaces. Cognition is learning, it occurs in and generates stories, creates cultures and can be identified through technologic and artistic world engagement.

I mention only a few instances where my cognition is influenced by others and only briefly explain how I share cognition. In sharing, I consolidate and complicate cognition. As stated this exhibition occurs in sociocultural theory (Bereiter & Scardamalia, 1996; Feryok, 2013; Seel, 2012) and is interpretivist (Mölder, 2010; Taber, 2007; Williams 2000), so it is important to acknowledge how the artist teachers I interact with influence cognition (Hay, 2011).

Influence could occur philosophically through mental state or methodologically shaping principles or practice (Mölder, 2010). I acknowledge influences because interpretivist criticism exists (Hay, 2011; Matta, 2015). Separation can exist between social researcher achievements and social scenarios in which they occur. Interpretivist methodologies can appear lucid, but interpretivists corroborate evidence effectively because they appear aware of subjectivities (Hay, 2011). I frame interpretivist conceptualisations created in artist teacher culture. Being categorised as an interpretivist researcher is problematic. Williams (2000) identified researchers who categorise reduced possibility for finding application in other contexts because they limit cross-disciplinary opportunity. So, whilst I reveal how artist teachers shape cognitive perception, I encourage my audience to consider how cognition emerges for them.

In exhibit narrative I exemplify experiences where artist teacher cognition has influenced term conception. I communicate, when discussing blogging, how artist

teacher engagement, through experiences like conferences, taught me people aid cognition. To be consciously aware cognitive conception was shaped I critically reflected using reflexivity. I communicated more instances of artist teacher cognition influencing mine when discussing cognitive curation. I expressed active experiences with artist teachers, such as workshops and gallery visits, enabled concept sharing. I shared how observing others enabled me to position and visualise cognition and how journaling assisted theoretical categorisation. I used artist teacher cognition to co-construct meaning. When discussing reflection and reflexivity, I exemplified co-publication challenged and adapted cognitive conception, explaining how idea expression and article reworking applied a self-reflective lens to practice. I became aware of my role in shaping another's cognition. These exemplifications summarise the role artist teachers play in shaping cognition. Next, I discuss where I have disseminated cognitive conception to other artist teachers, whilst building mine, to exemplify the value of cognition.

By reviewing the pilot, narrative and personal artist teacher practice I exemplify ways I disseminate cognitive conception. Cognitive conception can be shared through experiences, mentoring (Duffy, 2004), publication (Wong, 2014), virtual professional communities (Lin, Lin, Huang, 2008), art practice (Eisner, 2008; Timm-Bottos & Reilly, 2015) and collaboration (Morton, 2016). These studies show research into cognitive knowledge sharing is extensive. In disseminations of cognitive conception, I share how cognitive conception exists in artist teacher practice and offer insight into how conception occurs.

The pilot (Heaton, 2015c) disseminated cognitive conception by involving artist teachers in research. This developed cognition because the artist teachers involved exemplified it in practice. A conceptual frame revealed and exemplified cognition. The artist teachers involved in the pilot communicated in this exhibition that making and reviewing art builds cognition - see the following exhibit. The exhibition participants, in this exhibition and pilot, generate cognitive conception in a third space, a place where teacher-student voices entwine to co-create knowledge (Timm-Botts & Reilly, 2015).

Collaboration creates space for fuelling cognitive conception. Space is important, perhaps more important than cognitive transfer through collaboration (Moreton, 2016)

because without space, thought, reflection and making become spaces where cognitive conception can become stagnant. If conception is stagnated so is cognition. The dissemination of cognitive conception also occurred through writing. Cognitive conception was shared between trainees, professionals and me. Shared writing experiences expanded cognitive conception (Wong, 2014) because tacit knowledge of cognitive concepts became explicit. When writing jointly I co-constructed and communicated a view of cognition that aligned with participants. I learnt cognitive conception adapts when used.

In the next exhibit I disseminate cognitive conception on behalf of artist teacher participants. By disseminating this perception, I can observe how an experience can teach cognition (Wells, 1999). I communicate the voice of artist teachers engaging in discussion about cognition. I observe how cognitive conception is derived, implicated, altered and disseminated. I now communicate dissemination of cognitive conception beyond this exhibition.

A factor not yet discussed in artist teacher identity or practice is the relationship between professional cyber identity (Delahunty, 2012; Richardson & Alsup, 2015) and cognition. Professional cyber identity is how one reveals, interacts and reflects on identity, shared virtually through social media devices. I link professional cyber identity and cognition because virtual engagement contributes to self-dissemination in artist teacher practice.

I use Twitter (@rebeccaonart, 2018), a blog (Heaton, 2015a), network groups (Northampton Inspire, 2015) and Massive Online Open Courses (MOOC) (University of Northampton, 2016) to disseminate professional cyber identity. Cyber space engagement influences cognitive conception and the artist teacher identity I possess. Delahunty (2012) connects online identity, cognition and socio-emotionality, explaining cognition occurs from the discussions and manoeuvring in self-presentation. Her work does not exemplify how the relationship between online interaction and cognitive conception is fuelled. Richardson and Alsup (2015) identify a need for the context of teacher work to be communicated through dialogue created during cyber activity to model identity evolution. This practice would reveal and disseminate cognition because context examination brings learning forward.

To exemplify how the virtual can reveal a professional cyber identity, aiding cognitive conception and dissemination, I share a personal tweet (@rebecconart, 2015) and reflection on it - see figure 21.

Figure 21: Tweet: A question of cognition

The tweet demonstrates my professional cyber identity. It reveals personal identity. Artist teacher identity is shown through attendance at the *International Journal of Art and Design 2015 Conference* revealed through the hashtag #iJADE2015. This hashtag links to a professional group straddling art and education to which I can communicate. The research identity I have can be seen through cognitive engagement and audience questioning. The question asked positions me as learner; I reveal I am open to discussing cognition. By capturing a conference photograph, I show connectionism linking context, cognition and research. By sharing connectionism in cyberspace, I access professional cyber identity. I use it to aid cognitive conception clarifying cognition to self, which I can later revisit due to the semi-permanent nature of the reflection. I can build understanding through response to or interaction with the tweet. I can disseminate cognition through sharing, specifically drawing virtual community attention.

Educational professionals use and research Twitter (Tang & Hew, 2017; Wright & Forbes, 2016). What I exemplify above is how a professional cyber identity, disseminated on Twitter, can aid cognitive conception through access to others in a professional virtual community (Lin, Lin, Huang, 2008). The hashtag enables relationships between engagers in a context, like a conference. The tweet above

enables me to create cognition in a third space (Timm-Bottos & Reilly, 2015), an internal or virtual one. The self becomes a site of rupture because the tweet provides a platform for personal identities - artist teacher, and learner - to intersect. Rupture challenges cognitive conception I previously held, encouraging reformulation. This exemplification examines one tweet which is not enough to make substantial claims about virtual engagement and cognitive conception. But it models how a virtual tool, such as a microblog like Twitter, can disseminate cognition.

Now the theoretical meaning of artist teacher cognition has been explored, a personal view expressed and strategies for dissemination exemplified, I communicate what cognition means to artist teacher participants. I do this next to triangulate views of artist teacher cognition. Following that I use Collection Two to communicate how artist teacher cognition can progress.

Exhibit 1.3: A cultural lens exemplifying cognition in art education

In this exhibit I communicate cognitive participant perceptions to add narrative truth (Bush, 2007; Russell, 1999). I link theoretical, personal and cultural definitions of cognition to triangulate narratives and their findings. This facilitates comparison between theory, personal and cultural practice.

Artist teacher participants engaged in a two-hour artographic workshop to explore cognition - see workshop one Appendix 3. In the workshop the artist teachers communicated initial definitions of cognition on this Padlet (Padlet, 2016): https://padlet.com/wall/12r83xfrck8q. On coding responses commonalities emerged in cognitive constitution. These included cognition as:

1. Understanding
2. Thought process
3. Development
4. Conscious and subconscious
5. Components and connections
6. Spontaneity
7. Reasoning

I discuss each theme to analyse cognitive meaning on participant behalf. I discuss how the participants' cognitive views altered as the workshop progressed.

Cognition as understanding is communicated in theory (Eisner, 1994; Sternberg & Sternberg, 2012; Sullivan, 2005). I too demonstrate cognition as understanding, but in art education, what does it mean to understand cognition? One participant articulated cognitive understanding, on the Padlet (Padlet, 2016) as, 'The why behind the why' (Artist teacher d). This sentiment places importance on reflexivity. It implies 'deep content knowledge' (Ramsden, 2003, p. 43) sought through critique of art practice. It resonates with principles in Bloom's taxonomy (Bloom, Englehart, Furst, Hill & Krathwohl, 1956): through analysis and synthesis, learning matures. In reflexivity, discussed above**,** reflections deepen learning and cognitive understanding (Brown, 2004).

Another participant referred to understanding as the 'what about the art we produce' (Artist teacher b). This comment questions knowing and emphasises the learning path to outcome. These examples reveal the participants, from outset, could view cognition from an exterior position, whilst accepting learner position. This is communicated through their ability to apply reflective lenses to cognitive practice, this external position enabled participants to see and understand cognition in practice.

The artist teachers suggested thought process was cognition. One participant noted 'cognition is a mental process' (Artist teacher a); another stated, the 'cog in cognition, makes me think of the process to make something work- like the cogs in a clock but in our head/ brain' (Artist teacher c). By associating cognition with thought, the artist teachers show cognitive recognition as tool for mental processing as Efland (2002) and Seel (2012) do. Through the metaphor of cogs as thought process a connection to Turner's (2006) work can be made. Turner (2006) expressed the mind conducts mental operations which blend artistic practices to generate thought. The artist teacher concerned, through metaphor, reached a cognitive definition.

A link also connects to the interpretation of cognition I made. I state, in the second exhibit, cognition can be generated through uniting mental process, artistic practice and cultural experience. The artist teachers omitted culture in their definitions,

perhaps because participants have not yet reflected on or theorised what drives their reflections or associations. The artist teachers recognised deep content knowledge can be accessed through cognition but did not apply it at this stage. Eisner (1994) clarified thought process in art education needs to be more than a static mental act, adapting and aligning with modernity. Alignment could be achieved through application. I question whether the artist teachers recognise cognition as a developing process. I engage with this consideration next.

One participant acknowledged cognition as ‘an understanding of actions we take or make’ (Artist teacher d) implying the art, or process, one creates is cognition. Process and product can model cognition, but I consider how art and process reveal cognition. In the section below discussing cognitive connection, I explain thought, actions and experience can connect to build cognition and in Collection Two I exemplify how this occurs. Cognitive construction can occur consciously or subconsciously (Sullivan, 2005; Tavin, 2010b). An artist teacher acknowledged, ‘Cognition is how I am able to learn and apply my learning in different contexts consciously and subconsciously’ (Artist teacher c).

Acknowledgement of cognition, as conscious and subconscious learning, reinforced the exhibition conceptual frame. The artist teachers started this exhibition with cognition that fostered understanding of conscious and unconscious learning. But their initial cognitive definitions did not identify understanding of how cognition was broken down, meaning the frame was pitched appropriately. The frame supported participants to gain a deeper understanding of cognitive actions, moving their cognitive development and awareness on.

The artist teachers recognised cognition as conscious and subconscious, aligning with Sullivan (2005) and Tavin (2010b) and the cognitive view I expressed above. The artist teachers illuminated recognition on two occasions. At workshop outset they identified connection between conscious cognition and application in artistic output. One artist teacher connected cognition and pedagogy. The statements participants shared related cognition to action, ‘Be that in art when we are thinking about adding colour to a drawing or when creating a lesson thinking about the range of learners we have,’ (Artist teacher d). Another expressed, ‘Why do I decide to use certain media?’

(Artist teacher c). These sentiments placed thought in cognition. The statements address consciousness and demonstrate reflection. It is interesting subconscious acts are not exemplified. I suggest this is not because they do not exist. The subconscious is difficult to expose due to being internal process.

As explained cognition comprises components and connections (Dewey 2009; Duncum, 2004b; Efland, 2002; Eglinton, 2013; Eisner, 1994, 2002; Freedman & Stuhr, 2004; Seel, 2012; Stokes, 2014). The participants recognised this. Participants identified, via Padlet (Padlet, 2016), mental space, cultural context, process and art connect as cognition components. It is interesting how cognitive components are visualised as layers and connections in cognition. Participants articulated cognition as 'a multi-layered approach that has different avenues and facets to work with' (Artist teacher c); it is 'the paths we choose' (Artist teacher f).

These statements correlate to the cognitive view I express, where I mention interculturality as cognitive fuel. The artist teachers indirectly refer to interculturality by acknowledging cognition as a connected concept, but they did not expand on connection at the workshop outset. Connections the artist teachers highlighted involved parallels between 'learning in different contexts' (Artist teacher c) such as university and schools, interculturality, and cognition in conscious and subconscious states. Above and in my blog (Heaton, 2015a, A theoretical web) I exemplify cognition metaphorically. I share how thoughts connect to generate cognition.

One participant articulated cognition is spontaneity in art education: one is not always aware an act will take place. Cognition is 'the process of thought we cannot control' (Artist teacher c). I correlate to Tavin's (2010b) subconscious in art practice here. Thoughts or ideas connect before an individual has time or space to process them. Cognitive output appears spontaneous but subconscious cognitive mapping could occur prior to event. The artist teacher statement made adopts a reflective position, so to access and communicate subconscious thought, analysis is required. Acts lead us to follow cognitive paths that transcend the conscious and subconscious.

Another participant positioned cognition as reasoning, logical thinking to generate knowledge. She stated, 'Cognition is the reasoning behind why?' (Artist teacher e).

Questions are reflective; to reflect involves conscious repositioning of thought in known fact or experience. An experience must be lived for one to know it. Reason as cognition entails taking subconscious or conscious thought and applying it in conscious process or act. There was no evidence at workshop outset to suggest reasoning as cognition in artist teacher hypotheses. This narrative has led to consideration that narratives generate alternate cognitive paths. I stated previously sociocultural experience, such as working alongside or disseminating to others, engenders cognitive progression. I show this first hand in this space, sharing how artist teacher opinion shapes cognitive conception.

As well as contributing cognitive views to Padlet (Padlet, 2016) the artist teachers, in the workshop, created visual art representing cognition. The art can be seen on the Padlet (Padlet, 2016) with explanations. As I explain in Space One, the art's purpose is to involve participant in artographic experience. I collate all participant ideas in the space art - see figure 11, *Cognition*. The art is a digital image of a mixed media painting that parallels with the artist teachers' painted visuals to document cognition. Layers unite cognitive views - the artist teachers, theorists and mine - to artographically represent findings. I also documented the workshop in a journal and concluded that I needed to represent apprehension, spontaneity, connectivity and development as artist teachers' cognition. In figure 11 understanding is represented through the expressive star in the top corner. It models a spontaneous act. Painted layers are development, connectivity is represented through maps and intersecting lines and fear is shown through reworking and overlaying marks, media and materials. The digital component is a blog (Heaton, 2015a) and captures cognition evolving in artist teacher practice. All space visuals are analysed through re-storying in Space Seven. Figure 11, *Cognition*, shares cognitive complexities.

Factors emerged on workshop conduction and interpretation that implicate the cognitive definitions the artist teachers revealed. Questions asked and contributed during the workshop influenced the discussions, art and responses shared, but support cognition as a changeable concept. Cognition itself implicated conception because when considered as thought process leading to understanding, as I share theoretically and personally in the above exhibits, it altered as participants learnt others' opinions. As the artist teachers related cognition to experience, pedagogy and practice, their

understanding transformed again. For example, one artist teacher commented, ‘Everyone’s process of cognition is different; we all produced different final pieces. Cognition is experimenting with colours, tools and developing ideas in art’ (Artist teacher h.) This comment suggests the artist teacher correlates cognition, principles and acts in her work.

Another artist teacher stated, ‘Cognition is making a decision about what we think. Whilst making, I thought cognition related to questioning, a continuous thought process undertaken whilst making art’ (Artist teacher c). This artist teacher identifies analysis fuelled by making drives cognition. A third commented, ‘My overall view of cognition has changed. I now believe cognition is not only a mental entity, but a thought process that changes as you participate in action (Artist teacher i). This participant recognised cognition as a fluid mental and experiential concept, like Eisner (2002) and jagdozinski and Wallin (2013). The examples model cognition is implicated by sociocultural experience. To manage this, I reveal the story surrounding conceptual construction. In the following collection I discuss how artist teacher cognition develops and suggest strategies that reveal cognition in this exhibition.

Collection 2: The development of artist teacher cognition

This collection has two exhibits. The first presents strategies used to develop artist teacher cognition from a theoretical lens and the second suggests curation as tool to understand and facilitate cognitive development. The exhibits present literature about cognitive development whilst identifying ways development may emerge in this exhibition. I share an exhibition conceptual frame to collate these ideas (Punch & Oancea, 2014). I chose not to present a personal and cultural lens concerning cognitive development in this part of the exhibition because I unpick these lenses throughout. In Space Six, I analyse cognitive development as it emerged in the exhibition. Next, I communicate theoretically how cognition develops.

Exhibit 2.1: A theoretical perspective

The first collection of this space shares cognitive definitions and some ways cognition can develop in art education, such as in thought (Cole & Engeström, 1995), time (Vitulli, Giles & Shaw, 2014), context (Critchfield, 2014) and interdisciplinary connection (Abraham, 2013; Blakemore & Bunge, 2012; Campbell, 2011). It does not

exemplify in detail, or in a context specific manner, how cognitive development occurs. This exhibit does. I acknowledge I am unable to present in this exhibit all the ways cognition develops in artist teacher practice. I am constrained by time and space, new researcher identity and cognition as a developmental field. In artist teacher practice cognitive development research is underrepresented.

To systematically review available theoretical and empirical evidence concerning artist teacher cognitive development, I have reviewed literature using eligibility criteria. I select research shedding light on artist teacher cognitive development, research conceptualising how artist teacher practice occurs and research concerning artist teacher intelligence. This criterion ensures I review topic appropriate literature illuminating the field, whilst connecting previous research with this exhibition. On literature review I position research in exhibition context, documenting how it informs the conceptual frame (Cohen, Manion & Morrison, 2011; Punch & Oancea, 2014).

Sullivan (2005, p.129) devised a transcognitive framework for visual arts knowing suggesting ways cognition occurs in art education. He recognised cognition can be computational, where the brain solves problems and uses symbolism to generate behaviour. He expressed cognitive development occurs through connectionism and dynamicist theory, where thoughts alter as one interacts environmentally. I engage with Sullivan's (2005) framework because I see its capability as tool to draw out cognition in artist teacher practice. It has capacity to unpick artist teacher action assisting in mobilising cognition.

Sullivan's (2005) framework captures theories behind knowledge creation in art education. It moves Efland's (2002) work forward because it suggests *how* teachers come to know in art education. When Parsons (2005) reviewed Efland's (2002) work he identified cognitive competencies develop when learners engage in meaningful art practices. Sullivan's framework (2005) not only enables artist teachers to unravel meaningful art practice, it enables cognitive competency to transcend from process to practice. The pilot I conducted applied Sullivan's frame (2005) to empirical practice. I learnt transcognition (Sullivan, 2005), knowing integrated between making, art and viewer's mind, exists in artist teacher practice. Knowing could be an understanding

of, or tool to facilitate cognition because when an artist teacher gains knowledge, through making, they engage in cognitive acts.

In transcognition, knowing is a shared concept. It highlights relationships between artist and viewer that can exist when artist is not present. Sullivan's (2005) theory parallels with Reardon's (2012) multiple voices. Their ideas situate reflective analysis in knowledge creation and understanding. Three ways cognition can be fuelled are presented in Sullivan's approach to knowing. I provide a précis here:

1. *Thinking in a medium,* art generated through a process of thoughtful making, where art is recognised as thought outcome.
2. *Thinking in a language,* where language is used to engage with meaning in making and reflection. Social involvement and cultural context contribute; Reardon's (2012) multiple voices could feature allowing artist or viewer to construct multiple voices through internal language reaching knowing.
3. *Thinking in a context,* where an acceptance of the changing environment influences knowledge.

In a chapter I wrote for the *International Encyclopaedia of Art and Design*, I applied Sullivan's transcognitive theory (2005) to digital art education (Heaton, in press a). The chapter exemplified how artist teachers could use transcognition to unpick knowing in practice. By dissecting knowing artist teachers would unpick cognition because the concepts are inextricably linked (Cunliffe, 2005; Efland, 2002; Eisner, 1994; Sternberg & Sternberg, 2012). On application the transcognitive components, shared above, move and triangulate around visual arts knowing. They contribute to knowing to differing extents and occur individually and synonymously. Transcognition 'captures the movements of the artist's mind' (Sullivan, 2005, p. 130); a complex and personal process. Transcognition is not the only way of conceptualising cognitive development in artist teacher practice. Kevin Tavin's (2010b) theory of miscognition offers an alternate idea capturing cognitive progression by acknowledging unconscious thought.

Kevin Tavin (2010b) suggests with every cognitive occurrence an act of miscognition occurs. I demonstrated in the pilot miscognition can happen in transcognition because transcognitive moments, such as making, can reveal thoughts and knowledge one was previously unaware of. One's thought or knowledge is processed by the unconscious, and in processing, the mind engages unconsciously with cognition. I provide a précis of Tavin's (2010b) six concepts of miscognition to explain how the unconscious contributes to artist teacher cognition.

The six acts include:

1. *Unknown knowledge*, knowledge repressed and formed as artistic metaphor. Artist teachers may not always be aware of what is not shared.
2. *Unmeant knowledge*, the emergence of knowledge one did not know. Tavin (2010b) identifies the unconscious may be thinking but not in a way the mind can decipher. He states, leaps and breakthroughs could symbolise cognition in experience.
3. *Missing metaphors*, information not processed through words, art or actions, information not realised. Cognition the artist teacher may never be aware of. The viewer, engager or learner may dominate, taking thoughts away about art experienced. Missing metaphors may be reflections the artist teacher never hears.
4. *Stupidity*, where progress may be blocked, where one encounters what one does not remember. Artist teachers perhaps know but lack ability to convey meaning. Artists and teachers in different identities experience creative block in cognitive act.
5. *Symptoms and sinthomes*, showcased as solutions to problems. The sinthome could keep artist teacher on task to get through a problem. For example, rationales driving practice emerge to progress cognition and occur consciously or unconsciously.
6. *Truth untold*, the ambiguity of practice, the mistake or impossible progresses cognition. Awareness may only be pointed out when acknowledged by others, truth untold may

occur in relational practice, where a participant identifies holes in another's practice.

When engaging with miscognition, I asked how gaining conscious awareness of what we are not learning, not making, not expressing helped artist teachers develop cognitively. I considered whether miscognition helped artist teachers to understand cognitive self or practice. I recognised how miscognition works in artist teacher cognitive development. Miscognition needs revealing to reiterate it exists. Reiteration acknowledges and values the unconscious in development; exemplifying it in practice enables others to enhance understanding. I achieve these requirements by exemplifying miscognitive acts in this exhibition - see Spaces Two to Six.

Tavin's (2010b) proposed act *Stupidity* is subject to criticism in education due to its negative connotation, so I replace it with *Broken Connection* to aid acceptance in educational terminology. Transcognition and miscognition, as whole and segmented acts, connect with cognition, but are not the only theories conceptualising cognitive development in artist teacher practice. Educational intelligence theory (Gardner, 1990, 2006; Lucas & Claxton, 2010) relates to cognition in artist teacher practice. I discuss this next.

In art education multiple intelligences exist (Gardner, 1990, 2006; Lucas & Claxton, 2010). The process and product of art progress cognitive intelligence (Dorn, 1993, 1999) and this philosophy is documented (Eisner, 1986, 1994, 2002; Efland, 2002, 2004; Reimer & Smith, 1992). The *Harvard Project Zero, Studio Thinking Framework*, models, through eight studio habits, how art experiences can be used and taught to progress cognition (Hetland, Winner, Veenema & Sheridan, 2007). These habits include: *developing craft, engaging and persisting, envisioning, expressing, observing, reflecting, stretch and explore and gaining an understanding of the art world.* Engagement with studio habits offers sites for transcognitive and miscognitive experiences to take place in practice, thus contributing to intelligence and cognitive development for artist teachers and learners. By documenting artist teacher practice in this exhibition, I exemplify instances where cognitive development is influenced by the studio habits - see Space Six and Seven.

Studies exist in art education that adopt and progress Hetland et al.'s, (2007) concept of extracting the *how* in practice to progress cognition. In teacher education and with pupils aged 7-11, I (Heaton, 2014b; Heaton & Edwards, 2017) and Hetland, Cajolet and Music (2010) show how constructing shared vocabularies enable cognitive progression. Fahey and Cronen's (2016) article relates Hetland *et al.*'s (2007) studio habits and creation of digital art education portfolios in higher education. Mine generates shared understanding of visual culture in the primary class. These articles relate theory to practice. They collaboratively build knowledge to facilitate cognition. If artist teachers, or learners, generate shared meaning around cognitive terms and theoretical concepts they are likely to understand and apply them in practice.

Through art interaction, Perkins (1992) shows wide-spectrum cognition occurs; he explains this as engagement developing cognition through analytic thinking and visual processing. Emphasis on art engagement enables cognitive development, analytical thinking and visual processing to occur. Wide-spectrum cognition may feature in the articles discussed above because the authors report engagement through shared meaning and theory to practice application. An artist teacher's role is to engage with art, so cognition is central to their understanding of art and intellect. Sternberg's (1984) Triarchic Theory of Intelligence helps to contextualise how artist teacher cognition may be recognised and developed in intelligence because cognition is central to understanding (Sullivan, 2005).

Three abilities are present in Sternberg's intelligence theory: the creative, analytical and practical. These work together to generate cognitive understanding (Sternberg & Sternberg, 2012). In art education analytical intelligence is recognised through analysing work or experiences, comparing or contrasting practice and evaluating product or experience socioculturally. Creative intelligence in art education is widely researched (Craft 2005; Craft, Jeffrey & Liebling, 2001; Eisner, 2002; Lowenfeld, 1960; Torrance, 1980). It can be seen through making, inventing and designing. Practical intelligence focuses on application or knowledge use; this may present as process or product. Triarchic theory relates to the individual and creates relations between the individual and internal world; this could be one's unconscious or miscognition (Tavin, 2010b), the external world; such as a context like the workplace, and mediatory roles in them; such as a reflexive platform like a blog or sketchbook

(Sternberg, 1984). The different intelligences may show in practice consciously, unconsciously, internally or externally.

When transcending the internal and external worlds Sternberg (1984) proposes artist teachers access transcognition and miscognition. I state this because an individual's internal world includes conscious and unconscious thought and if thought can be presented internally as cognition it can also be expressed outwardly in the external world or bridge the two. In art education cognition appears in the triarchic abilities Sternberg presents because creative, analytical and practical experiences are central to artist teacher practice. I propose intelligence progression in artist teacher practice is not exclusive to cognitive progression. For cognitive progress to occur the artist teacher engages in conscious and unconscious acts, acts which utilise intelligence to fuel development. Acts in artist teacher practice are active art experiences (O'Donoghue, 2015), so next I correlate such experiences and cognitive development.

In artist teacher education conceptualising and pursuing art experiences affords world presence (O'Donoghue, 2015). Hickman (2005b) expressed art is encapsulated in people's minds not objects. For art experiences to occur and to progress cognitively, people are needed. I explain why artist teachers should be involved in art experiences and suggest how they foster cognitive progression. Active art experiences privilege risk taking. When artist teachers take risks they engage with art in different contexts, become open to varied opportunities and learn to map cognitive meaning (Cunliffe, 1999). These acts encourage innovation, they offer skills for contemporary world employment, resist stereotyping and privilege problem solving (Smilan *et al.*, 2006). Such opportunities enable a deep understanding of self and other because understanding culture, identity and the contemporary world places artist teachers and learners as knowledge constructors (Henry & Verica, 2015). If one can construct knowledge, they construct cognition.

Active art experiences provide ways of living in the world (O'Donoghue, 2015). They foster process as product. Living, existing and creating become experiences and outcomes. Active art experiences open perspectives, learners live and explore more than one. I model perspective consideration in a publication concerning artist teacher moral practice (Heaton & Crumpler, 2017). The publication involves artist teachers

participating in a partnership with a charity supporting women and children who have been victims of domestic abuse. The article demonstrates cognitive construction through knowledge creation, due to social interaction, art making and reflection. The artist teachers become informed about cognitive progress in a social concept studied. Collaboration in the experience shifted social relations, facilitated participant questioning (Wehbi, McCormick & Angelucci, 2016) and led to cognitive progress. The artist teacher's cultural meaning (Efland, 2002) moved forward because they became informed charity member experiences, and applied this to art. The artist teachers engaged in interculturality, art genres, disciplines, process, outputs, socially engaged spaces and geographical locations crossed (Bresler, 2016). Interculturality fostered the artist teacher's cognitive progress because space was forged through art, where participants could embed cultural context understanding (Sullivan, 2005). Art was used to try out cognition and expression.

Active art experiences can change those involved (O'Donoghue, 2015) cognitively, artistically, holistically and spiritually. A flexible identity enables new ideas and work, facilitating impact. For art experiences to be valued as art they need to provoke questions, build relationships and involve participation (O'Donoghue, 2015). If they foster interculturality (Bresler, 2016) value is multifaceted. Active art experiences facilitate cognitive progress; they afford new interdisciplinary possibilities for art, and the cognition it generates.

In this exhibit I put forward transcognition, miscognition, intelligence theory and active art experiences as important theories and concepts to deduce cognitive progression in artist teacher practice. This act addresses the literature review eligibility criteria to look at artist teacher knowledge as cognition, to address cognition in practice and in intelligence. Literature studied addresses cognition individually, but artist teacher cognition needs to be correlated with different frameworks to acknowledge and exemplify how cognitive development occurs in the multifaceted, diverse and interdisciplinary identity of artist teacher (Brass & Coles, 2014; Heaton & Crumpler, 2017; Heaton, Burnard & Nicolova, 2018; Hoekstra, 2015; MacDonald, 2017; Parker, 2009; Thornton, 2005). This means recognising artist teachers will access and develop cognitive forms at different times, in relation to diverse groups, and cognitive progression will be conceptually and personally

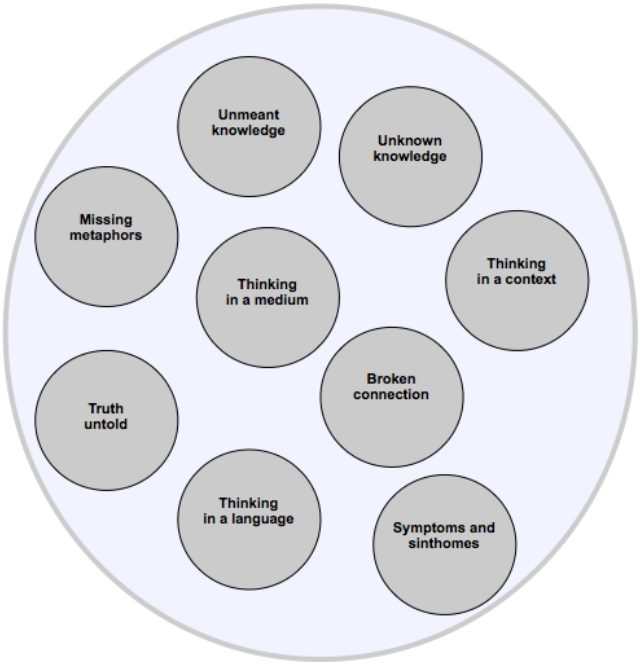
dependent. Next, I suggest cognitive curation as tool to acknowledge, understand and manage cognitive navigation in artist teacher practice.

Exhibit 2.2: The curation of artist teacher cognition

In this exhibit I connect and justify cognitive forms in art education, to explain how cognitive forms can occur and develop simultaneously and in relation to one another. I defend the decision to call engagement and understanding of such relationships cognitive curation and present the exhibition conceptual frame. I begin by explaining how I developed the pilot conceptual frame.

In the pilot I used a conceptual frame for cognitive development prioritising transcognition and miscognition as cognitive forms enabling artist teachers to understand practice - see diagram 2 below. The pilot identified if transcognition and miscognition occurred in artist teacher practice to add weight to Sullivan's (2005) and Tavin's (2010b) research. But the pilot only studied my practice as artist teacher. I learnt from Sullivan (2005) the outcome of personal research might only provide descriptive structures of understanding; theory may not be generated from personalised practice. So, this exhibition recognises and exemplifies transcognition and miscognition in the culture of artist teacher practice.

Diagram 2: A framework for understanding transcognition and miscognition in artist teacher practice



In diagram 2, transcognitive (Sullivan, 2005) and miscognitive (Tavin, 2010b) components combine to represent individual adoption of cognitive forms. Components act in, with, through and around one another. There is no evidence to suggest any of these components takes precedence over another, but this is not to suggest this is not the case. In the frame I replaced Tavin's (2010b) miscognition of *Stupidity*, with *Broken Connection*, as stated previously.

Diagram 2, makes cognition accessible; it assists in achieving Eisner's (2002) wish to show how the arts have a cognitive function fundamental to learning. This is because engaging with it draws out how learning occurs; it encourages self-examination and aids cognitive relationships. To analyse cognitive practice is important for artist teachers because it aids recognition of personal learning, it models research informed learning and shares ways cognitive development can be represented and accessed. This frame demonstrates how a professional doctorate can generate, interpret and focus knowledge application (Scott, Brown & Brown, 2004). After reflecting on this frame in the pilot, I developed it for use in this exhibition. I created a conceptual frame for understanding cognition in artist teacher practice that unites the areas of cognition discussed in this space: *transcognition, miscognition, intelligence theory and active art experiences*. Reformation occurred because I wished to exemplify cognitive frames do not have to be used in isolation to reveal cognition. I wished to show cognition in artist teacher practice encompasses a complex network of relationships that aid progression. I now explain how the four areas of cognition mentioned relate to share relationships enhancing artist teacher cognition.

Sullivan (2005) teaches in transcognition thinking occurs in language, medium and context. Language, media and contextualising are practices common to the artist teacher, who speaks, makes and responds to problems and environments through art. The pilot recognised transcognitive components in this way (Sullivan, 2005), but the way components were used could also be wide-spectrum cognition (Perkins, 1992) because speaking about or making art involves analytic thinking and visual processing. I demonstrate here, and below, theoretical overlaps occur in artist teacher cognition and practice can be observed differently depending upon theory applied.

Relationships are visible between Sullivan's transcognition and Stenberg's (1984) intelligence theory - see table 1. Overlaps between transcognitive thought and triarchic artist teacher actions exist. I suggest Sullivan's transcognition occurs in the practical, creative, or analytical components of Stenberg's theory; with cognition being the central thread. This consideration is important to this exhibition because it exposes ways transcognition may be found in artist teacher practice.

Table 1: A framework of triarchic theories of intelligence in transcognition

	Triarchic theory of intelligence		
Transcognition	Practical	Analytical	Creative
Thinking in a language	Apply… Use… Utilise…	Analyse… Compare… Evaluate…	Create… Invent… Design…
Thinking in a medium			
Thinking in a context			

The verbs that form triarchic theories of intelligence align with artist teacher practice; for example creating, inventing and designing are common artistic actions, actions capturing occurrences in an artist's mind, a key intention of transcognition. In transcognition artist teachers communicate through art disciplines. They use mediums, create and make-work in varied contexts and involve communities. In transcognition thinking can be socially mediated (Sullivan, 2005) in process and product and it aligns with movement in autoethnography and artography. If the cognitive components of triarchic theory align with art practice, their recognition becomes accessible for artist teachers because cognition is communicated through common language. Language may equally be a research limitation because it could complicate accessibility. When I looked for transcognitive occurrences in this exhibition, I was mindful of how intelligence theory was understood.

When I considered miscognition, cognitively understanding or reflecting on the unknown or unconscious, I realised it was possible to see ideas left out in art practice, thoughts not realised, and entities not expressed. But if miscognition was looked at in autopsychography (Hickman, 2013; Yuen, 2015), self-narrating inquiry, one could reveal personal and unconscious paths, such as those hindering creative growth, because one can identify, and understand, how practice changes are blocked or redirected. I achieved this between autoethnography and artography in this narrative.

Cognitive awareness like this can be used to unpick practice, to progress cognition and enhance reflexivity and criticality, modelling use of higher order thinking skills in creative practice. Research concerning miscognition is limited in art education, due to unconscious analysis and complex recognition, but its value should not be reduced. If Tavin (2010b) is correct - with every cognitive act miscognition occurs - then miscognition is integral to the artist teacher because cognition can move practice on.

In the symptoms and sinthomes of miscognition I refer to the symptom of miscognition as an unconscious message aiding a problem to be understood or overcome. This message could be revealed through autoethnography or artography. A sinthome is a conscious or unconscious component enabling one to solve a problem. Tavin (2010a, p.56) describes sinthome as 'a vehicle to organise the surplus fragments of the real that exist through fantasy outside of conscious thought.' To critique Tavin's conceptualisation I question whether he refers to fantasy as the unconscious window onto reality: the unconscious perspective identified when one looks at self or other. In this exhibition, I analyse the self from a reflexive position, this is a conscious act. The outcome is data revealing unconscious occurrences, the symptoms or sinthomes of miscognition. Miscognition analysis is difficult. Relationships exist between language and the unconscious that facilitate understanding (Frois, 2010). Art is language and can be unconscious, as reinforced by Eisner (2002) and Efland (2002). Frois (2010) states Freud and Lacan also establish relationships between unconscious thought and knowledge. The reveal of cognition, in the visual, is complicated unless narrative analysis accompanies it. As I explain previously, contextual explanations can substantiate images in research (Hickman, 2008). This also appears true for exposing cognitive relationships. In the digital era explanations are often embedded in art, such as in films or blogs. Autoethnography and artography can also encompass art, exposing conscious and unconscious research journey aspects. I suggest cognitive overlaps occur in this exhibition as part of artist teacher practice.

In this exhibition conducting and writing research is an active art experience (Heaton & Crumpler, 2017; O'Dongohue, 2015). The exhibition provokes questions about cognition and artist teacher practice and connects cognitive theories in this area. I share this idea to demonstrate active art experiences offer a cognitive contribution to

cognitive progression and so should be included in a cognition frame in artist teacher practice. Active art experiences embody, connect with and produce cognition because they facilitate engagement with cognitive concepts. As seen when I discuss miscognition above, active art experiences can progress cognition. They also draw relationships between cognitive theory and practice as I (Heaton, in press a) and Fahey and Cohen model (2016).

To summarise, by explaining ways transcognition, miscognition, intelligence theory and active art experiences inter-relate I build a conceptual frame exposing artist teacher cognition and connections in cognitive forms. I suggest engaging with cognition is cognitive curation. In this space and Space One I discuss cognitive curation and explain it is organising information engendering wisdom, learning and action (Littlejohn & Hood, 2016; Mottram & Whale, 2001). I have organised what I know about artist teacher practice and cognition in art education to construct a conceptual frame. This practice is cognitive curation. I defend this idea in discussion to follow whilst exposing the conceptual frame that identifies cognition in this exhibition.

In Heaton (in press a) I explain cognitive curation in digital art. The concepts I raise also relate generally to cognitive curation in artist teacher practice. For example, I express art practice assists problem solving, observation, control, dialogue, narrative and action and when creating, learners progress cognitively by mapping ideas. Progress comes through deep theoretical understanding, an ability to reflect or engage critically with practice or cognition. I suggest these experiences can be socially mediated, internal and external and assist artist teacher in becoming a researcher, curator and cognitive connection maker. A person able to make cognitive connections by dipping in, out and between practice content and concepts. I suggest this movement is cognitive curation and explain movement may be visible externally or internally in artist teacher practice. The concept of cognitive curation I share in the article also underpins this exhibition and the conceptual frame I share in the infographic in figure 22.

Figure 22: An infographic of cognition in artist teacher practice

In the infographic, figure 22, I divide artist teacher cognition into four segments, shown by the four bands. The first captures the three below by presenting a visual depiction of artist teacher identity. The second segment summarises the theory of active art experiences (Cunliffe, 1999; Heaton & Crumpler, 2017; Henry & Verica, 2015; O'Donoghue, 2015; Smilan *et al.*, 2006; Wehbi, McCormick & Angelucci, 2016) and portrays the concept artist teacher cognition is dependent on and influenced by space, people and time. It positions cognition as an evolving concept. The third

segment shows abilities and acts of artist teacher in their habitus; habitus is influenced by experiences, the studio habits (Hetland *et al.*, 2007) and the triarchic forms of intelligence (Sternberg, 1984; Sternberg & Sternberg, 2012) an artist teacher engages in to absorb cognition, respond and react to experience encountered. So another complexity layer in cognitive progression emerges.

Segment four reveals another cognitive complexity: transcognition (Sullivan, 2005) and miscognition (Tavin, 2010b) present a layer of acts implicating artist teacher cognition. From explanation cognition appears influenced from context to individual and I suggest back again by many factors, factors acting alone and in unison. It is my view, generated from theory in this space, cognition is constructed in artist teacher practice by multiple and complex relationships between acts and abilities of and in cognition. Acts construct paths that, when curated by artist teacher, build cognition.

Connection facilitating cognition in art education is not new knowledge (Duncum, 2004b; Dewey 2009; Eglinton, 2013; Eisner, 1994, 2002; Efland, 2002; Freedman & Stuhr, 2004; Seel, 2012; Stokes, 2014). To exemplify navigation of and between cognitive theories in artist teacher practice is. Cognition is so complex that in this exhibition I am not able to prove artist teacher cognition involves connections between all acts in the theories explained and shared in the infographic. I do exemplify if and how some connections occur to substantiate multiple acts of cognition being present in artist teacher practice and acts being influential, positively and negatively, to cognitive progression and understanding. In the following collection I summarise what I now know about cognition to move this exhibition forward.

Collection 3: A summary of artist teacher cognition

In this collection I summarise cognition as result of exploring theoretical, personal and cultural views. I identify emerging strategies to reveal cognitive progression and cognitive curation and explain emerging knowledge and concerns to be considered as this exhibition progresses. This summary is presented to further justify the exhibition focus on cognition. It provides an accessible and comprehensive account of messages documented in artist teacher cognition in this research so far.

In this space I have presented perceptions of cognition, as term, concept and experience. I have identified factors influencing these perceptions - time, space and people - and have demonstrated how research, inquiry and practice fuel and redirect conceptions. With these differentials in mind, I present cognition at this exhibition point as a changeable term, concept and experience, that can be accessed on multiple levels, to understand thought (Sternberg & Sternberg, 2012), socio-culture (Eisner, 2002) and the conscious and unconscious. It as an entity able to infiltrate change, connectivity and spontaneity. I make this declaration because I have triangulated views on artist teacher cognition, views that built on, interrupt, rework and subvert the definition of cognition I had at space outset. Cognition is a practice fuelled by research, inquiry, knowledge and concept mapping (Vitulli, Giles & Shaw, 2014). It is a socially facilitated concept with potential to initiate and change new and existing knowledge, pedagogy and practice in artist teacher, practice and culture.

I have learnt, through writing and engaging with this space, strategies can be used in artist teacher practice that facilitate cognitive reveal. These include exploring and disrupting terms through lenses, engaging with exemplifications, making artistic experiences that explicitly address cognition active or experiential and offering reflexive opportunities. Through application and involvement, I have discovered these practices fuel internal knowledge paths and these paths form webs that enable concept building and understanding in artist teacher cognition. When an artist teacher accepts or recognises cognitive paths exist, or acts to understand or facilitate cognition are possible, they enter conscious cognitive curation. Before recognition happens, cognitive curation may occur but appears to be unconscious.

I make these statements because exemplifications are shared in this space that demonstrate how acts, such as narrative analysis and narrative dissemination, fuel curation or understanding of the path to concept acquisition. Examples of making and reflection exist that show how artist teachers build a conscious awareness of cognitive connections, connections that, once engaged with, build cognition and understanding in sociocultural spaces (Eisner, 1994; jagdonzinski & Wallin, 2013). From these iterations I have become informed of how cognition may emerge in this exhibition and how I could facilitate acts with participants to reveal cognitive conception exemplifications. With this cognition I am aware I must be mindful not to use my

position as a researcher to redesign this research as this could cause subjectivities invalidating assertions made. So, I still use the next four spaces to investigate cognition in emerging research themes that arise as influential to artist teacher exhibition participants practice.

The next space in this exhibition addresses artist teacher cognition in aesthetic discourse. It was recognised in this space engagement in aesthetic discourses, such as the artistic, digital, virtual and reflexive, influence cognition. I use Space Three to determine what aesthetic discourse is and how, as concept or practice, it connects with cognition. This should provide additional exemplifications of cognition to use when training future artist teachers about cognition pedagogy.

SPACE 3: AESTHETIC DISCOURSE AND ARTIST TEACHER COGNITION

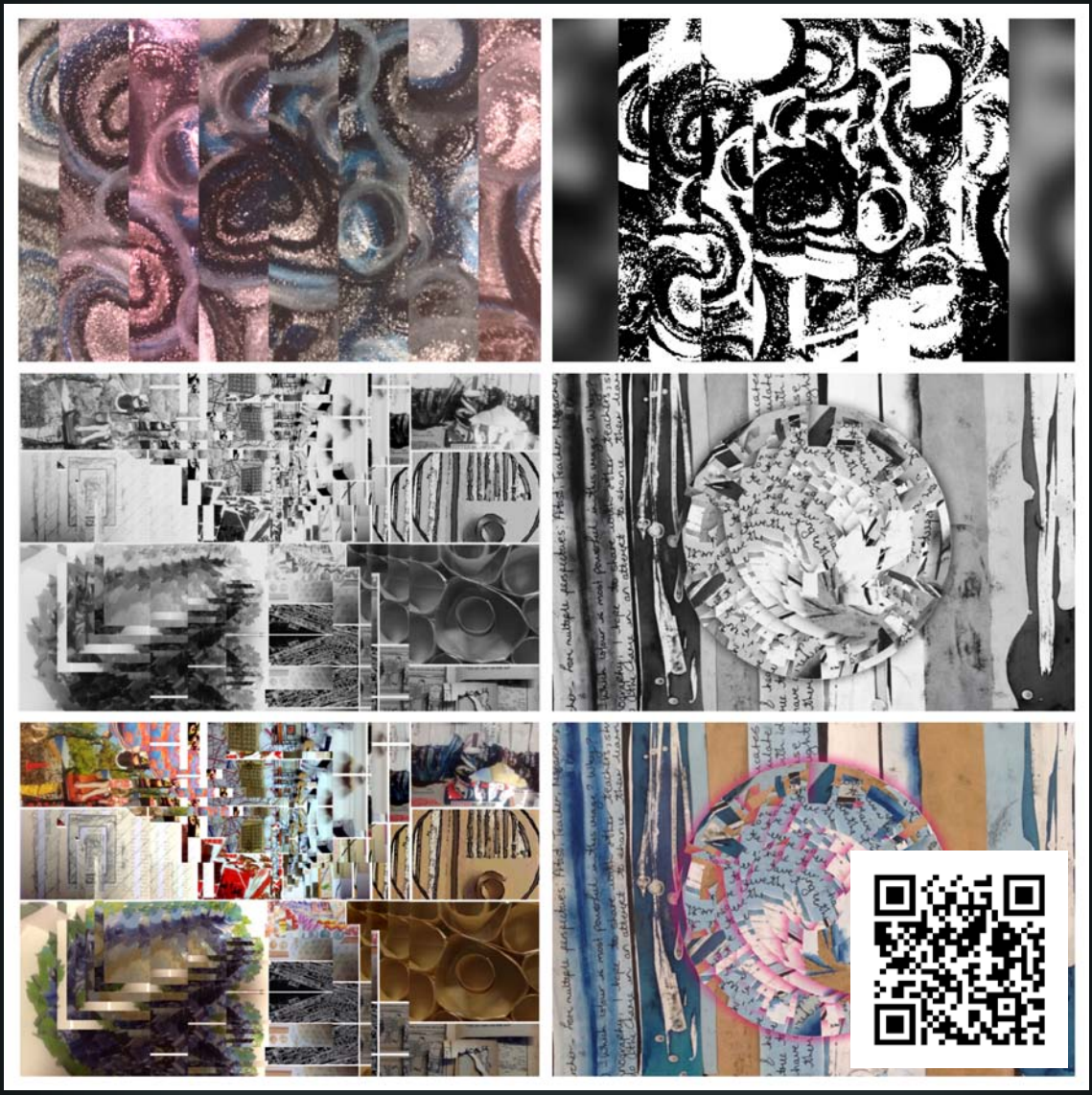
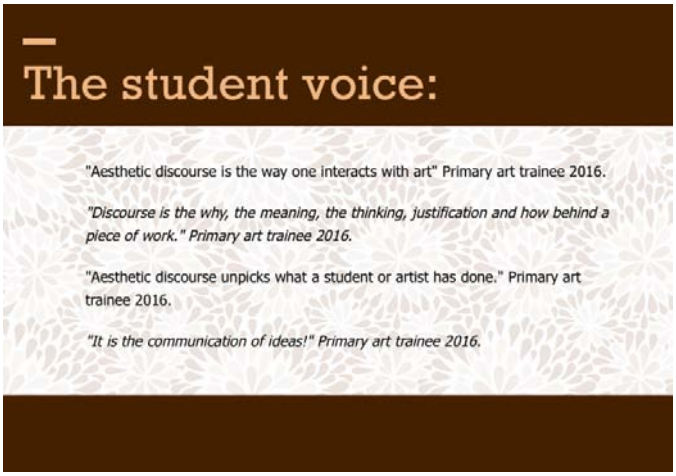
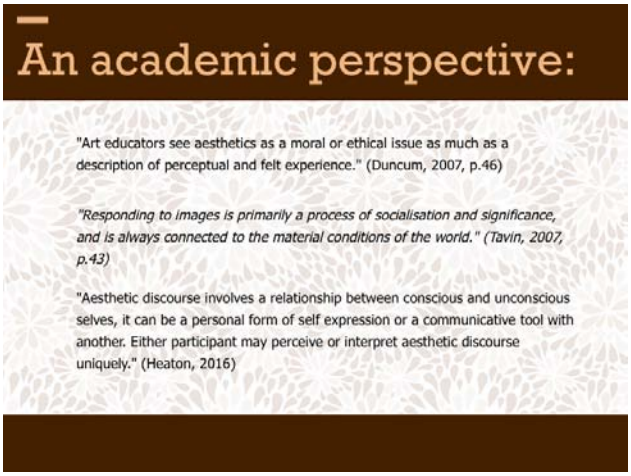


Figure 23: Aesthetic discourse

Figures 24-27: Sway screenshots

The screenshots document artist teacher perspectives on aesthetic discourse and can be accessed using the QR code or link: https://sway.com/kGnvduu6DETxigbo





The Sway (Microsoft Corporation, 2016) screenshots, figures 24 to 27, are part of *Aesthetic discourse*. The Sway is a digital presentation tool used to share opinion on aesthetic discourse. The Sway affords *Aesthetic discourse* a relational nature. It provides a multisensory interaction platform for its audience.

The text below provides a personal analysis of *Aesthetic discourse* - figures 23-27:

Aesthetic discourse communicates different discourses exist. It captures that discourse in artist teacher practice represents singular and united ideas. It was created in response to participant workshop two, see Appendix 3, which explored aesthetic discourse in artist teacher cognition. Six small art pieces form *Aesthetic discourse* along with a digital component. The six art pieces are collaged digitally to show art made in response to artist teacher cognitive events. For example, the rectangle in the image top left shares a pastel drawing of conference ideas and reflections discussed in Space Two. Art is a visual discourse that communicates cognition. In the case of the conference image I have manipulated it using Fragment (Pixite Apps, 2016) to suggest cognition can alter aesthetic discourse and aesthetic discourse can change cognition. The same image is represented again after another digital transformation, where a monochrome filter has been applied, altering its aesthetic discourse. The way one considers, perceives and is influenced by aesthetic discourses should be considered. I demonstrate through art that small or subtle changes in aesthetic discourses influence perception. Aesthetic discourses can be communicated or manipulated to create or interrupt audience trust.

Aesthetic discourse can be or represent process and product. Discourse can communicate meaning, thought, justifications or interpretations. The space narrative that follows addresses how aesthetic discourse is understood cognitively in artist teacher practices. It draws out connections between aesthetic discourse, cognition and practice. The Sway (Microsoft Corporation, 2016) adds a digital component to *Aesthetic Discourse* which, upon interaction, invites my audience to engage with participant and academic views of the concept. The Sway allows views to be hidden on first perception of the art, but through relational engagement personal, cultural and theoretical viewpoints on aesthetic discourse are communicated. The words *aesthetic* and *discourse* are powerful, subjective and contextually influenced. So, in this space I investigated these terms to understand them and their cognitive connection in artist teacher practice.

Space 3: Aesthetic discourse and artist teacher cognition

This space connects aesthetic discourse and artist teacher cognition. It became apparent in the exhibition pilot (Heaton, 2015c) aesthetic discourse influences learning concerning cognition in art education. Aesthetic discourse can be a reflexive practice. Reflexivity helps exemplify how aesthetic discourse engagement in art education sheds light on educational issues. In this space I share theory connecting aesthetic discourse and cognition, I also present personal and participant opinion. These views provide triangulated exemplification of the connection between aesthetic discourse and artist teacher cognition illuminating how aesthetic discourse understanding influences awareness and engagement with cognition when learning art education. This practice is required in artist teacher education to broaden understanding of cognitive learning concepts in art education and the factors that influence such factors, thus enabling cognition to be easily accessed. As I address in Space One and reveal again later, trainee artist teachers find cognition in art education complex.

If artist teachers are informed of concepts affecting cognition, they will become attuned to recognise these in learner development. More broadly the contribution learning, and learning about cognition, makes to art education, development and interdisciplinary practice will become visible. Visibility contributes to educational and political debate concerning art education's relevance; I discuss such debates in Space Seven and Eight. In sharing three perspectives concerning aesthetic discourse and cognition in art education I can identify how aesthetic discourse informs and implicates cognitive understanding in art education.

Collection 1: Locating aesthetic discourse and artist teacher cognition

Academics have engaged with aesthetic discourse in art education (Booyeun, 2004; Dewey, 1934, 2009; Duncum, 2007; Eisner, 1972; Steiner, 1919; Tymieniecka, 1996; Vygotsky, 1974; Tavin, 2007). Despite this, aesthetic discourse, as act and term, are still deliberated. Reasons involve the changing nature of aesthetics and discourse, its subjective meaning and characteristics, its use as a cross-disciplinary term, its value as study area, confusion over positioning and its ability to respond to developing social, cultural and educational climates. In 2007, Duncum identified art education

needed to ‘engage in a discourse about aesthetics’. It should ‘describe major contemporary cultural-cum-social realities’ and ‘situate ourselves as relevant to discussions about these realities’ (p.50). But in primary art education, teacher training and cognition, the disciplines I practise and research as artist teacher, Duncum’s request appears only touched on.

Developments concerning aesthetic discourse engagement are gaining strength nationally. The *National Society for Art and Design Education* (NSEAD), *Arts Council England* (ACE), *Cultural Learning Alliance* (CLA) and *Arts and Humanities Research Council* (AHRC) drive developments in art education in the United Kingdom. The NSEAD recently published a *Manifesto for Art, Craft and Design Education* (NSEAD, 2017a) presenting the society’s requests for the future of art education in this country. The report reiterates and extends requests made by Duncum (2007). In partnership with other arts and academic organisations the *All-Party Parliamentary Group* (APPG) published an inquiry report on *Arts, Health and Wellbeing* (APPG, 2017) which presents how the arts make health and social contributions. These publications help position art education and the contribution of aesthetic discourses in the current social context.

The CLA report, *ImagineNation*: *The Value of Cultural Learning* (2017) states the contributions cultural learning, through the arts, makes to children and young people’s lives. The report makes interesting references to progression in cognitive ability, contributions to social, economic, educational and personal mobility and requirements to support educational schools and settings to achieve its recommendations. It is to this final aspect, concerning support this exhibition contributes. By enabling artist teachers to engage with the meaning of aesthetics and its relationship with cognition in art education, I provide a small support to schools and settings to achieve Duncum’s (2007) and the CLA’s aims. The artist teacher participants in this exhibition contextualise what aesthetic discourse and cognition mean in art education. They connect society, education and their settings. These artist teachers are likely to be equipped with skills to forge connections with young people, communities and school settings generating dissemination of knowledge and understanding. This contribution concerning aesthetic discourse and cognitive understanding in art

education is small but the skill of criticality learnt through its process is invaluable to a progressive educational offering.

In art education internationally, the *International Journal of Art and Design Education* (IJADE) hosted a 2017 conference titled *Art Education as Agent for Change* reiterating art education can contribute to progressive social change in art education. But, as stated, in the front line of primary art education and teacher training engagement with discourses about aesthetics, cognition, contemporary and social realities in art education is marginal. Of course, exemplary institutions at primary and higher education levels exist that embrace these practices, but art education of this form should be on offer to all. There is expectation in the *Primary Art National Curriculum* (DfE, 2013b) for critical thinking about art, aesthetic discourse, and art positioning in culture. But with the arts being marginalised (Adams & Hiett, 2012; Heaton & Edwards, 2017; Pooley & Rowell, 2016) aesthetic offerings in education are diminishing. With prioritisation of 'core' subjects in many schools and a confidence lack amongst professionals in this discipline (NSEAD, 2016), even those committed to achieving such goals are challenged. The NSEAD in partnership with the *National Governors Association* (NGA) and ACE have produced *Art and Design Education: a guide for governors and trustees* (NSEAD, 2017b), to champion the inclusion of art in education. But this does not mean practices suggested must be adopted.

Next, I exemplify how aesthetic discourse engagement in artist teacher education can contribute to artist teacher cognitive understanding. I do this so practice approaches can be shared, artist teacher views heard, and interdisciplinary ideas applied. Exemplification affords opportunity to influence progression in the front-line delivery of art education.

Exhibit 1.1: A theoretical lens connecting aesthetic discourse and artist teacher cognition

Aesthetic discourse in art education has been defined as explored lived experience (Dewey, 1934, 2009), transformation (Tymieniecka, 1996), a notion between sense and reason (Tavin, 2007) and play (Booyuen, 2004). It can capture, represent or communicate, it is a temporal time/space concept, and is a product of present and

historic. Aesthetic discourse links memory, emotion and narrative. It is a knowledge context (Leavy, 2018). Aesthetic discourse can concern moral, ethical issues and perceptual or felt experiences (Duncum, 2007). It can be a response, socialisation and connection with the material (Tavin, 2007). Aesthetic discourse has many uses, interpretations and crosses disciplines.

I seek to know how understanding aesthetic discourse in art education influences artist teacher cognition. Studies show engagement with aesthetic discourse influences understanding of language's role in cognition (Efland, 2004; Smith, 2005). I consider whether this pertains to the visual or aesthetic, as language discourse. I hope to know whether aesthetic discourse engagement can facilitate artist teachers to understand that analysing discourses can assist in understanding cognition. If achieved contribution is possible to the debate regarding the value of aesthetic discourse and art in literary development (Heath & Wolf, 2005), whilst reinforcing how cognitive understanding can facilitate learning.

Vygotsky (1974) identified speech and language, as aesthetic discourse, is essential to a child's cognitive development. This includes cognition in aesthetics, or art education. If artist teachers can reveal cognition in practice, they become positioned to see connection in others' practice. Booyeun (2004) suggests when teachers support young learners in understanding art and aesthetics, verbal cues should be used, but verbal cues with rich aesthetic qualities such as rhythms, metaphors and sounds. It is interesting that Booyeun (2004) points out these tools as aesthetic discourse cues to facilitate understanding of aesthetic discourse and cognition. I am interested to know if artist teachers, and educational practitioners, see, are aware of, use and understand how such subtleties can influence cognition. In artist teacher academic experiences I have had to date, I see the tools Booyeun suggests being used, but not necessarily understood and certainly not understood in aesthetic discourse or cognition. When training teachers part of this issue comes down to confidence to engage with complex terminology or concepts in a subject area, art, where confidence is often low, and subject value misunderstood. In this exhibition I tease out cognitive and aesthetic connections with participants to develop their, and my, understanding of cognition and aesthetic discourse in art education.

Exhibit 1.2: A personal lens connecting aesthetic discourse and artist teacher cognition

If asking exhibition participants about aesthetic discourse, cognition and their connections it is important I reflect on this. This exhibit serves this purpose and exemplifies occurrences in personal artist teacher practice. At research outset I understood aesthetic discourse as an arts informed communication means. As with art, the word aesthetic had multiple possibilities. Discourse amounted to practice, idea presentation and multi-sensory communication that could be understood and interpreted. Aesthetic discourse became an adaptable concept that could be used and accessed in times and spaces, as a tool to critique, express and understand. As I considered the link cognition had with aesthetic discourse I realised when engaging in aesthetic discourse I develop cognition.

When working in artist teacher mediums, such as art disciplines (painting or installing), education (teaching or hosting events), or online (blogging) I was involved in transcognitive acts (Sullivan, 2005). I thought through making, contexts or languages, I conceptualised aesthetic discourse. These acts, practices, experiences, times and spaces fueled outputs, questions and deliberations enabling cognitive advancement. I found it difficult to distinguish between what I saw as aesthetic discourse and as cognition. I questioned if these concepts connected, if they were the same and if one transcends them. My progress on understanding aesthetic discourse and cognition became blocked. Subconsciously I experienced Tavin's (2010b) stupidity in miscognition. I found it difficult to convey meaning. The more I questioned connection, the more challenging concepts became.

To clarify perspective, I created an aesthetic discourse word cloud - see figure 28. I collated words contributing to the meaning of aesthetic discourse. What I didn't envisage was a realisation concerning the complexity of what I was asking other artist teachers to do, in unpicking cognitive understanding of aesthetic discourse. Figure 28 shares several conceptually loaded words that contain multiple meanings, perceptions and applications. Individuality, for example, could relate to aesthetic discourse as expression, personal communication, innovation or concept. Each word connection I made, led to new perceptions concerning aesthetic discourse. I soon remembered,

from research in Space Two, and recognised in this experience, connectionism is fueled by engagement with aesthetic discourse and this thread facilitates cognition.

Figure 28: Aesthetic discourse

This was not the only time I recognised connectionism. When blogging about artist teacher practice concerning aesthetic discourse and cognition, after conducting workshop two with exhibition participants, I made links between cognition and action. I share links in the excerpt below, accessed in this blog post (Heaton, 2015a, How does art speak to enable cognition, para. 5):

> *When conducting the aesthetic discourse workshop, I became more analytical of my cognitive development. As I watched participants creating their mind map about aesthetic discourse I drew connections between cognitive forms and actions participants undertook. For example, in transcognition I could see the participants began to recognise the mind map they were creating as an outcome of aesthetic discourse, the visual was a thought generator it enabled language and discussion to be refocused and thoughts to be revisited, it facilitated development of shared ideas, a key component of transcognition. This also revealed insights into how art enables us to think in a language, beyond just seeing words on a page; art generates discussion and reflection a second component of transcognition. Participants through discussions made references to contexts as artists and teachers using the visual as a springboard, the visual helped to illuminate contextual data about cognition, a third aspect of transcognition.*

The blog post reflections I made share similarities with Booyeun (2004); provocations, subtle cues, actions and outputs enabled connectionism. Links between aesthetic discourse understanding and cognition occurred, for myself and participants.

Cognition, concerning aesthetic discourse understanding, appeared facilitated by social, artistic and active concept engagement. Watching this occur made connectionism in cognition, as abstract concept, visible. At this exhibition point I saw value in positioning people to see cognitive links in art education. Visualising learning and cognitive development enabled confidence gain in aesthetic discourse, cognition and their connection in art education. If others accessed similar experiences their cognitive practice could be examined and made visible.

The thought I had concerning cognition and aesthetic discourse connection developed and this was influenced by research events. In this blog post (Heaton, 2015a, How does art speak to enable cognition, para. 7-10) I reflect on engagement with an art installation, *Shrouds of the Somme*, by Rob Heard - see figure 29. In the post I identify how one's aesthetic discourse engagement depends upon individual experience, circumstance, time and space, in a similar way to Leavy (2018), discussed earlier.

Figure 29: Shrouds of the Somme

In blog excerpt, see below, I identify how personal circumstance influences perception. I identify aesthetic discourse is individual and blogging, reflecting and making aesthetic discourse has facilitated questions, connections and consolidations in cognitive understanding. This is not a one-off occurrence. Later in the post, see excerpt below, I again refer to connectionism between aesthetic discourse and

cognition. I point out how I have used the blog as aesthetic discourse to generate connectionism:

> *Engaging in an aesthetic discourse can highlight how cognition can occur and develop in art education, as in this post. By writing through multiple lenses one can begin to understand how cognitive development is a complex process which involves creating a web of connections between experiences to move thinking and learning on.*

The post points out it is tool use that makes one observe and reflect from different positions. Writing through lenses, in this case, brings connectionism to the fore. From this analysis, I have become aware of strategies I could use with learners to aid understanding of aesthetic discourse, cognition and connectionism, strategies such as self-re-positioning, writing, making and reflecting. I am informed of how aesthetic discourse and cognition influence one another; the two concepts influence how the other is perceived. In art education these concepts act together.

The understanding I have of aesthetic discourse, cognition and connectionism has evolved. In a Sway (Microsoft Corporation, 2016), the digital component to this space's art, see figures 24-27, I refer to aesthetic discourse as 'a relationship between conscious and unconscious selves.' I identify it as a 'personal form of self-expression or a communicative tool with another.' I perceive 'aesthetic discourse is interpreted uniquely.' After writing in this exhibit about relationships between aesthetic discourse and cognition, I add aesthetic discourse can influence cognition. It can be a tool to make cognitive connectionism visible. Cognitive awareness can influence one's aesthetic discourse. It can change the way one explains and disseminates art education, as I have in the blog, art and write up of this exhibition. In the next exhibit I present a cultural perspective on aesthetic discourse and cognition shared by artist teacher research participants to interrupt, extend and add validity to my view presented.

Exhibit 1.3: A cultural lens connecting aesthetic discourse and artist teacher cognition

In this exhibit I present analysis and findings of the aesthetic discourse and cognition workshop conducted with artist teacher participants - see overview Appendix 3. I make links to theoretical and personal exhibits above to formulate a holistic exemplification of aesthetic discourse and cognition in artist teacher practice.

To determine artist teacher views on aesthetic discourse and cognition in art education in the workshop, participants took part in a focus group - see transcript Appendix 8. They also generated a collaborative mind map about aesthetic discourse - see figure 30. Aligned with theoretical literature these two data forms enable triangulated and substantiated perspectives on aesthetic discourse and cognition to be shared.

Figure 30: Aesthetic discourse mind map

Three key themes emerged on coding the transcript generated by the artist teachers.

1. Aesthetics, appearance and expression
2. Language and communication
3. Acts of doing, making, interpreting and justifying

Through image analysis the same themes emerged, with the addition of theme four: Process and knowledge. The four themes encompass ideas defining aesthetic discourse. Theme one refers to the way the artist teachers categorised aesthetic discourse as ‘appearance? How something looks?’ (Artist teacher Shaheena) as a ‘form of self-expression’ (Artist teacher Sarah) predominately concerned with its visual or aesthetic qualities. This conceptualisation of aesthetic discourse is limited; it presents an obvious and historic depiction of art education, now contended (Duncum, 2004b; Freedman & Stuhr, 2004; Hickman & Heaton, 2016; Steers, 2013).

The artist teachers' perception developed in theme two, where language and communication contributed. They identified aesthetic discourse as language facilitating socialisation, 'you can communicate an idea in your art but whether the person who is looking at it picks it up as you wanted…' (Artist teacher Steph). They recognised their language, as artist teachers as 'visual' and 'practical' (Artist teacher Alice), encompassing artistic mediums and formal elements of art, such as line, tone, colour, pattern, texture and composition. Associations were made between talk and aesthetic discourse. The act of communicating ideas, visually or through talk were strategies representing learning or engagement in cognition. The ideas generated reiterate Tavin's (2007) and Leavy's (2018) who recognise aesthetic discourse as social and narrative communication. Specific associations with Tavin's (2007) notion of connecting with the material are made in the artist teachers' recognition of aesthetic discourse as material and elements of art.

Theme three represents that the artist teachers' acknowledgement of doing, making, interpreting and justifying as acts are forms of aesthetic discourse. Aesthetic discourse can be 'the way you interact with art,' (Artist teacher Luke), it can be 'the justification' (Artist teacher Shaheena) for example, 'why you have used a certain colour or material' (Artist teacher Emily). It can also be a 'communication of ideas,' (Artist teacher Steph) or the act of 'making' (Artist teacher Sarah). These interpretations represent engagement in live experience (Dewey, 1934, 2009). They play with and feel action. It is in this idea one artist teacher recognised if 'you just go with it' (Artist teacher Alice) you experience cognitive play. She drew associations between cognition in a playful and unknown experience, such as art engagement or aesthetic discourse, with Tavin's (2010b) truth untold in miscognition. She stated, 'it's sort of one, it was truth untold, it's sort of useful.' (Artist teacher Alice). What this artist teacher touched upon is how engaging with aesthetic discourse can connect and fuel cognitive forms, especially when experiences are unknown and involve risk.

This participant was not the only one to link aesthetic discourse and cognition; one questioned 'Isn't aesthetic discourse a form of cognition?' (Artist teacher Sarah). Artistic cognition and cognition feature more than once and in bold on the artist teacher mind map, suggesting the artist teachers were beginning to make connections between aesthetic discourse and cognition, but these were not yet fully explored. This

may suggest exploring aesthetic discourse, as Leavy (2018) identifies, may be a context for knowledge building because the artist teachers began to interrupt and connect concepts to develop term understanding.

The fourth theme, process and knowledge, that represents artist teacher perception of aesthetic discourse was generated in the mind map. The artist teachers appeared to make interconnected ideas concerning process and knowledge. In the bottom right quarter of figure 30 the artist teachers put *explore, experiment, explain* and *ideas, thought, knowledge* together. These clusters suggest knowledge is created through and because of process. When asked whether there is a connection between aesthetic discourse and cognition the artist teachers responded, 'Yeah' (Artist teacher Alice), 'Definitely, because we talk about process and justification' (Artist teacher Steph). This followed with the artist teachers beginning to question why, but also making identification that cognition is complex and a term difficult to feel confident in articulating. Whilst the artist teacher contributions do not offer conclusive contributions to the way aesthetic discourse and cognition connect, they do suggest it occurs. They state possible ways for connection to happen through engagement in everyday art processes, such as interpreting, justifying and making.

In the same way I concluded in the previous exhibit, the artist teachers contributed to the realisation cognition and engagement with aesthetic discourse connect, but more exemplifications of how this occurs need collecting. Exemplification is something I will continue to gather. The artist teachers' contributions have added weight to the arguments other academics and I presented concerning the meaning of aesthetic discourse in art education. They state aesthetic discourse is a concept beyond visual perception and interpretation; it involves process. The artist teachers when unpicking aesthetic discourse and cognition did not pick up associations to the social, cultural, economic and temporal time place relationships. Small associations to classroom culture and learning scenarios were made, but these were not followed up in art education. This could be because at the end of their degree the artist teachers were invested in classroom practice. Or with reduced confidence in what cognition and aesthetic discourse mean they do not yet feel positioned to apply ideas to society.

Collection 2: A summary of the relationship between aesthetic discourse and artist teacher cognition

This space informs that the ideas theorists, artist teacher participants and I present concerning aesthetic discourse and cognition overlap, extend and question one another. All lenses suggest aesthetic discourse is complex; they suggest cognition is facilitated by engagement with aesthetic discourse and that engagement can reveal cognitive forms and connections. I asked at space outset how aesthetic discourse and cognition connect and how understanding aesthetic discourse influences an understanding of and engagement with cognition? I found aesthetic discourse and cognition can and do connect. When engaged with in artist teacher education, cognitive links such as connectionism can be made that contribute to knowledge development.

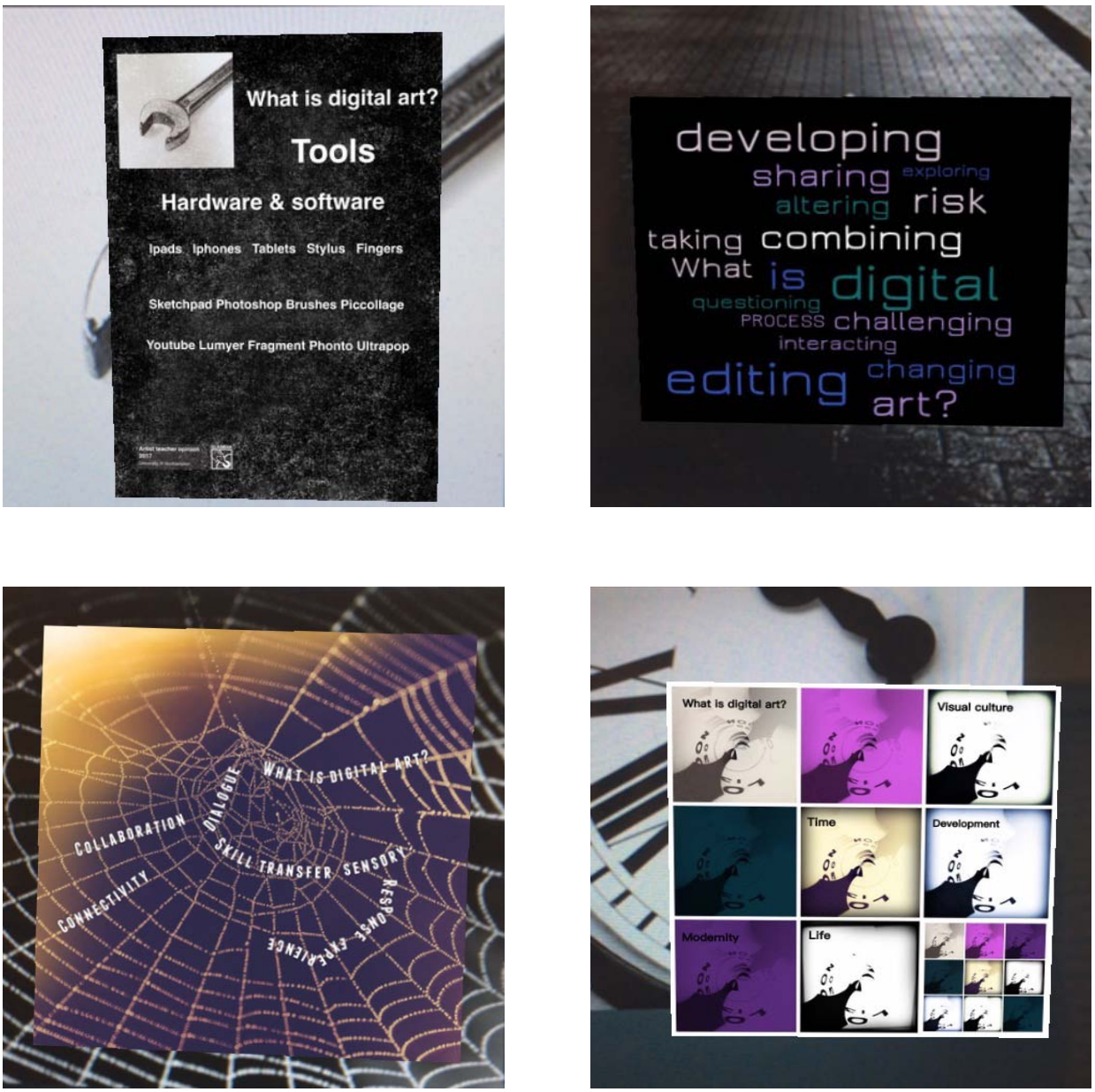
Leavy (2018) identified aesthetic discourse is a knowledge context. The content of this space exemplified links can be made as knowledge contribution. This point answers another question raised which asked whether analysing aesthetic discourse can assist artist teachers in understanding cognition? In this exhibition it has. Other artist teachers and I have become informed about cognition because we have interrupted and connected aesthetic discourse, cognition and practice. I also asked whether the subtleties of aesthetic discourse, presented by Booyeun (2004), influence cognition and learning? I found unpicking aesthetic discourse allows subtleties to surface as engagement strategies in cognition which can begin to be influential and applied in practice.

These small contributions to aesthetic discourse and cognition teach of the necessity to include such engagement in the training of artist teachers, so they have the knowledge and skills to identify cognition in the aesthetic discourses of pupils. If concept engagement occurred in a contemporary art education, the concepts and practices of aesthetic discourse and cognition would be applied. They would respond to time and space ideas, practices and developments, meeting the need identified by Duncum (2007) and the NSEAD (2017a) for art education to involve study of the discourses of aesthetics that investigate, respond and contribute to contemporary realities and sociocultural concerns.

The next space engages with cognition in the aesthetic discourse of digital practice in art education to exemplify one-way contemporary discourses can be engaged with. The artist teacher participants and I concluded at the end of our workshop that examination of the connections between digital practice and cognition was required to understand cognitive development in this domain, particularly when the digital is developing rapidly in art practice and society. It was deemed necessary to question what digital practice was in art education at present, how digital art created knowledge and the relationship this had to cognitive development and understanding for artist teachers? In the hope of exemplifying why digital practice was important in art education and how cognitive development and knowledge creation could be realised.

SPACE 4: DIGITAL PRACTICE AND ARTIST TEACHER COGNITION

Figure 31: Digital practice



Figures 32-35: Augmented reality screenshots documenting artist teacher perspectives on digital art

Digital practice, figure 31 presents the voice of artist teacher exhibition participants by revealing four themes that encompass their perspectives on digital art. The screenshots, figure 32-35, show the view when an augmented reality lens is applied to the four sections of *Digital practice* - figure 31. The augmented reality lens reveals four new images that overlay the original ones. The additional image overlays communicate a deeper complexity to the first themes. The material accessed through augmented reality technology acts as a scaffold for the audience to understand perspectives concerning artist teacher cognition in the digital era. It also offers a relational experience through engagement with digital software. The themes are discussed in the space narrative.

The text below provides a personal analysis of *Digital practice* - figures 31-35.

Digital practice presents data through visual voice. It communicates thematic analysis of participant perspectives on digital art meaning, informing and engaging the audience. Four images form the first layer of the art. They symbolise the themes: tools (the spanner), process (the arrow), connectivity (the web) and time (the clock). These were the themes generated after participant engagement with digital art and cognition in exhibition workshop three - see Appendix 3.

The QR code in *Digital practice* transports the audience to an app (HP Reveal, 2017) and an augmented reality channel to follow so engagement can occur with the second layer of the art through an augmented digital lens. In the app the user can access a camera lens that allows them upon scanning an image to see an augmented reality layer on the image being scanned - figures 32-35. There are several reasons I included this virtual element. In keeping with other spaces, I intended *Digital practice* to have a relational quality. I wanted to communicate a visual voice whilst increasing research access and providing engagement with a technologic and pedagogical tool of the time. So, I disseminated data through virtual visual content. I align this art and accompanying space narrative with cultural time and expose personal, theoretical and cultural views on digital practice in artist teacher cognition.

Space 4: Digital practice and artist teacher cognition

In this space I define digital practice in art education and link it to artist teacher cognition. I share a theoretical, personal and cultural perspective on this subject, correlate cross overs and exemplify how digital practice can progress cognition to share a contemporary view of digital practice and its contribution to art education in this technologic era. This contribution is important with technology rapidly developing, with demands on pedagogy to respond and when educational providers are given limited guidance in how to embed new media technologies let alone use such practices in art education to enhance cognition.

Two publications I have authored: Heaton and Edwards (2017) *Art* in *Technology for SEND in Primary Schools* and Heaton (in press a) *Digital art pedagogy in the United Kingdom* support this space. They provide additional exemplifications of the role and importance of understanding cognition in digital art. The chapter concerning digital art pedagogy models how and why cognition can and should be curated in digital art, drawing on transcognition (Sullivan, 2005) and miscognition (Tavin, 2010b). The chapter concerning technology in inclusive art education conceptualises how digital learning can occur. It models how Hetland *et al.*'s (2007) studio habits of mind can be used to show learning progression. Overlaps between this space and these publications occur and demonstrate cognitive development in artist teacher practice. They model how knowledge transfers from one site and application to another.

Collection 1: Locating digital practice and artist teacher cognition

In digital art education one transcends living and virtual experiences (Wegerif, 2012); in such experiences communities can be forged (Lawton; 2014) and cognitive advancements made (Efland, 2002; Eisner, 2002). But how this affects artist teacher perception of digital art education, practice, cognitive understanding and advancement is unknown. Finding this out will provide knowledge about how artist teachers understand and curate cognition in art education, specifically in digital practice. It will exemplify a model and contribute to debate concerning the contribution technology makes to education, particularly in primary art and teacher training. Such contributions are useful when the primary art curriculum in England (DfE, 2013b) only tentatively requires digital engagement. Direct references to digital inclusion are

not made. Academics in art education advocate for an art curriculum responsive to developments in and for current and future worlds (Duncum, 2007; Gast, 2015; Hickman & Heaton, 2016), one specifically positioning learners as creators and developers rather than technologic consumers (Ogier, 2017; Guillard-Patton & Buffington, 2016).

In Initial Teacher Education (ITE) time and value placed on non core subjects is reducing (Alexander, 2010), resulting in art education (NSEAD, 2016) with many teachers unsure of how to plan, assess and recognise learning in art, let alone utilising technology. This is interesting when the *Carter Review of Initial Teacher Training* (DfE, 2015) and *Cambridge Primary Review* (Alexander, 2010) recommend trainees have access to, be aware of and be able to use and conduct research informed teaching using subject specific knowledge and pedagogies. I include technologies here. The recent publication by the *Teaching Schools Council* (Keeble, 2016), *Effective Primary Teaching Practice* requests more research in arts education occurs and the *Warwick Commission* report, *Enriching Britain: Culture, Creativity and Growth* (Neelands *et al*., 2015), suggests a strong arts education is required before a school be awarded Ofsted outstanding. It states in its fourth goal 'a thriving digital cultural sphere should be open and available to all.' (p.15) I add to this and state these practices should be allied to current and future time.

To provide and maintain a high quality art education we need teachers with high subject specific knowledge and skill, which encompasses digital confidence (Starkey, 2012). In art education currently, this presents a challenge. The *Association of School and College Leaders* (ASCL, 2015) published a policy paper concerning *Teacher Supply and Initial Teacher Education* requesting restoration of a secure focus on pedagogical and subject knowledge in Initial Teacher Education. This should embrace digital practices. Hall (2017) reviews the reports and publications I have discussed in the context of primary art education and neo-liberal government agenda. She identifies the status of art and design education in educational policy and practice needs raising. Her discussion, along with those above, contextualises the situation faced by the arts in education before consideration is made to make art education responsive to digital development. This exhibition and its outcomes contribute to ensuring teachers and trainees have access to research informed exemplifications of

cognitive development in art education across disciplines in art practice, especially the digital.

The discussion above shares those researching and providing art education are experiencing challenges in research, teaching and subject practice dissemination. Small contributions help to interrupt current practice leading to transformation; investigating digital practice and cognition in this space contributes. Research concerning digital practice in art education is gaining interest. Topics such as art's contribution to a performative, digital and transdisciplinary practice in *the Science, Technology, Engineering and Maths* (STEM) to *Science, Technology, Engineering, Arts and Maths* (STEAM) debate (Hunter-Doniger & Sydow, 2016; Jolly, 2014) is progressing as is creativity's contribution in digital art education (Black & Browning, 2011; Shin, 2010). It is becoming common for learners to present as digital natives (Prensky, 2001) and for educators to raise questions about technologic, internet mediated democracy (Coleman & Barrand, 2017). Art education needs to respond. The examples show art education and digital practice is complex in educational provision, so a contribution to unpick this is needed. I begin in the following exhibits examining, from different perspectives, connection between artist teacher perception of digital practice and cognition in art education.

Exhibit 1.1: A theoretical lens connecting digital practice and artist teacher cognition

Digital art, or new media art and technology, is often defined as an artistic work, act or practice utilising technology or computational devices as part of creative process, presentation or output (Kwastek, 2013; Paul, 2003; Tate, 2016). It is an art form difficult to define, and encompasses sub categories such as music, sound, net art and augmented reality. Its definitions are critiqued for being elusive; Paul (2008) suggests art produced and or presented through digital means undergoes constant reconfiguring, in technologic development and artistic application. Digital art is not akin to being held to a static definition. Paul's (2008) concept aligns well with the vision other academics (Duncum, 2007; Gast 2015; Hall, 2017; Hickman & Heaton, 2016; Wegerif, 2012) and I have for art education. We see digital art as a fluid, responsive and playful experience open to time and space transformations. Issues do exist in digital art - one is ethical accountability. I address this in Space One. Another

is preservation. With technology developing swiftly digital art and records quickly become obsolete (Drucker, 2013; McGarrigle, 2015), making practices date quickly, so record keeping, archiving, enquiry, planning and delivery problems surface.

In art education at present digital art includes processes, products, experiential interactions, partnerships and collaborations of, and with, art (Black & Browning, 2011; Heaton & Edwards, 2017; Ogier, 2017; Sakr, Connelly & Wild, 2015). This is not to suggest this is how digital art is defined, presented, used or applied with learners. There are practice disparities across educational sectors and institutions. But products of digital art, digital practice and new media can form installations, film, projections, performances and virtual realities (jagodzinski, 2009; Black & Browning, 2011). A product of digital art can be experiential. An output could form emotion, feeling, experience, partnership or collaboration, such as a community, and these can be expressed or reflected upon in virtual, social media platforms, such as blogs, vlogs or tweets. A digitally artistic process can mirror a digital, physical or innate, inner human, product.

The processes of digital art, as mediums to make, create or reflect, can assist in developing a learner's communication, analytical and critical capability, ability to problem solve and life skills (Craft, 2011; Marshall, 2014; Sakr *et al.*, 2015). They can aid interaction with multisensory environments (Heaton, 2014b), promote visual and digital literacy (Churches, 2008; Duncum, 2004a; Stankiewicz, 2004), aid reasoning, and intercultural awareness between human and virtual worlds (Flood & Bamford, 2007). Inclusion, collaboration and partnership can be encouraged through digital process (Heaton & Edwards, 2017). The benefit of these processes in digital art education is they can promote learning when approached in supportive, engaging and safe manners. When engaging in such processes learners can manage and build knowledge, ideas, meanings and solutions. Learners have control; they can be empowered to cognitively develop (Gregory, 2009). This does not occur without challenge and this is why how cognitive development occurs needs addressing.

Gregory (2009) reaches out to art educators and suggests if technology is infused in art education in a student-centered way learning will not only happen, he models educational reform will surface. Reform beginning is modelled in Heaton and

Edwards, (2017) with demonstration of how progression occurs in primary digital art experiences when Hetland *et al.*'s (2007) studio habits of mind are considered. The example shows learning progression in one experience can happen in different ways; progression can occur in each studio habit. I agree with Gregory (2009) if more examples can be provided of how learning can occur, or better still practitioners can conduct practice research, then reform will occur quickly. Skilled and knowledgeable teachers will then facilitate digital art learning.

In the article by Caldwell and Heaton (2016) concerning use of blogs and communities in teacher education, my colleague and I demonstrate strategies that promote and enhance technologic learning, such as blogging to promote reflexivity, co-constructed knowledge and learning habitat awareness. We speak of communities of practice to generate collaboration, social learning, knowledge sharing and pedagogic innovation. We use physical and digital learning spaces to promote personalised and active learning. These are interdisciplinary strategies transferable to art education. The article addresses learning, not cognition, but in Heaton (in press a) I discuss curating cognition in digital art education. I state to progress cognition artist teachers need to understand how learning occurs in art. I also suggest above that educators need technologic understanding and confidence to aid cognition. Understanding can happen by gaining awareness of one's surroundings or using and exemplifying tools from one's digital climate. As Gregory (2009) explains, this is pertinent when Efland (2002) describes art practice, such as making digital artifacts or engaging in digital processes, aids progression of cultural meaning.

Learners and educators can navigate cognition and the digital climate learning from one another. Connectionism can fuel cognition - see Space Two. When engaging in digital art, idea mapping (Cunliffe, 1999; Gnezda, 2011) can still occur, reflexive process can develop theoretical understanding (Pace, 2012) and understanding can be applied to digital process and product. In Heaton (in press a) I exemplify how Sullivan's (2005) and Tavin's (2010b) transcognition and miscognition frameworks apply to digital art showing cognitive curation in practice. I demonstrate how one can know and understand connection between cognition and digital practice. Practical cases illuminate connection further.

One reason educational providers use digital teaching and learning strategies is because they enable learners to encounter ‘group mediated cognition’ (Mason & Rennie, 2008, p.10), cognition where learning is created, shared, reconfigured, disseminated and applied in connection. I begin to involve exhibition participants in this process, particularly in their workshop concerning digital art and cognition - Appendix 3. Workshop impact on participant and personal perception of digital art and cognition is shared in the next two exhibits which question the role and relationship these concepts have in art education.

Exhibit 1.2: A personal lens connecting digital practice and artist teacher cognition

In this exhibit I communicate how I gained understanding of digital practice and cognition as artist teacher. This includes identifying how engagement with and use of the digital in art has developed through this exhibition. Exemplifications of how technologies connect with cognition in digital art education and artist teacher practice are provided. The exhibit concludes sharing how I connect cognition and digital practice to assist cognitive curation and development. I show educators are digital art learners and that cognitive curation occurs digitally by mapping ideas, being reflexive and mediating cognitive understanding. Exemplifications assist in teaching connection between cognition and digital art.

Whilst engaging in this exhibition I have come to understand how digital practice and cognition connect. Artist teacher role is pivotal. I came into this research recognising prior experiences I had, in the pilot (Heaton, 2015c), taught experiences and research have shaped how I see cognition and digital practice as single yet united concepts. In the pilot, I shared how community of practice involvement, exploring the early years educator’s use of artist Jean Miro to enhance learning, influenced my awareness of cognitive identification involving digital practice. When engaging in the community of practice, I created an i-book (Heaton, 2014c). In the pilot, I identified how in the i-book, digital art, I recognised Sullivan’s (2005) transcognition modes. I suggested thoughts and experiences surrounding creation facilitate cognition to surface. On reflection I used reflexivity, through making and writing, to create theory as Pace (2012) suggests. Making the i-book, I collated others’ cognition in digital form. In

pilot reflection, through this writing, I forge theoretical insights concerning the presence and connection of cognition types in digital art.

In making and writing about digital creations I map ideas as cognition (Cunliffe, 1999; Gnezda, 2011). In making the i-book I was involved in group-mediated cognition (Mason & Rennie, 2008). I was not aware of it at the time because the concept was unknown. Unawareness could be the un-meant knowledge of miscognition (Tavin, 2010b), because I have since gained knowledge from experience. I worked with the community to create, adapt and disseminate the digital product, showing cognitive curation in digital process. Through making I took on others' opinions, adapting the digital in response and connecting it with research on cognition. Group mediated cognition informed cognitive curation through collaborative idea mapping.

The discussion above shows connecting prior and present experiences in artist teacher practice, through digital artifact creation like writing research and designing e-books, can facilitate cognitive processes, like idea mapping, reflexivity and group mediation. The blog (Heaton, 2015a) I use to document exhibition cognition provides another example; the blog connects living and virtual artist teacher worlds (Wegerif, 2012). The blog forges connection around cognition between artist teacher and cultural community. It acts as space to make digital content whilst traversing and curating cognition.

In this post (Heaton, 2015a, #EdDConf16) I use and reflect on a digital Thinglink (ThingLink Inc, 2010), see glossary and figure 36, to connect, map and reflect on my cognitive understanding in an Education doctoral (EdD) community. By posting about this, I disseminate to a broad community of blog followers; this act connects living, virtual, past and present constructing a cognitive web.

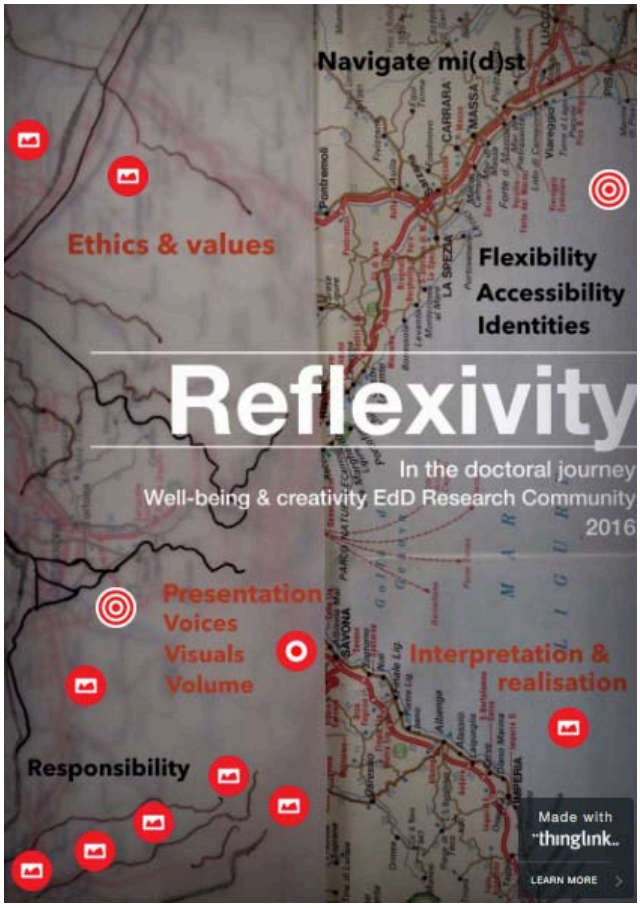


Figure 36: Reflexivity Thinglink

Cognitive webs, formed in response to digital making, demonstrate alternate ways to curate cognition. Whilst engaging in this exhibition, I was involved in creating a *Massive Open Online Course* (MOOC) contribution about digital storytelling.
The MOOC (University of Northampton, 2016) was an interactive online course to facilitate educator engagement with tablets in practice. I co-authored content on digital storytelling. I had never created, contributed to or participated in a MOOC prior to this experience, so I used cognition concerning pedagogy and practice in technology, art and education and applied it in a new context. I positioned myself in a cognitive web as learner, creator and consumer to ensure the designed experience was accessible and informed.

In the MOOC experience cognitive curation took place. I adapted and reapplied cognitive ideas between contexts, time and space in mental, physical and virtual manners. I was reflexive and responsive, I mapped ideas (Cunliffe, 1999; Gnezda, 2011) co-constructed with others, and created cognitive webs aiding connectionism (Bechtel, 1991; Hardy, 1997; Naidu, 2012) in MOOC understanding. Taking different

MOOC roles, transcending times, physical and virtual spaces enabled connectome use (Naidu, 2012). I connected and disconnected myself cognitively whilst curating cognition. Eng (2015) identified, see Space Two, one's individuality or connectome affords connection through adaptable ability. Therefore, being adaptable when digitally engaging should aid cognitive web building.

In this exhibition my digital engagement is changeable, I apply digital practice, cognition and connections differently in time and experience. In content creation, I use the digital to create art - see figure 31. I use the digital as a teaching tool, such as in MOOCs, and in research through Padlet (Padlet, 2016) or email to generate data. I provide and experience synchronous, asynchronous, blended and flipped learning opportunities through live chats and interactive activities on the MOOC. Digital practice links the cognitive and educational practices of participants and me with academic communities demonstrating other cognitive web links concerning digital practice and curation of them. I learn from this exhibition, uniting cognition and digital practice affords and models crossovers between science, art, technology and language (Ogier, 2017). In these connections cognition occurs, is curated and made.

As I understand cognition and digital practice, so do others. Practice shifts occur for others and me. For example, I have noticed students I teach engaging with digital art elements, such as digital drawing tools and in dissertation topics. I have seen digital tools embraced in studio work and have observed enthusiasm to be involved in digital research projects. Shifts could be down to digital native position (Prensky, 2001), desire to please or responsiveness to time or developments in research (Heaton, in press a; Heaton & Edwards, 2017). Change may also occur because of co-constructed learning, where participant cognition develops as a result of mine.

A project corroborating change is the *Digital Learning Across Boundaries* (DLab) project: http://dlaberasmus.eu I am involved in. The project addresses how the digital influences learning in education (Caldwell, Heaton & Whewell, 2018). The project is collaborative and connects learning communities in Europe across educational sectors. Each year it addresses different themes such as Technology Outdoors. This year, 2017-2018, the project addresses STEM to STEAM analysing arts contribution to STEM agenda.

By sharing this information, I demonstrate how cognition generated, connecting art, technology and education in an interdisciplinary way, becomes intercultural. Cognitive and digital connectivity enable not just my cognition, but others' to be curated because of engagement with digital practice and cognition. Educational reform begins because cognition and practice are learner centered; educator becomes learner and vice versa (Gregory, 2009). Educational reform relates to social change, so the exhibition participants chose this as the next theme to connect with cognition - see Space Five. I now share a cultural view of digital practice and cognition.

Exhibit 1.3: A cultural lens connecting digital practice and artist teacher cognition

I present analysis and findings from the digital practice and cognition workshop in this exhibit - see workshop overview Appendix 3. I link theoretical and personal space exhibits with cultural perspective to triangulate digital practice and cognition in artist teacher practice. To gain a cultural perspective on digital practice and cognition participants engaged in an online workshop where a Padlet (Padlet, 2016), https://padlet.com/rebecca_heaton/f0g5d44cjnlc, was used as a collaborative, yet asynchronous, space to voice opinion on digital art and its contribution to cognition. Participants were invited to share a digital artifact to exemplify their ideas. Figure 37 below is a screenshot exemplifying content examples shared.

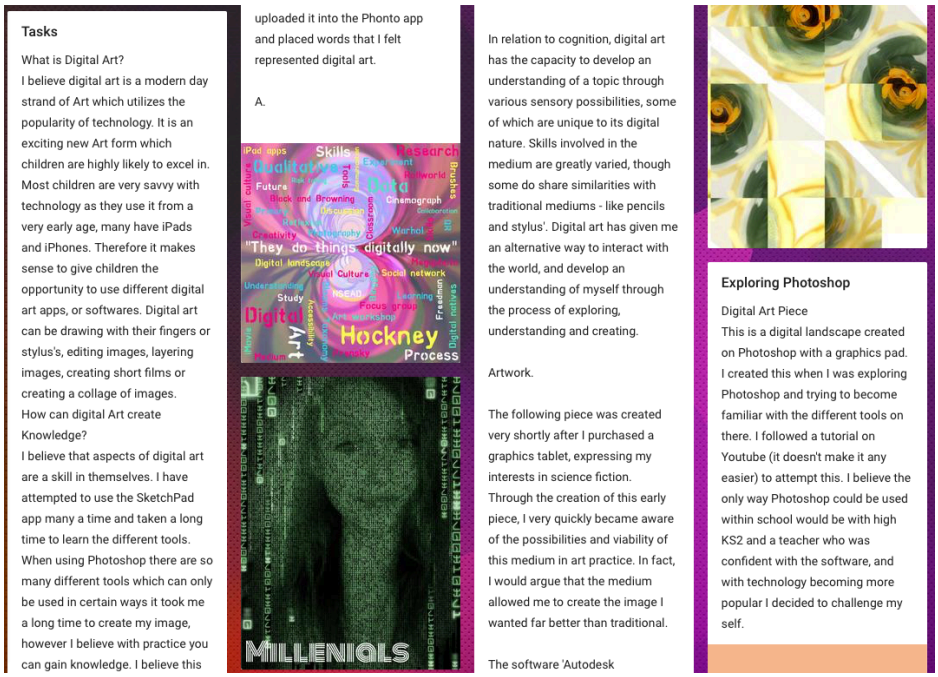


Figure 37: Artist teacher digital practice Padlet

Four main themes emerged on coding the Padlet (Padlet, 2016) to determine how the artist teachers defined digital art. These were:

1. Tools
2. Process
3. Connectivity
4. Time

The four themes prove interesting. The theme *tools* refers to technologic hardware and software, such as 'iPads and iPhones' (Artist teacher d) or 'Using apps' (Artist teacher n). Hardware such as graphics tablet, stylus and software like Photoshop (Adobe, 2016) were embedded through the Padlet (Padlet, 2016) contributions. When participant contributions are looked at in technologic tools as theme, the participants' perception of digital art appears limited, but most expressions connect one or more themes.

The second theme, 'Process', demonstrates digital art concerns acts of manipulation, exploration, questioning, development and alteration. One artist teacher stated, 'Digital art provides the user with opportunities to develop artistically and technologically' (Artist teacher, Evie). Another expressed it 'has capacity to develop topic understanding through sensory possibility' (Artist teacher, Bradley). A third suggested, 'digital art provides opportunity to experiment, promoting risk taking in art creation' (Artist teacher p). If *tools* and *processes* as themes are looked at in conjunction the artist teachers present ideas comparable to academics (Black & Browning, 2011; Heaton & Edwards, 2017; Ogier, 2017; Sakr *et al.*, 2015) who express process, product and experience form key components in defining digital art. Artist teacher Bradley reiterated this stating, 'Digital art gave me an alternative way to interact with the world, and develop an understanding of myself through the processes of exploring, understanding and creating.'

Theme three *Connectivity* represents participant acknowledgement that digital art involves digitally mediated learning, learning that occurs by acknowledging or making a connected response, dialogue, skill transfer, collaboration with or through digital devices and time-space platforms. The artist teachers identified 'digital art connects people on a global scale' (Artist teacher, Evie). Its contribution is 'far reaching and can enable large scale collaboration and connectivity' (Artist teacher,

Gemma). Artist teacher Chloe positioned ‘cognition as a product of digital process.’ She identified through experiencing, experimenting and raising questions about processes and products of digital art one can gain knowledge and skill because one builds connections between digital, physical, mental and virtual processes and ideas. Connectivity may be idea mapping (Cunliffe, 1999; Gnezda, 2011) because cognition is transferred from one domain to another. What the artist teacher contributions teach is artist teachers are aware and capable of identifying contributions digital connectivity makes to cognition and practice. Participants position learners as digital creators (Ogier, 2017; Guillard-Patton & Buffington, 2016) and draw out skills and knowledge afforded by digital art allied to present time.

Time emerged as theme four in the participant contributions. References to visual culture, modernity, development and impact all locate time as influential to artist teacher digital art definition. One artist teacher used taglines on her digital artifact that ‘have been coined in recent educational research about the net generation,’ (Artist teacher, Gemma), terms such as screenager, millenials and digital natives. The artifact connects with Prensky’s (2001) research and acknowledges digital products can be influenced by education and technologic reform. Artist teacher Bradley stated, digital art ‘directly impacts our visual culture- one heavily integrated with technology.’ This sentiment was reiterated by his digital artifact, figure 38, in which he experimented with tablet and stylus to respond to the cinematic genre of science fiction. Whilst demonstrating artistic tools of our time, the figure metaphorically captures the futuristic, technologically advanced and virtual ideology required to develop art education. Many educational settings do not have access to current technologic tools or knowledge; this limits processes and connections young people can make, stunting cognitive development whilst widening the gap between education and contemporary life.

Figure 38: Artist teacher digital drawing screenshot

Artist teacher contributions in this exhibition remind it is possible to make digital art 'accessible to all.' Digital art in education can involve 'photo editing, tablet drawings and photo manipulation' (Artist teacher, Evie) or be a 'sketchbook circle' (Artist teacher Chloe), where another can manipulate art creations, physically or digitally, modelling connective art process.

The four themes, *tools, process, connectivity* and *time*, triangulate with definitions of digital art presented through theoretical and personal exhibit discussions. The themes are a thread of commonality for what digital art can offer education. Cognitive offerings could contribute to raising the status of art education, desperately required (Hall, 2017). The art representing this space, figures 31-35, also increases access to digital art meaning. It demonstrates how I embraced augmented reality. The four images in figure 31 represent the four themes from participant contributions about digital art's constitution. Augmented reality software affords access to poster overlays that communicate information about each theme. I felt it necessary to progress personal cognition in digital practice by embracing new media relating to cultural group practices I communicated on behalf of.

In consideration of how participants feel digital practice and cognition link, the discussion above positions cognition as a product of digital art. Cognition is referred to as concept developing through process. The Padlet (Padlet, 2016) shares affirming statements linking digital art and cognition. Artist teacher Evie stated 'Digital media

allows me to open my mind and take risks. It has given me means to explore possibilities with confidence.' It offers 'an alternative way to interact with the world' (Artist teacher Bradley) and 'cognition forms our day to day lives and affects every decision we make' (Artist teacher, Ben). Ben suggested whilst making, he accessed cognition through questioning 'because of internal self-conversation.' In relation to cognitive theory, Space Two; the participants use digital art and reflections on it to understand cognition, as thought and action (Sternberg & Sternberg, 2012). Participants unpick learning in digital art to understand cognition whilst constructing cultural meaning (Efland, 2002). Connection between mental and physical states occurs for the artist teacher to generate thought. In Ben's statement above, multiple voice acknowledgement occurs generating internal conversation to progress cognition. Voice shapes cognitive progression (Reardon, 2012; Miller, 2008).

Collection 2: A summary of the relationship between digital practice and artist teacher cognition

All space lenses suggest digital practice and new media technology engagement has potential to develop cognition through idea mapping (Cunliffe, 1999; Gnezda, 2011) because of the affinity technology has to provide connectivity across time and space. At exhibit outset I asked how artist teachers traverse living and virtual spaces to understand cognition. I asked whether cognitive understanding or development is affected and if, or how, cognition is curated in the digital practice of art education. The exhibit alludes artist teachers use digital tools and software as expressive and communicative devices to connect, map and reformulate ideas concerning pedagogy, practice and culture. Doing this assisted participant understanding of cognitive process.

When cognitive progress appears strongest the artist teachers generate multiple practice connections as artist, teacher and researcher. They locate self as connectome (Naidu, 2012), formulating webs of connection, whilst connecting and disconnecting the self. Cognitive web curation, as act and process, assisted connectionism (Bechtel, 1991; Hardy, 1997; Naidu, 2012) and strengthened participant understanding of cognition in the digital. This appeared strong in the personal lens shared, but cognitive connection webs also occurred in participant contributions. Connections were formulated between teaching and learning, mental and physical processes and

between self and other. To conclude I suggest in digital art practice web building facilitates cognitive curation, specifically where learner is creator. Virtual and physical domains connect successfully when digital tools, allied to time and space, are used to encourage learners to connect, analyse, disrupt, and share processes and products.

When writing this space, concerns emerged relating to the educational offering children experienced in their culture. For example, artist teacher Gemma remarked ‘children are losing their childhood because of digital technology.’ I suggested our next workshop focused on social justice and its link with cognition in art education to investigate the type of art education experience learners are entitled to. Social justice and cognition are linked in the following space. The next space considers what social justice art education is, how learning about social justice influences cognition and asks what this information can contribute to a socially and culturally responsive art education?

SPACE 5: SOCIAL JUSTICE AND ARTIST TEACHER COGNITION

Figure 39: Social justice

Figures 40-42: Fifteen minute social justice collages

The art *Social justice*, figure 39 expresses a visual voice connecting mine and participants' perceptions of the term and was created in response to workshop four - Appendix 3. Figures 40-42 form part of *Social justice*. The figures show participant creations representing social justice art education, that are discussed and analysed in this space. The participant collages are also united in an Animoto (Animoto Inc., 2013) film to form the digital component of *Social justice*. *Social justice* was created to open considerations about term meaning in art education whilst providing visual access and expression.

The text below provides a personal analysis of *Social justice* - figures 39-42.

Social justice explores an important theme in art education by sharing participant opinion. The physical image is collaged using newspapers to represent how the media captures, implicates and challenges social justice. It demonstrates art can send social, political and cultural messages. Each newspaper clipping presents subjectivities and messages extending beyond the artist's. I intend the art to be relational, to be read and interacted with, provoking thought. *Social justice* is conceptual art created through collaborative issue-based opinion. It evokes thought about issues and concepts that underpin social justice art education in this cultural time, such as economic implications, shared through bank note imagery in the top left of the image, or values, like the acceptance of growth and change represented by imagery of seeds being planted in the bottom left. The use of text and words, like review, suggest acts that contribute to social justice education.

The QR code links the audience to the Animoto (Animoto Inc., 2013) clip that shares artist teacher perception, through exposure of workshop collages created. Dissemination of the collages digitally presents self with other. Whilst collaboration is advantageous in exposing ideas, it can also limit viewer engagement because an audience has deeper and sometimes more content to decipher. To assist access, the space narrative to follow engages with these collages again and explores the meaning of social justice in art education from theoretical, personal and cultural positions.

Space 5: Social justice and artist teacher cognition

This space examines social justice art education and its link with cognition. In it I present, connect and interrupt theoretical, personal and cultural perspectives. I exemplify art education can address and challenge sociocultural systems like the environmental, political or economic. I define what social justice means, address what learning social justice offers artist teachers and identify how understanding, influences the educational offering. The purpose is to respond to Kuttner's concept (2015, p.70) suggesting art education 'is a process of developing young people's orientation towards the arts as a form of cultural production.' Art education can access, teach and develop generational roles and responsibilities facilitating positive strategies and developments for societal progression. By connecting social justice and cognition in artist teacher practice, I exemplify cognition can educate the educators.

Collection 1: Locating social justice and artist teacher cognition

Dewhurst (2010) states social justice art education encompasses activist, community, new public art, art proposing social change and the mobilisation of action towards it. She identifies three debates contributing to social justice art education: one concerns strategic decisions made to influence policy, a second concerns how activism or social change is embodied and a third questions the process or product of art for social accountability. Dewhurst presents social justice art education as evolutionary practice addressing controversial issues such as radicalisation or discrimination. Practice favours learners constructing knowledge through art process by connecting, analysing and ensuring world action. An interesting inference is Dewhurst's importance of connecting when engaging in social justice art. Connection can explore how injustice relates to a learner's life. In previous spaces, I revealed how connectionism (Bechtel, 1991; Hardy, 1997; Naidu, 2012), connective webs (Eng, 2015), idea mapping (Cunliffe, 1999; Gnezda, 2011) and connectome (Naidu, 2012) can influence cognition in art education. Dewhurst too alludes to connectionism in social justice education. She proposes how social justice learning appears influential when issue and personal practice link. The link could be cognition developing in social justice art education.

Social justice art education includes learners as changemakers (Heaton & Crumpler,

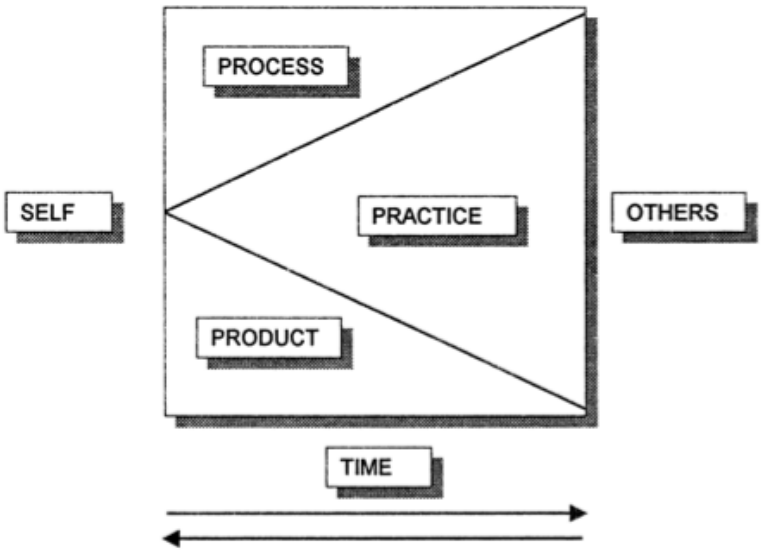
2017) or artographic environmentalists (Burke & Kutter-MacKenzie, 2010) addressing socially just philosophy - see articles for term definitions. The article I published (Heaton & Crumpler, 2017) unpicks social justice art education. It identifies how exploring changemaker as social justice can develop moral awareness, social responsibility and intercultural understanding, progressing cognition. The article suggests cognition in social justice art is advanced when learners gain self-recognition as change agents, agency fueled by active, real life art experiences that see practice as product and risk taking as knowledge. The article proposes sustainable social justice practice can only be maintained if learners understand cognition by articulating learning. It advocates for cognitive practices to be embedded in curriculum designs traversing social, geographical and cultural times, spaces and locations. It highlights cognition develops with reflexivity (Scott & Morrison, 2005), by linking social justice and contemporary life (Duncum, 2007) and by providing space for liberation. It supports Dewhurst's (2010) concept that social justice cognition is enhanced by personal and cultural links.

The *National Art Education Association* defines social justice art education as practice raising critical consciousness, empathy and respect (NAEA, 2016). Garber (2004, p.4) states, 'social justice education brings together the goals and perspectives of feminist, multicultural and disability rights, environmental, community based, critical pedagogy, social reconstruction and visual culture art education. It is also related to socially conscious contemporary art and visual and material culture.' Social justice is a vehicle for social transformation (Bastos, 2010), a practice founded in and on human rights (Duncum, 2011) and 'superficially mentions equity or diversity' (Bell & Desai, 2011, p. 287). Definitions lie in principles of positivity and progression. They encapsulate desire for a better, inclusive, equal and responsive world and art practice. The difficulties are how to achieve and access an art education ideology prioritising social justice whilst teaching and experiencing the term. The following exhibit exemplifies how cognition can be accessed and fueled in social justice art education demonstrating links, benefits and challenges from a theoretical lens.

Exhibit 1.1: A theoretical lens connecting social justice and artist teacher cognition

In Space Two, cognition in art education is identified in several forms. This exhibit is concerned with how cognition presents in social justice art education. Discussion above links personal research (Heaton & Crumpler, 2017) with Dewhurst's (2010) and Duncum's (2007) identifying a connection exists between social justice art and cognition that is central to cognitive development. Cognitive development occurs when issues and practice link, when learners identify self as change agent and when investigations connect with life. To articulate cognitive development clearly, in cognitive theory one could say connections map around Sullivan's (2001) art practice as transcognition. Diagram 3 below, presenting Sullivan's (2001, p.9) concept, assists association because the artistic acts and outcomes of process, practice and product appear influenced by the back and forth relationship between self and other. The artist's self, culture and community connect with making acts and being artists. Connection occurs in time developments. I propose cognition is curated in social justice art education similarly to other art disciplines. Sullivan's framework could be applied to all forms of contemporary art education. Social justice provides a learning theme in art education that readily facilitates connection between self, other, time, process, practice and product in art education.

Diagram 3: Art practice as transcognition



To substantiate I draw on social justice projects in art education. Darts's (2011) article facilitating a social justice project involving learners making, recreating and

experiencing a suburban street scene invited connection between lives and practices of visible and seemingly invisible community members such as the homeless, sex trade workers and drug addicts. One can see connection between artist self and communities. Artist learners gain awareness of situations and perspectives dissimilar to their own. They use processes, practices and products of art to gain insight and interrupt others' understandings of cultural groups by responding to and exploiting problems and practices of a cultural time. From what Darts (2011) articulates, learning happens by traversing Sullivan's (2001) transcognition components. Learning happens in other ways too, such as through involvement with socially engaged artists, but from a cognitive position social justice art challenges as Darts puts it, 'The separation between art and life' (Darts, 2011, p.51). In contemporary art education learners should engage in interdisciplinary art making practices to gain starting points able to facilitate complex cognitive connections. Practice needs to be educator managed to ensure accessibility at a learner appropriate level.

In the resource developed by Cornelius, Sherow and Carpenter (2010) that presents water study for learners aged 14-19, connections enhancing cognitive development in social justice art education are advocated to connect understanding and water use in life with community use in environmental, geographical and economic terms. Connection between acts of making, collecting, researching and producing marketing materials for water products are encouraged and activities encouraging engagement with time related social, political and geographical problems, in water consumption, are presented to understand social problems and perspectives. In advocating for such learning experiences, Sullivan's (2001) transcognitive frame is reiterated because learners use art process, practice and product to understand water associated issues exploring how use connects with communities, global spaces and contexts with different economic capacities. Learners encounter water-associated, time relevant concerns and use art to develop cognition beyond art practice.

The two examples explained illuminate cognitive navigation in art education, but these are not the only ways navigation can occur. As this exhibition has manifested, it has emerged how facilitating idea mapping and connectionism in cognition, as exemplified in digital practice in Space Four, and then articulating or reflecting on connection assists cognitive development in the art discipline studied because learners

see their developmental journey. Learning steps, interruptions and change points surface; reflection assists in consideration of alternate cognitive paths. Exemplifications shared suggest a way cognitive development can be approached in art education. Dewhurst's (2011) work reminds us to see cognitive contribution in social justice art practice can be analysed from three lenses: intention, process and social location. I explain and exemplify these concepts in contemporary social justice art practices in Heaton and Crumpler (2017) but mention them to demonstrate cognitive contributions made in social justice art education are implicated by measures beyond idea development, process and product.

When producing social justice art, its message and contribution to cognition, of maker and viewer, can be different, so educators must ensure learners know this. A critical and analytical lens adopted towards social justice art education protects the maker from critical or oppositional commentary and makes learners aware when cognition is challenged, developed or scaffolded. There should be no expectation to follow a specific path or produce a finished outcome. Social justice art education is about challenging emerging ideology and understanding beyond self-issues (Garber, 2004). Educational contributions should have relevance, rigour and revolution (Dewhurst, 2011) to the issue studied, but should also be open to progression. Otherwise the objective to allay practice to time cannot be fulfilled.

This small examination into theory associated with social justice art education and cognition teaches when theoretical cognition components, like transcognition in this case (or other forms like miscognition, metacognition or situated cognition) are applied to social justice art education, cognitive development becomes clearer. It identifies external factors implicating cognitive development, such as pre-requisites and expectations for learning and development in social justice art education and outlines despite implicating factors, an important educational offering to art education is provided.

I write the next exhibit, examining social justice art education and cognition from a personal angle, with factors influencing cognitive development in mind to determine the extent they implicate cognitive interpretation, use and social justice understanding. I see what studying social justice art, when considered from a

cognitive angle, offers education. A cognitive angle is required because research exists into what social justice art education is (Bastos, 2010; Garber 2004; Duncum, 2011; Dewhurst, 2010), how it should be analysed (Dewhurst, 2011) and application and contribution to education (Bell & Desai, 2011, 2014; Heaton & Crumpler, 2017; Miner, 2013). But at the time of writing and in exhibition literature reviewed limited relations exist between social justice art education and learner cognition.

In the text *Culturally Relevant Arts Education for Social Justice a Way Out of No Way* (Hanley, Noblit, Sheppard & Barone, 2013) cognition is linked with social justice in respect of cognition being agency and growth prompting creativity and drive or cognition occurs as a result of education and learning transformation. Connection is made in relation to social justice education being capable of challenging dichotomy between art and cognition in education, but limited examples unpick how this occurs. This forges space to unravel cognition's contribution to learning in art education from a personal angle, to unpick ways cognitive growth occurs, exemplifying discipline links to other educators.

Exhibit 1.2: A personal lens connecting social justice and artist teacher cognition

This exhibit communicates how I understand and navigate social justice art education. I unpick, using exemplifications from personal practice, how cognitive growth occurs in understanding social justice art education and show ways other educators may assist learners in connection. This contribution extends research conducted in social justice art education by providing examples of cognitive growth and associated challenges in artist teacher practice. It connects social justice art education and cognition in artist teacher practice with educational and cultural time, and offers ideas to continue research development where research, policy and practice in art education link.

I started this exhibition with interest in social justice principles. The university I work for is committed to social innovation in education driven by its role as an *AshokaU Changemaker Campus:* http://ashokau.org/changemakercampus/. As academic I have been involved in projects committed to this ideology that utilise artist teacher skills like involvement in a charitable project, making *Little Dresses for Africa:*

http://www.littledressesforafrica.org/blog/ where participants produce clothing for children in third world locations - see a sample in figure 43.

Figure 43: Clothing produced by University of Northampton collaborative for the charity Little Dresses for Africa

I have conducted research in application of social justice principles in curriculum design (Heaton, 2014a; Heaton & Crumpler, 2017), supported undergraduate students to publish and disseminate investigations in practitioner publications (Heaton, 2016) and have facilitated events and exhibitions to disseminate social justice principles and research outcomes that promote community change. This link, Http://blogs.northampton.ac.uk/learntech/2014/08/04/northampton-inspire-event-at-nn-contemporary-gallery/, connects to an *NN Gallery* event I co-organised showing a community collaboration, driving change concerning arts informed digital innovation in educational settings. These blog posts (Heaton, 2015b, Social issues exhibition; Heaton, 2014d Art specialist exhibition 2014: Societal issues) also exemplify the social issue range students I have collaborated with have explored in their practice.

As artist teacher, I have a history of making work responding to social justice concerns; figure 44 *Water Consumption* provides an example. I took water samples from natural, domestic, commercial and public United Kingdom locations,

categorised and installed them according to ph. levels to make a statement regarding environmental water quality and human footprint.

Figure 44: Water Consumption

In the art of this space, figure 39, I have used art to share collaborative artist teacher perception on social justice. This formed part of an artist teacher exhibition at The Glass Tank Gallery (2017) in Oxford. The art's intention was to demonstrate how social justice is a component in all artist teacher's practice, but the extent this is made visible is a personal decision. I state this because artist teachers are renowned for their commitment to connecting, developing and reflecting on links between personal and cultural worlds to make art education progressive and responsive to change (Thornton, 2005; Hoekstra, 2015), but not all artist teachers choose to disseminate how or why they do this.

In personal artist teacher practice, described above, an underlying commitment to social issues emerges. I keep revisiting social justice in practice supporting Thornton (2005) and Hoekstra's (2015) constructs of artist teacher identities. Social justice presents in different guises. It is a thread connecting my practice and cognition. In personal social justice practice I now communicate how I understand social justice principles and how understanding informed cognitive growth. I specifically prioritise experiences that have occurred in exhibition time.

As mentioned in the first exhibit of this space considering Sullivan's (2001) diagram of transcognition, cognition grows and shows strength when connections exist in process, practice and product between self and others and in time honouring past, present and future. If I examine my understanding and use of social justice principles in artist teacher curriculum design at my home institution, I reveal transcognitive connections in practice. On starting my academic career, see figure 44 *Water Consumption* described above, I had already explored social justice through process, products and practices. I was concerned with environmentalism, examining water as a resource; I used art process and practice to research, collecting samples for analysis. I exhibited these as product, demonstrating environmental activism and used personal concern to interrupt others' views.

At this career point, I unconsciously engaged in transcognitive art practice. I was aware of artist teacher process, practice and product, and self and other influences but was not aware of these entities as transcognitive practice or time dependency. Prior experience of understanding and using social justice in art practice enabled me to quickly identify how important social justice was to progressive educational provision. In my master's degree I became informed of artist teacher research as a specific academic area. On being introduced to social justice principles in academia, through changemaker ideology (Rivers, Nie & Armellini, 2015; Sen, 2007) at the outset of my academic career, I connected cognition concerning social justice and artist teacher practice. I used it in the curriculum design I forged. I applied Sullivan's (2001, 2005) transcognitive practice to a new time and space at the university by involvement in cognitive connectionism (Bechtel, 1991; Hardy, 1997; Naidu, 2012).

In my first-year teaching in academia I used changemaker (Rivers, Nie & Armellini, 2015; Sen, 2007) and social justice philosophy (Bastos, 2010; Dewhurst, 2010; Duncum, 2011; Garber 2004) to develop an undergraduate artist teacher specialism pathway for students training to be primary teachers. The first year culminated in art dissemination through an exhibition hosted by students. It showcased social justice explorations - see practice examples in the blog posts above. Another way I have traversed Sullivan's (2001, 2005) transcognitive frame by using connectionism can be observed through curriculum implementation. Learners connect process, practice and product and self with other through facilitation. I connect prior transcognition across

time and space applying personal practice and experience to curriculum pedagogy and practice. I cognitively map (Cunliffe, 1999; Gnezda, 2011) personal practice onto curriculum designed for others. If I can achieve transfer, other artist teachers can. If they study or place value on social justice principles, as many do (Hoekstra's 2015; Thornton, 2005) they can map understanding, consciously or subconsciously, onto learner practice. This is promising for sustainable development of social justice art education.

For some students and I, cognitive understanding of social justice did not stop. I published curriculum design outcomes (Heaton, 2014a) developing cognition by unpicking student learning. I also observed students applying social justice understanding to art projects taught in school, and in academic studies later in their course. For example, one final year artist teacher trainee ran a school art project with children aged ten to eleven, enabling them to explore, through making, a social issue of concern to them. This resulted in a community exhibition. Another explored social justice community understanding, as their final year dissertation work. Combined artist teacher-learner acts, referring to me and the students, fueled a co-publication partnership (Heaton & Crumpler, 2017) and research presentation at *The International Journal of Art and Design Education Conference* - see Appendix 9. Transcognitive practice transcended additional times and spaces, for me and the students, such as into teaching, research and exhibitions.

There are interesting observations here concerning cognitive growth, one being how understanding of social justice principles can be disseminated and accessed on levels by students, teachers, children and school or academic communities, by sharing them with trainees. This dissemination and access appears to occur through cognitive connectionism (Bechtel, 1991; Hardy, 1997; Naidu, 2012), idea mapping (Cunliffe, 1999; Gnezda, 2011) and relationship understanding between transcognitive components (Sullivan, 2001, 2005). For different parties, I as artist teacher, trainees and learners in school, acts would occur differently, specifically frequency of applications of Sullivan's transcognitive frame. In cognitive process, I as academic have applied and documented this transcognitive frame multiple times to scenarios, times and spaces. It is application, documentation, idea connection and principles between facilitating cognitive growth. For students and learners in school frequency

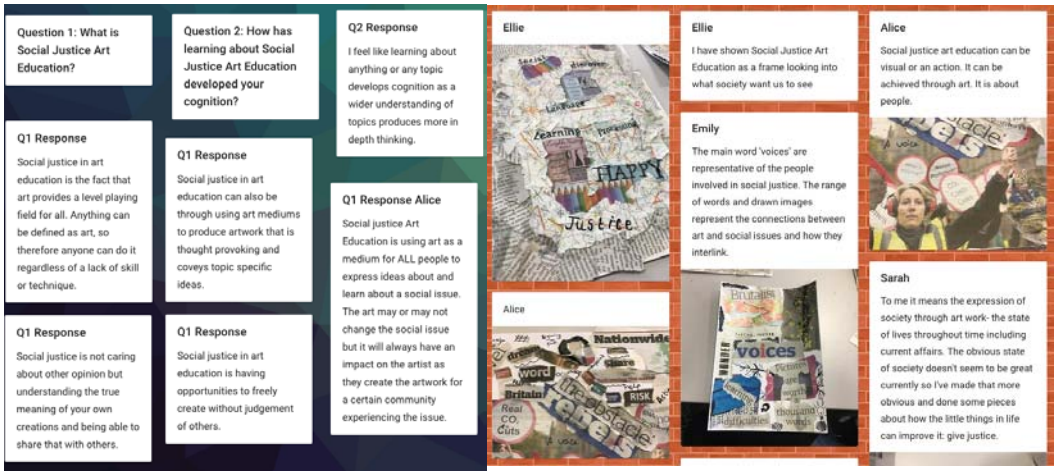
of cognitive connections may be different, because prior knowledge will have occurred at a different starting point. Opportunities to apply, make, reflect on or understand cognitive connection may be less established.

Further research is required in artist teacher practice, beyond mine, to substantiate inferences made. However, the exemplifications shed light on how one can understand social justice principles and encounter cognitive growth because examples shared demonstrate social justice principles can be understood through academic engagement, like reading, conducting research and collaborative dissemination, through pedagogical implementation and engagement in personal art practice. Each practice enables social justice principles to be explored from different perspectives broadening artist teacher view. Cognitive growth occurs through application of conceptual frames to practice, connections and reflections on connections, in artist teacher theory, practice and pedagogy. In the following exhibit I report connection between social justice education and cognition from the perspective of artist teacher participants. The outcomes add strength and interruption to deductions made here concerning how one understands social justice art education and cognition.

Exhibit 1.3: A cultural lens connecting social justice and artist teacher cognition

In this exhibit I share workshop four outcomes and analysis - see Appendix 3. This concerns the artist teacher participants' relationship between social justice art education and cognition. I connect this exhibit with theoretical and personal perspectives explored in this space to critique, analyse and justify ideas concerning social justice art education and cognition in practice.

To determine what social justice meant to the participants I invited them to share initial views on this Padlet (Padlet, 2016): https://padlet.com/wall/qxmzfjynhcgc. After physically making a collage about social justice I asked them to post their contribution and an explanation to a second Padlet (Padlet, 2016): https://padlet.com/rebecca_heaton/2kohudlohwas. Post samples from each Padlet (Padlet, 2016) can be viewed in figures 45-46.



Figures 45-46: Artist teacher social justice Padlet contributions

On coding the text and visual contributions, five themes surrounding the meaning of social justice art education emerged. These were:

1. People
2. Freedom
3. Access
4. Transformation
5. Time

The theme *people* emerged as artist teacher participants made reference to social justice relationships between self and others, such as sharing or not feeling implicated or judged by another. One artist teacher commented, ‘social justice art education is a medium for ALL people,’ (Artist teacher, Alice). Another commented, ‘it is a level playing field for all’ (Artist teacher c). In the visuals words like *voices* and emotional phrases like ‘keeping the faith’ were used to share and represent facets of feeling or expression. Visuals of people from a range of socio-economic, cultural and political positions were shown. From the imagery and statements, a link to Sullivan’s (2001, 2005) transcognition emerges. The artist teachers link self and other, using their art and commentaries to experiment with social justice art education. This is interesting because the subject of social justice and reflective space, art and text, provides fuel for the artist teachers to freely explore connections with people and communities. For example, artist teacher Steph, see figure 47 below, overlapped handprints to represent people’s roles in social justice art education.

Figure 47: Handprint collage representative of social justice roles

On making this collage Steph discussed issues concerning race, identity, culture, connectivity and individuality, identifying these issues and facets contribute to one's perception and experience of social justice art education. Through the contributions concerning *people* the artist teachers began to explore people's societal roles and connections they have with them from individual and community centered positions (Kuttner, 2015). In doing so they understood, to some extent, connections (Dewhurst, 2010) and separations between self and life (Darts, 2011).

The second theme *freedom* links closely to *people.* The artist teachers referenced freedom comes through expression and voice; art is a facilitator. They suggested social justice art education allows people to be free, to dream, to 'overcome obstacles as well as making change'. (Artist teacher Alice.) The beauty of art process is 'you can express thought without words' (Artist teacher, Alice). One artist teacher commented on the media's role in influencing or projecting freedom, and social justice's role in limiting bias. She reflected her art 'shows the positive, the dream of a better future with more justice and understanding of issues without bias.' (Artist teacher, Kerry). Connotations to freedom also came in layout of artist teacher visuals. Some created frames around concepts and ideas expressed (Artist teacher, Ellie), others used contrast and split visuals to show opposing perspectives (Artist teacher, Lily). Through layout the artist teachers suggested boundaries, limitations and stories told influence and regulate freedoms expressed in issues and circumstances. Artist teacher Ellie's commentary supports this; she stated she used 'social justice art

education as a frame, looking into what society wants us to see.' Artist teacher Sarah thought social justice art education was 'the expression of society through art.' These statements show participants used lenses to create social justice art. The subject of social justice allowed freedom and taught strategies to enhance society (Kuttner, 2015), like lens use. Art as a lens to express, to create, to share perspectives and reflections enabled the artist teachers to show criticality and empathy, social justice art education components raised by the NAEA (2016).

Lenses provide *access.* The third theme derived from the artist teachers' opinions on social justice art education. The artist teachers believe social justice art education should allow 'all people to learn about issues' (Artist teacher, Alice) and 'expand thought in how to express issues.' (Artist teacher, Alice). The artist teachers allude they are aware of art education and social justice rationales for inclusivity and accessibility but that these are not always achieved or projected in education or society. They identify social justice art education's strength is that it can explore and encourage accessibility. The artist teachers' practice accesses exploration through freedom explanations. This is also seen in art through the artist teachers' use of words combined with images, through use of linguistic tools like contrast and repetition and visual montages, on similar or opposing subjects, to persuade or question. These techniques influence the maker's and interpreter's access to the social justice concern projected. The artist teachers may or may not be aware of the effect of these tools in their work. But through statements made and use, access concerns are projected as influencers on social justice understanding. In the previous exhibit, where I share a personal view of social justice art education I state social justice issues can be shared, accessed and disseminated on levels occuring through connection (Bechtel, 1991; Hardy, 1997; Naidu, 2012), mapping (Cunliffe, 1999; Gnezda, 2011) and cognitive relationships (Sullivan, 2001, 2005). In the visual and textual examples, where artist teachers use tools showing lenses or issue perspectives, they show awareness of the pedagogical strength of social justice art education. The artist teachers deepen their understanding of the issue they project.

The fourth component that surfaced in the artist teacher data was social justice art education's ability to enable *transformation*, change, improvement and impact, types of transformation that occur through exploring, projecting ideology, consideration and

action. From an ideological perspective the artist teachers commented social justice art education can explore ‘the dream of a better future’ (Artist teacher, Kerry), it can help consider, ‘the state of lives throughout time, including current affairs’ (Artist teacher, Sarah) and it can show through action ‘the little things in life can improve society: give justice’ (Artist teacher, Sarah). In these statements the artist teachers voice the value of studying social justice art education, such as its ability to help learners see differently (Dewhurst, 2011) and respond to change (Hoekstra, 2015; Thornton, 2005). Artist teacher Alice commented learning about social justice art ‘has expanded my thoughts in how to address an issue and then portray it visually in a form of art’; she reveals self-transformation. This is interesting when Dewhurst (2010), Duncum (2007) and I (Heaton & Crumpler, 2017) state when links are created between social justice issues and personal art practice cognitive development occurs. Alice recognised cognitive development in making art and used reflection to articulate it. She demonstrated cognitive transformation.

Time was the fifth theme derived from participant contributions. The artist teachers made comments about ‘the moment’ (Artist teacher, Kerry), the present, expressing ‘society doesn’t seem to be great currently’ (Artist teacher, Sarah) and concepts of progression and movement. Sarah identified in her art, see figure 48, and reflexive statement time changes lives. She alludes small human actions such as shielding, protecting and seeking sanctuary assist one in coping and achieving justice, especially in the fast paced, shown by the red, green circles, ageing demographic madness we exist in.

Figure 48: The state of lives

Through use of newsprint to collage, the visuals created were influenced by time. It was interesting to see how, through art, the artist teachers linked time, space/location, culture and the self. As Sarah did, many participants used art to project current issues, be they national or international, such as appointment of President Trump in America (Artist teacher Kerry) or issues concerning immigration, refugees and global movement (Artist teacher Alice). In the short time available the artist teachers did not have time to address their expressions of social justice issues in depth. Greater time would have helped reveal how time connections manifest because the artist teachers would be able to go beyond just depicting issues, instead of contending with them.

I mentioned in the first exhibit considering Sullivan's (2001) transcognitive frame, when time is associated with transcognitive components, process, practice, product, and self, cognition grows. This could be true for the artist teachers because, as I mention, Alice alludes to cognitive progression influenced by developments in her art and Sarah links the self, time and process of her work, but the extent of her cognitive development is not clear. There is evidence of transcognitive links in Sullivan's frame, but no supporting statement of cognitive progression. From this I learn transcognitive links are possible when social justice art education and cognition connect, but further research and detailed analysis of link type and how they are made

are required to state cognitive development occurs through transcognition in social justice art education.

Collection 2: A summary of the relationship between social justice and artist teacher cognition

When I began writing this space I intended to find out what social justice art education is, how artist teachers understand it, whether cognitive growth can occur through it, how this occurs and whether it implicates offering in art education. In combination the space lenses exemplify what social justice is from multiple perspectives. As Dewhurst (2010) states it is an evolving practice. Exemplifications in personal and cultural lenses support this. Artist teachers appear to understand it using methods of connecting, idea mapping, navigating transcognition frames and by being reflexive. Cognitive growth is agency and transformation (Hanley *et al.*, 2013). It can occur through studying social justice education. Cognitive growth was shown in the personal lens by applying theoretical frames to practice, reflecting and connecting. It was alluded to in the cultural but requires further exemplifications to substantiate ways growth occurs. Theoretical exemplification was provided (Scott & Morison, 2006; Heaton & Crumpler, 2017) showing cognitive enhancement occurred through reflexivity, being most effective when social justice issues and personal practice united, when learners were agents of change and when issues and life connected. This was because mapping was possible, allowing cognitive curation.

By examining the relationship between social justice art education and cognition I see studying social justice in art education has educational and cultural advantages and implications. Its value is allowing learners to see differently, to honour change; it provides understanding of roles and responsibilities in society and contributes towards ensuring progression, sustainability and contemporary exploration in its educational offering. In doing so it provides complications for learners and educators. Facilitators of social justice art education need to have confidence and knowledge to take risks. They need to be assured in the reasons and worth of practice and be willing to navigate contemporary, controversial and ethical debates and practices with learners and communities. Learners themselves need to be willing to work with, and be respectful of parameters set by, facilitators trusting in their decisions to provide a safe and ethical environment to make art. They need to be willing to understand how they

develop cognitively and learn when engaging in social justice issues to see contributions to society as cultural production (Kuttner, 2015). I will present these ideas concerning social justice in artist teacher practice at the *International Society of Education through Art (INSEA) Seminar, Research and Praxis for Socially Engaged Art Education* in July (Heaton, 2018), to open the ideas to validation and critique.

In the next space I develop the concept of cognitive voice in art education. I exemplify what cognitive voice is, how this can change over time and ask if it can assist cognitive understanding and curation in art education. I do this to demonstrate learners of art education have a cognitive voice they can use to curate and progress cognition. I provide examples of cognitive voice to assist educators with exemplifying voice to learners. I demonstrate how attitudes towards and uses of cognition can change over time and make clear how reflecting on or narrating cognition can contribute to learning in art education. The final workshop I conducted with exhibition participants is also documented. A focus on cognitive voice allowed participants space to reflect on their cognitive journeys, bridging higher education and school practice in art education.

SPACE 6: COGNITIVE VOICE AND ARTIST TEACHER COGNITION

Figure 49: Artist teacher voice

Cognition is:

Learning, experimenting and making mistakes

A way to explore, intent and space

A process of thought, a growing mind

An abstract concept of the brain refined.

Con-scious, con-sumed, sub-verted, inter-lude.

Freedom, fighting: a pause for reason

A journey to creative meaning

Imagination, expression unfolds

Understanding to behold

Pro-cess, re-position, stop, learn, think, listen.

Sub-conscious, fragmentation

A positive situation.

Scaffolded, unique

The personal becomes complete.

Rebecca Heaton

A found poem

Figure 50: Sound art poem: Artist teacher voice

Artist teacher voice, figure 49, is a sound wave visual that directly links to a sound art poem - figure 50. The three waves in *Artist teacher voice* are the sound waves produced when the poem was performed. The waves depict cognitive voice, the concept explored in the space narrative. The waves share the collaborative opinion of participants and I about changes in cognition. The wave repetition represents how cognitive concepts can be recognised, reworked and re-presented. *Artist teacher voice* was created by recording a poem created as performance. I then converted the recording into a visual using digital sound wave software and manipulation techniques. The QR code links to the poem, performed as sound art. Its position here exposes it as research, data and performance.

The text below provides a personal analysis of *Artist teacher voice* - figures 49 and 50.

Artist teacher voice presents the voice of self and other, questioning artist teacher cognition. It is an experimental and expressive art piece that reveals vulnerability through poetic creation and performance. It plays with concepts in artist teacher practice and exposes story vignettes concerning cognition. It represents change, on behalf of exhibition participants and I, concerning our opinion, attitude and understanding of cognition in the time and space of this exhibition. The space narrative captures this change and movement by correlating theory, voices and artistic expressions.

As a multi-sensory and performative art piece, *Artist teacher voice* invites its audience to explore. It uses a QR code to link to the vocal poetic expression, that is a found poem, created by uniting exhibition participant voices and mine after involvement in workshop five - see Appendix 3. The workshop outcomes are discussed in the space narrative. In a relational way, the audience can hear and observe art, engage with performance and position the self, or myself, with others. *Artist teacher voice* is media and concept rich, it engages with art as expression, data and knowledge and is artography. In criticism the art requires explanation to reveal purpose.

Space 6: Cognitive voice and artist teacher cognition

I use this space to address the meaning of cognitive voice in this exhibition. I exemplify cognitive voice from theoretical, personal and cultural perspectives and connect these to illuminate how cognitive voice influences artist teacher cognition. Cognitive voice is a term I use to represent an individual's expression and/or recognition, or progression, of cognition in learning. Cognitive voice can present in several forms such as through art, writing and digital content. I provide examples in the following discussion that have emerged in this exhibition to demonstrate. Cognitive voice is important in art education provision because as Gregory (2017) recognised in his doctoral research, questioning over 200 leaders of primary art, the voice of primary art teachers is often suppressed.

Cognitive voice can reinstate, demonstrate the value of, or offer power to teachers. Gregory (2017, 2011) suggested empowered leadership is needed to alter leadership in primary art. Cognitive voice can help achieve alteration because when cognitive engagement occurs in an educator's expression, practice or context their voice gains worth; they come to know. Knowing connects learning, experiences and theoretical ideas supporting art development and other educational areas (Gregory, 2015; Hickman 2005b). I exemplify the worth in artist teacher voice and forge connection with cognitive voice below. Voice recognition can lead to power gained through embodiment and positioned to alter practice. Cognitive voice can contribute to combatting concerns regarding the low status and isolation of teachers in primary art.

In Space Two, I explained taking risks facilitate one to voice cognitive understandings in artist teacher practice and risk assists cognitive connection formation to move learning forward. I described visuals can reveal unspoken voice, the voice of others and suggested voice interrogation can disrupt practice moving cognitive understanding (Miller, 2008). In Space Four I modelled digital space use, such as Padlet (Padlet, 2016), sharing and unpicking cognitive voice. I have since become aware disentangling learning processes through digital platforms assists learners metacognitively (Fahey & Cronen, 2016). I also exemplified when unravelling cognition learners could be exposed to multiple and internal voices. I recognised conversations generated between voices had ability to shape cognitive progression

(Miller, 2008; Reardon, 2012). In Space Five I reiterated the pertinence of cognitive voice. I shared how exhibition participants used voices in visual contributions to represent how social justice and cognition connected. These examples exemplify and make a case for cognitive voice because they demonstrate how artist teachers connect experiences and use experience to gain voice and to alter practice, the characteristics of empowered art education facilitators Gregory (2017) desires.

With cognitive voice present in artist teacher practice, I suggest the importance of its recognition. I discuss below how cognitive voice can be used as tool to help artist teachers dissect and connect cognition to understand it. The theoretical lens clarifies ways artist teacher cognition develops in cognitive voice and links to theory addressed, see Space Two, concerning cognitive progression. The personal lens exemplifies how I used cognitive voice to disrupt my cognition. The cultural lens then shares how participants have considered or used cognitive voice to engage and progress cognition academically and pedagogically. By connecting lenses, I develop a case for cognitive voice as tool to reflect and narrate cognition in learning. The case presented meets criteria set at the end of Space Five concerning use of this space to showcase cognitive voice examples. It demonstrates cognition is fluid, changeable in time, attitude and environment and clarifies how reflexive narration contributes to learning.

I show cognitive formation in this exhibition to reveal using cognition enhances cognitive progression and willingness is needed to understand this. An understanding once obtained contributes to cultural production (Kuttner, 2015). In Space Seven I attempt to understand exhibition cognition by storifying it. I model a contribution to the cultural production of artist teacher practice, art education and educational research because, as stated in Space One considering Richardson (2000) and Miller's (2008) research, narrating from multiple angles brings capacity to reveal content from different perspectives. I also state the contribution exhibition exemplifications of artist teacher cognition make to artist teacher practice, art education and educational research, not only through three lenses, but through visual, reflexive and narrative stories told.

Collection 1: Establishing cognitive voice and artist teacher cognition

In Space One, Two and above I explain how and why cognitive voice should be considered central to artist teacher cognition. In Space One I explain when voice is communicated, one exposes self and often vulnerabilities (Berger, 2001) and this can have positive and negative effects on self-development and practice. I explain how sharing voice can be the entity shaping value in voice (Buzard, 2003; Wall, 2006) and such voice sharing acts as platform to connect experience, emotion and behaviour (Miller, 2008; Muncy, 2005). In Space Two I address limitations with exposing voice in educational research, such as awareness of information not voiced or voiced differently (Cook-Sather, 2015; Polanyi, 1966; Todd & Nind, 2011), detachment and simplification of voice through telling. I communicate in this exhibition and its pilot (Heaton, 2015c) how cognitive awareness is fuelled by lenses to interrogate and communicate the self.

I link lenses to draw out cognition because explaining research stories allows those interacting to connect stories (Todd & Nind, 2011). The connections I explain, where I state narrative can enable experience, emotion and behaviour to join, parallel with the way Bechtel (1999), Efland (2002), Eng (2015), Hardy (1997), Sternberg and Sternberg (2012) and Naidu (2012) explain cognition, as connectedness or connectionism - see Space Two. I demonstrate voice can share artist teacher cognition and cognitive voice. Cognitive voice can exist as cognition because it can connect one's ideas, artistic or pedagogical outputs and practices.

This example teaches cognitive voice appears to form like cognition. More examples would substantiate these ideas in artist teacher practice, but in this exhibition connectionism occurs in cognitive voice and cognition. Connections in cognitive voice curate, understand and build knowledge and/or learning in cognition. Cognitive voice acts as tool and path. It connects with other cognitive paths to enable artist teachers to reach knowing concerning cognition. With these statements in mind I look towards theory, personal practice and participant to understand connection between voice, cognitive voice and cognition in artist teacher practice and art education. The following exhibit presents theoretical engagement with this idea.

Exhibit 1.1: A theoretical lens connecting cognitive voice and artist teacher cognition

To contextualise cognitive connectionism theory (Bechtel, 1999; Efland, 2002; Eng, 2015; Hardy, 1997; Naidu, 2012; Sternberg & Sternberg, 2012), recent literature by Fahey and Cronen (2016) is assistive in seeing art experiences fuel meaningful connections. Connections facilitate understanding and are connectionism. They assist in making learning visible. In Fahey and Cronen's (2016) work, see Space Two, Hetland *et al.*'s (2007) studio habits framework bridges, or curates, connections between theory, practice and research. I mention theory use to exemplify a tool to use with artist teachers to reveal cognitive voice and cognition.

Artist teachers could use theoretical frames as a scaffold to narrate experiences. This would facilitate connectionism because in cognitive voice, theory and practice would connect. Parallels between theory and practice are often revisited in education (Hennissen, Beckers & Moerkerke, 2017), so this idea is not new knowledge. I present the idea to remind tools exist in education which, when applied to art education, add worth to cognitive voice. To substantiate, in the following exhibit I model how I use the exhibition conceptual frame to understand connectionism in cognitive voice and cognition.

I state in Space Two cognition is best correlated against more than one conceptual frame to demonstrate connectionism in cognitive voice and cognition featuring in different ways. This aligns with the theory that cognition is an individual concept (Sternberg & Sternberg, 1984; 2012), socially constructed or facilitated (Cole & Engeström, 1995; Fernandez *et al.*, 2001; Hickman, 2007; Mercer 2005). If artist teachers engage with cognitive voice or cognition in more than one conceptual frame they may identify overlaps or intersecting points, facilitating visualisation of how cognition can be captured as a path, map (Vitulli, Giles & Shaw, 2014) or curated act. One must not forget cognitive voice can be expressed through different lenses (Dewhurst, 2011; Stanley, 2015) theoretical, personal and cultural for example, or voices (Richardson, 2000; McNiff, 2008; Miller, 2008; Reardon, 2012; Rose, 2012) like internal or external or conscious and subconscious. When lenses and voices unite with cognitive voice, complex intersections occur. Cognitive voice can be fuelled by practice analysis that occurs through lenses. When linked to theory or conceptual

frame, a connectionist path of cognition forms - see figure 51 for a visual representation. The path of artist teacher cognition gains in complexity as result of cognitive voice use because voice is the central component linking facets.

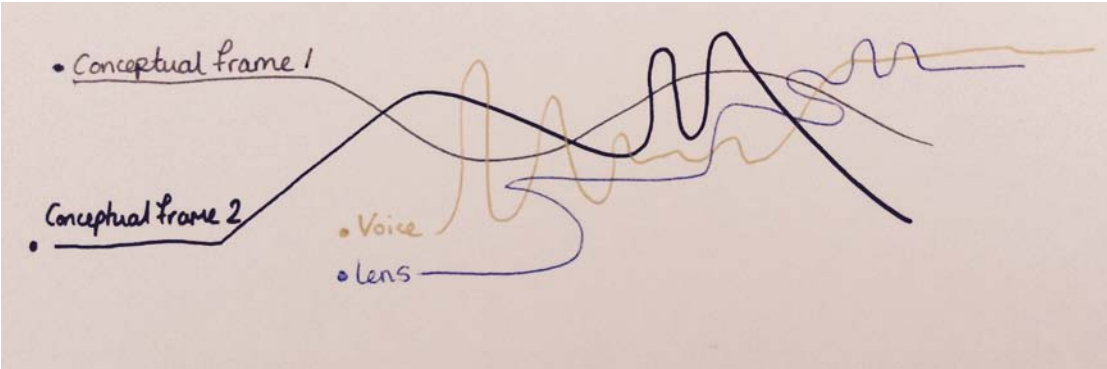


Figure 51: A visualisation of connectionism in cognitive voice

Figure 51 represents one visualisation of a connectionist map in cognitive voice. Such maps can and should be devised in different forms because of abundant influential factors, components and relationships in cognition. Figure 51 demonstrates potential for multiple connections between conceptual frames, voices and lenses, for movement between and around paths and expresses multiple angles for telling analysis of cognitive voice. What I demonstrate is not only the uniqueness of cognitive voice to an individual and their experiences, but cognition's complexity as concept. It is probable one will never fully understand cognitive voice or cognition in artist teacher practice because of its changing nature but this does not render the subject inaccessible. Small engagements with cognition, as I demonstrate through this exhibition, not only advance understanding but demonstrate how complex learning in artist teacher practice and art education is.

To my knowledge the concept I explain in figure 51, concerning cognitive voice in enabling complex cognitive constructs, is a new interpretation of connections between cognitive voice and cognition in artist teacher practice theory. New knowledge or ways of looking at existing knowledge is required in doctoral study (Scott, Brown & Brown, 2004). In Space Two I present factors implicating paths formed in and around cognitive voice and cognition, such as time (Vitulli, Giles & Shaw, 2014), context (Critchfield, 2014) and disciplines (Abraham, 2013; Blakemore & Bunge, 2012;

Campbell, 2011). These factors could form elements for future research when investigating how connectionist paths can be curated in artist teacher cognition.

The main benefit of understanding connection between cognitive voice and cognition in artist teacher practice is that it reveals how artist teacher cognition is meaningful, an entity Efland (2002) and Parsons (2005) identify as central to art education. Through engagement with connectionism in cognitive voice and cognition, the artist teacher is guided to engage in cognitive acts. As explained in Space Two, it is through cognitive acts artist teachers learn how they gain knowledge in person and practice, for example in transcognitive areas of medium, language and context (Sullivan, 2005) or in Tavin's (2010b) six miscognitive acts. Subconscious acknowledgement brings another complexity to connectionism maps because to understand miscognition's role in cognitive voice the artist teacher needs to work between conscious and unconscious domains. They need to acknowledge the subconscious through conscious outputs to articulate their role in a cognition connectionist web.

Articulation is a complex and challenging process warranting future study to reveal how the subconscious supports or implicates cognitive connectionism. Study limitations concern truth subjectivities in unconscious reveal, access to unconscious understanding and the niche research domain. In consideration of these concerns I only attempted in this exhibition to indicate through cognitive voice where subconscious acts of miscognition occurred, as opposed to curating an unconscious path to cognitive knowing. This focused the study.

In Space Two I explain how active art experiences (Heaton & Crumpler, 2017; O'Donoghue, 2015) can create cognitive maps and learning constructs (Cunliffe, 1999) that, once engaged with, can progress cognition. The explanation is another example of how art education offers a tool, through practice, contributing to cognitive knowledge building. The Space Two examples show artistic acts like problem solving, risk taking, and reflexing are fuelled by active experience, and such acts facilitate connections in voice and cognition. The connections on creation, once revisited, aid in artist teacher meaning construction and deconstruction because connected experiences fuel cognitive maps and connectionism. Maps can be curated in action or reflection to enhance an artist teacher's understanding of learning and

cognition. To substantiate this idea, I show how the experience of being an artist teacher and use of the exhibition conceptual frame has assisted in developing personal cognition. In the third exhibit I address whether participant cultural voice presents further exemplifications.

Exhibit 1.2: A personal lens connecting cognitive voice and artist teacher cognition

In this exhibit I exemplify, through personal practice, how exhibition art experiences have influenced cognitive voice use to facilitate understanding. I explain if and how examples shared relate to the exhibition conceptual frame to exemplify cognitive connectionism. I look for connectionist examples where cognitive voice is a facilitator to or implication in linking theory and practice. I do this to offer justification and validity to the idea above where I state uniting active art experiences with theory in an artist teacher context adds worth to cognitive voice, worth that assists the understanding, use and progression of cognition.

The first exemplification of cognitive voice shared links to the art of this exhibit, *Artist teacher voice* - figures 49-50. In *Artist teacher voice* I share a poem about artist teacher cognition and a visual sound wave depicting the poem being read. The view of cognition expressed is mine accompanied with the artist teacher participants. I discuss the art from a personal perspective but revisit it again in the next exhibit to offer participant understanding. In *Artist teacher voice* I engaged in an active art experience influenced by people and time. People and time are the first elements in this exhibition's conceptual frame, figure 22, I identify as influencers to cognition.

The art, *Artist teacher voice*, is an active work because it involves risk (Cunliffe, 1999); it accesses vulnerability. Prior to creating the art, I had not publically performed or presented poetry as art. I presented this work at the *Cambridge University 2017 Doctoral Conference* and as part of an *Artist Teacher Exhibition* (The Glass Tank, 2017). The presentations demonstrate art engagement in different contexts, another feature of active art experience (Cunliffe, 1999; O'Donoghue, 2015). When performing the poem live, I realised I needed to alter the poem's last line. I changed it from, '*The personal becomes complete*' to the '*personal is incomplete.*' I realised in artist teacher cognition, which the poem represents, personal

view and experience of cognition grows. To render cognition complete would suggest no further cognitive paths could manifest. It was the active performance, positioning myself vulnerably, that led to cognitive conception.

In this experience, conference space engagement, people in it and time influenced cognitive expression. In the cognition conceptual frame, figure 22, I can unpick ways this act occurred. For example, if I look at the event in Triarchic Intelligence Theory (Sternberg, 1984; Sternberg & Sternberg, 2012), that positions being *practical, analytical* and *creative* as central to cognition, I was being *practical* through expression. My expression changed in response to sociocultural environment. The environment triggered the *action* of analysis which made the *creative* output I disseminated different. If I look at the experience in Hetland *et al.*'s (2007) studio habits, see Space Two, I can report differently.

I was *developing craft*, one of the eight habits, because I was learning to use poetry as a tool, trialling new *poetic expression*, a second habit. I was *engaging and persisting*, a third habit, because I was re-evaluating a line I was uncomfortable with and trialling an alternative *expression*, a fourth habit. The line change represented a new feeling I may have been unconsciously *observing*, a fifth habit, people's reactions, and this drove change. I was *reflecting*, a sixth habit, on learning. I was trying to reach a personally acceptable account of cognition. By changing the line in action, I demonstrated willingness to *stretch and explore*, a seventh habit. I moved from a preconceived plan to try something new and in presenting myself vulnerably I further understood the *arts community*, an eighth habit, because I began to realise what it meant to cognitively build knowledge in an active art experience.

The two accounts shared connect sharing cognitive voice through account and action. They reveal expression, responsiveness and analytical acts influence cognition, but reveal this in different ways. If I share this poem in the transcognitive (Sullivan, 2005) or miscognitive (Tavin 2010b) element of the exhibition conceptual frame, another account would be provided. For example, I could express in transcognition I was *thinking in medium*, *language* and *context* because whilst performing the poem I thought about its construction. I contemplated whether language expressed the cognitive meaning I was conceptualising. Was I willing to change language in

response to audience reception or was I influenced by reception? In response I reworked the language and medium of the poem.

In miscognition I could say I had *unknown knowledge* I knew cognition could never be complete subconsciously and changed the last line in response to this. Or I experienced *unmeant knowledge.* A new idea spontaneously emerged in response to experience. I could suggest the poem I had written is unfinished; it had *missing metaphors* of cognition I will never know because they lie in other's hands experiencing the poem. My progress could have been blocked the first time I wrote the poem's last line, forming *stupidity* or a *blocked connection,* and now it is realised. The new line could be a *symptom and sinthome* because I showcased a solution to a problem by revealing to my audience at the end of the poem I made a change. Or I experienced *truth untold* because a mistake in the final line progressed my cognitive understanding. I was able to rework an idea, translating thought between conscious and unconscious circumstance.

These four accounts show cognitive voice can be revealed in different ways, in relation to different theoretical concepts in artist teacher cognition. The way experience is related to theory will implicate one's cognitive voice and path to understanding. If the path is implicated, connectionism will be because connection between theory and practice occur differently. I learnt when active art experiences are linked to more than one theory, it becomes possible to see how perception implicates cognitive understanding. This substantiates the idea I raised in Space Two: cognition is unique, individual and influenced by 'connectome' (Naidu, 2012). As I show and learn, this knowledge can be extended because the process of understanding self and cognitive act also influence connectome.

The second example of cognitive voice I use in this exhibit illuminates how I engaged with cognitive voice to progress cognitive understanding. It examines how risk taking, problem solving and reflexing, fuelled by active art experiences, connect artist teacher cognitive voice and cognition. Whilst conducting this exhibition, I kept a blog (Heaton, 2015a) to document cognition developing in artist teacher practice - see Space One and Two for explanation and analysis. I now use one blog post to unpick and exemplify the strengths and limitations of revealing cognitive voice, whilst

revealing how connectionism can form in cognitive voice progressing or implicating cognitive understanding. I show where connectionism occurs in and between theory and practice; whilst sharing through new media interaction how my cognitive awareness has developed.

In the blog post (Heaton, 2015a, To curate, para. 1-5) I reflect on an active art experience (Cunliffe, 1999; O'Donoghue, 2015) where I work alongside a gallery curator and group of undergraduate final year artist teacher students to learn about gallery curation. I planned the experience as part of the academic course I taught for primary art specialist teachers at my home institution. I did not plan how I would use and reflect on this experience to progress cognitive understanding; this occurred spontaneously which I detail. After working collaboratively, I began to reflect and question what it was to curate and create and what the differences were between these acts. This led to the blog post. The blog provided a multi-media space where I could explore, piece together and share reflections, ideas and imagery from experience. When writing this doctorate, I had also been questioning similar facets in cognition - see Space One. I questioned for example whether cognition was created or curated. It is interesting to see how, through the post formulated, I expressed cognitive voice to link the two experiences, theory and practice, and past and present cognition concepts.

To exemplify links made, I present blog post excerpts. Early in the post (Heaton, 2015a, To curate, para.3) I reflected on curating, I expressed:

> *I formulated thought today through exposure to new and unexpected experiences, whilst making connections to prior experiences encountered. Whilst listening to Katie and the artist teachers discussing how exhibitions were organised at the gallery, I began to connect thought threads from recent experiences I have had as an artist teacher. These threads interconnected to help me build knowledge.*

In this excerpt there is recognition of connectionism (Bechtel, 1991; Hardy, 1997; Naidu, 2012) or mapping (Cunliffe, 1999; Gnezda, 2011) occurring. This occurs through mental process to build knowledge. At this post point I did not state knowledge building was related to cognition. I go on to explain knowledge mapping occurred. I identified it was the link to a gallery curator's practice enabling knowledge recall I had about cognition being built and progressing through mapping.

I insinuated cognitive maps could generate, or be generated, in relationships, histories and stories. I used the cognitive voice expressed, through post and mental act of curating information, to link post content and a previous blog post made reflecting on theoretical webs in cognition. I used the post (Heaton, 2015a, To curate, para. 4) to weave theory and practice, to try and conceptualise cognitive understanding in the active context. I reflected:

> *Through the process of connecting I had been actively curating cognition because I made links as Acord (2010) stated between thoughts, concepts, art experiences and cultural contexts.*

I used blogging to reflect and express cognitive voice. I used cognitive voice to understand how I curated cognition by linking elements, mental and physical, in personal artist teacher experience. The blog post (Heaton, 2015a, To curate, para. 5) provided space to facilitate reflection on cognitive understanding; it facilitated an environment to voice all practice aspects in one domain. I forged links with and between self, experience, time, people and place. I expressed:

> *In today's experience I did this in many ways. I was open to the art experience I encountered influencing mine and students' learning. I took a risk to invite another to assist in the pedagogy of course design and was willing to reflect on the experience and apply reflexivity (Grushka, 2005) to identify how the learning paths I generated led to thought creation. As a result today's experience impacted my development as an artist/teacher/researcher, because I learnt more about curation, questioned my pedagogy and identified how as a researcher I curate cognition in lived artist teacher experience.*

The cognitive connectionism (Bechtel, 1991; Hardy, 1997; Naidu, 2012) I explain was possible because I had an open mind to art experience, risk and reflexivity influencing learning. The art experience fuelled me to link present and past practice concerning cognitive understanding. This may not have been possible had I not risked using a gallery curator to deliver a course aspect. I say *may* because another experience could have manifested a similar cognitive relationship. It was a risk to use the blog as reflective space and a risk to reveal I did not know how cognition was formulating. The act of reflexivity, through cognitive voice on the blog, enabled cognitive connection to be revealed consciously.

Here the blog facilitated cognitive links between theory and practice and between experiences in artist teacher practice. I theorised relationships between mental process and lived experience. Link worth has only become established through reflection on connections whilst writing. I learnt once connectionist and cognitive maps are formed one needs opportunity to explore these to establish learning value. Cognitive voice use, which could be reflexive voice, provides one faciliatory tool. Use of a conceptual frame, as stated in the first exemplification of cognitive voice I share, provides another. A conceptual frame and reflexive platform provide artist teachers with a scaffold to reveal cognitive practice. When engagement with cognitive processes occur, as I found in examples shared, cognitive understanding becomes established. Perhaps because one becomes adept at articulating cognition, one unpicks its complex nature or examples in practice make cognition accessible.

An implication of these ideas is they are manifest in my artist teacher practice. So, in the following exhibit I communicate the cognitive voice of exhibition participants. I express how their cognitive view has altered, grown or manifested in their practice after involvement in this exhibition's workshops. I do this to reveal additional ways cognition can develop to identify what expressing a cognitive voice offers artist teachers beyond self and to substantiate and disrupt the theoretical or personal ideas raised in this space concerning connection in cognitive voice and cognition.

Exhibit 1.3: A cultural lens connecting cognitive voice and artist teacher cognition

This exhibit shares the outcomes and analysis of workshop five - Appendix 3. The workshop changed the artist teacher participants' cognitive perceptions. I show these changes and share analysis of participants' cognitive voice, alongside mine and previous theory presented. I also share how the cognitive perceptions gathered inform the art of this space. I conclude by explaining the value of cognitive voice access in art education.

The participant data gathered in workshop five was received in two parts. Face to face participants were asked to create a drawing reflecting on cognition's role in the artist teacher experience, now they were newly qualified teachers in English primary schools. All participants were asked to share via email their responses to questions

concerning understanding and use of cognition in current practice. Six artist teachers from cohort one attended the face-to-face workshop and ten artist teachers from cohort one and eight artist teachers from cohort two sent email responses to the questions. Four email responses were received from cohort one despite participants not being at the face-to-face workshop. Figure 52 below shares the sample of six drawings gathered from the artist teacher face to face workshop participants as depictions of cognition in their role.

Figure 52: A digital collage sharing the drawings of six artist teachers reflecting on cognition in art education

From observing figure 52 several factors influence artist teacher perception of cognition such as time, perspectives, people, school contexts and experiences of artist teachers themselves. These factors were illuminated by short excerpts the artist teacher participants wrote to reflect on their drawings. For example, the artist teacher who created the second drawing in column two explained her drawing demonstrated ‘time restraints are a harsh reality in art education, children have some of the best

ideas and have lots of connections to make in their practice but do not always get to realise them,' (Artist teacher, Emily). From Emily's image and reflection on it, it is possible to perceive Emily alluded to the idea the problems art education has as discipline pose implications for children's cognition. She shows an emerging recognition children make cognitive connections when learning art and identification of this learning is halted by context the art is created in.

Artist teacher Steph, the creator of image two in column one, presents a different idea. She states, 'The glasses in the image show clarity in my perception of cognition, in that during university I had lots of positive ideas concerning the place and purpose of art in my classroom. But now I'm a teacher I can use cognition to see 'clarity' in how art looks/ happens in a classroom,' (Artist teacher, Steph). From Steph's image and commentary, it is possible to assume Steph's university and school experience has influenced her view, application and understanding of cognition. She is using a theoretical concept learnt and trialled in her university education to reveal how learning art happens in her school. What emerges is a shift in Steph's understanding and perhaps value of cognition in art education.

From the two examples I share, you can see how the visual data and cognitive voice commentaries gathered have been managed to reveal factors influencing artist teacher cognitive perceptions. All of the participants' email correspondence was openly coded to reveal perception influencers. The key themes emerging from visual data and coded email correspondence have been combined to reveal influencers to cognitive perception in artist teacher cognitive voice. By engaging with the two data sets in tandem I have substantiated and interrupted data. This has resulted in the following themes being identified as central to perception change in artist teacher cognition for the case participants.

The themes revealed are:

1. Risk taking and experimentation
2. Application of theory to practice
3. Questioning practice or challenging conflict
4. Acknowledging a cognitive journey or process
5. Reflecting on and evaluating practice

The theme, *risk taking, and experimentation* was important to the artist teachers' changing perception of cognition and perception of how children learn and apply cognition in art education. An artist teacher commented, 'creating art often reveals things I wasn't aware of or wasn't seeking to find out,' (Artist teacher, Bradley). Experimenting with the unknown revealed new knowledge to this participant; the reveal of unmeant knowledge is miscognition (Tavin, 2010b). Another participant commented, 'experimentation had a noticeable effect on my learning, it allows ideas to be tried and tested, and this helped me to recognise my abilities,' (Artist teacher, Chloe). This sentiment captures participant's mind movement to reach knowing, her experimentation led to learning recognition, transcognition (Sullivan, 2005). Taking risks and experimenting led artist teachers to engage in art education acts affecting their understanding, interpretation and ability to reveal cognition.

It was interesting the artist teachers' commentaries automatically applied and recalled knowledge about risk taking and experimentation in pupil cognition. This ranged from being aware of children needing opportunities promoting experimentation, found in comments like 'children should be given the opportunity to explore materials and experiment freely; to let them discover themselves in art!' (Artist teacher, Hollie) to artist teachers recognising how opportunities affect cognitive process. One artist teacher commented, 'I have seen how children's engagement in art changes when children are given choices, they begin to create art based upon deep thinking and driven by authentic purpose,' (Artist teacher, Gemma). The artist teachers used cognitive voice to show awareness that risk and experimentation influence cognition in art education for the self and those educated.

The second theme that emerged as a changing entity in artist teacher cognitive perception was *application of theory to practice*. In this theme I identified whether artist teachers showed cognitive awareness, prior to practice application, to instigate change. I did this because, as communicated in Space One, if one can understand cognitive change, one should be able to identify change in others. All participants acknowledged cognitive awareness defining it more confidently than at research outset, as a journey or process of learning development - see Space Two for comparisons. Artist teacher Ben stated, 'Cognition encompasses skills such as organisation, memory, recognition, reasoning and thinking.' Artist teacher Steph

stated, ‘To me cognition means the steps or journey your brain takes consciously or subconsciously.’

What I see differently in the artist teachers’ cognitive awareness at this exhibition point is the artist teachers’ definitions align more closely to theoretical cognitive representations. Ben’s quote for example aligns with Sternberg and Sternberg (2012) and Sullivan’s (2005) notion of cognition as thought or Seel (2012) and Turner’s (2006) definition of cognition as mental processing. Steph’s acknowledgement of cognition as a conscious and subconscious process aligns with Eisner (2002), Sullivan (2005) and Tavin’s (2010). This could suggest the artist teachers’ conceptual concepts have become embedded or their cognitive knowing has progressed. This idea became consolidated when I saw the artist teachers acknowledge application of cognitive theory to practice, as an influencer to cognitive change in data they shared.

Acknowledgement occurred by application of theory to personal academic practice and theory to pedagogy. When cognitive theory was applied in a personal way it was linked to idea stimulation and making to enable the artist teacher to be an informed learner or producer of academic product. Artist teacher Chloe stated, ‘Learning on this course has allowed me to improve my cognition and ensure I use this process to stimulate ideas. In my teaching, I then modelled deeper thinking by answering and posing questions to build pupils’ cognition.’ Later she identified, ‘developing and creating a reflexive art piece in my dissertation used transcognition,’ (Artist teacher, Chloe). Chloe recognised how she learnt cognition and applied it to academic learning. She also recognised cognitive application in pedagogic practice. Another artist teacher commented, ‘this awareness of my cognition which has emerged and continues to emerge in layers is something which makes me a better learner and in turn a better classroom teacher,’ (Artist teacher, Gemma), again demonstrating influence between cognitive self-recognition and application in pedagogic context.

Data hints that the artist teacher exhibition participants are using new conceptions of cognition to develop pedagogic practice. This was not the case for all participants. One stated, ‘I believe through taking part in this research I know more about cognition and am more aware of it. However, I would not say I am consciously aware of my own cognition or children’s cognition when I teach art or any other subject,’

(Artist teacher, Steph). This sentiment could be interpreted in different ways. It may allude to the artist teacher's awareness of cognition in practice being subconscious or that she has not yet considered how to use cognition in the class context or she does not see the need to. In the context of her other contributions, see above, I suggest Steph has not yet consciously applied cognition in her art lessons and this is an area where she could develop pedagogic practice.

Questioning practice or challenging conflict is the third theme that influenced cognitive change in the artist teachers. Five of the artist teachers contributing to the fifth workshop referenced this theme. The artist teachers either suggested raising questions about their cognition assisted in understanding changes or using cognitive voice to bring up cognitive perception conflicts did. For example, artist teacher Hollie expressed, 'sometimes I go through an internal conflict between what my mind's eye is visualising, compared to what my hands are able to do with materials available. The internal conversation I have with myself forms creation of my art. I question each decision I make: will this work how I want it to? Should I add some more lines there? Will that look strange? I need more yellow, maybe it could go here?' Hollie shares an example of questioning cognition and an example of conflict in cognition to understand it. She uses practice reflection and cognitive voice to interrupt and disturb her view of cognition in practice to understand and identify change. More simply another artist teacher stated, 'cognition means to me how you think about the art you view, create or are going to create,' (Artist teacher, Alice.) Alice uses thought to question cognition in her art, from Sullivan's (2005) perspective making art and reflecting on it is cognition. By questioning and challenging cognitive ideas through cognitive voice the artist teachers develop perception.

Acknowledging a cognitive journey or process is the fourth theme instigating artist teacher cognitive perception change. Through sharing cognitive voice, the artist teachers' data revealed the process or journey of making or thinking about art, in a personal or pedagogical context, leads to changes in cognitive perception and changes in opportunities offered to learners. The artist teachers expressed in their cognitive voice they have 'learnt to value process and meaning behind art' (Artist teacher, Gemma), that 'understanding and creating art helps an individual to acquire knowledge, with the potential to communicate and pass knowledge to others' (Artist

teacher, Bradley) and ‘cognition is an on-going process’ (Artist teacher, Hollie.) They stated cognition could manifest in the ‘journey children will make from having no art to having art they have designed and created,’ (Artist teacher, Emily.) These sentiments value the journey and process of art and art education, in the act of cognitive perception change for participants and learners taught. The value is artist teachers in this exhibition recognise, through expression of cognitive voice, cognition can develop through process and pedagogy, meaning the teachers could be better equipped in future to progress pupil cognition.

The fifth theme influencing cognitive perception change for participants was, *reflecting on and evaluating practice.* Cognitive reflection and evaluation (Grushka, 2005; Mitchell & Rosiek, 2002) enabled exhibition participants to recognise cognitive development. They facilitated cognitive translation to different areas of own and others’ practice. They altered concepts, practices and pedagogies associated with cognition held. Because of exhibition involvement artist teacher Gemma stated, ‘I now feel quite in tune with my own cognition and it is something which I am able to reflect upon that helps me build skills to be a better learner.’ Artist teacher Emily identified the experience ‘will help me to create art planning that is meaningful and useful for children and will let them learn through exploration.’ Artist teacher Chloe reflected on her cognitive development in this experience differently. She looked in the outputs of visual art created stating her ‘artistic ideas and research were combined and encapsulated in art that needed to reflect different thoughts which could be translated to the audience.’ Chloe wanted to translate cognitive ideas through her art, so they were accessible to the viewer. Chloe recognised the need to disseminate cognitive change.

The necessity of cognitive dissemination was identified by two other participants who expressed it is important for children to see change and development when learning or engaging cognitively with art. Artist teacher Bradley identified this experience ‘better enabled me to understand the thinking process behind children’s art, as well as plan activities that may help reveal knowledge to children.’ Artist teacher Steph stated cognition changes learning attitude: ‘It is the idea of changing, ‘I can’t draw’ to ‘I will be more successful at drawing if…’ an attitude Steph linked to growth mind set (Dweck, 2014, 2016). Practice reflection and evaluation enabled artist teachers to

identify why and how their changing cognitive perception can become valuable to practice, learning and art education.

In a similar way to me, the exhibition participants used the cognitive voice afforded to them through this research to reflect on understanding and cognitive development in self and other. Whilst they have not directly related expressions to a conceptual frame, as I did, to understand cognition they have forged links, on analysis with cognitive theories they have been informed by. The artist teachers used cognitive voice as a reflexive platform as I did, which enables movement in cognitive understanding to become visible. As mentioned in the theoretical space exhibit, sharing cognitive voice can generate value (Buzard, 2003; Wall, 2006). In this exhibit it is possible to see how the artist teachers value cognition and acknowledge movement through it, in practice and pedagogy. I identified voice sharing can facilitate connected cognitive experiences (Miller, 2008; Muncy, 2005). In this exhibit the artist teachers forge connections between conscious and subconscious thought, their practices as learners, as educators and connect these with learner practices. What I learnt from participant voice is learning about, establishing and using cognitive voice is a powerful tool to enhance cognition. This concept underpins the art of this exhibit *Artist teacher voice* - figures 49-50. The art unites artist teacher perceptions of cognition and cognitive development presented with mine to artographically represent artist teacher cognition.

Collection 2: A summary of the relationship between cognitive voice and artist teacher cognition

I intended this space to establish what cognitive voice meant and contributed to this exhibition. I hoped it would exemplify and showcase perspectives on cognitive voice to establish cognitive relationships that demonstrate how cognitive voice facilitates or disrupts cognitive understanding, in artist teacher practice and art education. I also intended to establish a case for cognitive voice, as tool, to reflect and narrate cognition when learning. I have demonstrated cognitive voice can manifest differently, through art, writing, reflexing, in conscious and subconscious states and in practice and pedagogy. I have established cognitive voice expresses voice that explores, disrupts or progresses cognition and have presented ways engagement with cognitive voice can be encouraged, such as forging relationships between expressions in cognitive voice with theories or conceptual frames of cognition and provision of

reflexive opportunities in course or research design. I suggest these tools are still limited and further research is required to deduce other ways cognitive voice engagement can be facilitated in art education, specifically when educating artist teachers and younger learners, so the worth of identifying and using cognition in art education becomes valued.

By exemplifying how cognitive voice influences cognition in my artist teacher practice and others', I have been able to forge arguments for use of cognitive voice to reflect and narrate cognition when learning art education, the main ideas being cognitive voice can establish cognitive connectionism (Bechtel, 1999; Efland, 2002; Eng, 2015; Hardy, 1997; Naidu, 2012; Sternberg & Sternberg, 2012), relationships in cognition and an understanding of connectome (Naidu, 2012). Research is now needed in the artist teacher cultural domain to see if artist teachers individually or in social contexts can reveal exemplifications of connectionist paths to knowing, in cognition. Exemplification would build on the finding I presented, on personal practice reflection in this space, that it is possible to curate cognition to understand it. Exemplifications by artist teachers would add validity to this idea whilst modelling occurrence in other educational contexts.

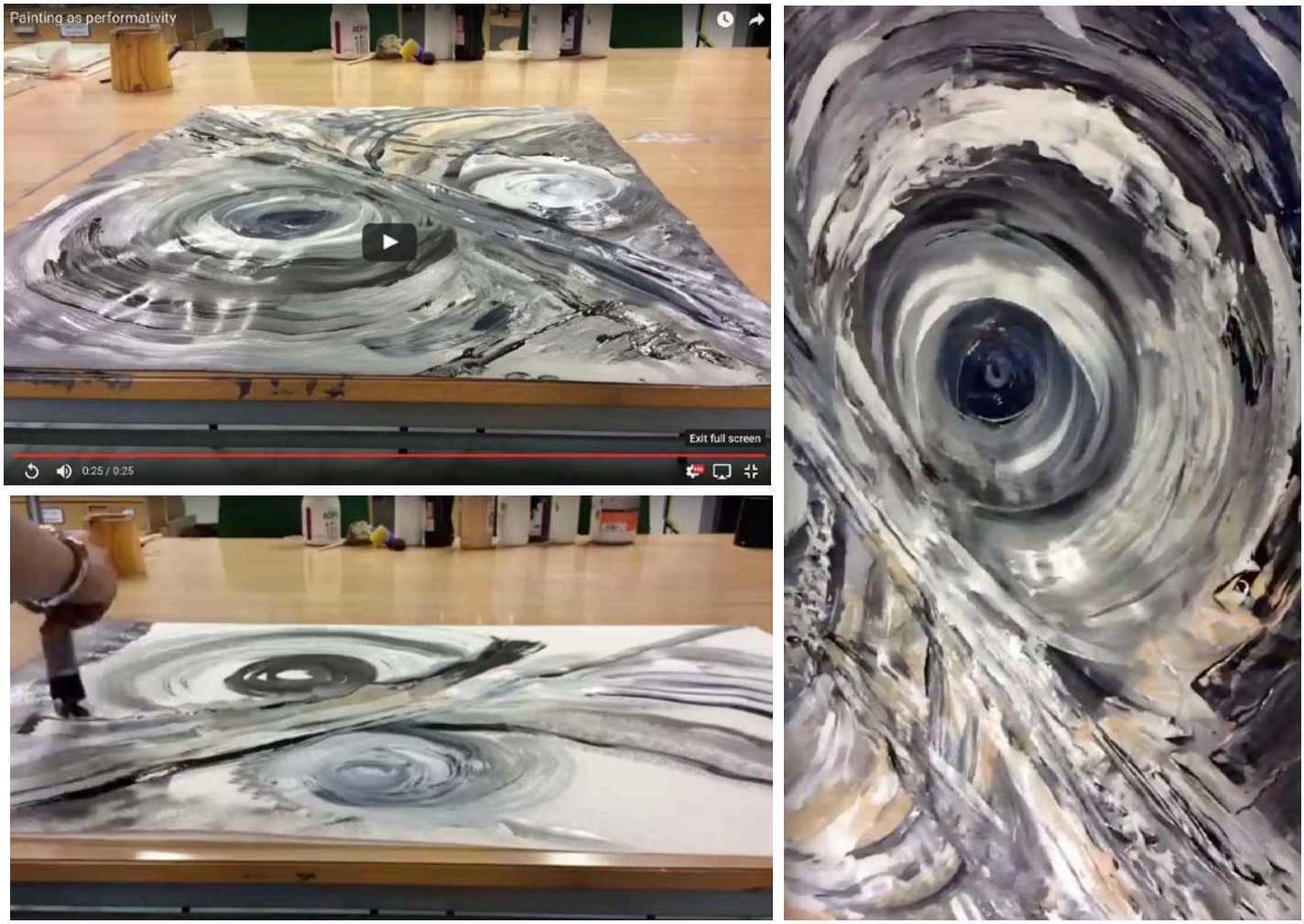
I have demonstrated the worth of establishing cognitive voice in this space because it is a tool that can unpick and progress cognition. Cognitive voice is the approach used methodologically in exhibition narrative to reveal cognitive exemplifications whilst telling a cognitive story conceptualising cognition in artist teacher practice. In the following space I re-story cognitive voices presented in this exhibition to analyse the exhibition's narrative, or cognitive voice, from different positions (Miller, 2008; Richardson 2000). I demonstrate cognition develops as a patchwork, as voices and experiences join (Miller, 2008; Muncy 2005). I re-story to reduce narrative subjectivity (Legge, 2014), to show critical autoethnography is concerned with immersion in personal outcomes informed by others' experiences (Tilley-Lubbs & Calva, 2016) and autoethnography and artography are cognitive practices utilising cognitive voice.

Scutt and Hobson's (2013, p.26) research informs, 'the boundary of cognition resides outside of the individual'. Looking at cognition through autoethnographic, and now I

believe artographic lenses, as I have in Spaces Two to Six, and restorying cognitive events, as I do in the following space, assists in revealing how external factors influence cognitive development. The social realities surrounding cognition in artist teacher practice become disrupted by cognition and these practices and so I reveal them as cognitive development influencers that aid the analytic rigour of this exhibition.

SPACE 7: COGNITIVE CURATION IN ART EDUCATION

Figure 53: Performativity



Figures 54-56: Film stills from Performativity time lapse

The time-lapse clip stills, figures 54-56, expose the creation process of *Performativity* - figure 53. *Performativity* presents making as the performance of cognition, capturing the space where cognition occurs and develops. I created the painting *Performativity* to express and represent my and the exhibition participants' co-created opinions of how cognition develops through curation. *Performativity* is influenced by the idea that research can be a performance and performance can be an act to generate data. In this space I curate and perform, as autoethnography and artography, re-stories of this exhibition.

The text below provides a personal analysis of *Performativity* - figures 53-56.

Performativity links cognition, curation, making and being as acts and concepts in art education. It reveals cognitive curation by exposing making. Through film it performs, as art, the making process and exposes artist teacher acts. The painting and film are products of this art. Performativity is the conceptual idea behind it and process of making. The reason for making the arts purpose explicit is to demonstrate that to understand and engage with cognition in art education a willingness, acceptance and appreciation of the cognitive depth of art is required. By sharing a time-lapse film of making, I relationally invite the audience of this art to engage with my personal, cultural and vulnerable time and space.

Performativity, figure 53, is affective and spontaneous art. I decided not to make this art with pre-planned expectations of what it would look like or of what materials I would use. I knew I intended to capture the performance of making and I wished to express the thoughts concerning cognition in art education formulating as exhibition data analysis occurred. I decided to create a time-lapse as I turned on my iPad on making day. The performative experience took place in the room I worked, to reveal the artist teacher space where several of my cognitive acts develop. Cognitive curation, creativity and performance merged in *Performativity* as artist teacher practice. In this space narrative I re-story my artist teacher performance in this exhibition and provide additional examples of cognitive curation.

Space 7: Cognitive curation in art education

In this space I re-story and present autoethnographic and artographic analysis of this exhibition. I share how investigating cognition influenced my understanding of it and how understanding cognition contributes to understanding artist teacher cognition culturally to build awareness in art education, educational research and policy. I cover this content to align with Ellis, Adams and Bochner's (2011) autoethnographic analysis strategies where autoethnographic analysis should formulate relationships between personal and cultural experiences on emotive and analytic levels. I also experiment with artographic analysis strategies and representations.

In this space I progress autoethnographic analysis considering how narrative inquiry and its analysis methods, such as broadening, burrowing, storying and re-storying (Clandinin & Connelly, 1990; Olson & Craig, 2012), use of themes or categories (Polkinghorne, 1995) and data flirting to mediate stories, (Kim, 2016), assist in revealing relationships in autoethnography - see Space One for exploration into the advantages and complexities of narrative analysis. Kim's (2016) comprehensive analysis, connecting and overlapping analysis strategies in narrative inquiry teaches it is ok to forge personal methods of narrative analysis. Kim's (2016) work provides some examples of what narrative montages look like but these are not situated specifically in autoethnography or representative of artography, as I attempt.

In Space One I mention narrative inquiry engagement and analysis develops 'paradynamic cognition' (Polkinghorne, 1995, p.10). Cognition developed when concept networks are created through narrative. In this exhibition I begin to develop paradynamic cognition in artist teacher cognition and in narrative analysis use; the visual and textual facilitates this. Narrative analysis facilitates cognitive curation, see Space One, through use and unity of multiple narratives. In this exhibition I have demonstrated how links form in cognition that can be curated or followed to reach knowledge.

Link creation and connections between experiences and research, pedagogy and practice enable me to utilise and understand paradynamic cognition in this exhibition. I mention this at space outset because paradynamic cognition (Polkinghorne, 1995) is

a way of conceptualising, representing and experiencing cognitive development through curation of concept networks. I stated, considering Efland's (2002) work, cognitive curation involves navigating thought to generate knowledge. Knowledge is cognition and knowledge can be curated, via networks, to form cognition. The way one lives and exists, in my case artographically (Heaton, Burnard & Nicolova, 2018; Irwin & Sinner, 2013; Irwin *et al.*, 2006; Winters, Belliveau & Sherritt-Fleming, 2009) means artist teachers traverse experiences that fuel, implicate or redirect cognitive development and paths through cognition. Paradynamic cognition, shown through narrative, allows cognitive curation to be visualised.

Connection between paradynamic cognition and cognitive curation is useful to exemplify cognitive development in artist teacher practice. Connection reveals the worth of engaging with cognition and cognitive development in art education, research and policy. In Space Eight I endorse this statement. I revisit evidence for suggestions and make recommendations for assisting, advocating and implementing practices of cognitive engagement in artist teacher practice, art education, policy and education. I also reveal the exhibition's original contribution, rigour and worth to artist teacher and educational scholarship. In this space, as re-storied analysis (Clandinin & Connelly, 1990; Olson & Craig, 2012), I use cognitive curation to synthesise ideas expressed, experiences documented, and stories told. I create autoethnographic narrative montages building on Kim's (2016) narrative montages explained above.

The autoethnographic narrative montages I create in the re-stories, expose relationships between personal, cultural (Ellis, Adams & Bochner, 2011) and theoretical stories. The montages do this through visual, reflexive and textual narratives, artographies, and exemplify making, positioning and performing as experiences. Making, positioning and performing are emergent artographic enquiry practices (Heaton, Burnard & Nicolova, 2018). These practices reveal artist teacher cognition and paths through it. I show in the re-stories, as narrative montages, how and where cognitive relationships are formed. I show when cognitive relationships are navigated, as cognitive curation, and where paradynamic cognition can progress knowledge, understanding and cognitive conception. This is a complex process, so I only present the montages as an emergent way of revealing, curating and

conceptualising cognition in re-storied analyses of artist teacher practice. The stories exemplify cognition types in artist teacher practice, experiences or events that influence cognition and how connecting concepts and experiences can alter cognitive conception or practice. What follows is additional justification for the use of exhibition re-stories and a reminder of the exhibition research questions.

Collection 1: Artist teacher cognition re-storied

The re-storying of artist teacher cognition serves multiple purposes. Re-interpretation and re-presentation of data reveals and captures the performative (Bickel, 2015; Heaton, Burnard & Nicolova, 2018; Irwin *et al.*, 2006; Mackinlay, 2016) nature of cognition and artist teacher practice. It implicates and enhances cognition by interrupting original data contributions (Bagley & Cancienne, 2002). Interruptions can alter participant contributions (jagodzinski & Wallin, 2013) and reveal trustworthiness when interpretative validation occurs. Re-stories assist in showing data interpretations, trust and validity (Rolling, 2010). With cognition central throughout stories, and exhibition, I build iterative data validations because I see cognitive variations as concept, time and stories progress. In storying and re-storying data I apply cognition to contexts and people to reveal external trustworthiness. Re-storying gives opportunity to observe whether data captured is illuminative, through its contribution to research questions; indicative, because it gives exhibition significance; representative of artist teacher cognition from theoretical or cultural positions, or finally illustrative of the exhibition's cognitive thread (Atkins & Wallace, 2012). I align narratives captured with these ideas and now remind of the research questions this exhibition seeks to understand.

As outlined in Space One, this exhibition engages with theoretical and methodological questions. The questions here exist in slight alteration to Space One to reveal how I refined focus as this exhibition progressed. I add a third set of questions to this list, evolutionary questions formulated through exhibition experience.
The theoretical questions ask:

1. whether I, as artist teacher, can understand and identify cognition in practice and whether this practice alters in response to cognitive consciousness;

2. if documentation of cognition and cognitive curation is possible and whether documentation reveals if cognition exists across thematic practices in art education.

Although I term these questions theoretical, they do not exist in isolation to the methodological and evolutionary ones. The questions and question sets cross over and connect.

The methodological questions query:

1. whether relational practice is a component in the exhibition's hybrid methodology;
2. if the methodological relationship between authoethnography and artography, in artist teacher practice, can formulate cognition and if so how relationships between theory and method engender artist teacher action.

Whilst experiencing this exhibition, additional questions surfaced. I term these evolutionary questions. These questions were not preconceived but are important to establish exemplifications of artist teacher cognition because they unpick live research contributions.

The evolutionary questions seek to know:

1. how investigating and experiencing cognition has influenced my conception of it;
2. how the conceptualisation forged has contributed to understanding cognition on practical and cultural levels, and if, and how, such awareness has helped gain knowledge about cognition in art education, research and policy.

Together these questions form another frame underpinning this exhibition. The exhibition captures performative engagement with these questions. It represents performativity as knowing and cognition. It is imperative the questions are mentioned as influential to exhibition stories and re-stories because they will exist, to varying

degrees of importance, in the cognitive paths I curate and share in mine and others' cognition.

The art of this space, *Performativity*, figures 53-56, represents this idea. Painting and time-lapse film exposure document the performance of making to exemplify how art, process and product can be and perform research. The space art shows cognition as performativity, an experience navigated by making, but also as a painting representative of data and cognition. Art as performance (Bickel, 2015; Heaton, Burnard & Nicolova, 2018; Irwin *et al.*, 2006; Mackinlay, 2016) can bring research contributions, such as affect, experiential connection, ways of seeing and learning differently forward (Hart, 2000; Heaton, Burnard & Nicolova 2018, Lawrence, 2008; Leavy, 2008, 2014, 2017, 2018). The following re-stories embrace these contributions and provide exemplifications in artist teacher practice of art's cognitive and affective nature (Hickman & Kiss, 2013), revealing art's contribution to research and cognition.

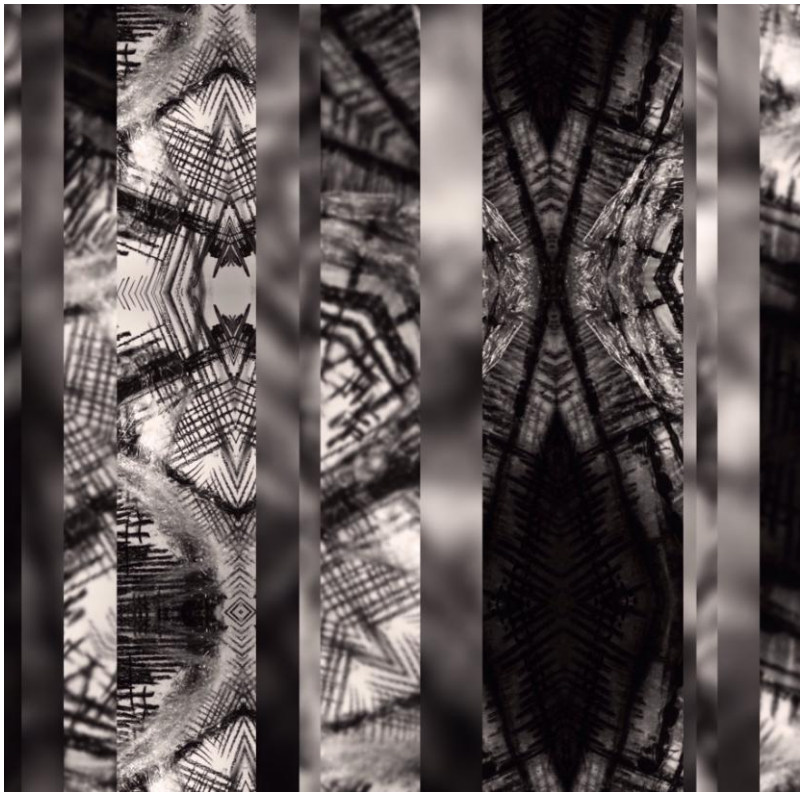
Exhibit 1.1: Artist teacher cognition as visual essay

The visual essay that follows is re-storied analysis (Clandinin & Connelly, 1990; Olson & Craig, 2012) of the eight pieces of visual exhibition data. The re-storied analysis acts as an autoethnographic narrative montage of artist teacher cognition, building on Kim's (2016) concept of narrative montage as narrative. The visual essay exposes cognitive relationships formed in artist teacher cognition. It mediates participant voice and mine whilst placing autoethnographic contributions derived in art education internationally. The visual essay (Heaton, 2018) has now been published internationally.

Re-story 1 visual essay: Artist teacher cognition: Connecting 'self' with 'other.'

Abstract:

In this visual essay I story a doctoral journey exploring cognitive conception in artist teacher practice. Underpinned by autoethnographic research, I communicate how an understanding of cognition can be understood and developed by an artist teacher academic working with a cohort of pre-service artist teachers. The visuals embedded in this essay draw relationships between the cognitive conceptions of self and other to reveal i) the importance of cognition to art education ii) factors which influence cognitive conception and iii) the value of cognition as a transformational practice. The use of personal, cultural and theoretical lenses in this essay provide important insights to the finding that engagement with cognition in artist teacher practice can assist in ensuring art education remains valued, timely and progressive.



OBSERVE:
As an art educator, I am at a loss to understand why in a time of cultural, educational and technological growth this discipline is still under threat. (Adams, 2013; Flood & Bamford, 2007; Payne & Hall, 2018). I propose that through observation, embodiment and act, art education's worth to society can be shared.

Art education's value as a curriculum subject is often contemplated (Adams & Heitt, 2012; Liu, 2009; Marshall, 2016). Art's role as a research form (Heaton, Burnard & Nicolova, 2018; jagodzinski & Wallin, 2013; Leavy 2017, 2018) and cultural contributor is also deliberated (Lhermitte, Perrin & Blanc, 2015; Tilley, Keane, Küchler, Rowlands, & Spyer, 2013; Neelands *et al.*, 2015). Yet, despite investments to share the fundamental and transformative role art has in our transdisciplinary educational arena (Burnard *et al.*, 2016; Cheng, 2010), its contribution is not always valued or understood.

I therefore use the research underpinning this visual essay not to solve this dilemma, because that is a task one cannot achieve alone, but to suggest that engagement with cognition as aesthetic discourse (Duncum, 2007; Tavin 2007) can afford opportunities to make visible its complex nature.

The relationship between art and cognition is complex but powerful (Parsons, 1998; Efland, 2002; Kamhi, 2007; Hickman & Kiss, 2013). Connections can reach individuals and communities; they can also involve intercultural partnerships bridging educational settings, charities and artistic venues. Relationships can change attitudes towards art education, but also to sociocultural concerns beyond (Heaton & Crumpler, 2017).

Art based expressions of self with other…

Cognition is:

Learning, experimenting and making mistakes
A way to explore, intent and space
A process of thought, a growing mind
An abstract concept of the brain refined.

"An inextricable feature of a dynamical system incorporating mind, body, and situational context."
(Critchfield, 2014: 141)

EMBODY:
It is engagement with cognition in art education that will facilitate change. I reflected during my doctoral journey that 'taking risks can facilitate one to voice cognitive understandings in artist teacher practice and these can assist the formation of cognitive connections to move learning forward'. This reflection was not dissimilar to the autoethnographic voice of the 'other.' One of the pre-service artist teacher participants described the importance of cognitive engagement and its ability to change learning attitudes. She also revealed that she uses cognition to clearly see how art 'looks and happens in my classroom'.

Cognition is innate, but it is also an interdisciplinary concept and practice. Elliot Eisner (2002) positioned cognition as a way of becoming consciously aware of self, place and act. Being aware of, unpacking understanding and recognising cognitive relationships in art education, encourages subject confidence, reinstates value and can reform practice. In being reflexive through artographic practice (Heaton, Burnard & Nicolova, 2018), recognition, risk and responsibility occur. Complex cognitive connections, such as those between learning theory, artistic action, classroom practice and academic experience occur when art reveals its worth as a subject of study. When this value is observed and felt individuals become empowered to take risks. With risk comes responsibility and often with responsibility comes further prowess, but also belief that one can defend, instigate, disrupt and alter actions and ideologies.

"What exists in the space between inside and outside is an unknown relationship between self and other, a relationship that is itself a community of understanding." (Springgay et al., 2008, p.83).

ACT:
When engaging with cognition, I came to understand an individual can express their understanding or engagement with cognition when learning. This 'cognitive voice' can be an aid to understanding or it can be used to assist with enactment of change and transformation. For example, artist teacher participants in this study used their cognitive voice to understand terminology like 'aesthetic discourse' by mind mapping it to reform it in contemporary time. I use cognitive voice performatively through exhibiting art that shows how cognition can be conceptualised by self and others.

But to comprehend cognition and its emerging facets in art education the participants and I had to be willing to unravel, see, connect and experience theoretical, personal and cultural perceptions. We had to conceptualise cognition through verbal, textual and artistic communication. When articulating its value, we forged connections between art education and issues such as social justice and technology. In doing so, we identified three major benefits of accessing cognition in art education: learner understanding of cognition could be progressed because cognitive webs documenting learning could be revealed, connections between cognitive understanding and practice can be applied, and making connections visible adds value to practice because it generates the confidence needed to act differently.

In short, writing, making and living, as performative acts (Spry, 2009; Rolling, 2010; Springgay, Irwin & Kind, 2008), assist with disrupting, repositioning and accessing cognition and the complex web of connections that surround it. The autoethnography revealed though it is possible to curate cognition and to follow the relationships and connections in the cognitive process, such an experience will be unique to everyone who embraces it. The use of cognitive voice when engaging with cognition reveals a process of knowing which is valuable to art education and art educators because it prioritises the important and affective nature of artistic data and experience in knowledge creation. Making and generating enables one to see what outputs and experience do (Hickey-Moody, 2015), showing art education can reveal, embed, but also progress cognitive conception in a manner allied to contemporary time.

Two supplementary analyses contribute to visual essay construction. These include analysis of exhibition visuals created by artist teacher participants, see sample analysis Appendix 10 and analysis of the visual data as visual essay component. Below I analyse the visual essay against the conceptual frame and exhibition research questions. These analysis sets reveal layers of autoethnographic analysis (Ellis, Adams & Bochner, 2011). They delve beneath the visual essay story presented and illuminate how this exhibition uses visual data to arrive at the re-stories and knowledge contributions it presents.

The exemplar visual analysis, Appendix 10, models how the artist teacher participants recorded their visual analysis during workshops two to five. No analysis was conducted in workshop one because the visuals produced respond to each workshop; at that point I had not made the decision to use a visual from the pilot (Heaton, 2015c) to represent Space One. Visuals six to eight were produced after the workshops concluded. In future research I would begin visual analysis considering the pilot visual and provide opportunity for participants to respond to all visuals collectively once the research concluded. The participants did have the opportunity to see and respond to the set of images when showcased as an exhibition, but in hindsight visual analysis could have been strengthened if their response to the image set was aligned to the conceptual frame of cognition developed.

The participants' visual analysis focused on identifying how the art produced connected with transcognition (Sullivan, 2005) and miscognition (Tavin, 2010b). In retrospect there were two main challenges to this approach. The first being the participants found transcognition and miscognition theory complex, miscognition particularly. So, whilst the experience challenged the participants' cognitive understanding, it also complicated it. The second challenge was focus on transcognition and miscognition as cognition types to be analysed. As I researched cognition, a developed conceptual frame emerged; the participants only focused on the transcognition and miscognition aspect of it. If I conducted this research again, I would make provision for participants to analyse the visuals using a refined conceptual frame of cognition types known to emerge in artist teacher practice.

Appendix 11 shares emerging themes generated in transcognition and miscognition when the visuals produced, in response to participant workshops, were analysed. The data adds trust to the suggestion miscognition and transcognition exist in visuals produced in artist teacher practice. This finding is strengthened in transcognition because all study participants provide corroboration in visuals analysed. The recognition of miscognition in the visuals indicates it is a cognition type present in all workshop art, but every participant does not always substantiate each component of miscognition. This finding makes sense when some of the artist teachers found miscognition difficult to conceptualise.

The themes that emerged on visual analysis have informed the visual essay shared. For example, several emerging themes, such as *connect, progress* and *translate*, were raised through participant visual analysis that enable participants to see where cognition and art connect. These cultural themes, united with personal and theoretical themes emerging, are embedded in the visual essay to provide the autoethnographic voice of other adding trust and interruption to findings (Bagley & Cancienne, 2002).

The visual data analysis exemplifies another way cognitive voice can be accessed in artist teacher practice, building on suggestions in Space Six. The artist teacher participants have demonstrated, by revealing their ideas bridging cognitive theory and art, how they can interpret and recognise cognition in art. The emerging data themes, Appendix 11, reveal that *acts* (such as connecting, making and questioning), *strategies* (such as showing or thinking) and *contexts* (such as personal, historical or cultural) offer ways of accessing and revealing transcognition and miscognition in art education. I suggest revealing such knowledge is cognition. The data set highlights cognitive art analysis has potential to contribute to educational gain through the act expressed. This adds to debate to raise the value of art education in settings (Neelands *et al.*, 2015; NSEAD, 2017a; Payne & Hall, 2018). Because where and how cognitive learning is revealed in art education is exemplified, further study to corroborate would be useful.

In the following discussion I connect all space exhibition visuals by analysing the visual essay visuals with the exhibition conceptual frame. I do this as another way of analysing the visuals. As opposed to analysing each visual individually through

coding or other qualitative means because it has been identified (Cohen, Manion & Morrison, 2011) qualitative visual analysis can displace meaning. Autoethnography and artography as methodologies deserve to be distanced from qualitative endeavour (Heaton, Burnard & Nicolova, 2018; Springgay, Irwin & Kind, 2005), this is not to suggest they are not qualitative practices. They offer their own research approaches, aligned to their respective disciplines. The visuals are also analysed at space outset and in discussion.

In Space Two when I discuss the cognition conceptual frame, I identify cognition is influenced from context to individual and back again through complex relationships. I explain cognitive acts and abilities connect with individuals and environments to build paths that when curated build knowledge and understanding. I communicate in the following paragraphs exemplifications of how, upon visual essay analysis, such connections are forged, curated and of influence on artist teacher cognition. This situates the visual essay in the exhibition conceptual frame whilst answering the theoretical research questions about artist teacher understanding, identification and curation of cognition. The theoretical questions frame the discussion.

The visual essay voices cognition confidently to an international audience through textual and visual means - see visual essay figure 3. Against the conceptual frame, see figure 22, I suggest cognition occurred in all four cognitive frame segments to forge artist teacher identity. Sharing research internationally is a cognitive and active art experience (Cunliffe, 1999; Heaton & Crumpler, 2017; Henry & Verica, 2015; O'Donoghue, 2015; Smilan *et al.*, 2006; Wehbi, McCormick & Angelucci, 2016). It influences the researcher's and audience's person, space and time by exposing ideas, and interrupting spaces or time one constructs in. Publication influences the cognitive habitus of artist teacher. In the studio habits (Hetland *et al.* 2007), publication *stretches*, *explores*, *expresses* and *crafts* author ideas. As a timely and peer reviewed product, published material can *envision* artist teachers and those engaging with published material, nationally or internationally, become part of a cognitive *community*. To publish one must *observe* their practice, *engage*, *persist*, *reflect* on and make alterations to output, so here I position publication as an artist teacher practice utilising studio habits.

Engagement in cognitive acts, such as using studio habits in publication, exemplifies use of *practical*, *analytical* and *creative* intelligences (Sternberg, 1984; Sternberg & Sternberg, 2012). In a *practical* way cognitive knowledge is applied to outcome. To reach a completed publication one must apply an *analytic* eye to ideas and be *creative* in expression of them. Through the cognitive process of formulating a publication one transcognitively (Sullivan, 2005) thinks through *language* and *context* in narrative and application of it to pedagogy or setting. The use of miscognition (Tavin, 2010b) in the publication process is complex to exemplify because it is often innate and unexposed. In visual essay production I formulated *unmeant knowledge*. I was unaware of what the visual essay would reveal concerning cognition during making. I did not realise it would put forward, as a *symptom or sinthome*, a way of presenting and conceptualising cognition in art education as three processes. Discussion of these follows. What visual essay publication aligned with the cognition conceptual frame shows is it is possible to observe all facets, except for the minutiae of miscognition, in this cognitive act.

The visual essay models collaborative cognition by sharing a poem and visual formed by self and other. With collaboration producing process and output in the lived experience, I suggest it represents an active art experience. Research process is a risk, a way of problematising and exhibiting the characteristics of active art experiences (Cunliffe, 1999; O'Donoghue, 2015; Smilan *et al.*, 2006). The visual essay connects artistic expressions with theoretical contributions from academic literature. This act, although common in academic publishing, is transcognition (Sullivan, 2005). Connections between visuals and visuals and text show thoughtful connections in a cognitive language. Sharing these cognitive connections in a publication is *thinking in a medium* whilst dissemination positions the publication as cognition in a context. To connect active art experience and transcognition in publication, one draws on Triarchic intelligence (Sternberg, 1984; Sternberg & Sternberg, 2012) because one utilises experience to draw comparisons in *creative* outputs.

To conceptualise and exemplify intricate connections in cognition is possible, I must understand cognition and the way it can be interpreted through collaboration and reflexive deconstruction. The visual essay displays exemplifications of practice alterations as result of understanding cognition. These occur for the artist teacher

participants and myself. They are evidenced through participant voice and visuals. For example, in the visual essay visuals shared, I have regrouped imagery based on alignment with three processes: *observe, embody* and *act.* I realised owning cognition is a conscious transcognitive act (Sullivan, 2005).

The three processes, *observe, embody, act*, are an accessible way of articulating how an artist teacher can engage with and use cognition; the visuals accompanying each process offer provocation. To elaborate, when observing cognition in an artist teacher context one could identify how tools, time, rationales and partnerships influence understanding, practice and use of cognition. This aligns to visual essay figure 1. In visual essay figure 2, a web structure takes focus and demonstrates observations of cognition need to occur in a layered way, maybe through unpicking process, by building understanding or by connecting cognitive occurrences in times or disciplines. The image alludes to the idea that observing cognition requires one to see it as a complex structure of internal, external and connected experiences.

Embodied cognition concerns the way one gains a conscious awareness of it, but also what one does with understanding. Figure 3 in the visual essay, as explained above, provides my way of exposing the process of cognitive understanding because my conception was built with others. Figure 4 then demonstrates use because I reposition and rework an image where I explored social justice in art education. The inclusion of the image here demonstrates how embodiment can change practice and values. In figure 5, I position four exhibition images together and correlate them with the process *act*. At this point in the visual essay I communicate recognition and embodiment of cognition is meaningful when you do something with it such as utilising it in active art experiences (Cunliffe, 1999; Heaton & Crumpler, 2017; Henry & Verica, 2015; O'Donoghue, 2015; Smilan *et al.*, 2006; Wehbi, McCormick & Angelucci, 2016). I do this by exhibiting work in a gallery, publishing to a broader audience and altering pedagogic practice.

The four visuals are grouped because they conceptualise performativity through the artistic metaphoric of circles, positioning cognition as a holistic and moving practice. They were also created and executed to model process and performance. The processes *observe, embody* and *act* interestingly have crossovers with Gregory's

(2015) notion. One is required to see, know and believe to learn art education. Gregory's discussion focuses on learning art and delivering art education. I focus on cognition. Yet we both articulate practicing, looking and reflecting on the practices of art education is necessary to know or embody cognition about it. The slight difference between our expressions comes in the process of belief or *act*. Gregory identifies belief as willingness to be experimental and to take risks to progress art education. I too acknowledge the importance of belief, but take the idea further to suggest artist teachers and those involved in learning art education need to use the confidence and aptitude they gain from experimentation to act in the interests of art education, to move it forward in socially engaged ways, ways aligned to progressions in contemporary and future educational and cultural climates. In Space Eight I put forward ideas for how this may occur.

The re-story of ideas and visuals I have concerning cognition in artist teacher cognition provides evidence that practice changes in response to engagement with cognition. As I have explained, and communicate in the visual essay, my personal practice as an artist teacher academic has evolved through cognitive engagement. Through three words, *observe, embody* and *act,* I have communicated the reflexive process engaged in to understand and use cognition in education. Visual essay creation has exposed cognition in art education can influence at different levels, in different themes and to educational contexts. By conceptualising cognition, I have changed the way I make art. The conceptual meaning of my art has gained depth, I have experimented with new media like augmented reality and have made art collaboratively and with purpose. From a pedagogic perspective the visual essay communicates cognitive change for participants and me. Cognition provides a way of seeing art education and its practices with clarity. The visual essay places cognition in thematic and cultural contexts like social justice art, autoethnography, primary and higher education provision and in a political climate. The visual essay is a platform for cognitive connection and curation to be voiced. One could say the visual essay exemplifies cognitive voice because it exposes complexities, connections and expressions of cognition.

The visual essay is one way of conceptualising and formulating cognition in artist teacher practice but is not the only way to do this. Gregory (2013) questioned whether

children should be learning to create art or learning through it. Regarding the use of cognition in artist teacher practice the question is similar. Should artist teachers learn about cognition, or make, as practice, to do so? This visual essay affords it would be worthwhile for artist teacher to do both. Making a publication, a piece of art or other output can be a route to cognitive conception with process acting as means to unpick, experiment with, forge connection in and curate cognition.

There are counter arguments and limiting factors to all cognitive forms, connections and associations I have suggested. For example, the conceptual frame I have drawn association with contains multiple cognitive forms. One could suggest they have not been evidenced enough to warrant them as cognitive components in artist teacher practice. Also, the connections between cognitive forms are only contextualised in specific aspects of artist teacher practice, such as the visual essay. Whilst these are exhibition limitations, they do not detract from the emergent knowledge of cognition I exemplify in artist teacher practice. At exhibition outset I stated it was beyond exhibition limits to exemplify all cognitive forms and events in artist teacher practice and positioned this exhibition as an attempt to expose knowledge of cognition in artist teacher education. To generate trustworthiness in the examples, I provide in the following exhibit an alternative re-story of artist teacher cognition.

Exhibit 1.2: Artist teacher cognition as a reflexive story of events

The following re-story (Clandinin & Connelly, 1990; Olson & Craig, 2012) provides a reflexive analysis of exhibition events (Polkinghorne, 1995) that influence, progress and redirect cognitive conception. I arrived at the re-story by i) scanning each exhibition space for events developing cognition, see example Appendix 12, ii) by categorising events, using Webster and Mertova's (2007) model of critical, like and other events, as data management. I reduced events by identifying common themes and regrouped and reordered them in terms of critical influence on cognitive perception (Webster & Mertova, 2007) - see Appendix 13. iii) By aligning events with the exhibition conceptual frame, I retell and understand how cognitive conception is influenced and progressed in artist teacher practice and its cultural context - see discussion below the reflexive story.

Webster and Mertova (2007) remind that in sharing events one must not overlook influence on human understanding, another reason why I use re-stories to exemplify event influence on cognition. Hayler (2011) acknowledges how event re-storying relates story of self to sub culture, I to artist teacher, positioning participant action in interpretive and affective space. I use these teachings to inform the reflexive story content that follows:

Re-story 2 a reflexive story of events: Artist teacher cognition

When I reflect on events shaping this doctoral thesis, the journey encountered is overwhelming. I started this research as an artist teacher academic interested in cognition. I emerge as a mother, artographer, writer, disrupter, and facilitator of education to name a few things. I did not anticipate conducting research into artist teacher cognition would be affective in personal, process and productive ways. In re-storying the critical events that have shaped cognition I reduce, conceptualise and disseminate events that have facilitated and led to personal and cultural cognitive understanding.

As artist teacher academic working in teacher education, I intersect artistic, educational and technologic cultures. This intersection is true for other artist teachers. For example in Space Six I discuss how exhibition participants conceptualise cognition in a connected and layered way, linking and applying its use in art and pedagogy. In Space One I mention how artist teachers are interdisciplinary beings practicing in spaces that disrupt and unite pedagogy, practice and research (Brass & Coles, 2014; Hoekstra, 2014; Parker, 2009; Thornton, 2005; Heaton, Burnard & Nicolova, 2018). One may suggest artist teachers are artographers (Irwin *et al.*, 2006; Irwin & Sinner, 2013; Winters, Belliveau & Sherritt-Fleming, 2009) because they generate cognition by connecting feelings, thoughts, identities and experiences as exemplified.

The counter argument to this point is artist teachers are not always academic researchers, but artist teachers do gather research to inform practice such as in journaling (Robinson, Mountain & Hulston, 2011) or when visiting exhibitions. Not everyone, sometimes-even artists/ teachers/ academics, see this work as academic research (Blom, Bennett & Wright, 2011). An added complication is the conscious or

unconscious acknowledgement of artography or research. It is quite possible to view others as artographers or engage in research with no or limited awareness of concept, practice or methodology. One may also not wish to be identified in such a way. I communicate artographically. The re-story I write is personal, autoethnographic and a representation of artographic self; it is influenced and determined by sociocultural time, space, beliefs and collaborations (Hamilton, 2008; Yin, 2003). It honours knowledge, practice and the affective experience (Heaton, Burnard & Nicolova, 2018) in and on cognition.

When this exhibition was narratively analysed to locate events influencing cognitive conception in artist teacher practice, it emerged all-critical events had influence on the person, their processes and their products. *Person, process* and *product* are themes I have derived to reduce the narrative data of this exhibition. I use *person, process* and *product* to understand cognition in artist teacher experience to re-story critical exhibition events. Hayler (2011), in teacher education, used autoethnography to create reconfigurations of the past to project future purpose. I re-story events to intersect past stories of theory, self and other, to share how cognition can be identified in events influencing artist teacher practice and disciplines it straddles:

> *On 14th February 2016 my life changed. Fear, excitement and tears filled my world. My identity, beliefs and practice as an artist teacher faded from sight. I had given birth to a beautiful baby boy! Little did I know my cognitive philosophy as an artist teacher academic was about to make a rapid turn. I began to see the world in a whole new way….*

In this exhibition personal events, such as that above, have influenced the cognition of artist teachers - see Appendix 13. Teaching, acknowledging, looking at and reflecting on the personal in practice allows artist teachers to experience, share and express occurrences, from time or space, that can alter cognitive perception. What is interesting is how and why shifts in cognitive perception occur, their affective nature on the artist teacher and the way event analysis illuminates it. Events that influence artist teacher cognition will be personal, but don't necessarily have to link to an artist teacher's personal life:

> *With a baby in arm the world looks different. I felt it shift from a place of excitement and promise to one of vulnerability and fear. I didn't understand it at the time, but this way of looking influenced*

> *my practice as an artist teacher academic. I began playing with vulnerability in my writing; I had exposed another side of myself-adding trustworthiness to work I produced. I projected a vulnerable self through artistic expressions of my research at academic conferences and I feel, through reflection and exposure, I emerged as a more confident being, one proud, yet open to critique of work I produced. My cognitive perception had been altered by a life event, but the perception shift occurred in cognition in my doctoral practice as artist teacher academic.*

Perception changes that occur in artist teacher cognition happen in processes of practice. In this exhibition processes such as blogging, teaching and reflecting on practice fuel recognition of cognitive concept change. They provide spaces to cognitively voice and reveal the affective nature of change. Davidson and Bondi (2004) link gender specific philosophies, emotions and contextual milieus as affective emotional geography. Emotional geography must have capacity to influence cognitive conception because emotional geography, as shown in the paragraph above, can be seated in artist teacher practice. The challenge as addressed by Davidson, Bondi & Smith (2007) is to acknowledge affective qualities in research processes. This is complicated when learning event and personal experience can exist as the same thing (Doloriert & Sambrook, 2009):

> *In writing and publishing aspects of my doctoral work concerning artist teacher cognition I became aware cognition is interdisciplinary, that cognitive connections can be made between different facets and disciplines of one's practice. I see, use and apply cognition differently when making art, when teaching and when researching. I have become open to cognition being a fluid concept affected by the experiences I have. I am involved in an intercultural project promoting use of digital learning through Science, Technology, Engineering, Art and Maths (STEAM), to share and develop educational practice. I expect liaising with students, teachers and academics from different countries will shift and complicate the way I view cognition, because cognition as concept will be conceptualised or used differently in education across the globe.*

In learning, making and reflexive processes, active art experiences (O'Donoghue, 2015), one experiments, analyses and changes. In this exhibition when artist teachers examined cognition the outcome was no different. Cognitive conceptions developed and the artist teachers involved saw cognition in new ways across practice as artists and teachers. In addition to process, it was the product of production that made

cognitive alteration visible, an affordance of the active art experience (O'Donoghue, 2015). Products of artist teacher practice, such as blog posts, articles, art, lessons, publications and conference presentations, gave the artist teachers a cognitive identity, an impactful voice and a platform to show understanding and confidence:

> *When facilitating learning experiences for teachers, alongside this doctorate, I became aware as the study progressed I modeled cognition more overtly in practice. I pointed out examples of what I believed to be cognition occurring. I made links between theorist perspectives on cognition and events that unfolded. I learnt I was learning cognitively in a relational manner with those I interacted with. Cognitive awareness was impacting my teaching, sometimes consciously, other times subconsciously; processes of making, teaching and writing brought this to light to differing extents. On reflection the impact of this is other's cognition is being developed because of mine. Throughout this doctorate I have been involved in co-constructed cognition.*

In the lived, or artographic, artist teacher experience, cognitive conception is understood, progressed and challenged by person, process and product, in layered, connected, concurrent, complex, interdisciplinary and intercultural ways, as I indicate when I address cognition theoretically in metacognition (Flavell, Kiesler & Scarr 1979), transcognition (Sullivan, 2005), miscognition (Tavin, 2010b), and embodied cognition (Roth & Jornet, 2013) in Space One. Exhibition events exemplify cognition can be understood, implicated, progressed and impactful in artist teacher practice whilst revealing its limitation. The changing and personal nature of cognition always means its true conception will never really be known. Cognition is a concept in artist teacher practice that exists in one's conscious, unconscious and spaces between. It will manifest and lay dormant influencing practice subconsciously and when acknowledged. As recognised previously, cognition is formed through experience (Vitulli, Giles & Shaw, 2014). Dewey taught us art is experience (1934, 2009), so theoretically and in events shared, art and cognition coexist in artist teacher practice.

In the following paragraphs I analyse the restory above alongside the exhibition conceptual frame and research questions revealing layers in autoethnographic analysis (Ellis, Adams & Bochner, 2011) that assist in conceptualising cognition in artist teacher practice. I link concepts expressed to the visual essay contributions above to add justification and interruption to the knowledge contributions shared, to show

engagement with reality variations (Davies, 2008). When I construct and compare realities, experience surfaces and subjectivities are revealed in knowledge communicated. Acknowledgement should assist the audience with understanding the concept, space and culture I exist in and have studied (Kim, 2016), adding to affective exhibition contribution and quality.

The reflexive re-story's key message exemplifies artist teacher cognition is complex. It can be understood by engaging from personal, process and product positions. Its use is to disrupt the emotional geographies of artist teacher lives to understand and enhance perceptions, learning and cognition. If the reflexive story is observed with the visual one, correlations occur between key themes identified in each: *Observe, embody* and *act*, in the visual story, and *personal, process* and *product* in the reflexive story. For example, *observe* in the visual essay involved conceptualising cognition in the culture it exists in, whilst the reflexive story, with its focus on *personal* cognition, subverts this. This point is interesting because the relationship strengthens the exhibition's autoethnographic research quality which strives towards relationship exposure in artist teacher cognition between self and other.

Similarly, the relationship between *embodiment* and *process* is insightful. These two themes are interchangeable in the cognitive and autoethnographic experience. Cognitive embodiment can occur in process (Roth & Jornet, 2013), but understanding of cognitive process can also occur through embodiment of cognitive concept acquisition in one's connectome (Naidu, 2012). I situate these connections in theory here, but they are exemplified throughout this exhibition. For example, in the personal lens of Space Six, one can see how I formulate an embodied understanding of cognition by exposing relationships between theory and practice. *Act* and *product* also connect in the visual story. *Act* is output of artist teacher cognitive process but it is also a way of living. In terms of *product* in the reflexive this was similar. The *product* gave artist teachers a cognitive identity, voice and position from which to expose cognition to others. Cognition provided a way of profiling the worth of artist teacher practice. The theme correlations between stories indicate cognitive connectionism (Bechtel, 1999; Efland, 2002; Eng, 2015; Hardy, 1997; Naidu, 2012; Sternberg & Sternberg, 2012) is fundamental to conceptualising, understanding and revealing

cognition in artist teacher practice, but also in the authoethnographic and artographic methodology unpicking them.

The two theoretical exhibition research questions I ask concern if it is possible for artist teachers to understand cognition, whether practice alters as result and if cognitive curation can be documented. Correlations between the reflexive story and exhibition conceptual frame suggest artist teacher cognition can be formed, exposed, navigated and understood through capturing cognitive events. Event analysis reveals affect and emotion in cognitive events. The reflexive story provides explicit examples of personal experience influencing cognitive conception and practice, for example in my birth story.

One could identify subjectivity here because of personal story dominance, but if one refers to the visual essay, corroboration can be sought in the practice of other artist teachers. For example, some altered artist teacher practice in school as result of personal cognitive experience at university. These examples support the idea cognitive curation is possible in active art experiences (O'Donoghue, 2015), those where artist teachers practice across spaces, like educational institutions or where cognitive experiences penetrate times, spaces and collaborations lived in, for example, home and work environments. Such times, spaces and collaborations, as touched on in Space One and Two, are part of the artist teacher habitus and habitat (Bordieu, 1984; Burnard *et al.*, 2016). So, what occurs through event exposure in the reflexive and visual re-story is documentation of cognitive curation in the artist teacher habitus because evidence snippets emerge where cognition informs interdisciplinary practice.

Also revealed in the reflexive story, is acknowledgement of cognitive curation bridging conscious transcognition (Sullivan, 2005) and unconscious miscognition (Tavin, 2010b). To exemplify, when reflecting on how having a baby influenced cognition in the reflexive re-story, I exposed I was unaware cognitive conception, miscognition, was altering until I revealed cognition in a vulnerable and performative manner, a transcognitive expression. The cognitive curation occurring in this example encompasses cognitive acts in Hetland *et al.*'s (2007) studio habits and draws on Sternberg (1984) and Sternberg and Sternberg's (2012) triarchic intelligences. In a conscious way, performing provided space to *express* an idea, *stretching and*

exploring cognition. I subconsciously reflected on how *emotional* experience shaped cognition underpinning *expression*. In performing I was applying cognition through the triachic intelligences of *creativity*, *analysis* and practical *application*. I was moving between these mentally and physically expressing cognition in internal and external ways.

In Space Two I propose cognitive curation be understood by interrelating cognition between transcognition and triarchic intelligence theory. I am more certain now, after articulating crossovers here, this could provide means to map, document, understand and make visible cognitive curation in artist teacher practice, an avenue for further study, particularly concerning the specifics of cognitive events occurring in other artist teacher's practice. If an emerging relationship between transcognition, miscognition and triarchic intelligence theory manifests in other's artist teacher practice, a more accessible documentation of how cognition occurs may be presented, building on and adding weight to exhibition contribution. In the following exhibit I provide the final exhibition re-story where I use textual excerpts to document what cognition is, how conceptualisation was sought, influencing factors and potential uses of cognition in artist teacher practice.

Exhibit 1.3: Artist teacher cognition as a story of textual excerpts

In this exhibit I re-story excerpts (Mishler, 1995) from the exhibition text that document and exemplify cognition, influencing factors and uses for it. The excerpts collected are colour coded to indicate whether they are a cognitive form, influencer or a use - Appendix 14. The excerpts have been reduced into sub themes to identify frequency of the theme occurring and to illustrate ways the theme occurred - Appendix 14. The excerpt data is re-storied here using exemplar excerpts and the exhibition sub themes to exemplify cognition in artist teacher practice. The re-story flirts with Labov's models of narrative analysis (Kim, 2016; Labov, 2013; Labov & Waletsky, 1967) to recapture story of cognitive conceptualisation. It is structured to summarise the re-story contribution, to provide an orientating context for the work, to identify what excerpt analysis reveals about artist teacher cognition, to evaluate telling and exemplify result whilst situating the audience in present artist teacher practice. Afterwards, I position the re-story in the exhibition conceptual frame to illuminate its contribution to the research questions.

Re-story 3 a story of textual excerpts: Artist teacher cognition

The study of cognition is revisited in art education (Eisner, 1994; Efland, 2002; Heaton & Edwards 2017; Gnezda, 2011; Parsons, 1998) but cognition specifically in artist teacher practice is under researched. Studying cognition can illuminate what cognition and learning are. This is important for artist teachers to understand to develop the self and their learners. When cognition is accessed in artist teacher practice, factors that influence it are revealed alongside cognitive uses. Such understanding is important and timely when the number of people training to practice and deliver art education is being reduced, when art education is marginalised in England, when the contribution and content of art is questioned in education and industry and when political drive to resolve art education issues appears bleak (Gregory, 2017; Hall, 2017; Jeffreys, 2018; Neelands *et al.*, 2015; NSEAD, 2016; Payne & Hall, 2018). What an understanding of cognition in artist teacher practice and art education can offer artist teachers, learners and education is evidence rich and complex forms of learning take place in art experiences that recognise, facilitate and develop cognition but also an ability to understand it. In this re-story of narrative excerpts, I summarise cognitive forms found in artist teacher practice. I communicate influencers to and uses of cognitive forms and suggest present and future applications for cognition in practice.

I write this re-story from the position of artist teacher academic training teachers in an English University. I have a background in primary education, where I had roles as a generalist class teacher teaching all National Curriculum (DfE, 2013a) subjects and the privileged role of leading and teaching the arts in a school that afforded specialist teachers for all arts subjects: dance, drama, music and art. In the academic role I have I visit primary schools and early years settings across the country and abroad and experience firsthand the disparate art education on offer to young people. This picture is not always bleak. There is some exceptionally creative and high-quality art education occurring that is cognitively challenging, but it occurs in a pocketed way. There are instances where the aesthetic surface of art's offering appears prominent, but where the cognitive value for learners may be questioned. In art education I am in a pleasured position. I advocate for the subject presenting, exhibiting and publishing internationally on its concerns, issues and practices. But whilst the context I appear to

engage with art education from puts art in a prominent position, the position is not always supported. Even in academia, art education, its value, its role in research and the time afforded to it is reduced and strained by neoliberal agenda. Therefore, to document, understand and disrupt the use, worth and place of cognition in artist teacher practice and disciplines spanning art and education is necessary and the object of this re-story and research.

In this research exhibition cognition was mentioned or exemplified through narrative excerpts over one hundred times. This identification focused on four themes: the recognition of cognition as knowledge, as a process of knowledge acquisition, as interdisciplinary experience and as embodied act - see Appendix 14. Where cognition featured as knowledge it was frequently aligned to academic term theorisation and mental concept.

> *Space Two, Excerpt Eighteen:*
> *How one thinks about cognition in the artistic experience affects how one perceives it (Stokes, 2014) and so cognition as an entity is individual.*

What complicates perceptions of cognition, as knowledge, is the process that led to knowledge recognition or theorisation. Cognition too can be the process of knowledge acquisition (Eisner, 2002; Hickman, 2007) and in exhibition excerpts it was processes such as thinking, talking, making and challenging that brought acquisition of cognition as knowledge in artist teacher practice forward thus, aligning with the views of Cole and Engeström (1995), Fernandez *et al.* (2001), Hickman (2007) and Mercer (2005) mentioned in Space One.

> *Space Three, Excerpt Two:*
> *Engagement with aesthetic discourse influences one's understanding of the role of language in cognition (Efland, 2004; Smith 2005); I consider whether this includes the visual or aesthetic as language discourses.*

Cognition, like language, joins and divides people, places and practices. In exhibition excerpts it was cognition as an interdisciplinary concept and experience that afforded connectionism (Sternberg & Sternberg, 2012) to socially construct, transfer, curate and create cognition. When cognition is viewed, or conceptualised, as webbed

connection, the way learning occurs, and knowledge is gained, becomes easier to digest.

> *Space Four, Excerpt Twenty-Seven:*
> *Artist teacher Chloe positioned 'cognition as a product of digital process.' She identified through experiencing, experimenting and raising questions about processes and practices of digital art one can gain knowledge and skill because one connects digital, physical, mental and virtual processes and ideas.*

The challenge is convincing and teaching learners how to embody cognition as learning. In this exhibition cognitive embodiment was revealed through practices and acts such as affording voice, articulating learning, making provision for play and showcasing product, but these acts of cognitive embodiment were complicated by factors influencing cognition, such as acts and process themselves, connections, the self, personal experience, embodiment and the external world, as revealed in this exhibition's research and literature.

> *Space Five, Excerpt Ten:*
> *Cognition grows and shows strength when relationships exist through connections in process, practice and product, between self and others and in a time that honours past, present and future.*

This means to identify, showcase and make use of cognition in artist teacher practice, one needs to be aware, or cautious, of factors that may influence, drive and limit understanding, use and embodiment of it as concept, process, philosophy and being. Knowing does not need to be present in the first introduction or use of the term, as this would not be appropriate for all learners, but over time, as conceptualisation becomes clearer, specifically in artist teacher education, factor liaison should exist. In applications for cognition in artist teacher practice this exhibition revealed over ten applications centralising around the need to use cognition as a tool to clarify and change practice, to build understanding and make learning connections, to collate, document and apply learning and to facilitate co-constructed environments and experiences.

> *Space Six, Excerpt Forty-Six to Forty-Seven:*
> *The artist teachers have used their cognitive voice as a platform for reflexivity as I did, which enables one to see movement in cognitive understanding.*

In this exhibition as participants and I engaged with cognition, we gained a cognitive voice. A voice where we confidently disrupted, unpicked, used and disseminated

opinion and practices about cognition, knowledge and learning. Voicing cognition, personally and to others, reflexively and in theory and practice, revealed and reinforced ways to apply cognition. The evaluation of exhibition excerpts contributes verification of cognition building over time, when cognition is interacted with as term and practice. The excerpts exemplify the many cognitive forms in artist teacher practice, influencing and implicating factors and ways of facilitating understanding and application of cognition with artist teachers and learners.

The value of these findings, in the present state of artist teacher practice and art education, are cognition is seen as a concept central to learning and development in artist teacher practice. Artist teachers can use cognition to develop own and others' learning, practice and cognition. Cognitive visualisations can contribute to understanding, seeing, disseminating and constructing learning webs seminal to provision of interdisciplinary and connectionist learner experiences. Webs can build on and challenge existing forms of knowledge. This exhibition's contribution goes beyond artist teacher practice and art education. Understanding cognition and learning occurring is central to all disciplines where educational principles are at the heart.

In the following discussion I analyse the re-story of narrative excerpts above with the exhibition conceptual frame and research questions as done previously. I connect the visual, reflexive and narrative re-stories to justify and interrupt contributions. I do this to create new meanings and understandings about cognition's role in this exhibition and educational discipline (Kim, 2016). In the analysis I focus on bringing the audience from the specific exhibition story to the present situation for artist teachers in education (Kim, 2016; Patterson, 2013). I do this to show how this research exhibition reaches multiple audiences (Barone & Eisner, 2012), demonstrating why this exhibition matters. Alternative perspectives to mine will always exist, keeping art, education and research as developmental disciplines.

The key message the narrative re-story communicates is cognition exists in artist teacher practice but is situated in a web of influencing factors. Being able to unpick, map or curate connections in a cognitive web is what enables artist teachers to learn, know and become positioned to develop and challenge the known. In exhibition context I can exemplify the strength of understanding cognition in artist teacher

practice by connecting the re-stories expressed. In the reflexive re-story analysis, I mentioned how key themes from the visual re-story, *observe, embody, act,* and those from the reflexive event re-story, *personal, process and product,* connect. If I use the three themes developed in this excerpt re-story, *form, influence and use,* to identify the reveal of cognition, influencers to it and uses for it, I can generate a deeper web of cognitive connections in the autoethnographic/ artographic narrative.

For example, *forms* of cognition in this exhibition are only identified because I have *observed* personal and cultural manifestations of cognition and the space between these. I have accessed the space between cognitive conceptualisations because the narrative positions from which I have conducted the research, written and observed have opened space between them, space where I have *embodied and* been engaged in the *process* of cognitive understanding, between theory and practice, to reveal *influencers* to and of cognition. The *act* and *product* of cognition also connect with *use* because to use cognition one is involved in a cognitive *act,* the *product* of which is a living cognitive experience.

I have demonstrated in the explanation above how cognitive strength and confidence can be created when conceptualising cognition. I have exposed themes that assist cognitive understanding, derived from three re-stories and perceptions. I can create complex correlations between them, curating cognition, by exposing and inter-relating complexities to build cognition and understanding. Connectionism (Sternberg & Sternberg, 2012) is enabling me to generate and exemplify new meanings and understandings of cognition in artist teacher practice, such as cognitive engagement being means for artist teachers to develop confidence in theory, practice and the space between it, or cognition having multiple manifestations that exist and emerge in artist teacher experience. The exposure and connection between cognitive themes in the re-stories presents different ways of looking at and expressing cognitive conceptualisation and exemplifications of how strength and confidence to articulate cognition can be achieved when opportunity is forged to connect and reflect.

If I correlate the narrative story of excerpts and the exhibition conceptual frame, I can add additional clarification to the point made in reflexive event analysis. Artist teachers can understand cognition and practice by capturing manifestations and use of

cognition in it. In the excerpts presented there are examples of the active art experiences (O'Donoghue, 2015) participants and I have engaged in revealing cognitive manifestations, such as identification of cognition being implicated by perception, revealed through language or reflexivity, formed of connections and showcased in product. The excerpts add truth to the idea, and first and second research questions, artist teachers can understand and document cognition and curation. What is not revealed is the depth of cognitive understanding for each participant. In a further study participant data could be analysed differently to deduce this information.

In reflexive event analysis, I allude cognitive curation may be facilitated by connecting transcognition (Sullivan, 2005) and triarchic intelligence (Sternberg, 1984). In the excerpt re-story there are instances where actions mentioned in the proposed frame uniting transcognition and triarchic intelligence appear to assist cognitive conceptualisation and documentation of it. For example, in the re-story one excerpt suggests artist teachers use cognitive voice to reflect and showcase cognitive understanding. This is one example where cognition *use* overlaps practical triarchic intelligence and transcognition. The excerpt documents cognitive conceptualisation and reference to cognitive voice, demonstrating manifestation of cognition in practice. A second example connects analytical triarchic intelligence with transcognition, in a comparative way. In one narrative excerpt it is suggested cognition grows when connections exist between practice and products. This is then associated with connections between self, others and times hinting comparisons occur with cognitive progression.

The examples explained add weight to the emerging idea connections between transcognition and triarchic intelligence occur in artist teacher cognition and voicing cognitive connections facilitates documentation of cognitive curation. Information is emerging that voicing cognition changes practice when ideas are verbalised through curating cognition in a written form. This responds to the second element of the first research question that asks whether artist teacher practice changes in response to cognitive understanding. I suggest change occurs because I am vocal about cognitive knowledge as connectionism (Sternberg & Sternberg, 2012; Naidu, 2012).

In the excerpt re-story I suggest all Hetland *et al.*'s (2007) studio habits emerge. I *stretch and explore* new possibilities for cognition in art education by *expressing* and *crafting* a story that *envisions* new ideas for the way cognition be *observed* and used in art and educational *communities.* I *engage* with exhibition research questions to *reflect* on cognition and show why cognition is important to art education in an individual and cultural way. In the re-story I state cognitive study is central to all educational disciplines. The excerpt re-story and analysis communicates ways cognition can manifest in education, ways it can be interrogated, taken apart and reconstructed to open new ways of seeing, learning and applying cognition to theory, practice, research and policy. In unison the re-stories and their accompanying analyses demonstrate it is possible to create multiple perspectives on the same data and this can reach audiences whilst demonstrating there will always be more than one interpretation of cognition and its value.

Collection 2: Sense making

In this collection I communicate an understanding of the re-stories re-interpreting and re-presenting exhibition data (Bagley & Cancienne, 2002). I do this to determine whether data presented is illuminative, indicative, representative or illustrative (Atkins & Wallace, 2012), but also to exemplify how stories interconnect. I use the art of this space, figures 53-56, to frame this sense making. In this collection I analyse the exhibition methodology and methods used. I focus on analysing use of a hybrid methodology uniting autoethnography and artography and use of visual, reflexive and narrative stories to document, exemplify and unravel data sought. As a final point I look to the exhibition research questions to summarise the research contributions of this exhibition whilst setting the scene for their broader positioning in Space Eight, which reviews the exhibition.

Throughout this exhibition I have tried to comprehend and make sense of cognition in artist teacher practice considering its influence on people, experiences, ways of being, methodologies, research and education. This sense making is ongoing because experiences we have shape who we are and what we do. Reading the work of jagodzinski and Wallin (2013) made me consider sense making further. They identify affect is separate from the creation or gain of meaning or knowledge. Whilst I agree affect can be an immanent and sensatory quality or experience, I also think affect can

be positioned as an influencer in and to meaning, knowledge and cognition in artist teacher practice, art education and arts-based research. Affect can help us understand cognition is sense making. To explain this idea, I draw on the art of this space *Performativity* - figures 53-56.

In *Performativity*, making is positioned as cognitive performance. I show a film clip of myself painting to demonstrate cognition and curation of it. Making and being are embodied acts and concepts in artist teacher practice. Because this art was made for and in response to this exhibition, it becomes artography and autoethnography. It captures and depicts my research story and through film connects with others in exposure. The art made is spontaneous, so a form of affect, but is also means to curate, capture and expose cognitive understanding. In curation, capture and exposure, affect gains meaning because the maker embodies it by using it to formulate cognition. Affect becomes a component in connectionism (Bechtel, 1991; Hardy, 1997; Naidu, 2012), concept, idea and learning mapping (Cunliffe, 1999; Vitulli, Giles & Shaw, 2014). jagodzinski & Wallin (2013) recognise embodiment of affect assists in the process or journey of becoming, but do not appear to acknowledge it as a component that can occur, and have a defined worth, in a cognitive map, the cognitive map being the web of connections one forms in the cognitive process to formulate cognition. Further research is needed to fully counteract jagodzinski and Wallin's positioning of affect in cognition and arts-based research, but there are hints in this exhibition that question their conceptualisation.

In Space Six for example I explained how exhibition participants used risk taking and experimentation to engage in art education acts that had affect on their interpretation, understanding of and ability to reveal cognition. Whilst this shows acknowledgement of affect in the cognitive process, the artist teachers' later application of affect hints at their understanding of use of affect to build cognition in learners they engage with. The idea cognition can be built, and affect is a part of construction, connects with the idea about affect being a connectionist component (Bechtel, 1991; Hardy, 1997; Naidu, 2012). The audience may wonder why at this exhibition point I have chosen to discuss affect. In art education and arts-based research there are many questions raised about the use, types and relationships between cognition and affect involved in creative experiences and products (Davidson & Bondi, 2004; Heaton, Burnard &

Nicolova, 2018; Lawrence, 2008; Russ, 1993) and it has been expressed sharing and exposing these can assist in developing the picture of creative acts (Russ, 1993). This idea resonated with me when making sense of exhibition content and contributions. This exhibition's intention was, and still is, to create a picture of where cognition emerges, sits, is understood and used in artist teacher practice, not to prove existence but to expose cognitive complexity in art education.

When the three stories of this space are observed together one can see data re-presented is indicative to all of Atkins and Wallace's (2012) data selections. The three stories are illuminative and indicative because each one contributes different ways of considering the research question and research significance. The re-stories illuminate the research question, they demonstrate visually, reflexively and narratively how I have come to understand artist teacher cognition, personally but also culturally in the international context of art education and arts-based research. International publication of the visual essay specifically assists in indicating the re-stories significance because the cognitive idea is presented and peer reviewed. Engagement with cognition in artist teacher practice assists in ensuring art education remains valued, timely and progressive. The visuals presented in the first re-story, the events in the second and excerpts in the third typify and illustrate exhibition findings. The re-stories shed light on mine and others view of cognition. The findings reinstate the worth of cognition in art education as an area of study that can generate partnerships and influence opinions towards sociocultural concerns. They identify factors influencing cognition, such as time, space, affect and cognitive process and bring to light misconceptions and complications I and cultural groups have towards cognition in artist teacher practice, art education and its connecting disciplines.

The three re-stories are unable to delve deep enough into individual cognitive processes to reveal components formulating cognitive events. This is one avenue that could be researched in future to bring to light how artist teacher cognitive connections are formed in specific experiences. The use of this would be to enable artist teachers to engage in building and understanding their cognitive maps, to inform or develop personal learning preferences. Keeping situational maps (Clarke, 2003) could assist in documenting cognitive connections. The re-stories do not speak to one another, except in analysis, so if re-stories are published it would be useful to indicate to the

reader where other components of the same story can be read in a different form exposing the voices, lenses and narratives autoethnographers and artographers use to capture and evaluate their subject. If I publish additional exhibition parts, I will try to do this so cognitive connections in the artist teacher publication process are exposed.

I now analyse the exhibition hybrid methodology between autoethnography and artography. The continual self-reflection and criticality required in autoethnographic and artographic process is challenging. I found myself continually questioning exposure of personal exhibition values and the extent they altered truth (Tullis Owen *et al.*, 2009). I came to realise in autoethnography, artography and in the methodological space between, a war with truth is embodied. So, in this exhibition, such as in Space One, and in future ethnographic and artographic studies I endeavour to expose and reflect on truth in experience. Truth is an ethical subjectivity whose benefits and limitations should be discussed openly (Rose, 2012).

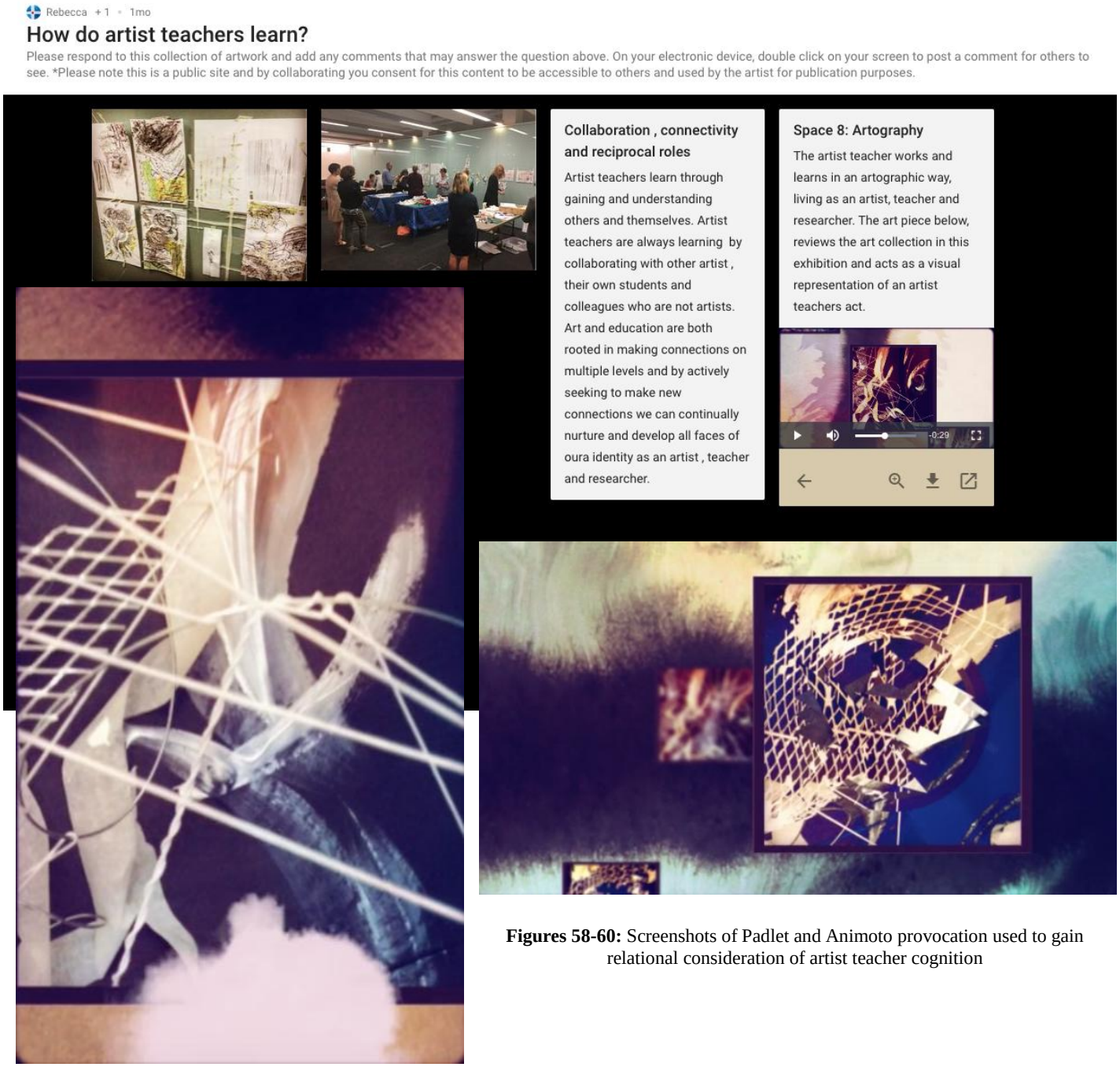
Autoethnographic and artographic methodology provided insights appearing in the research as it developed (Hammersley & Atkinson, 1995). Cognitive insights were exposed even prior to data generation starting (Silverman, 2000). Insights were evident in art produced, reflections made and stories told, the very facets of arts-based autoethnographies and artographies (Alexenberg, 2008; Blinne, 2010; Eldridge, 2012; Heaton, Burnard & Nicolova, 2018). Being reflexive in autoethnography and artography increases reliability and trust because there is continual connection between selves and others. This exhibition and dissemination has enabled me and others to reflect on the cognitive and life experiences I and we have had in a reflexive space (Spry, 2001). I will not lie. Constant reflection is mentally exhausting and it is emotionally and practically problematic. The back and forth process presents new questions, ideas and experiences, but reflexivity and truth make an artography or autoethnography or a methodology in-between unique. In this case the adopted methodology assisted in positioning the phenomena of cognition in artist teacher practice in a truthful social world space (Mason, 2006).

In Space One I state one of the methodological exhibition contributions is it creates hybrid knowledge (Brown *et al.*, 2004), intersecting academic and professional life. The narrative of this autoethnographic and artographic exhibition, maps cognition

across different facets, like art, pedagogy, practice and others. Such mapping (Carr, Lhussier, & Chandler, 2010) is afforded by the methodology adopted and the acceptance of change in it. At research outset I engaged in autoethnography. As my academic cognition developed, I became aware of artography. When my confidence to connect these research approaches became embedded, I gained confidence to inter-relate them and present this hybrid exhibition methodology. I show it was the reflexive process autoethnography and then artography afforded that allowed crossover to occur whilst honouring connection in academic and professional life. The hybrid adopted, between artography and autoethnography, has enabled me to breakdown the conventional thesis structure (Bourner & Simpson, 2014), to become interested in cognition in art education but also in how cognition is situated in research. In Space Eight, which follows, I review this entire exhibition capturing and positioning its research contributions in interdisciplinary and intercultural contexts that bridge art, education and research.

SPACE 8: EXHIBITION REVIEW

Figure 57: Artography



Figures 58-60: Screenshots of Padlet and Animoto provocation used to gain relational consideration of artist teacher cognition

Artography, figure 57, is performative, animated and relational art. It unites digital and physical mediums, communicates the living world of artist teachers and values the other's voice. Figure 57 is an image of a digitally manipulated sculpture that represents artography. It started as a physical sculpture, figure 8, created from elastic, tape and wire representing exhibition methodology. It was photographed and manipulated in the apps Roll World (Wang, 2016) and Fragment (Pixite Apps, 2016), to create figure 57 that captures methodologies can evolve in research. It has two additional digital components - figures 58-60. These involve a Padlet (Padlet, 2016) to enable audience interaction as they can comment and contribute to the art and an Animoto (Animoto Inc, 2013), short animated film clip, to express and provoke. The clip represents artist teacher cognition and the act and methodology of artography emerging in this exhibition. The Animoto is accompanied by the music *Come Wander with Me* by vocal ensemble Voces 8 to invite engagement.

The text below provides a personal analysis of *Artography* - figures 57-60.

Artography represents artist teacher cognition is an artographic act, a way of living, where cognitive development occurs. Artography as an exhibition research concept, is concerned with honouring practice-based research as living inquiry. *Artography* is a living piece of art. It evolved in stages developing as my practice and this exhibition have and it invites the contributions of others, through Padlet (Padlet, 2016), to grow further. *Artography* encapsulates artist teacher cognition, but methodologically artography is also the experience cognition occurs in. Figure 57 maps, in a metaphorical and abstract way, methodological acts that represent, progress and use cognition. I discuss and review the evolution of this exhibition's methodology in the space narrative.

The Padlet (Padlet, 2016) invites audience engagement by asking for public comments about how artist teachers learn. I refer to learning over cognition to increase public access. This exhibition has taught cognition is complex to engage with. In Space One I distinguish between learning and cognition and state learning can encompass cognition. Figures 58-60 show comments and imagery posted in response. The contributions exemplify the points made in this space that collaboration, connectivity and reflexivity can assist understanding and engagement with cognition in artist teacher practice. To critique *Artography*, its abstract nature challenges audience interaction; without explanation several underlying concepts are inaccessible. The Padlet (Padlet, 2016) allows audience access to text and imagery expressing principles of the art and the space narrative reviews the exhibition contextualising messages portrayed in *Artography*.

Space 8: Exhibition review

In this space I review this exhibition. I state how cognition is exemplified in artist teacher practice, I share the impact of engaging with cognition in art education and reflect on the journey taken between autoethnography and artography. I achieve this by providing an exhibition summary in Collection One as a reminder of the research questions, exhibition importance, original contribution, impact and design. In Collection Two I recommend how this exhibition contributes to research, practice and policy and suggest steps to advance the research disciplines concerning cognition in artist teacher practice and art education.

I intended this exhibition to conceptualise and exemplify cognition in artist teacher practice whilst establishing and capturing cognitive curation as term and act. I responded to Siegenthaler's (2013) requests, see Space One, to consider how art education research can bridge change in art practice, extend into spaces beyond the exhibition and be of factual, social and aesthetic impact. I hoped to achieve these intentions in a relational art experience between an autoethnographic and artographic methodology which positioned artist teacher practice as living inquiry.

Whilst I confidently suggest in this space this exhibition meets several intentions expressed, this has not occurred without new insight, reflexivity, repositioning and engagement with implications. So, I share in the following discussion a review of this exhibition that reveals layers and components that suggest the exhibition contributions are important, yet emergent, to differing extents in theory, practice, policy and research in the interdisciplinary areas of cognition, artist teacher practice, art and education.

Collection 1: Exhibition summary

In this collection I remind of the exhibition research questions, its importance, originality, impact and rigour. The collection is three exhibits. The first addresses exhibition significance, the second reveals implications and limitations considering exhibition knowledge contributions and the third presents exhibition contributions and legacies.

As explained in Space One and Seven, the exhibition research questions ask whether it is possible to identify cognition in artist teacher practice and if cognitive consciousness influences or implicates this. They ask if cognitive curation and documentation are possible in art education and whether transcognition (Sullivan, 2005) and miscognition (Tavin, 2010b) are specific to this practice. From a methodological position the exhibition explores whether relationality (Bishop, 2004; Bourriard, 2002; Martin, 2007; Siegenthaler, 2013) exists in living enquiry between autoethnography and artography and if such practice formulates artist teacher cognition, action and how. As living exhibition, I raised additional questions as the exhibition progressed, evolutionary questions, which asked how the investigation and experience of cognition influenced conception of it, and what influence conception has had practically and culturally.

These questions help frame exhibition importance. I expressed in Space One and Seven if cognition is exemplified and given recognition in artist teacher practice and art education as a complex learning form, then the contribution art education makes to learning, education and society will gain value, whilst contributing to practice, pedagogy and policy change. When I refer to policy, I acknowledge policy can be hard and soft, making top down and horizontal contributions on platforms with differing accountabilities (Burnard *et al*., 2018). Cognitive and subject specific recognition and change is required in art education in the United Kingdom at present across the spectrum of education and into teacher training (Gregory, 2017; Hall, 2017; Jeffreys, 2018; Neelands *et al.*, 2015; NSEAD, 2016; Payne & Hall, 2018) to prevent art education and its practices being diluted. Areas such as Western Australia are facing similar challenges (Chapman, Wright & Pascoe, 2018), making this research relevant internationally.

This exhibition is original in several ways. It is the first research study, to my knowledge, to unpick and exemplify cognition in a story documenting living artist teacher practice. It is the first to express the term cognitive curation and conceptualise it as paradynamic cognition (Polkinghorne, 1995) in art education and one of only a few (Burke & Kutter-MacKenzie, 2010; Coetzee, 2009; Gouzouasis & Lee, 2009), these references are a sample, to interrupt and explore the methodological spaces surrounding autoethnography and artography when they are connected as experience

(Siegesmund, 2012) in empirical, arts-based and educational research. Studies do exist, such as by Cutcher and Irwin (2017) that extend the practice of artography by examining and mapping spaces, time and movement in education. But they do not specifically focus on cognition.

Exhibition impact and worth is realised in several ways. In the first exhibit I share the significance of the exhibition research stories and data produced. I share how the exhibition has impacted in its trajectory to reach audiences, with its focus on cognition and theme connection, to include aesthetic discourse, digital practice, social justice and cognitive voice, in art education. The exhibition exposes across disciplines how cognition may surface. This contribution is relevant for artist teachers, but also for learners and educators of art and education. Exemplifications of cognition could be used as teaching points to share, model, apply and unpick learning in interdisciplinary contexts. As stated in Space Two, cognition itself is interdisciplinary. Showing understanding in one educational area makes it malleable to transfer to other disciplines. I am realistic though. The cognitive exemplifications I share are a springboard for cognitive possibilities that could emerge as result of exhibition engagement.

As stated, exhibition elements have been disseminated nationally and internationally - see Caldwell and Heaton (2016), Heaton (in press a), Heaton (2015a), Heaton and Crumpler (2017), Heaton and Edwards (2017), Hickman and Heaton (2015) and Heaton, (2017 June/July). Disseminations include book chapters, journal articles, blogs and artworks that cross art and educational themes and disciplines. Breadth in subject dissemination adds weight to some ideas raised in Space One concerning the multifaceted nature of artist teacher identity and practice and the value of exploring an autoethnographic to artographic methodology to expose this.

Autoethnography and artography can reveal learning process, challenge identities (Kingsley, 2009; Russell, 1999) and present how artist teachers are multifaceted and interdisciplinary beings (Daichendt, 2010; Hoekstra, 2015; Stark, 1960; Thornton, 2005, 2011) that can influence pedagogy and practice (Heaton & Crumpler, 2017; Page, Adams & Hyde, 2011). The disseminations reinforce these sentiments. They show audience access that crosses contexts, disciplines and locations. This breadth

contributes to making this exhibition interdisciplinary and intercultural whilst modeling how space between autoethnography and artography can share and connect artist teacher practice(s), cognition, research, stories and outputs. I do not suggest such practice will be the case for all artist teachers, but there is opportunity if an artist teacher wishes to generate or participate in curation of cognitive experience. I now share the significance of specific exhibition aspects and examine cognitive curation as part of these.

Exhibit 1.1: Exhibition significance

The stories communicated in this exhibition, see Space Seven, are significant because they communicate how I have forged a personal methodology and narrative montage (Kim, 2016) to document cognition in artist teacher practice between autoethnography and artography. Creation of a personal methodology has not been easy and has involved a high degree of reflexivity (Grushka, 2005; Kim, 2016; Schenstead, 2012; Winters, Belliveau & Sherritt-Fleming, 2009), drive and vulnerablity to research, write, reflect, revisit, project and act, back and forth, to conceptualise the cognitive journey between autoethnography and artography.

Subjectivities have complicated this journey, such as those associated with autoethnography and artography, expressed in Space One and Seven. The main subjectivity implicating methodological significance also contributes to the exhibition's methodological significance. The methodology is personal to my being, context and practice as an artist teacher. Others could adopt it and perhaps encounter similar challenges and implications, but they would not experience it the way I have. In benefit forging a personal methodology has afforded me cognitive curation and responsibility for constructing cognition and cognition concerning methodology (Efland, 2002). I have engaged in paradynamic cognition (Polkinghorne, 1995) because I have suggested and practised a way of conceptualising, representing and experiencing cognitive development methodologically, in the space between autoethnography and artography, and theoretically, in cognitive curation. To counteract significance, I created the methodology, affording myself power (Anderson, 2006) whilst interrupting the story as data (Bagley & Cancienne, 2002).

The re-stories, lenses, participant contributions and relational qualities of this exhibition contribute to my confidence to say this exhibition shares significance. It is not significant in that it proves something new, but it does open, question and exemplify cognition and different forms of it in artist teacher practice - see Appendix items 11-14. It does demonstrate how methodologies can be interrupted through finding connections and spaces and by engaging in reform and it showcases innovative ways research can be projected, shared and engaged with, such as through exhibitions, articles, virtual and relational outputs.

I stated in relation to Efland's (2002) work cognitive curation involves being responsible for navigating thought to generate knowledge. In this exhibition managing cognitive curation has been significant to my understanding and conceptualisation of cognition and cognitive curation as terms - see Space One, Two and Seven. It is the conceptualisation and curation of cognition in this exhibition, expressed through personal story and afforded trust and validation by other's voices (Holman-Jones, 2005; Pink, 2012; Rath, 2012; Roth, 2009), from participants, reviewers and international audience, that affords me confidence to express, cognition and cognitive curation exist and are significant to artist teacher practice.

In Space Seven and Appendix items 11, 13 and 14, I communicate cognition can occur in visuals. Over fifty references to cognition have occurred in exhibition events and over one hundred in excerpts. These cognitive exemplifications illuminate types and ways cognition can be recognised and used to influence artist teacher practices and disciplines connected with them. I also communicate in Space Seven, by connecting the exhibition conceptual frame, research questions and exhibition narrative, cognitive curation is possible in artist teacher practice, through mapping (Cunliffe, 1999; Vitulli, Giles & Shaw, 2014) and connectionism (Bechtel, 1991; Hardy, 1997; Naidu, 2012). I explain such curation can assist in understanding cognition. I navigate and unpick specific exhibition exemplifications of cognitive curation to demonstrate it exists but acknowledge exposure of additional exemplifications are needed in artist teacher practice and art education to add verification, extend knowledge and show diversity in this sociocultural time and space. To demonstrate exhibition academic and professional rigour I now summarise its implicating and limiting factors.

Exhibit 1.2: Exhibition implications and limitations

In this exhibit I provide brief critique of the exhibition design instruments, I state implications encountered and suggest some changes that could be made to this exhibition in future. In Space One, when discussing exhibition methodology, I state in addition to using autoethnography and artography I will encounter grounded theory to splice through research (Charmaz, 2000; Glaser, 1978; Glaser & Strauss, 2012). This was useful to engage with the research from a theoretical angle, identifying types of cognition that emerged in artist teacher practice and when used as a tool, to delve into the minutiae of the blog contribution - see Space Two.

On reflection I also used grounded theory in an inconsistent manner and it would have been more effective at exhibition outset to consider how the tools of grounded theory could be implemented and applied at consistent points throughout the exhibition, not only to the blog in Space Two, but to the space visuals and narrative. This would have allowed the three components to be triangulated to reveal firstly, whether specific cognitive forms such as transcognition (Sullivan, 2005) and miscognition (Tavin, 2010b) were embedded in the research and secondly, whether there was evidence to suggest a new form of cognition emerged. The exhibition did, by exemplifying transcognition and miscognition and including them as conceptual frame components, begin to increase an understanding of transcognition and miscognition in the art practice of this time, a request made by Sullivan (2005). In future I could examine the exhibition from a grounded theory angle considering the concept of cognitive curation whilst exemplifying elements of this occurring. This would be useful to see the exhibition from a new angle, to add finding verification and to extend the exhibition considering the request I made to further embed what cognitive curation is and looks like.

In terms of the visual, reflexive and narrative approaches to analysis I adopted, it was difficult to distance myself from the stories, concepts and outputs shared (Bell, 2011). Application of the conceptual frame and research questions to these stories, as data, in Space Seven helped (Grushka, 2005) because they afforded new ways of looking, but I was concerned because I did not want to detach audience from experience and exhibition story by re-presenting and analysing the re-presentation of data (Holman-

Jones, 2005). On reflection the re-stories have become central to exhibition significance because they stand as disseminations. The visual essay for example is published internationally (Heaton, 2018). The re-story of events and excerpts could also be developed into future publications. Having three re-stories derive from the analysis approach has added design strength because the stories can expose limitations, add validity and trust to one another.

In consideration of visual analysis, whilst the re-story of exhibition space visuals has been successful, it would be useful to analyse the visuals as the exhibition progressed. As explained in Space One I did this at each space outset, but I could have made more use of the conceptual frame analysing the visuals specifically with this. This approach would have tightened the research adding consistency between the visuals produced and the re-stories presented in Space Seven. The artist teachers when validating visual analysis could also have used the whole conceptual frame instead of just the transcognitive and miscognitive components - see Space Seven. Although, as expressed, the danger of actioning the visual analysis approaches suggested is that meaning may be displaced on image break down (Cohen, Manion & Morrison, 2011) and action taken may be the reason for the success of visual re-storying because the images are utilised together. In the exhibit to follow I summarise exhibition contributions in relation to answering the research questions.

Exhibit 1.3: Contributions

In Space One I presented, explained and summarised the exhibition knowledge contributions from theoretical, methodological and personal positions. Here I draw specifically on each research question and explain the extent to which it has been answered. In the two theoretical questions, concerning whether an artist teacher can understand and identify cognition in practice and whether cognitive documentation and curation is possible, I suggest this exhibition strongly exemplifies cognition exists and is possible to curate and document. The exhibition reveals over fifty references to cognition and exemplifies these through validation of cognitive events and reflexive excerpts - see Space Seven. The frequency and substantiation advise cognition is evident in artist teacher practice, for the participants and me. Publication of this peer reviewed data in visual essay form (Heaton, 2018) adds weight to this claim because

the concept of cognition as integral to artist teacher practice is verified by an international culture of artist teachers.

This exhibition does reveal cognition type breadth in artist teacher practice to include forms of cognition as knowledge (Atkinson, 2006; Efland, 2002; Gardner 1990; Parsons, 1998; Siegenthaler, 2013; Sullivan, 2005; Sternberg & Sternberg, 2012; Stokes, 2014; Tavin, 2010b), process (Cole & Engeström, 1995; Eisner, 2002; Fernandez *et al.*, 2001; Hickman, 2007; Heaton & Crumpler, 2017; Mercer 2005) and interdisciplinary experience (Bereiter & Scardamalia, 1996; Roth & Jornet, 2013; Vitulli, Giles & Shaw, 2014; Heaton, 2018). In the Space Seven re-stories I exemplify and explain how each of these cognitive categories manifest in this exhibition and correlate with artist teacher culture. The participants' visual analysis, also referred to in Space Seven, documents how artist teacher participants observe transcognition and miscognition in this exhibition. This provides added verification these cognitive forms exist. As I state on contribution analysis in Space Seven, providing participants with opportunity to verify breadth of cognition types in the conceptual frame could increase contribution integrity, but equally it could have overwhelmed the participants who were learning about cognition. This signals an area that could extend this exhibition, or another in future, where artist teachers could read this exhibition or its re-stories to verify cognition types occurring and identify whether these occur in their stories. The cultural lens I have used throughout this exhibition does this to an extent, but it does not investigate the specifics of each cognition type because it addresses cognition as multiple cognitive forms.

Despite suggested developments, cognition is identified in practice in this exhibition by others and me. It is evident in exhibition narrative; in visuals, as verified by participants and international community; in publications (Heaton, 2018; Heaton & Edwards, 2017), and in the exhibition blog (Heaton, 2015a). The same disseminations exemplify cognitive documentation is possible because each output captures ways cognition manifests, such as in digital art (Heaton & Edwards, 2017), this only being possible because I have a conscious awareness of the concept. In this publication my colleague and I explain cognitive documentation in digital practice in Hetland *et al.*'s (2007) studio habits, a component of the exhibition's conceptual frame. In Space Seven I explain additional manifestations of cognition, such as cognition as

embodiment, and identify factors, such as acts, connections and one's self which have emerged in this exhibition to influence manifestation. Here this exhibition extends its own intentions.

I claim in this exhibition to a lesser extent cognitive curation is possible in artist teacher practice across thematic practices. Whilst this exhibition documents such cognitive curation in several ways, such as in theoretical, personal and methodological spaces - shown in my own development of cognitive theory exemplified by publishing in the field - by applying cognition in teaching and by gaining confidence to move between autoethnography and artography. The claims I make are largely manifest in personal experience. In places this is verified by the artist teacher participants, such as in Space Six where the participants curate their own cognitive voice and use it as a platform to disseminate or where cognition is linked to changing practice, such as a participant linking cognition and growth mindset when teaching children. So, additional studies into artist teacher practice which document cognitive curation are needed, as I state above, to embed cognitive curation as a concept able to develop cognition. However, because I have addressed cognition and its curation in several areas of artist teacher practice, like digital practice and social justice, I can suggest cognitive curation is thematic when cognition is a conceptual thread. This is because when cognition is understood, unpicked or applied, connectionism occurs (Bechtel, 1999; Efland, 2002; Eng, 2015; Hardy, 1997; Naidu, 2012; Sternberg & Sternberg, 2012) that begins to consolidate cognition for the connectome (Naidu, 2012), or individual - see Space Two and Seven for explanation and examples.

From a methodological perspective I asked whether relational practice is a component in hybrid methodology and whether it is possible to create cognition between autoethnography and artography. As I learnt and experienced exhibition methodology, I became aware relationality (Bourriard, 2002; Siegenthaler, 2013), as explained in Space One, is a component of autoethnography (Eldridge, 2012; Holman-Jones, 2005; Punch & Oancea, 2014; Thomas, 2013) and artography (Cutcher & Irwin, 2017; Heaton, Burnard & Nicolova, 2018; Rousell & Cutcher, 2014; Winters, Belliveau & Sherritt-Fleming, 2009). It just manifests differently dependent on the

autoethnographic or artographic methods the researcher selects as part of their research and story.

For example, as I see now as this exhibition closes, autoethnography can become part of artography. The three autoethnographic stories I tell in Space Seven exist as three relational and autoethnographic stories communicated visually, reflexively and narratively between me, participants and audience. But they also form artography individually as expressions of artist teacher research practice. In unison they transform this exhibition as artography because the exhibition, at closure, becomes my embodied artographic act and journey (Burke & Cutter Mackenzie, 2010; Cutcher & Irwin, 2017; Heaton, Burnard & Nicolova, 2018). I could have chosen to use artography as a relational methodology from exhibition outset. Had I done so, relational practice between myself and participants would have been embodied, but I may not have revealed or opened explicitly the lenses, perspectives and stories that beginning with an autoethnographic research approach has afforded. Yet, artographic practice has brought me a step closer to my audience, such as through the dissemination of exhibition visuals as an art exhibition.

In figures 57-60, the art of this space, I share a digital image of an animated sculpture and a url link to a Padlet (Padlet, 2016) and Animoto (Animoto Inc, 2013) film clip. Each art component invites and represents artography, to act as a relational and in-between space to pause, close but also open this exhibition as a journey. I see this exhibition as a springboard for future cognition, practice, wanderings and research that will begin as this exhibition closes. This final piece of art closes this exhibition but opens future possibilities; I discuss these in recommendations and next steps in the following exhibit.

In the research questions I also asked how a hybrid methodology could engender artist teacher action. I can only answer this in terms of autoethnography and artography and so further hybrid studies will be needed in artist teacher practice to verify this experience. But in this exhibition the methodology encouraged reflection and reflexivity, a willingness to develop and confidence to voice and change - see Space Six. It made me from an autoethnographic perspective observe and critique myself in different ways, such as through lenses and voices. Artographically I embodied

change. Cognitively, in practice, time and space I saw myself become an artographer. The combined methodologies facilitated the process of looking back, forth, between and around the self, others and audience. They facilitated relationality and created a space for cognition to be created and curation to occur. I was consciously and subconsciously looking for ways to understand, create, link and use cognition in and between the methodological approaches and practices of artist teacher.

This practice leads into the two evolutionary questions I raised which asked how investigating and experiencing cognition influenced conception and how cognitive conception has had practical and cultural impact. As stated, investigation and experience built confidence, afforded voice and opened up implications in cognition as a process, such as seeing barriers to cognition, like time, space, the self, sociocultural environments, opportunities afforded to name a few. But because I was always looking for, trying to create and use cognition, I was also implicating the exhibition because subconsciously, and to an extent consciously, this desire drove it. Cognition became a personal and artistic rationale (Duncum, 2004b; Steers, 2013) in exhibition journey. Learning about and experiencing cognition has impacted on the art I produce, the teaching I deliver, the disseminations I make and the voice I have. It has impacted the cultural community of artist teachers and art education because of disseminations. But most importantly through concept investigation I have been able to exemplify the worth and uses, see Space Seven, investigating cognition has for education.

For those not involved in art education this exhibition demonstrates how cognitive curation and connectionism (Bechtel, 1999; Efland, 2002; Eng, 2015; Hardy, 1997; Naidu, 2012; Sternberg & Sternberg, 2012) can be seen and applied differently, through and between theory, practice, policy and research - see all spaces. It presents cognitive connectionism as a universal way of representing, tracking and navigating cognition and its development. I exemplify contribution in art education, but this could be transferred to any educational discipline. The hybrid methodology can also be applied to any research discipline, in the form I have used or broadly, to create space between methodological approaches to see and generate cognition in new ways. This exhibition can be critiqued for its personal subjectivities, broad area of study and local nature (Eglinton, 2008), but as stated in Space One it does show in a rigorous

way the sustained practice of cognition in an academic, personal, professional and interdisciplinary habitus that connects cultures (Bordieu, 1984; Burnard *et al.*, 2016). In the exhibit that follows I reinforce this point by sharing exhibition recommendations for the development of theory, practice and policy and state the next steps others and I need to take to achieve this.

Exhibit 1.4: Recommendations

As mentioned above, additional studies are needed concerning cognition in artist teacher practice and art education which verify and address that specific types of cognition occur, how and why, that the components formulating cognitive events are revealed, that exemplifications of cognitive curation with individuals and groups in varied contexts, localities and cultures are sought and the use of cognition to interrupt hybrid methodologies continues and is applied to other hybrids. These recommendations are necessary to reinstate the recognition and value of cognition in artist teacher practice and education. As I state in Space Seven and in the visual essay disseminated (Heaton, 2018), cognition as concept can show knowledge and learning taking place in art that is desperately needed in the current climate of arts education (Gregory, 2017; Hall, 2017; Jeffreys, 2018; Neelands *et al.*, 2015; NSEAD, 2016; Payne & Hall, 2018). The identification of specific cognition types would add to this exhibition, but also the works of previous cognitive scholars in art education (Eisner, 1994; Efland, 2002; Heaton & Edwards 2017; Gnezda, 2011; Parsons, 1998), this would make cognition relevant to present and future time, whilst modelling in practice and pedagogy how and why cognition occurs. The exemplification of specific cognition types would benefit educators specifically because examples could be viewed and critiqued to apply to and develop teaching and learning. The focus on specific cognition types would scaffold awareness of cognition, a need raised by exhibition participants.

Making educators aware components formulating cognitive events should also contribute to the design of learning experiences intended to foster them could revive and update the practices and pedagogies of art education, especially if cognition's value is recognised. Recognition will likely only occur if a body of research emerges exemplifying cognitive curation with different groups in varied interdisciplinary and intercultural contexts, but this practice would also demonstrate how cognition is

relevant to, can be utilised by and adapted for the needs of different communities. In research, the value of investigating cognition in hybrid methodologies would be to verify whether cognition had similar effect, to this study, to open a research space and to forge development of new approaches and avenues to research and academic practice, particularly, in art and education, as requested by Akalu (2017), Baxter *et al.* (2008) and Mewburn and Thompson (2013).

These recommendations are an ideology; to achieve them will be a challenge in the current United Kingdom education system that appears to exert control over persons and practices (Ball, 2003; Payne 2017). To expand this point, despite a desire by the Government for educational institutions to make provision for a curriculum with breadth and balance that extends artistic and creative skills and knowledge (Department for Digital, Culture, Media and Sport, 2016), two years on the situation for and provision of art education is still threatened across sectors (Gregory, 2017; Hall, 2017; Jeffreys, 2018; Payne 2017; Payne & Hall, 2018). At the start of the millennium, Ball (2003), when questioning the acts of educator performativity and educational reform, stated the two acts do not alter what people do. They transform their mental and physical existence meaning tensions exist in both directions between what individuals and educational, government and community groups desire (Payne, 2017). Payne (2017) points out there are contradictions between political and neoliberal educational agenda, that education systems often direct practice and people and art education's value as a subject is now productivity driven. So, to achieve the exhibition recommendations I make, one must consider how and who controls the field of judgement (Ball, 2003) in educational research undertaken.

From a personal position this exhibition has afforded me personal criticality (Sambrook & Stewart, 2008), a degree of freedom and time to evolve. I have encountered movement in professional practice (Costley & Lester, 2012) such as contributing to delivery of a doctoral session in arts-based research and education, publically exhibiting art and disseminating and supporting others to do so. I feel fortunate I have been gifted the skills and confidence to create and critique artistry in this profession (Bourner & Simpson, 2014) such as creating an exhibition for this thesis. So, with this skill set, experience and artographic existence in tow I now intend to use my cognitive voice and knowledge of cognition to educate others, to continue

to interrupt the boundaries between art, education and research and to embark on studies into the recommendations made. As audience to this exhibition, thank you for sharing this journey.

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Appendix 1

Pilot study outcomes: A summary

- Researcher self-awareness as learner increased, reinforcing McNiff's (2013) notion that knowledge creation is continuous.
- Researcher confidence developed by reflection on personal practice and this has led to provision for other artist teachers to critique personal development.
- The need for multi-sited and collaborative practice to inform art practice, pedagogy and academia was identified.
- It was identified collaboration can enhance learning in art education and such learning can create collaboration and learning across disciplines.
- The research demonstrated ways cognition could be influenced in art practice highlighting the importance of opportunities for subject breadth.
- The existence of transcognition and miscognition in artist teacher practice needs substantiating.
- The study highlighted vast forms of language can be accessed through art practice.
- Collaboration empowered language construction, (Eisner & Day, 2004; Johnson, 2007 and Liu, 2009).
- I became aware, through analysis, of the language conventions, visual and verbal, artist teachers are using in practice.
- A conscious awareness of cognition influenced practice.
- The study achieved documentation of transcognition and miscognition in artist teacher practice; this modelled the value of reflective learning to the discipline.
- It was identified a study with a research focus on the different ways that artist teacher practice alters as a result of cognitive awareness is required. Such a study should be substantiated by a larger sample of artist teachers where validity issues can be addressed and personal cases explored.
- In relation to analysis to increase rigour it was identified an analysis plan is required which involved data analysis in relation to a conceptual frame. Analysis should view the data holistically and in relation to research questions to diversify and triangulate analysis procedures (Mason, 2006), broadening the picture of the data set.

Appendix 2

Evidence of miscognition in the exhibition pilot (Heaton, 2015c)

*Pilot study available on request

Components of miscognition	**Possible examples of miscognition in autoethnography**	**Examples of miscognition in the pilot**	**Miscognition in figure 3, a visual component of the autoethnography**
1. Unknown knowledge	Medium as a metaphor Meaning hidden Abstract Conceptual Creative articulation Reflections Symbolism	Page 42: Metaphorical data, multiple interpretations of the text Page 44: Metaphors lead to deeper knowing	The visual is abstract and conceptual. It acts as a metaphor for variation in autoethnographic voices. The shapes are symbolic of autoethnographic components. Without discussion only the creator may access knowledge.
2. Unmeant knowledge	New knowledge emerges Reflections New artistic mediums/ styles developed	Page 20: Knowledge of the emergence of multiple voices through narrative Page 56-57: New knowledge accessed through making and collaboration	New knowledge of autoethnography emerges as a result of making. The creator is experimental with the artistic medium. Without explanation of new knowledge autoethnography is difficult to interpret.
3. Missing metaphors	Information not realised Viewers thought or reflection Hints of ideas (e.g. in journals, narrative, art)	Page 42: Others' ideas showcase new knowledge	The visual hints of ideas, layering, holes, experimentation but no direct relation can be made to autoethnography without explanation. The image has not been exposed to others to seek meaning.
4. A broken Connection (Stupidity)	Blocked progress, inability to portray meaning concealed through editing or selection Incomplete works Experimentations	Page 48: Identified by the author in art, comments and narrative.	An inability to portray meaning beyond the self is evident; the work shows experimental techniques but does not suggest misunderstanding without text explanation.
5. Symptoms and Sinthomes	Driving force, solution to problem Experimentation with medium Practice Repetition Collaborative	Page 33: Reflections revealing solutions Page 41: Problem solving Page 59: Process aids problem solving	Repetition evident in the shapes, colours and techniques, work forms part of an autoethnographic body of idea development. It is the text alongside image problem solves.
6. Truth Untold	Ambiguity, mistake, awareness acknowledged by others Relational Review Aligning to the work of others	Page 39: Questioning and clarifying	Clarification is provided in the narrative analysis of the image and alignment made to theorist, but on review of just the image there is no evidence of the creators review. The image is ambiguous.

Appendix 3

Workshop sequence that occurred with artist teacher participants

Cohort 1: 10 artist teacher participants
Cohort 2: 8 artist teacher participants

Research explanation: 2nd October 2015
Gatekeeper present
Letters of consent and explanation distributed to cohort 1: October 2015.
Letters of consent and explanation distributed to cohort 2: April 2017.

Art workshop 1: 21st October 2015
Theme: Cognition
Face to face experience
2 Hours
10 x Artist teachers involved from cohort 1

Workshop plan sketchbook entry, 20.10.15, Collage and pen, 21cm x14cm. Rebecca Heaton.

Purpose: To map an initial understanding of cognition.

Task 1: Collect consent letters back, explain the research again and check all participants are happy to proceed. Questions?

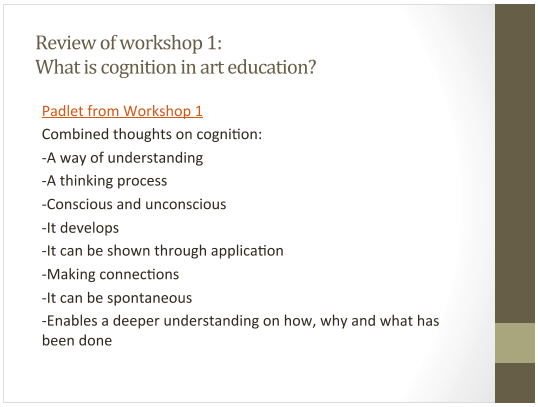
Task 2: Contribute to a digital padlet: https://padlet.com/wall/12r83xfrck8q your perception of cognition. Question: What is cognition?

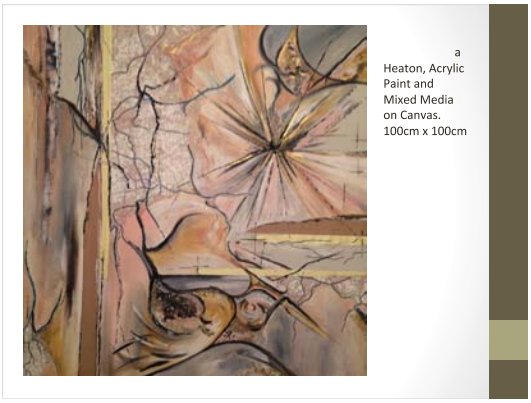
Task 3: Create an abstract painting on canvas using the materials supplied to interpret your understanding of cognition. Think about yourself as an artist, teacher and researcher.

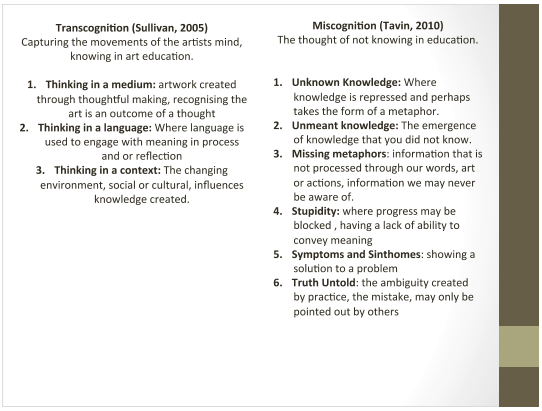
Task 4: Reflect on your artwork, photograph it and upload to the session Padlet with a short explanation about how your work shows cognition as an artist, teacher and researcher.

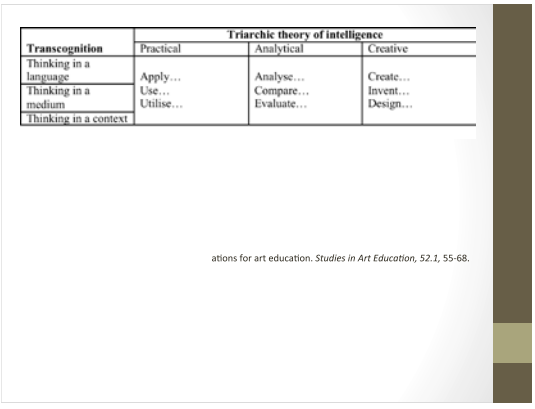
Task 5: Discuss the workshop and arising concepts, themes, issues. Draw out a theme to investigate in the next session.

Art Workshop 2: 29th April 2016
Theme: Aesthetic discourse
Face to face experience
2 Hours
9 x Artist teachers involved from cohort 1

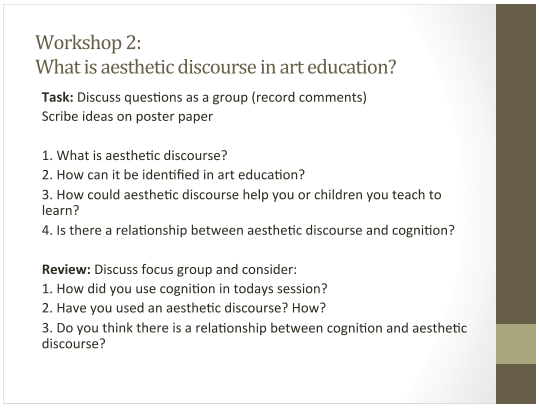








Transcognition	Triarchic theory of intelligence		
	Practical	Analytical	Creative
Thinking in a language	Apply…	Analyse…	Create…
Thinking in a medium	Use…	Compare…	Invent…
Thinking in a context	Utilise…	Evaluate…	Design…



Slides used to accompany workshop 2, 28.4.15, Power point, Rebecca Heaton.

Purpose: To investigate what aesthetic discourse is in relation to artist teacher cognition.

Task 1: Share and review thoughts on cognition from the last workshop. Show the participants cognition videoscribe: http://sho.co/17FPW

Task 2: Complete shared visual analysis of the artwork I created in response to workshop 1 on analysis form.

Task 3: Recorded focus group: What is aesthetic discourse in art education? Whilst completing focus group participants will create a collaborative mind map of ideas.

Questions asked:
1. What is aesthetic discourse?
2. How can it be identified in art education?
3. How could aesthetic discourse help you or children you teach to learn?
4. Is there a relationship between aesthetic discourse and cognition?

Art Workshop 3: 3rd July 2016/17 (2nd cohort also contributed to Task 3 in June 2017)
Theme: Digital Art
Online experience
1 hour
8 x Artist teachers involved from Cohort 1
8 x Artist teachers involved from Cohort 2

Purpose: To identify links between the aesthetic discourse of digital art and artist teacher cognition.

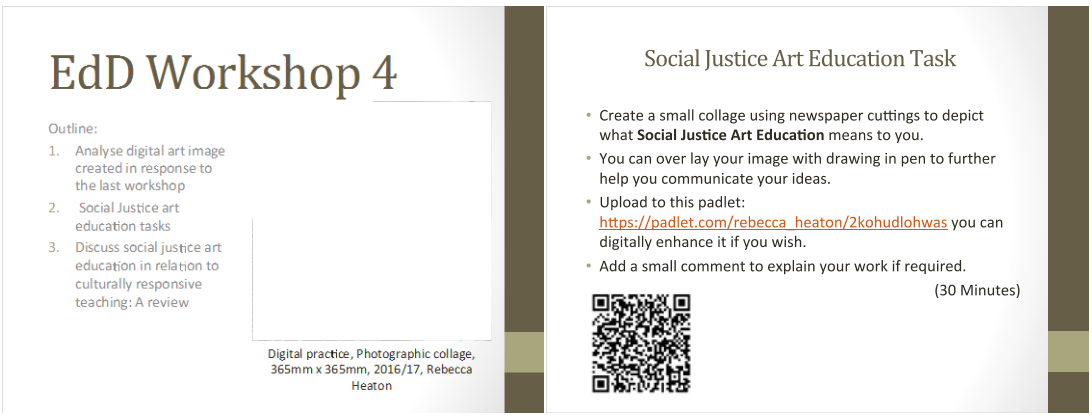
Task 1: Read email to explain online tasks.

Task 2: Analyse artwork, aesthetic discourse sway, created from workshop 2 by following this link: https://sway.com/kGnvduu6DETxigbo
Complete analysis on analysis form and email back to Rebecca Heaton.

Task 3: Engage with the tasks and questions on this padlet:
https://padlet.com/rebecca_heaton/f0g5d44cjnlc

a) Please upload or create a digital artifact that represents what one can learn from engagement with digital art.
b) Please add a short caption explaining your contribution.
c) Please answer these 3 questions:
    1. What is digital art?
    2. How can digital art create knowledge?
    3. Is there a link between digital art and cognition?

Art Workshop 4: 3rd September 2016
Theme: Social Justice Art Education
Face to face experience
2 hours
7 x Artist teachers involved from cohort 1



Slides used to accompany workshop 4, 3.9.16, Power point, Rebecca Heaton.

Purpose: To explore what social justice art education is, whilst identifying what a culturally responsive art education is.

Task 1: Complete shared visual analysis of the artwork I created in response to workshop 3 on analysis form.

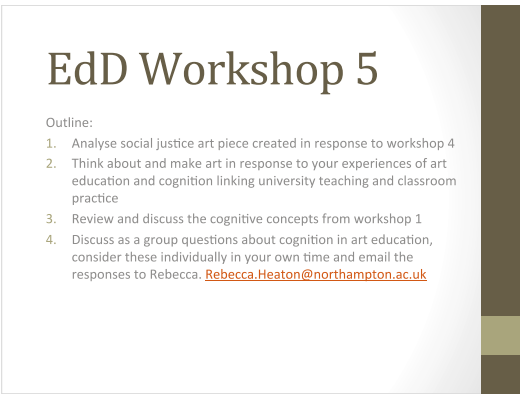
Task 2: Discuss and consider what social justice art education is. Post your ideas in relation to the questions on this padlet: https://padlet.com/wall/qxmzfjynhcgc

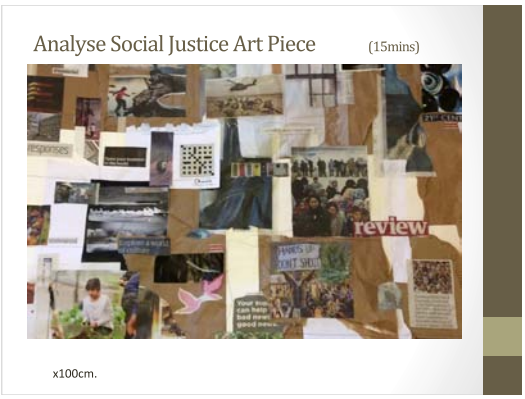
a) What is social justice art education?
b) How has learning about social justice art education developed your cognition?

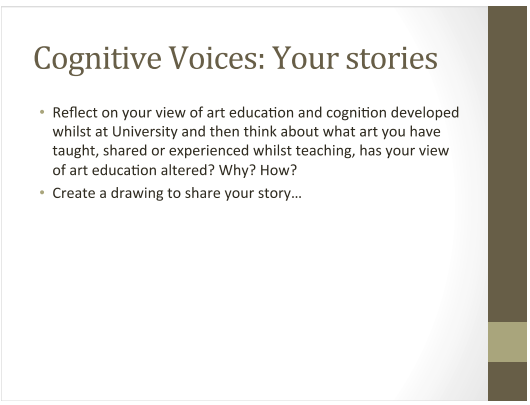
Task 3: Using newspaper cuttings, glue and a black fine liner create a collage to represent your view of Social Justice Art Education.

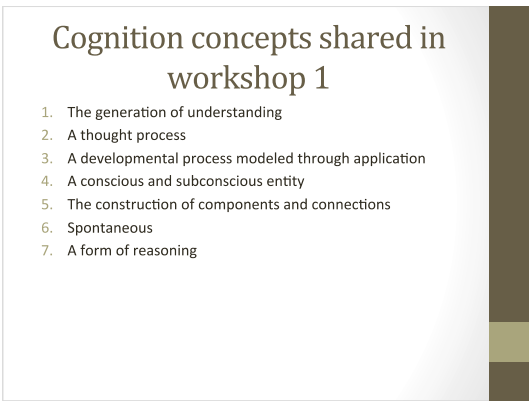
Task 4: Review images created, post your image to this Padlet and add a short caption to explain it: https://padlet.com/rebecca_heaton/2kohudlohwas
Discuss as a group what social justice art education contributes to a culturally responsive art education.

Art Workshop 5: 26th October 2016 (2nd cohort contributed to email correspondence in June 2017)
Theme: Cognitive voices (A review)
Face to face and online: blended experience
1-2hours
6 x Artist teachers involved from cohort 1 (face to face experience)
10 x Artist teachers involved from cohort 1 (online experience)
8 x Artist teachers involved from cohort 2 (online experience)









Slides used to accompany workshop 5, 26.10.16, Power point, Rebecca Heaton.

Purpose:

Task 1: Complete shared visual analysis of the social justice artwork I created in response to workshop 4 on analysis form.

Task 2: Reflect on art education at university and in relation to your experience as teachers in school. How has your view of art education and cognition changed or altered? Create a drawing to share your story.

Task 3: Review and discuss the cognitive concepts you developed as a group in workshop 1

Task 4: Discuss as a group the following questions.

1. Since being a teacher has your view of how one learns art altered? How? Why?
2. What does the term cognition mean to you?
3. Have you applied cognition in any way as an art teacher?
4. Have you applied transcognition or miscognition in any way?
5. Through engagement in this research has your understanding of cognition altered? Is this useful to you? If so how?

Reflect on these in your own time and email your question responses to Rebecca Heaton: rebecca.heaton@northampton.ac.uk

Task 5: Project debrief- invite to exhibition of EdD artwork: The Glass Tank, Oxford Brookes.

Appendix 4

Ethical approval request to home institution

Request to complete fieldwork at The University of Northampton with 3rd Year BA QTS Primary Education Art Specialism Students tracking the students into their NQT year.

Doctoral Candidate: Rebecca Heaton
Supervisor: Dr. Richard Hickman
The University of Cambridge

Research overview:
The research I intend to conduct is an extension of the pilot study already completed. I will use an auto/self-ethnographic case study (Reed-Danahay, 1997; Holman Jones, 2005; Rose, 2012) to build on my understanding of how artist teachers curate cognition. The core component of this study will be an analysis of my own identity and practice as an artist teacher, with the key focus on how artist teachers are consciously aware of transcognition and miscognition in their practice. The purpose is to model how art educators learn and show cognition. As a result of the pilot I have recognised that I need to determine the different ways that practice alters as a result of cognitive consciousness. To achieve this other artist teachers must be involved to enable case diversity. This is where student involvement is required. To control the scale of the study student involvement only forms a small participatory component of the auto/self ethnographic research. The study will attempt to substantiate evidence that transcognition and miscognition exist as cognitive forms in artist teacher practice.

Central research questions:
To determine how artist teachers curate cognition in their practice a number of questions require exploration. I need to determine 1) whether artist teachers understand and can identify transcognition and miscognition in their practice. If this is possible I will question 2) whether their practice alters as a result of cognitive consciousness and how this occurs. These questions will help me to determine whether transcognition and miscognition exist as forms of cognition in an artist teachers practice and if so I will question the contribution which cognitive understanding makes.

Once I have established if and how these forms of cognition exist I can begin to infer the different ways that the reflexive nature of practice can be used to gain an awareness of transcognition or miscognition. I will question 3) how cognitive practice is defined, 4) whether a relationship exists between cognition and practice and 5) how this relationship is portrayed. This knowledge will help to identify how cognition, can be facilitated in the artist teacher practice. Knowing this information may aid the construction of a framework to support learners to become curators of their own cognition.

Alongside investigation into cognition I will be constructing an autoethnographic exhibition. The purpose of this is to model relational practice as a component of arts based research. By doing this I will be investigating the role of autoethnography in cognitive curation. I hope to know 1) if and how the relationship between theory and

method leads to action (Holman-Jones, 2005) in autoethnography and 2) whether this action helps problems to be solved. I also hope to determine 3) whether analytic and or evocative autoethnography exist in the research study and 4) how these components sit together.

Key ethical concerns:
A number of ethical concerns were raised through completion of the Cambridge University Ethical approval form and through the letter of consent that will be issued to participants.
I also outline some of the key ethical issues, which are integral to the research here and suggest ways they will be addressed.

Key ethical issues in this research relate to power relationships between the art educator and participants, consent, disclosure and data sharing (Kanuka & Anderson, 2007; McNamee & Bridges, 2002; Wiles, Prosser, Bagmoli, Clark, Davies, Holland & Renold, 2008).

Power relationships:
Due to myself as the researcher also being the participants' tutor, students may feel they that there is a requirement to complete the research and this may also affect their contribution to it. In order to reduce the effect of this it will be explained to students that there is no obligation to participate. The study is separate to all university courses and that an additional point of contact has been put in place (A gatekeeper to the research from the home institution has already been established to protect the students' interests and well-being) in case the students have concerns or wish to discuss any aspects of the project whilst it commences.

Consent and Disclosure: Please see the attached consent form to determine how student consent will be sought and disclosure adhered too. There are a number of concerns regarding consent to use visual content students produce and these will be discussed in the data sharing paragraph. As Roth (2009) alludes, all forms of ethnography are ethical acts. Researchers have a responsibility to themselves and others to communicate, explore and limit the effects of ethical dilemmas. The consent and disclosure approval forms address this.

Students in NQT year: Once the research participants are in post, if information is disclosed about their school they will be asked to gain consent to share this information but anonymity will be respected within the community of practice (Hughes, Dewson and Unwin, 2007). No school names will be mentioned in the study and anonymity will be respected. Ethical concerns generated during the study will also be discussed with students so that they are aware of the ethical concerns their contributions may have.

Data Sharing:
In this research the participants could become co-creators of the data (Haig, 1997) and ethically an acknowledgement of this will be required in the study and any resulting publications. It will also be discussed with the community of practice that all contributions should not be discussed outside the community, that contributions are made in confidence.

Legal implications also surround the use of data in research, particularly in relation to image use (Wiles et al, 2008). In this research the images and text will be created primarily by the art-educator. Some involvement within image construction may be collaborative, but where this occurs the artist teacher will make it explicit to the participants that the images may be used for publication and that their contribution will be acknowledged. The research community will discuss how the group would like to be acknowledged in the imagery. Ownership following the discussion will be passed to the artist teacher and trust will be established to use the imagery appropriately.

Autothnography:
In autoethnography as a method there are also a number of ethical concerns. These concern the way that research is communicated- the authorial voice (Hickman, 2012) and the notion of idealism (White, 1991). When sharing aspects of self a tendency to communicate the positive may appear dominant in autoethnography so I will attempt to reduce this by exposing limitations throughout the study to increase validity (McQueen et al, 2002). New ethical challenges will present themselves throughout the research journey and these will be communicated through the narrative and visual components.

There are also ethical concerns regarding the visual, reflexive or narrative texts that may be used in the autoethnographic research because narrative can be categorised further into different forms of data for example, found data, researcher created data, respondent created data, or representational data (Wiles et al, 2008 cited Prosser and Loxely, 2008). Each form of data presents their own ethical problems. For example, when considering an artwork or reflexive comment questions arise surrounding the form of data they take. Is the data representative of the researchers' thoughts or the collaboration, which led to creation? Whether data is created through a relational experience raises issues over ownership and researcher position (Siegenthaler, 2013). The extent to which others should be acknowledged in the practical or cognitive process is also controversial. In auto-ethnographic research the researcher must acknowledge how others have contributed to both process and output of data (Roth, 2009). As mentioned I will communicate intervention by others to acknowledge this.

To conclude the research as a whole will be conducted in relation to the BERA (2013) ethical guidelines to ensure issues such as consent, image rights, anonymity and archiving (Kanuka and Anderson, 2007) are addressed appropriately. In all research there will be conflicts between the researchers' and participants' demands, so balance is required to control this (Mc Namee and Bridges, 2002).

References:

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Rose, G. (2012). *Visual Methodologies* (3rd ed.). London: Sage.

Roth, W. M. (2009). Auto-ethnography and the question of ethics. *Forum of Qualitative Social Research*, 10(1), Art.38. Retrieved from http://www.qualitative-research.net/index.php/fqs/article/view/1213/2645

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Faculty of Education

UNIVERSITY OF CAMBRIDGE

Appendix 5
Risk assessment form

Name: Rebecca Heaton Course of study/area of work: EdD How does an awareness of cognition influence art educators?
Activity to be undertaken: Series of participant led interventions Location: The University of Northampton
Date of departure: Term 1 and 2 2015/16 Term 1 and 2 2016/16 Date of return: n/a
If working away, please give details of supervision arrangements for this period: n/a
Brief details (write no more than is necessary for clarity): Students on the BA primary Art specialism cohort 2013 will be invited to participate in the study. 5x 2hour intervention sessions will take place at the university involving the participants and researcher. During the workshops students will participate in a series of theoretical, practical and analysis based activities.
List particular hazards associated with the activity: Participant anxiety due to the longitude of the study over 1 and ½ years. Power relationships, as researcher is also the participants' tutor. *List only hazards which you could reasonably expect to result in harm to you or others under the conditions in which you are working.*
Are the risks adequately controlled? If so, list the existing controls: A gatekeeper to the research has been put in place at the university so that participants have contact to an additional adult throughout the research process. The research will be outlined to the participants prior to it commencing and an opportunity for questions will be provided. *List the precautions you have already taken against the risks from the hazards you have identified, or make a note where this information may be found. Include reference to staff training, if appropriate.*

List the risks, which are not adequately controlled, and the **precautions to be taken**. *Can the risk be removed? Is there a less risky alternative? Can the risk be reorganised to reduce the hazard? Can protection be provided?*
Do any other Risk Assessment relate to this activity? If so please attach a copy
Emergency measures: Participants can withdraw from the research process or access the university student support services.
Checklist have you specified When the activity will take place: Yes- dates will be clarified once timetables are developed to ensure participants are not pressured. Who is involved: BA art specialist students 2013 cohort What the activity will involve: 5 x 2hr intervention sessions The purpose of the activity: To explore how art educators view their own practice in relation to cognition. Are there any special risks: No Cross ref to other risk assessments Travelling arrangements in place? n/a Health issues checked? n/a Equipment requirements checked? n/a Insurance issues check? n/a Where the information is kept/available: Researchers computer All involved informed? Participants will be informed once ethics review is complete at home institution.
Form completed by (signature): Date: Name (in capitals): Rebecca Heaton 16.4.15 In the case of students, signed by Supervisor: Date: Name (in capitals): Richard Hickman Head of Institution or nominee: Date: Name (in capitals):

One copy of this form must be retained by the signatory (signatories) and one copy sent to the Secretary of the Faculty for reference

Appendix 6

Consent to participate and publish research

Research Study: *Cognition in artist teacher practice*

Dear research participant
To ensure that art education in the United Kingdom is developmental I have chosen to explore how an awareness of cognition influences the practice of artist teachers for doctoral study. This letter is a request for your involvement in the study. In this document I will provide a short rationale of the research, a research timeline and will outline the involvement I request from you. Please could you then indicate and sign to specify whether you accept or decline involvement in the study?

Rationale
This study is an autoethnographic case study of myself as artist teacher to identify whether a conscious awareness of cognition influences a change in artist teacher practice. Whilst doing this I would like to analyse my practice in relation to other artist teachers so I hope to create a small community of practice involving future art educators. This is where I request your assistance.

The research has a number of aims:

- To raise the value of art in education
- To unite art practice and research
- To demonstrate how an artist teacher's practice can aid their development as an Artist, Teacher and Researcher
- To identify how transcognition and miscognition occur
- To create a community of practice where an artist teacher's practice can be discussed openly

To address these aims I intend to conduct an introductory 20minute session and 5x2-hour participatory workshops in which we will discuss elements relevant to the study, create practical art pieces and analyse findings from the research. The sessions will be hands on and will involve art practice and discussion. You will have an opportunity as a community to shape the content of the workshop sessions in relation to the study.

Timeline of your involvement:

Period in your studies:	**Session type:**	**Activity type:** (Please note, we will discuss these as a community so they are subject to change)
Year 3 Term 1	**Explanation of the research: 20 Minutes**	Introduction to the research and consent to be obtained.

Year 3 Term 1	**Workshop 1: 2 Hours**	What is cognition? Practical session and discussion.
Year 3 Term 2	**Workshop 2: 2 Hours**	Share and analyse data produced as a result of workshop 1. Explore topic generated by the community.
Year 3 Term 3	**Workshop 3: 2 Hours**	Share and analyse data produced as a result of workshop 2. Explore topic generated by the community.
NQT Year Term 1	**Workshop 4: 2 Hours**	Share and analyse data produced as a result of workshop 3. Explore topic generated by the community.
NQT Year Term 2	**Workshop 5: 2 Hours**	Share and analyse data produced as a result of workshop 4. Complete analysis of all of the data as an overview. Debrief to the project.

Research support

This research is completely separate to your academic study so you have no obligation to participate in it. Dr Helen Scott will be acting as a gate keeper to the research so if you have any queries or questions about the research process which you do not deem appropriate to ask myself as the researcher you will be able to contact her for assistance. Please email: Helen.Scott@northampton.ac.uk for assistance.

Research purpose

The research gathered will be used to inform my own Education Doctorate being completed at The University of Cambridge. The data gathered may be used to inform international publication or conference presentations. By consenting to this research you are also consenting to your contributions being used for publication. This could include artwork generated, photographs/ film of our workshop experiences and comments made during the research. Your anonymity will be respected during this process, unless you indicate at the bottom of this form that you are happy for your identity to be disclosed.

Participant Rights

If you feel uncomfortable at any stage during the research process or decide that you would no longer like to participate you are able to withdraw from the research. If you only have a small concern please contact the gatekeeper or myself because the research process can be amended to accommodate your needs if necessary. I would be grateful if you could inform me if you choose to withdraw.

Consent
If you are happy to participate in this research please could you indicate this on this form and outline the extent that you wish to be involved.

I would like to take this opportunity to thank you for considering your involvement in this research. If you have any other questions about the research please do not hesitate to contact me.

Many thanks
Rebecca Heaton

Senior Lecturer in Education (Art)
University of Northampton
Email: Rebecca.heaton@northampton.ac.uk

Informed consent:

I …… agree to participate in the research study outlined above. I am aware of my requirements within the research and understand that I can withdraw from the research process when required. I understand that my contributions to the research will be shared in academic publications, conferences and in Rebecca Heaton's doctoral study. This could commence before and after the research has been submitted. The research data will be stored safely by the researcher and not shared with other parties outside the remit of the research context.

Please tick the box if you offer consent for the scenarios outlined below:

☐ I give consent to appear in photographs and film clips generated as part of the research process.

☐ I give consent for my identity to be disclosed in the research. For example: my name is aligned to any artwork or comments made.

Please sign here to confirm your consent.

Signature: **Date:**

Appendix 7

Blog post coding to determine factors that influence cognitive conception (Heaton, 2015a)

Coding techniques	**Blog post: title and date**									
Stage 1: Theoretical codes	**To curate 29.11.16**	**@Tate Modern 9.11.16**	**Cognition in a digital artefact 1.8.16**	**Roman textile art 1.8.16**	**#EdDConf16 12.7.16**	**How does art speak to enable cognition? 12.7.16**	**Specificity in doctoral writing 10.6.16**	**A theoretical web 27.5.16**	**Collaborative Cognition #NSEAD AD 2016 24.4.16**	**A cognitive turning point… 7.4.16**
		Frequency of influencing factors								
Self	/////	/	/	/	/	///	/	/		/
Experience	///	//		/	/	///		/	//	
Context	//	/	/	/	/	/		/		
		Additional influencing factors revealed								
Stage 2: Open Coding	Interdisciplinary bridges		Interdisciplinary bridges							
	Connections	Connections		Connections	Connections	Connections		Connections	Connections	Connections
		Reflection		Reflection	Reflexivity					
	Risk taking		Risk taking						Risk taking	
						Voice	Voice	Voice		
									Spontaneity	Spontaneity
										Space
		Other							Other	

Stage 3: Axial Coding						
Contained relationships	**Self**		**Experience**		**Context**	
	Categories	**Examples**	**Categories**	**Examples**	**Categories**	**Examples**
	Reflection and reflexivity	Gain awareness of ideas to transform practice.	Reflection and reflexivity	Create internal knowledge paths influenced by real experience.	Reflection and reflexivity	Application in relation to the context of social justice.
	Cognitive connections	Creation of visuals and narratives can generate	Cognitive connections	Experiencing the creation of cognitive	Cognitive connections	Engagement in the context of visual culture and learning

		self-realization of cognitive influence. Genetics and identify influence this.		paths and engaging with schools and galleries as experiences generated cognitive conception.		scenarios.
	Risk taking	Risk engenders innovation it fuels challenge and understanding. It enables knowledge construction and can generate new thought paths.	Risk taking	Risky experiences are risk producers, new experiences can be created and these can connect with prior or present ones.	Risk taking	Risk, when considered in relation to cultural context, changes and cultures change in relation to risk.
	Voice	Personal voice can aid learning, shape cognition, draw out emotion, represent thought and showcase knowledge.	Voice	Experiences can bring the voice of others to the fore.	Voice	Discursive contexts, talk, blogs, times can aid in understanding different perspectives.
	Space	Space fuels artistic expression, one can reflect on their personal and professional selves and develop cognitive learning.	Space	The experience that straddles time and space can reduce and magnify ones action towards it and reflection on it.	Space	Contexts are spaces. On and offline one can reflect, collaborate, and interact. Contexts, such as blogs, can be subjective spaces for artistic and reflective experiences to occur and so act as cognitive influencers

	Blog post: title and date									
	To curate 29.11.16	**@Tate Modern 9.11.16**	**Cognition in a digital artifact 1.8.16**	**Roman textile art 1.8.16**	**#EdDConf16 12.7.16**	**How does art speak to enable cognition? 12.7.16**	**Specificity in doctoral writing 10.6.16**	**A theoretical web 27.5.16**	**Collaborative Cognition #NSEAD AD 2016 24.4.16**	**A cognitive turning point… 7.4.16**
Causal and cause and effect relationships	To build knowledge one curates a learning path, this occurred to build cognitive conception. Art making and output built knowledge of cognitive conception in posts **A cognitive turning**	Broad experiences can fuel cognitive conception, **A cognitive turning point… 7.4.16** shows how art making can lead to new thoughts, in **Collaborative Cognition #NSEAD AD 2016 24.4.16** joint	Digital and technological tools and platforms influence cognitive conception; in **A cognitive turning point… 7.4.16** reference is made linking digital culture and the technological process. In **A theoretical**	Being willing to learn became apparent in this post as a cognitive influencer. Learning about others and social justice was made reference to in **A cognitive turning point… 7.4.16.** Learning from others was referenced in	Reflexivity aids in cognitive conception, reflecting on reflections is shown in **A cognitive turning point… 7.4.16, Specificity in doctoral writing 10.6.16 and @Tate Modern**	Cultural engagement influences cognitive conception, this post shows how this occurs. It is also modeled in **A cognitive turning point… 7.4.16** in reference to a radio show, in **Collaborative**	Telling research stories in relation to theory, voice and time influences cognitive conception. **A cognitive turning point… 7.4.16** expresses the value of truth in cognitive stories.	Cognitive connections being articulated through metaphors, voices and stories links to **A cognitive turning point… 7.4.16** where connections in thought and ideas for art practice. **Specificity in**	Collaboration to develop cognitive conception, in relation to shared publishing and presenting opportunity in home post links to **A theoretical web 27.5.16** where collaboration with another academic leads to the development of a visual metaphor for the	Exploring a term through personal art making to develop cognitive conception, links to post: **How does art speak to enable cognition? 12.7.16** where art practice is used with others to develop

	point… 7.4.16 and **Roman textile art 1.8.16** and also through experience and writing outputs in **Collaborative Cognition #NSEAD AD 2016 24.4.16.** Metaphorical curation and output built knowledge in **A theoretical web 27.5.16** whilst the use of voices and lenses did in **Specificity in doctoral writing 10.6.16** and **How does art speak to enable cognition? 12.7.16.** Positioning oneself in culture helped take stock of cognitive curation in **#EdDConf16 12.7.16, Cognition in a digital artifact 1.8.16** and **@Tate Modern 9.11.16.** (All posts are part of a learning path).	publication and conference presentation led to shared learning. The experience of engagement with other academics enabled engagement with personal cognition, see **A theoretical web 27.5.16** this also occurred in **#EdDConf16 12.7.16, Roman textile art 1.8.16** and **Specificity in doctoral writing 10.6.16.** In this last post it occurred through making art. Collaborative experiences reveal knowing in different ways this is shown in **How does art speak to enable cognition? 12.7.16.** The digital experience in **Cognition in a digital artifact 1.8.16** shows cognition is associated with time. **To curate 29.11.16**	**web 27.5.16** film is used to share artists work as a metaphor. **#EdDConf16 12.7.16** discusses narration through and embodiment of the digital self. **@Tate Modern 9.11.16** models a digital app as a metaphorical tool and communicates a multi-sensory gallery experience whilst **To curate 29.11.16** uses the digital and visuals to communicate a cultural experience. (All posts utilize the digital to communicate).	**Collaborative Cognition #NSEAD AD 2016 24.4.16.** Identifying the self as a learner and learning through articulation is mentioned in **Specificity in doctoral writing 10.6.16** and **Cognition in a digital artefact 1.8.16.** Sharing and social interaction fuelled learning in **How does art speak to enable cognition? 12.7.16** and learning through connections exemplified in **#EdDConf2016 12.7.16.** To begin identifying how to build learning was mentioned in **@Tate Modern 9.11.16** and generating learning pathways shared in **To curate 29.11.16.**	**9.11.16** where art created to reflect is reflected on. In **A theoretical web 27.5.16** where reflections on metaphors occur and in **How does art speak to enable cognition? 12.7.16** where experiences with others are reflected on. In **To curate 29.11.16** reflexivity in relation to the blog occurred.	**Cognition #NSEAD AD 2016 24.4.16** in relation to publication and a conference and in **A theoretical web 27.5.16, Specificity in doctoral writing 10.6.16, #EdDConf16 12.7.16** through interaction with academics and peers. **Cognition in a digital artefact 1.8.16** shows engagement with technologic culture and **@Tate Modern 9.11.16 and To curate 29.11.16** with artistic learning cultures.	**Collaborative Cognition #NSEAD AD 2016 24.4.16** explores stories for audiences through publication. **A theoretical web 27.5.16** reveals stories of theory through visual metaphors. **How does art speak to enable cognition? 12.7.16** examines how lenses can share the stories of others. **#EdDConf16 12.7.16** values reflection and reflexivity to reveal stories and **Roman textile art 1.8.16** uses an image of an art piece to tell the story of pupil practice. In **Cognition in a digital artefact 1.8.16** digital artefacts are referred to as tools to capture stories. **@Tate Modern 9.11.16** uses poetry to capture a	**doctoral writing 10.6.16** shares how connections can be made between art and the stories they tell to represent and examine thought. Connections between lenses, voices and experiences are drawn in **How does art speak to enable cognition? 12.7.16**. In **#EdDConf16 12.7.16** connections fuel cognitive conception through their value to build an identity and understand culture whilst articulating stories and creating outputs. Connecting within identities occurred in **Roman textile art 1.8.16** and in **@Tate Modern 9.11.16** narrating an artistic experience connected self and other. Reference to connections within the post **To curate 29.11.16** was made in relation	meaning of cognition. Another link is made to post **How does art speak to enable cognition? 12.7.16** where collaborating with other artist teachers raises voice as a consideration in cognitive conception. **#EdDConf16 12.7.16** collaboration also features in **#EdDConf16 12.7.16** as a component of cognitive conception as reflecting on and sharing digital content with others is altering cognitive thinking. In **Roman textile art 1.8.16** collaboration revealed how identities can alter ones cognitive conception. In **@Tate Modern 9.11.16** collaborating with others whilst experiencing art and making poetry led to realization of the power of collaboration on cognitive conception. **To curate 29.11.16** led to	understanding of aesthetic discourse and its relationship to cognition. This also links to post **#EdDConf16 12.7.16** where the term reflexivity is investigated by a doctoral group and communicated through others through the visual to share group cognition.

		identifies ones self is responsible for curating cognition.					reflective story. **To curate 29.11.16 and all posts** use lived experience to document a research story all of which influence cognitive conception.	to interdisciplinary practice and knowledge building.	acknowledgement that collaboration with gallery educators and academics can lead to cognitive curation, curation can be part of cognition as a concept.	
No of links to other posts	9	9	5	9	6	8	9	7	7	2
Home post link theme	**Curate Knowledge**	**Experience**	**Technology**	**Learning**	**Reflexivity**	**Culture**	**Stories**	**Connections**	**Collaboration**	**Art**
Themes generated through links that influence cognitive conception	Creative Making	Creative Making			Creative Making	Creative Making	Creative Making	Creative Making	Creative Making	Creative Making
	Output	Output		Output	Output	Output	Output	Output		Output
	Experience		Experience		Experience		Experience	Experience		
		Collaborate	Collaborate	Collaborate		Collaborate				
	Self	Self	Self	Self				Self	Self	Self
	Voice/ Lenses						Voice/ Lenses	Voice/ Lenses		
		Thought			Thought			Thought		
	Culture		Culture					Culture		
		Time					Time			
		Technology				Technology				
Other	Path			Connect			Truth	Interdisciplinary		
				Curate			Reflection/ Reflexivity			
Link back to theoretical codes: Self, Experience, Context.	Self Experience Context	Self Experience Context	Self Experience Context	Self Experience	Self Experience	Self Context	Self Experience Context	Self Experience Context	Self Experience	Self Experience

Appendix 8

Aesthetic discourse focus group transcript

Transcription: 10mins 31 Seconds

Researcher	**Participant**	**Response**
Q1. Aesthetic discourse what do you think it means? (Time 0- 5min 27secs)	Lilly:	I genuinely have no idea! What either word means.
	Shaheena:	Is it appearance? How something looks?
What if we break down aesthetic discourse into two words?	Steph:	Yes, that's what I was doing.
	Shaheena:	Aesthetic the way it looks.
	Emily:	Discourse may be the way that you do it? The way something may…
	Steph:	I was thinking, well in my dissertation I did something when I was looking at art and craft. When you look at a piece of art and you don't read anything, you don't know anything about it all you are judging it by is it aesthetics? Cause that's all you can see like the aesthetics. My jumper for example, how it looks is how I have it in my brain.
Ok	Steph:	But discourse?
	Shaheena:	Is that like why you have chosen that jumper? The justification?
	Emily:	Why you have used a certain colour, a certain material or …
	Steph:	I like that reasoning.
So, your justification is: discourse is how you are going about conducting something?		
	Luke:	Yes
If you think about that in relation to an art classroom, how do you learn in art? What discourses could learners be doing?	Emily:	You could be learning about artists erm, by introducing children to different artists and materials. You could give them a chance to risk take, explore and develop their own creativity.
So discourse could be..	Sarah	Talk, making,
	Steph	Communication of ideas in a way, why you chose to do something, whether that is because you want to communicate the idea or because you like the colour or whatever.
So if you pick up on the idea of communication, how can you	Alice:	Our visual language is practical but also thinking of colour, texture, tone

communicate in art?		
	Steph:	Composition, what you are actually
	Lilly:	Yeah like the layout and things
	Steph:	Because again with my dissertation art piece I wasn't going to have the word craft in it, I was just going to have bits hanging but I didn't think people straight away would think craft. And it was that communication which made me make CRAFT so bold. This then links to aesthetic discourse because I did that on purpose to make people
	Lily:	The viewer
	Steph:	Yeah, understand it.
	Luke:	It depends though, because I didn't want people to understand my art.
	Lily:	Noone gets mine.
	Steph:	But when I was talking to Alice we were totally opposite, you wanted people to make their own interpretations
	Alice:	Yeah
	Steph:	where as I wanted to give them the clues as to what it was about already.
I think that is the beauty of being an artist as well, you make decisions about how much of your identity to show.	Alice and Steph	Yeah
	Steph:	I'm going to put communication and interpretation because you can communicate an idea in your artwork but whether the person who is looking at it picks it up as you wanted it
	Ellie:	Yes
	Steph:	to be interpreted
	Alice:	Yes and whether you think that is an advantage or disadvantage
	Steph:	Yeah
	Alice:	You might think oh no, I've failed but actually that's a better idea than I had originally thought
	Steph and Ellie:	Yeah
	Alice:	You just go with it, I think that is cognition, it's sought of one, it was truth untold, it's sort of useful. You could think of it as a bad thing but when someone sees something or touches it in a different way to what you did, it could actually be a good thing that moves your artwork forward.
Can anyone offer now, now that we have brainstormed all of these ideas a definition of what they think aesthetic	Luke	The way you interact with art. ……. Initially, visually, The way we interact with art.

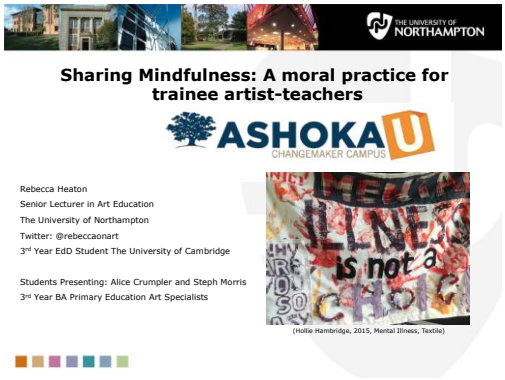
discourse may be?		
	Lilly:	I think it’s why they do it.
	Steph:	I think it’s something different.
	Lilly:	The artists…
	Steph:	Yeah, the artist, why you have made something look that way, which is why the aesthetic is there. The discourse is the why, the interpretation, the communication. The justification of being able to use different colours and what not.
I think it is interesting that we have two different ways of looking at it depending on whether you are the viewer or whether you are the artist, so whichever role you take your view of aesthetic discourse might be different.		
Ok so I am going to move onto the next question:		
Q2. Put yourself in a classroom situation where you are the teacher, how can you identify whether your learners are using aesthetic discourse? (5mins 28secs- 6mins 46secs)	Steph:	I would be looking for the way they talk about it and justify why they have used certain
	Lilly:	Materials
	Steph:	Materials and colours and things, even if you were doing The Great Fire of London, it might be as easy as I have used red, yellow and orange crepe paper to make flames because they are the colour of fire. Then you might have that one child who says,”well actually I put a bit of blue in there because when you've got really really hot flames you get the blue.
	Lilly:	Yeah.
	Steph:	Yes, Bingo!
Any other thoughts? How can you identify aesthetic discourse?	Alice:	I think by the way they engage in art, what materials they pick up, what their thought processes are, what
	Steph:	talking
	Alice:	they say. Where do they then move, do they go to paper, pens, you would think why, what is the cognition they are showing?

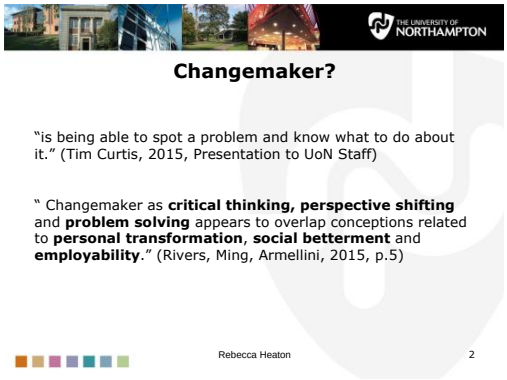
	Gemma:	I think when they are using sketchbooks as well they can show that thought process behind what they are doing and reflect on art pieces as well.
Q3. Ok, my third question. How do you think aesthetic discourse could either help you as the teacher or your children to learn in art education? (6mins 47-9mins 9secs)	Sarah:	I think it gives them the opportunity to think about lots of different skills, um and from the looks of what we have written it is the perfect time for them to think about what they have done, why they have done it, more than what they would do. Rather than just thinking about what they have done to create it and what they have used. It gives them a way to improve on learning, like a working wall.
	Emily:	You have to think about why you have done something, you begin to critically evaluate why you have done certain things, which will help you to develop next time.
	Luke:	It also depends on, like me and Steph looked at things from a different angle
	Steph:	Yes
	Luke:	The children, like, probably wouldn't even look at it from an aesthetic discourse point but they see it from a different angle than we have.
	Steph:	I was thinking of it in terms of being a teacher, looking at a piece of artwork that children have done and saying can you see aesthetic discourse and then it's the, to me it's the unpicking of what they have done and I thought children do that when they look at artists work because they have got to unpick it, the materials used, why have they done it and that's that justification again and process.
So it is you and the children and the artist. We are all involved in this process	Steph:	Yes, and the viewer aswell, whether that is you looking at a piece of work or you having made a piece of work and with other people looking at it.
So could we almost sum it up as like a collective language	Steph:	Yeah
	Lilly:	Yeah
The way we communicate about things that have been made.	Steph:	Yes it is that instruction.
	Lilly:	It’s like if you give children, one topic and then they would all communicate their answers in different ways, so I think that's showing how they interpret it type thing.
	Steph:	I don't think it matters whose artwork it is though, it might be your artwork
	Lilly:	Yeah
	Steph:	Or others
	Sarah:	Is it a form of self-expression, basically?

Q4. Ok, my final question is do you think there is a relationship between aesthetic discourse and the idea of cognition? (9mins 10secs-10mins 31secs)	Alice:	Yeah
	Steph:	Definitely because we talk about process and the justification
	Lilly:	Why
	Steph:	So why you are doing things so,
	Sarah:	Isn't aesthetic discourse a form of cognition?
	Steph:	Um interesting
	Group:	Um, yeah… (laughter)
A good point. It could be. Would you think that?	Lily:	I would say it probably is
Do you think it is a form of cognition or do you think it could work the other way round aswell? Could cognition be a form of aesthetic discourse?	Steph:	Yeah, I see them as almost the same. But this is more art based in a way because aesthetic is about how things look and it is the visual side that which is very arty rather than cognition can be anything, any thought process.
	Emily:	It's a form of cognition.
	Gemma:	Yes
	Alice:	Aesthetic discourse is like a form of artistic cognition.
	Steph:	Yes in my brain.
	Steph:	More than cognition, because the term cognition sort of blows my mind, because you can associate it with anything. Yeah using the term aesthetics.
So cognition is ultimately how we learn and how we think in art and then aesthetic discourse is perhaps more about the communication of how we think and learn. But I think also you are right it could actually be switched the other way. It depends what you want to kind of prioritize.		
	Alice:	Yes.

Appendix 9

Presentation slides disseminated at the International Journal of Art and Design Education Conference 2015

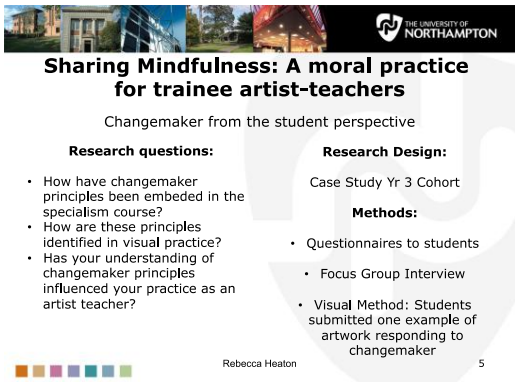


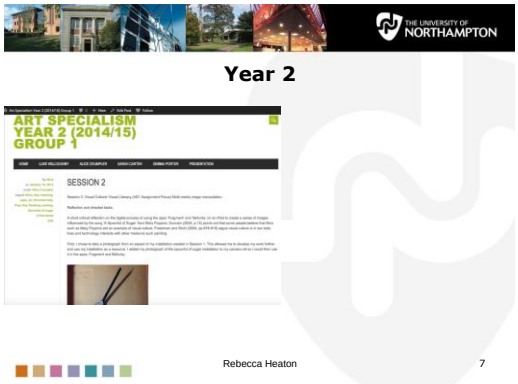


Changemaker across the Year BA Primary Art Specialism Course

Locations for Changemaker to be identified in practice	BA Primary Education Art Specialism	Activities to explore Changemaker principles
-Schools and settings -Students (Off and Online) -External Bodies (e.g. charities)	Year 1	-Social Issues Project -Social Issues Art Exhibition with staff from local schools - Designing resources for NN Contemporary Art Gallery -Work in partnership with Nottingham Contemporary Gallery
	Year 2	-SEN Art day to extend art provision, generate an art community -Creation of blog content to develop CPD -Presentations/ development of CPD materials depicting current issues within primary art.
	Year 3	-Art workshop to local primary schools to enhance delivery of art -Run an art event for local artists and teachers to develop leadership and awareness of current issues in primary art -Partnership with charity EVE- to supporting women and children who are victims of domestic abuse. Making the arts accessible to vulnerable individuals.
Research Projects	Staff	Exploring social issues through art education. *Changemaker in the Curriculum.* Art Education Students present multi-media patchworks to enhance curriculum innovation. Outside the Box Assessment and Feedback Practices.
	Staff and Students	Research and publication in response to: Sharing Mindfulness: A moral practice for trainee artist-teachers iJADE 2015 NSEAD publication of student posters on current issues in primary art.

Year 1 Art Specialism Exhibition





Research Analysis:

Questionnaires

- Collaboration
- Self recognition
- Voice
- Encourage other to be changemakers
- Willing to grow
- Take risks
- Explore social, cultural, political and economic perspectives

Focus Group

- Make changes
- Find problems
- Suggest improvements
- Teach others
- Communicate
- Be progressive

Visual Contributions

- Art has a visual voice
- Creates empathy
- Improves accessibility
- Raises awareness of problems
- Can provide a response
- Activist form

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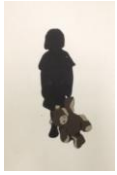
(Manipulation, 2015, Installation, Shaheena Khatun)

(Caught In Motion, 2015, Photography, Luke Willoughby)

(Invading Soil, 2014, Oil Paint, Stephi Morris)



(Shadow of a child, 2014, Print, Sarah Hill)

Changemaker influence within the art specialism course:

Student opinion:

Reformed ideas of a changemaker:
"Looking and finding a problem." (Sarah Hill , 2015)
"Looking at a problem and improving it, not necessarily making a dramatic change straight away." (Shaheena Khatun, 2015)
"If we make a change in ourselves, when we teach we will outwardly embed it" (Luke Willoughby, 2015)

It has given students a social, moral and activist responsibility as an artist, teacher, researcher:
"I just think changemaker has become subconscious to me, I have grown up to become one." (Alice Crumpler, 2015)

"I think changemaker has been a natural progression for me over my three years at university." (Luke Willoughby, 2015)

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References:

Heaton, R. (2014). Exploring social issues through art education. *Changemaker in the Curriculum. Northampton: Institute of learning and teaching in higher education*, 11-17.

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Rivers, B. Nie, M. Armellini, A. (2015). "University teachers' conceptions of "Changemaker": a starting point for embeding social innovation in learning and teaaching", *Education and Training, 57.5.* Accessed: http://www.emeraldinsight.com/doi/10.1108/ET-07-2014-0078

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Appendix 10

A visual analysis example conducted by an artist teacher during workshop involvement

Participant 1:

Cognition Type	**Workshop 2**		**Workshop 3**		**Workshop 4**		**Workshop 5**	
Transcognition	V1	Justification	V2	Justification	V3	Justification	V4	Justification
1. Thinking in a medium	*	The piece was made with cognition in mind, you can see some evidence of this through connections and layers linking to the idea that cognition is not constructed alone or at any one time.	*	Deliberate choice of medium (digital sway) in order to display all thoughts. If this medium/software was not suitable you wouldn't have used it. But then you could argue that the use of this medium was limiting as you can't physically make marks anywhere as the software has restrictions.	*	Artwork created for a purpose, to expose issues. It has social justice in mind.	*	Digital photography and montage used to show thoughts about digital media in education.
2. Thinking in a language	*	The different terms to describe cognition (e.g. language) are represented in art.	*	The use of text throughout the sway helps signpost the purpose/subdivisions of thoughts. Through questions and specific vocabulary it allows the viewer to connect further with the sway by triggering their thought production.	*	Emphasis on key words- choice of relevant words	*	The art piece as photography and digital manipulation is the language of thought.
3. Thinking in a context	*	Thought surrounding cognition, cognition is the context. Cognition connects with learning art education.	*	The map image shows clear highlighted paths stretching from a particular point. The final image also puts the text into context showing the actual teaching side.	*	Pictures showing environment and different cultures	*	This is shown in relation to acknowledgement of a changing time- through use of the clock and the web showing how collaborating is a context for learning.
Miscognition								
1. Unknown knowledge	*	The expanding shape may	*	The map image feels like a	*	Metaphor- crossword- I	*	The images are metaphors; no

		represent the growth of ideas.		metaphor it is trying to give the viewer some clues/information. As a piece of art it is for the viewer to interpret (this is obviously different for everyone). The academic perspectives go against the idea of unknown knowledge as they provide knowledge. However the use of key words (e.g. appearance, action, expression, experimentation) make the brain question the links between the key words and the theme.		feel like it has a purpose (you chose it for a reason)- I want to know why as the viewer.		one knows how time, tools or collaborating will change what is known.
2. Unmeant knowledge				I'm not sure about this one.			*	Four images together could be Rebecca recognising that there are connections between different images, themes or subjects in digital technology.
3. Missing metaphors	*	Represented by the fact that you are not always aware of what art represents.	*	Similar to the map with unknown knowledge in that it's up to the viewer to process the information.	*	Different people take different things from it.	*	The more the art is shared, the more people will interpret it and add meaning to it in different ways.
4. A broken Connection (Stupidity)	*	Swirls showing a lack of a clear path/ understanding.	*	Linking the headings with the text, lack of clarity. For example with the wordle it gives examples of where aesthetic discourse can be found in art education but doesn't put it in context to show	*	Making my own stupidity by not wanting to read/ take in every detail.	*	The web could be a way of representing getting lost, connecting with different people and places leads to new paths.

				how it looks/appears in art education.				
5.Symptoms and Sinthomes	*	The art is a way of showing what cognition means to the individual, it is a personal solution.	*	The academic perspectives given within the sway provide a solution through telling the meanings of words.	*	Art is about social justice so therefore it is showing or creating awareness but I don't know, or can’t always represent a solution.	*	The solution to the problem could be keeping up with the tools of technology to ensure that your teaching is current.
6. Truth Untold	*	Ambiguity of art interpretations, the art needs some explanation to reveal how it connects to different elements of cognition. But art is personal expression, so it doesn't always have to explain itself.		Not sure about this one.	*	The piece develops/ changes as it grows.	*	I guess this piece could be ambiguous because in time the tools and way technology will be used in education and culture will change.

Appendix 11

Emergent themes deduced from participant visual analysis during exhibition workshops

*Please note this data set represents the contributions of the six participants who were present at all workshops throughout this research. The number of attendees fluctuated for each workshop and is indicated on the workshop overview Appendix 3.

Cognition Type	**Workshop 2**		**Workshop 3**		**Workshop 4**		**Workshop 5**	
Transcognition	V1	Themes	V2	Themes	V3	Themes	V4	Themes
1. Thinking in a medium	All	Connect Progress Response Show Think	All	Change Choice Perspective Represent Unite	All	Connect Compose Purpose Social Justice	All	Connect Media Vary
2. Thinking in a language	All	Communicate Describe Direct Reflect Represent	All	Collaborate Connect Reflect Rework Think	All	Action Connect Oppose Question Think	All	Connect Make Perspective Relationship Think
3. Thinking in a context	All	Context Difference History Personal Progress Reflect	All	Artist teacher Connect Deconstruct	All	Culture Connect Represent Social Society	All	Change Connect Culture Learn Society Time
Miscognition								
1. Unknown knowledge	5	Connect Idea Mean Progress Represent Translate	6	Confuse Connect Controversy Knowledge Metaphor Progress Question Translate	6	Connect Feel Knowledge Mean Metaphor Opinion Represent Social Justice	5	Collaborate Metaphor Progress Represent Time Tool
2. Unmeant knowledge	4	Create Develop Difference Explore Influence Knowledge Progress Reflect	3	Access Connect Knowledge Process	4	Explain Identity Influence Interpret Mean Perspective	4	Connect Image Theme
3. Missing metaphors	4	Clarity Difference Interpret Mean Represent Unaware	4	Connect Process Time	4	Difference Mean Unaware	4	Interpret Mean Represent Share
4. A broken Connection (Stupidity)	3	Clarity Mean Reason Visual	2	Apply Clarity Connect	3	Critique Flexible Make Personal Restrict	2	Challenge Connect Lost Progress
5.Symptoms and Sinthomes	3	Individual Problem solve Progress Solution Understand	3	Deconstruct Solution Mean Process Understand	6	Aware Connect Explain Make Problem solve Represent	6	Connect Explain Problem solve Progress Represent Share
6. Truth Untold	3	Ambiguous Connect Explain Interpret Question Express	2	Intend Resolve Similar	6	Connect Contradict Bias Experience Progress Question Truth	6	Ambiguity Connect Culture Educate Progress Question

Appendix 12

An exemplification of event analysis

*The text below exposes the process of narrative event analysis by demonstrating where significant events have occurred in a portion of the thesis draft. (Thesis draft, pages 6-8, space 3.) The events identified are highlighted. The thesis draft is available on request. The thesis draft is available on request.

Exhibit 1.2: A personal lens exemplifying the connection between aesthetic discourse and artist teacher cognition

If asking artist teacher participants about aesthetic discourse, cognition and possible connections between them it is important that I too reflect on understanding this in art education. I dedicate this exhibit to that purpose and through discussion exemplify occurrences in my own artist teacher practice that inform my position. At the outset of this research prior to literature searching, I understood aesthetic discourse as an arts informed means of communication. As with art, the word aesthetic had multiple possibilities. It could be anything and everything. Discourse amounted to a practice, a way of presenting ideas, communicating, that could be multi-sensory, understood and interpreted differently. Together aesthetic and discourse became a concept that could be adapted, used and accessed in all times and spaces, as a tool to unpick, critique, express and understand. As I began considering the link cognition had with aesthetic discourse I realised that when I engage in aesthetic discourse, I too engage in and develop cognition.

EVENT 1: Reflection on practice through writing

When working in artist teacher mediums, such as art disciplines like painting or installing, educationally focused mediums like teaching or hosting events, or online mediums like blogging I was involved in transcognitive acts (Sullivan, 2005) thinking through making, contexts or languages. I conceptualised these acts as aesthetic discourse. But as well as being aesthetic discourse they were also the acts, practices, experiences, times and spaces that fuelled outputs, questions and deliberations that enabled cognitive advancement. I found it difficult to distinguish between what I saw as aesthetic discourse and what I saw as cognition. Were these concepts connected? Were they the same thing? Did I, do I transcend between them? My progress on understanding this terminology became blocked. Subconsciously I was experiencing Tavin's (2010b) notion of stupidity in miscognition. I was finding it difficult to

convey meaning, the more I questioned and resonated on the connection between cognition and aesthetic discourse, the more challenging the concepts became.

To clarify perspective on aesthetic discourse in art education I created a word cloud - see figure x. I collated words that contributed to the meaning of aesthetic discourse I generated. What I didn't envisage was a realisation concerning the complexity of what I was asking other artist teachers to do, in relation to unpicking their own cognitive understanding of aesthetic discourse. As you can see from the figure, a number of conceptually loaded words emerged. These contained multiple meanings, perceptions and applications. Individuality, for example, could relate to aesthetic discourse as expression, as personal communication, as innovation or concept fluctuating in time and place. What I am trying to say here is that each word connection I made led to a new avenue of perception concerning aesthetic discourse.

Event 2: Making a word cloud

I soon remembered, from research in space 2, and recognised in this experience, that connectionism is fuelled by engagement with aesthetic discourse and that this is a thread that facilitates cognition.

Figure x: *Aesthetic discourse screen shot, 1.10.16, Word cloud. 30cm x20cm. Rebecca Heaton.*

This was not the only time that I recognised this thread.

Event 3: Blogging about a workshop revealed transcognition

When blogging about artist teacher practice concerning aesthetic discourse and cognition, after conducting a workshop with exhibition participants, I made links between cognition and action. I share this in the excerpt below that can be accessed in the blog post (Heaton, 2015a, How does art speak to enable cognition?)

When conducting the aesthetic discourse workshop with the doctoral research participants I believe I became more analytical of my own cognitive development. As I watched the participants creating their mind map about aesthetic discourse I drew connections between forms of cognition and the actions participants undertook. For example, in relation to transcognition I could see that the participants were beginning to recognise the mind map they were creating as an outcome of aesthetic discourse. The visual was a thought generator. It enabled language and discussion to be refocused and thoughts to be revisited. It facilitated the development of shared ideas, a key component of transcognition. This also revealed insights into how art can enable us to think in a language, beyond just seeing words on a page; art generates discussion and reflection a second component of transcognition. Participants through their discussions made references to their own contexts as artists and teachers using the visual as a springboard. The visual helped to illuminate contextual data about cognition, a third aspect of transcognition.

In the blog post the reflections I made shared similarities with the ideas of Booyeun (2004). Provocations, subtle cues, actions and outputs were enabling connectionism and links between an understanding of aesthetic discourse and cognition for the participants and myself. Cognition, concerning an understanding of aesthetic discourse, appeared to be facilitated by social, artistic and active engagement with the concept. Watching this occur made connectionism in cognition, as an abstract concept, become visible. At this point in the research I saw the value in positioning people to see cognitive links in art education. Seeing how learning occurred and how cognition could develop, enabled me to gain confidence in aesthetic discourse, cognition and their connection in art education. If others accessed similar experiences their cognitive practice could also be examined and made visible.

Event 4: Blogging as reflection

You can see that the thinking I had concerning the link between cognition and aesthetic discourse develops and is influenced in different ways by events in this research. In the blog post (Heaton, 2015a, How does art speak to enable cognition?) I also reflect on engagement with an art installation, Shrouds of the Somme, by Rob Heard, see figure x. In relation to this work I identify how ones engagement with aesthetic discourse is dependent upon individual experience, circumstance, time and space, in a similar way to that suggested by Leavy (2018), discussed earlier in this Space.

Figure x: *Shrouds of the Somme, 2016, Public installation to mark 100 years since the end of the First World War. 72396 shrouded figures represent the British Empire Servicemen killed at The Battle of the Somme. Installed Exeter, UK. Rob Heard.*

In the excerpt I refer to, see below, I identify how personal circumstance influences perception, I identify that aesthetic discourse as concept is individual and that the act of blogging, or reflecting, making an aesthetic discourse has facilitated questions, connections and consolidations in my own cognitive understanding. This is not a one off occurrence, later in the same blog post; see except below, I refer to connectionism between aesthetic discourse and cognition again. I point out how in the post I have used the blog as aesthetic discourse to generate cognitive connectionism.

Appendix 13

Event categorisation and reduction

Categorisation: The events below document how cognition has been influenced, progressed and redirected in this exhibition.

*The thesis draft is available on request.

Space two events	**Page location** (In thesis draft)	**Event type**	**Reason**
1. Blogging	9	Critical	Reflective tool
2. EdD Conference	10	Critical	View of cognition altered in relation to others
3. Sketchbook entries	12	Like	Raised awareness of new cognitive forms
4. Art workshops	13	Other	Generated links between cognitive theory and practice at the same time as blogging
5. Interaction with public art	14	Other	Blogging reveals how interaction altered cognitive conception
6. Birth	14	Critical	Changed personal and cultural perceptions and priorities
7. Exhibition visit	14	Like	Emotional response generated in relation to a similar experience, event five.
8. Writing to revisit concepts and ideas from pilot	15-16	Like	Similar to event one, writing becomes a reflective tool to understand and progress cognition
9. Rationale	17	Critical	Alters the direction of cognitive path
10. Academic collaboration	22	Like	Similar to event two identification of cognitive connectionism
11. Pilot reflections	22	Like	Similar to event one, pilot revealed cognitive influencers
12. Teaching and reflecting through blogging	23	Like	Similar to event one, blogging brings out how collaboration fuels cognition
13. Conference presentation	24	Like	Similar to event two, making influencing cognitive conception
14. Social media	24	Other	Occurs at the same time as event thirteen, extends cognitive conception
15. Writing voices and lenses	26	Like	Similar to event eight, writing exposes cognition from different perspectives
16. Listening to the radio	28	Critical	Space and time for learning, opens one to new cognitive understanding
17. Visual creation	30	Like	Similar to event three, making solves cognition problems
18. Writing	31	Like	Similar to event fifteen

			and eight, writing fuels cognitive connections
19. Subconscious engagement writing	33	Like	Similar to event eighteen, cognitive connectionism experienced when writing
20. Application of cognition to practice	35	Like	Similar to event twelve, technology use in teaching enables cognitive application
21. Making art	35	Like	Similar to event seventeen, documents learning about cognition
22. Dissemination of cognitive understanding	39	Like	Similar to event two, thirteen and fourteen, cognitive conception formulated
23. Social networking	41	Like	Similar to event fourteen, technologic dissemination and collaboration aids cognitive understanding
24. Analysis by writing	44	Like	Similar to events eight, fifteen and eighteen, writing presents new components of cognition
25. Practice merged through writing	45	Like	Similar to event twenty four, writing enabled theory and practice to unite
26. Making uniting ideas	48	Like	Similar to event seventeen and twenty one, making brought personal and social understanding together
27. Writing for publication	53	Like	Similar to event twenty two concerning dissemination and event twenty five on writing, publication enabled cognition to be viewed and applied differently
28. Cognition exemplified in publication	57	Like	Similar to event twenty seven, publication applied cognition
29. Conceptual frame increases accessibility	60	Like	Similar to event twenty six, making a conceptual frame increased access and understanding to cognition
30. Active art experience	64	Like	Similar to events twenty six and twenty seven writing and making recognised as active art experiences influencing cognition
31. Cognition applied to publication	65	Like	Similar to event twenty eight, enables cognitive curation to be exposed in a publication concerning digital art
32. Making as conceptualisation	31	Like	Similar to event twenty one making an infographic enabled cognition to be conceptualised

Space three events	Page location (In draft)	Event type	Reason
1. Reflection on practice through writing	5/6	Like	Similar to events twenty four and twenty five in space two, writing enabled reflections between cognitive theory and practice
2. Making a word cloud	7	Like	Similar to events twenty and twenty-one, digital making revealed cognition can be fuelled and projected by aesthetic discourse
3. Blogging about a workshop revealed transcognition	7	Like	Similar to event one in space two, blogging revealed cognition
4. Blogging exposed lenses	8	Like	Similar to event one space two, blogging exposed perspectives on cognition through reflection
5. Making a Sway	9	Like	Similar to event two space three, the creation of digital content, informs relationship between aesthetic discourse and cognition
6. Data analysis revealed new cognitive understanding	11	Critical	Cognitive understanding on the relationship between aesthetic discourse and cognition revealed
7. Workshop on aesthetic discourse	12	Like	Similar to space two event four, workshop engagement enabled cognitive concepts to be questioned

Space four events	Page location (In draft)	Event type	Reason
1. Modelling cognition through publication	6	Like	Similar to space two event thirty two, publication enabled cognition to be exemplified in relation to a component of the conceptual frame
2. Writing exhibition as cognitive progression	8	Like	Similar to space two event fifteen and eighteen writing progresses cognition through theory mobilisation and connection
3. Making and reflexing on i-book creation	8	Like	Similar to space three event five, making and reflecting on technologic process enables idea mapping and cognition types to surface
4. Blogging connects past and present experiences concerning cognition	9	Like	Similar to space two event one, engaging in blogging allows cognition to be curated and seen as connectivity
5. MOOC involvement	10	Like	Similar to space three

			event three making technologic content enhances personal and professional application of cognitive understanding and curation
6. Use of cognition in academic practice	11	Critical	Using cognition in personal academic artist teacher practice causes shifts in cognitive understanding for self and others
7. Intercultural application of cognition	11	Critical	Cognition being applied to other forms of academic research involving intercultural partners
8. Workshop padlet	13	Like	Similar to space two event four, a workshop experience illuminated connections between cognition and perceptions of digital art education
9. Art making	16	Like	Similar to space two event thirty two, the use of new media develops digital cognition
10. Writing through lenses	17	Like	Similar to space two event fifteen, writing through lenses broadens perspectives and understanding of cognition in different art education disciplines

Space five events	**Page location** (In draft)	**Event type**	**Reason**
1. Review of writing reveals cognitive progression	3	Like	Similar to space two event twenty-four, cognitive connectionism and idea mapping are revealed in analysis to influence cognition.
2. Publication increases cognitive recognition	3	Like	Similar to space four event one, publishing corroborates use of cognition in social justice art education.
3. Writing reveals cognitive connection	5	Like	Similar to space two event eight, connections are shown between practice and writing in relation to cognition
4. Cognitive development by connecting practice and theory	5	Like	Similar to space three event two writing enables cognitive connection between theory and practice
5. Exhibition creation	6	Like	Similar to space four event nine, the making process writing and producing art, fuels idea maps and cognitive connectionism

6. Publication exposes cognitive implications	7	Critical	Cognitive implications realised through writing and disseminating
7. Reflection on academic practice	12	Critical	Reflection on cognition in practice enables cognition movement from the unconscious to conscious
8. Curriculum design	12	Other	Cognition influencing the self and others, occurring whilst engaging in theory, research and practice.
9. Publication of curriculum design	13	Like	Similar to space two event twenty-seven and space five event eight, publication impacted cognitively on others
10. Workshop	15	Like	Similar to space two event four, the workshop drew out the relationship between cognition and social justice

Space six events	**Page location** (In draft)	**Event type**	**Reason**
1. Digital reflexivity	2	Like	Similar to space two event two, reflecting on reflections through in the written and digital space aids in consolidating cognitive conception
2. Writing as reflection	5	Like	Similar to space two event eight, fifteen and eighteen and space five event three, writing reflectively curates connections between theory, practice and research
3. Realised cognitive complexity through writing and making	6	Like	Similar to space two event eight and twenty one, connective webs are created in cognition when writing and making
4. Application of art to conceptual frame, enables cognition to be seen in the visual	8	Critical	Identification of cognition visually
5. Performance altering cognitive understanding	9	Like	Similar to the exhibition in space five event five, poetic expression of data forces a rethink in cognitive conception
6. Blogging creates cognitive connections	11	Like	Similar to space two event one, blogging provides a place to connect cognitive experience, theory and concepts
7. Workshop data aligns with theory	17	Like	Similar to space three event six, analysing data reveals connections between cognitive voice and cognition
8. Artwork captures cognition of self and other	21	Like	Similar to space four event nine, the art process and product unite cognitive views

Reduction: The critical events in this exhibition have been reduced into the sub themes personal, process and product, documentation of how these events influence cognition on personal, process and product platforms is attempted.

Critical event	Personal	Process	Product
S2 E1 Blogging	Express a story	Reflect	Identity
S2 E2 EdD Conference	Share ideas	Make	Disseminate
S2 E6 Birth	Express emotion	Identity change	Perception change
S2 E9 Rationale	Starting point	Develop	Action
S2 E16 Listening to the radio	Space/ Time	Reflection	Approach/ Being
S3 E6 Data analysis revealed new cognitive understanding	Approach	Learning	Cognitive understanding
S4 E6 Use of cognition in academic practice	Unconscious	Learning	Confidence
S4 E7 Intercultural application of cognition	Acknowledge	Trial	Practice, pedagogy, research
S5 E6 Publication exposes cognitive implications	Process	Learn, critique	Expose, analyse
S5 E7 Reflection on academic practice	Reflect	Change	Impact on others
S6 E4 Application of art to conceptual frame	Experience art	See	Concepts and ideas

Appendix 14

Excerpt analysis recognition and reduction

Recognition: These themes form (black), influence (purple) or demonstrate the use of cognition (orange) in the narrative of this exhibition. The page location directs to an excerpt exemplifying these occurrences.

*The thesis draft is available on request.

Space two excerpts	**Page location** (In thesis draft)
1. Thought process	4
2. Embodiment	4
3. Transdisciplinary	5
4. Metacognition	6
5. Transcognition	6
6. Miscognition	6
7. Situated cognition	6
8. Distributed cognition	6
9. Embodied cognition	6
10. Knowledge	6
11. Thought	7
12. Talk	7
13. Art	7
14. Process	7
15. Cultural practice	7
16. Mental process	8
17. Socio cultural	8
18. Individual	8
19. Socially constructed	9
20. Changes	9
21. Intercultural	11
22. Collaborative	11
23. Curated	12
24. Computational/ mental	12
25. Life events	14
26. Changes	14
27. Emotion	14
28. Connections	17
29. Connectome	21
30. Collaboration	23
31. Connectionism	26
32. Voice	27
33.Transdisciplinary/ interdisciplinary	29
34. Subconscious connectionism	33
35. Organisation	35
36. Individual and social	36
37. Knowing	39
38. Virtual	42
39. Understanding	44
40. Thought	44
41. Application	44
42. Conscious and unconscious	44
43. Connection	44
44. Spontaneity	44
45. Reason	44
46. Experimentation	49

47. Decision	49
48. Analysis	49
49. Transcognition	52
50. Miscognition	53
51. Intelligence	55
52. Wide spectrum cognition	56
53. Digital	65

Space three excerpts	**Page location** (In thesis draft)
1. Ability	3
2. Language	5
3. Language	5
4. Discourse	6
5. Transcognition and miscognition	6/7
6. Abstract concept	7
7. Connectionism	7
8. Act	11
9. Play/ spontaneity	11
10. Miscognition	11
11. Aesthetic discourse	12
12. Process and justification	12

Space four excerpts	**Page location** (In thesis draft)
1. Curated	6
2. Understanding learning	6
3. Digital understanding	6
4. Environment	6
5. Exemplified tools	6
6. Navigation	6
7. Connectionism	6
8. Collaboration	6
9. Transcognition and miscognition	6
10. Group mediated cognition	7
11. Transcognition	8
12. Collate/ document	8
13. Connect cognition types	8
14. Map	8
15. Group mediated cognition	8
16. Miscognition	8
17. Connections (prior experience with practice)	9
18. Blog (connects living and virtual)	9
19. Connection	9
20. Curated	9
21. Web	10
22. Apply	10
23. Co construct	10
24. Make connectionist webs	10
25. Found in in-between spaces	11
26. Developed in relation to others	11

27. Product of digital process	14
28. Transferred	14
29. Stunted	15
30. Product	16
31. Affective	16
32. Question	16
33. Internal conversation	16
34. Digital practice and new media technologies	17
35. Understanding	17
36. Connections	17

Space five excerpts	**Page location** (In thesis draft)
1. Connections	3
2. Self recognition	3
3. Learning articulated	3
4. Reflexivity	3
5. Connections	5
6. Curated	5
7. Making	6
8. Challenged	7
9. Applied to gain understanding	7
10. Connections	12
11. Transcognition	12
12. Connectionism	12
13. Connections	13
14. Application of conceptual frames to practice	14
15. Concepts separate and united	14
16. Social justice and practice	18
17. Reflection	18
18. Connections (time and transcognition)	19
19. Reflexivity	21
20. Mapping	21

Space six excerpts	**Page location** (In thesis draft)
1. Cognitive voice	2
2. Deconstruction	2
3. Conversation	2
4. Parts	6
5. Concept	6
6. Time	6
7. Context	6
8. Discipline	6
9. Engagement	7
10. Experiences	7
11. Practice	9
12. Analysis	9
13. Creativity	9
14. Miscognition	10
15. Connections	10
16. Self recognition	11
17. Risk taking	11
18. Problem solving	11

19. Reflexivity	11
20. Connections	11
21. Spontaneity	11
22. Change	11
23. Creates environments to voice	12
24. Reflection	13
25. Practice	13
26. Visual	14
27. Implications	15
28. Clarification tool	15
29. Risk taking	16
30. Application	16
31. Questioning	16
32. Acknowledgement	16
33. Reflection	16
34. Recognition of learning	16
35. Affective	17
36. Journey or process	17
37. Thought or mental process	17
38. Embedded into practice	17
39. Improved	18
40. Transcognition can be applied	18
41. Layered	18
42. Conflict	19
43. Thought in making	19
44. Process	19
45. Change attitude	20
46. Platform for reflexivity	20
47. Make movement in understanding visible	20
48. Outside individual	22

Reduction: The table below demonstrates reduction of the cognitive excerpts in this exhibition to exemplify what cognition is, the factors that influence it and potential uses for it.

Forms of cognition (102)	**Cognitive influencers (54)**	**Applications of cognition (11)**
Cognition as knowledge (28) (Metacognition, transcognition, miscognition, situated, distributed, conscious and unconscious, intelligence, wide spectrum, abstract, group mediated, concept, mental, layered)	**Act/Process (25)** (Learning, understanding, using tools, risk taking, solving problems, reflection and reflexivity, making, applying, deconstructing, talking, engaging, experiencing, questioning, acknowledging, analysing)	**Clarify and change practice (4)** (Clarification tool, embed to practice, change attitude, make learning/ understanding/ development visible)
Cognition as a *process* of acquiring knowledge (33) (Thought, talk, language, art, cultural practice, mental process, change, connectionism, reason, knowing, understanding, experimenting, justifying, challenging, questioning, analysing, creativity, reflexivity, change, journey)	**Connections (16)** (Mapping, theory to practice, virtual and living, collaborating, connectionism)	**Understand and make learning connections (3)** (Connect cognition types, build connectionist webs, apply understanding)
Cognition as interdisciplinary experience (25) (Transdisciplinary, interdisciplinary, socially constructed, intercultural, collaborative, curation, digital, application, discourse, act, curation, navigation, collaboration, web, connection, transfer, in-between, visual, application)	**Self/ Personal/Embodiment (8)** (Emotion, voice, language, connectome, recognition)	**Collate/ Document/ Apply learning (2)** (Gather, document, apply)
Cognition as embodiment (16) (Embody, individual, social, spontaneous, decision, ability, play, affective, product, learning articulated, voice, practice, recognition)	**External world (5)** (Digital/ virtual context, time, environment, discipline)	**Co-construct environments and experiences (2)** (Generate cognitive understanding together, create environments to voice)