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HOW CAN PORTRAITURE, PRODUCED VIA INDUSTRIAL DIGITAL EMBROIDERY PROCESSES, CONNECT ME TO MY ANCESTRAL TEXTILE HERITAGE?

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A thesis submitted to the University of Huddersfield in partial fulfilment of the requirements for the degree of Master of Arts by Research

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ABSTRACT

Autoethnographic reflective research methodologies are used to explore the self and ancestral textile heritage, through the modes of self-portraiture and industrial digital embroidery processes. The research project is a practice-led, process-driven study of ancestry, textile production, technology, CAD design, industrial processes and sampling. Furthermore, drawing on the discipline of fine art portraiture has been transferred to textile methods and processes, in a bid to connect myself to personal ancestral industrial textile heritage through perceived shared experiences of making. Through the immersion of the virtual and physical realms of digital embroidery production, I have acquired sensory experiential understandings that directly reference my ancestral industrial textile background, whilst acquiring a new skillset and discipline.   Familiar creative practices have been transformed, whereby personal experiences of portrait practice are redefined through embroidery tools, materials and digital machinery and by choosing the medium of digital embroidery to create portraiture, I have straddled both arenas of fine art and contemporary textiles. By performing an object-based study of the Amaya digital embroidery machine, in part for data analysis purposes, a close involvement and engagement with the Amaya and CAD design software, gave rise to the symbiotic relationship, a collaborative working partnership between myself and the Amaya and therefore, this was the most surprising and unexpected outcome of the research project.

KEYWORDS: - Autoethnography, Practice-led, Portraiture, Ancestry, Heritage, Embroidery, Textiles, Industry, Processes.

DEDICATIONS AND ACKNOWLEGDEMENTS

- Grandma Mary Hartley (nee Clements) and Grandad Edward Hartley
- Dr Claire Barber
- Dr Amanda Tinker
- Elnaz Yazdani
- Melissa Fletcher
- Ellie P Smith
- Dr Dale Holmes
- University of Huddersfield Post Graduate Research Department / School of Art, Design and Architecture

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Introduction

An autoethnographic, reflective, practice-led study of my ancestral textile heritage, is conducted through the medium of industrial digital embroidery, using my self-portrait as the point of origin. Portraiture depicts a personal narrative, a chronicle, a time and place and therefore, self-portraiture produced via industrial embroidery methods, presents me with an opportunity to discover lost ancestral textile knowledge, through conceptual digital textile practices.

Autoethnography, a research methodology of the self (auto) and cultural contexts (ethnography), the most appropriate research theory employed to investigate myself, my creative practice and my historical background. The scholarly writings of Stephen Pace (2012) *'Writing the self into research',* are discussed and applied to my reflective creative practice pertaining to myself and my cultural disposition, through relevant analytical grounded theories. Relevant quotations by Chang (2008) regarding theories of *'practice as method'* are present in this section and support my autoethnographic research mode. Practice-led research methods have resulted in a rich learning experience of textile production and CAD design software, all of which have contributed to answering my research question. The systematic gathering of raw data by means of recording and documenting each process and stage of my creative practice, both verifies the qualitative and quantitative data formulations and justifies my practice as method, which is compared and contrasted against the theoretical writings of David Pye (2010) *The workmanship of risk and the workmanship of certainty*.

Aims

- To explore and redefine my portrait practice through the autoethnographic study of industrial embroidery processes and their relationship to my ancestral textile heritage.
- To discover how personal heritage (autobiography) can be transferred into textiles through digital-stitched processes.

Objectives

- To connect with my industrial textile lineage through sensory experiential engagement with digital embroidery machinery.
- To evaluate industrial digital embroidery tools, processes and stitched textile art forms, focusing on the quality of the stitch, the behaviour and performance of the machine, materials and CAD design software.
- To produce quantitative and qualitative data analysis based on digital embroidery production, evidenced by raw data collection methods.

- To explore the symbiotic relationship, the collaboration between myself and the Amaya 2 digital embroidery machine and to conduct an object-based study of the Amaya 2 digital embroidery machine.

- To investigate personal identity through redefined portrait practices as influenced by ancestral textile heritage.

- To develop digital techniques as a method of expressing autobiography onto cloth.

- To discover personal heritage through textiles, machines and processes, textile language idioms and the local historical textile industry.

- To analyse the cultural context in which stitched portraiture sits and to consider the role that digital processes play in portraiture, from my perspective and other artists who practice the same or similar.

Rationale: -   The structure of this thesis, purposefully mirrors the process and the order of occurrences of my reflective practice-led research project. Due to the autoethnographic, practice as research methods being employed, the thesis structure and layout is as follows:-

1. Methodology
2. Creative Practice, including the Lit Review
3. Theoretical Understanding
4. Exhibition Synopsis

Firstly, chapter 1 explores my research methodology pertaining to technology, processes and systems of documentation, which form the basis and structure of my practice-led project. In order to fully understand and analyse my research topic, I first had to acquire CAD design software skills, also known as digitization, before conducting essential sampling processes. The virtual workspace regarding digitization design practices and the physical workspace comprising of the desktop computer, embroidery threads, embroidery hoops, hand tools and the Amaya digital embroidery machine are detailed and theorised in depth throughout chapter 1. My immersion in the industrial process, whether it be a virtual or physical engagement, has contributed significantly to sensory experiential understandings and presented valuable raw data findings for analysis.

Throughout chapter 2, primary research methods pertaining to my creative practice and the subjects of portraiture and ancestry are discussed, analysed and contextualised. My familiar portrait practice is redefined and transformed through digital embroidery processes, which translate the different qualities and values to that of hand-painted and hand-drawn portraiture. This chapter considers how textile processes and materials have informed my contemporary art practice and therefore poses the question *'what is the point in choosing embroidery as an art medium to create portraiture?'.* By engaging with industrial textile machinery and production processes, two lines of enquiry are brought together, namely self-portraiture and ancestral industrial textile heritage, in a bid to bridge the gap between my textile past and my contemporary art practice and address the question mentioned previously. When considering my ancestral textile heritage, not exclusively textile manufacturing, recollections of inherent textile

language (idioms and expressions) as spoken by my Grandparents became a prominent feature in my creative practice, which were then purposefully interwoven within my embroidered artworks, thus enriching my project with meaning arising from the depth of the historical content as depicted in subsection 2.3.2.

To further understand the contextual positioning of my digital embroidered portraiture, and to analyse the cultural context in which stitched portraiture sits, I have considered the role that digital processes play in portraiture, from my perspective and regarding other artists who practice the same or similar. Comparative textile artists such as Andrea Cryer, Caroline Bartlett and Elaine Reichek, have been briefly discussed as part of my secondary research processes and although my research project is autoethnographic in style, focusing on myself, I have explored their textile practices to better understand my own position as a conceptual textile artist.

Theoretical understandings of analytical ethnography, grounded theory and autoethnographic research models are analysed and discussed throughout chapter 3, by means of collected raw data from my digital embroidery practice and the analysis of the emergent symbiotic process. Again, the theoretical writings of Pace (2012) and Pye (2010) appear throughout chapter 3, whereby I assess and challenge the opinion that the workmanship of risk applies only to human practice and the workmanship of certainty applies solely to automated production. The symbiotic process of human and machine collaboration and reflexive interactions are detailed and explained in subsection 3.3, whereby familiarity and regular engagement with tools, processes and machinery can allude to a sense of partnership, a working relationship of sorts.

Finally, to conclude my thesis, chapter 4 introduces and reviews the joint exhibition titled 'Symbiotic Process: Human – Machine – Textiles, held by myself and Ellie P Smith at the Temporary Contemporary Gallery, Queensgate Market, Huddersfield. Additional exhibition details including artist's statements, audio-visual materials, exhibition artworks, visitor comments and interactions are discussed and illustrated throughout Appendix 4 – Exhibition Information on page 88. To fully convey the human and machine symbiotic process, an MP4 movie exhibition installation is available to view online at WordPress https://julietcrowther.com/exhibtions, along with other relevant supportive audio-visual resources.

CHAPTER 1. METHODOLOGY

Introduction

Throughout Chapter 1, I aim to explain and justify my choice of autoethnographic practice-led reflective research methods, regarding my ancestral textile heritage via industrial embroidered self-portraiture. This chapter sets out to explain my methodology, while continuously evaluating my research question, aims and objectives. My autoethnographic research question *'how can portraiture; produced via industrial digital embroidery processes; connect me to my ancestral textile heritage?'* is chronologically and systematically analysed throughout this chapter.

Practice-led reflective approaches to autoethnographic research are conducted by means of data collection through various systems of documentation, CAD software design and digitization, photography and movie clips, embroidery samples, the workspace and the immersion in the industrial process. The aforementioned methods used, are expanded throughout this chapter, providing deeper insight into my contemporary art practice and my ancestral background of industrial textiles.

Additionally, references and citations will be made to the scholarly writings on autoethnography by Steven Pace: *Writing the self into research: Using grounded theory analytic strategies in autoethnography,* (2012) and theories by Heewon Chang, *Autoethnography as method*, (2008) during subsection 1.1, whereby various theory types and characteristics regarding the self and art practice as research, will be expanded upon further.

1.1   AUTOETHNOGRAPHIC REFLECTIVE RESEARCH

Autoethnography (Auto = Personal Narrative) (Ethnography = Social/Cultural) is a personal reflective inquiry method that I have employed to look at myself; the Portraitist and my ancestral textile heritage. By positioning myself, my creative practice, my ancestral textile lineage at the centre of my autoethnographic reflective research, enables me to reach back into my ancestral textile past, bringing forth ideas and inspirations into my current portrait practice, which will transform my creative outputs. The production of textile portraiture, using only textile materials, machinery, tools and processes is a purposeful way to imbue symbolism, metaphors and historical references into my creative practice, and will be discussed further in chapter 2.

From my perspective, autoethnography is the appropriate method of reflective research, whereby I can systematically evaluate all experiential and sensory experiences, gather raw data and evidence at each step and process, whilst continuously referring to my research question, aims and objectives. Furthermore, I understand and agree with Pace's three definitions of autoethnographic research which are: - 1. Evocative Autoethnography, 2. Analytic Autoethnography, 3. Grounded Theory, Pace (2012, p.4), all of which have been considered and applied to my practice-led reflective research methods and will be discussed throughout this thesis.

In the following quote, which refers to my practice-led reflective research, Pace comments on autoethnographic research methodologies:-

Autoethnography, a qualitative method that combines characteristics of ethnography and autobiography. Autoethnographers reflexively explore their personal experiences and their interactions with others as a way of achieving wider cultural, political or social understanding. The output of an autoethnographic study commonly takes the form of an evocative narrative written in the first-person style such as a short story or novel. Less commonly, autoethnographers may include graphic, audio-visual or performative components in their work, Pace (2012, p.2).

Regarding the aforementioned quote, my personal narrative is translated and described through my textile portrait practice, processes and outputs. Therefore, and more applicably, the less common type of autoethnography including graphic, audio-visual and performative components best represent my reflective practice-led research more accurately (Miller cited in Pace 2012).

As a result of my autoethnographic methods and in the pursuit of answering my research question, my commercial portrait practice has undergone a significant transformation by choosing digital textile production to replace my familiar art materials, techniques and processes. As a fine artist and commercial portrait artist, my familiar tools usually consist of paint, charcoal, ink, pastels, pencils, paper, canvas, brushes, sketchbooks, drawing board and easel. Some software, digital photography (JPEGs) and social media platforms are also used in my commercial portrait production, particularly when communicating with clients for commissioned artwork. Creating portraiture via industrial textile machinery and CAD software design programs, textile materials, tools and processes; not only transforms my familiar creative practice – but also allows me to directly reference personal, social, cultural and ancestral textile heritage; particularly my Grandparents and the local textile mills that they worked in.

The personal element of my practice-led research; refers to my stitch-based artwork, which sees me as both the orchestrator and the subject matter by means of using my self-portrait photograph, plus a line drawn self-portrait image derived from the same self-portrait shown below (see figure 1).

Figure 1 Left: Line Drawn Self-Portrait, Right: Self-Portrait Photo

My decision to employ my self-portrait image, purposefully adjoins a contemporary visual narrative to that of my ancestral heritage and acts as a continuation of my personal textile lineage, which will be discussed further in subsection 2.3 Ancestral Industrial Textile Heritage. Each self-portrait goes through many software digitizing stages, before being digitally embroidered, thereby directly referencing my ancestral industrial textile processes through this mode of portrait production. Industrial textile production methods used, serve to aid my autoethnographic research model, by enabling me to develop a wider understanding of my ancestral textile heritage, through my practice-led workshop experience in the University of Huddersfield textile department. My personal involvement, observations and ancestral connections with industrial textile processes, serve to legitimize my autoethnographic mode of practice-led research and my personal narrative.

Based on the theoretical proposals of Chang (2008), who describes autoethnography as a form of 'storytelling' (amongst other interpretations), Chang has influenced my understanding of autoethnography as method, thus corresponding to my research methodologies, key themes and motives, whereby, self-narration is supported by other relevant factors like historical references, raw data gathering and textile portrait production. A particularly influential and succinct quote by Chang that correlates with my previously mentioned practice and key points, is as follows:-

> Like other genres of self-narrative, such as memoir, autobiography and creative nonfiction, autoethnography involves storytelling, but it is marked by the way it 'transcends mere narration of self to engage in cultural analysis and interpretation'. Chang (2008, p.43).

Regarding Chang's 'transcends mere narration' comments mentioned above, the following paragraph addresses and justifies how I am transcending mere narration, by various practice-led methods and techniques used.

As part of my autoethnographic reflective research methodologies, my technical enquiries of industrial digital embroidery used to produce portraiture, including observational note taking for raw data collection, screen capture images, photography, movie clips and the physical engagement with textile machinery and tools, have all contributed to qualitative and quantitative data collecting. Furthermore, the previously mentioned processes employed, not only authenticate my understanding of autoethnographic methods used in my creative practice, but also provide me with tangible results that assist to answer my research question, whilst also meeting my aims and objectives. Technical enquiry information and gathered raw data methods are discussed in detail throughout chapters 2 and 3.

1.2 TECHNOLOGY, PROCESSES AND SYSTEMS OF DOCUMENTATION

This subsection aims to justify how technology, processes and systems of documentation contribute towards addressing my research aims and objectives through the means of virtual digital software programs, physical workstation tools and machinery and various systematic documentation methods. All technological methods discussed, are supported with online collections of audio-visual materials available to view at https://julietcrowther.com. Digital industrial textile machinery and the CAD design processes involved, aid my sensory experiential understandings pertaining to my ancestral textile industrial heritage from a contemporary perspective, whilst simultaneously transforming my familiar fine art portrait practice through software design programs and embroidery materials and tools. Detailed

explanations, descriptions and visual examples occur throughout the following paragraphs, with the intention of conveying the importance and the major impact that these processes and methods have had on my research project. It is difficult to estimate what percentage of my overall research project was dedicated to the technical element of my practice-led research, but I would approximate around 75% to 80% of my research project is derived from technical exploration.

1.2.1 Technical Exploration

Detailed explanations of technology, processes and systems of documentation employed as part of my practice-led research project, will be provided throughout this subsection. Technical exploration first began with JPEG image files, which were subsequently manipulated, transformed and converted through various software programs and processes applicable to industrial digital embroidery. The first technical phase of my digital textile journey, was by accessing JPEG images via Design Shop Pro CAD Software and converting the file to what is known as a 'Vector' design type file, followed by conversion to embroidery settings. The vector design is then organised into the required settings for hoop size and shape, colour grouping, bobbin position number and stitch sequences (from the centre of the hoop/design and radiating outwardly) and saved as an OmniForm (OFM) type file. The OFM type file is specific to Design Shop Pro and Amaya 2 OS CAD Software, which subsequently commands and instructs the Amaya 2 digital embroidery machine to embroider the design. Manual involvement with the digital embroidery process occurs in the 'setting up' phase, such as fitting the fabric in the embroidery hoop, fitting the embroidery hoop to the Amaya 2 machine, fitting the spool bobbin (usually white or black spool thread), installing the coloured bobbins and threading the needles.

All JPEG images can be converted to vector file embroidery settings, which may require little digitization and mostly require parameter settings. However, if the vector image has too many stitch areas - evidently the design file will struggle to load, open and save - causing the computer to crash. Therefore, grouping and/or removing embroidery stitch sections is necessary to reduce the file and design size, which will prevent software errors and ultimately benefit the overall production time.

Written notation is essential at this phase of design, not only to aid with raw data collection – but to assist with the transfer of information between Design Shop Pro and Amaya 2 OS CAD Software programs, pertaining to the coloured bobbin thread position numbers 1-16. When the coloured bobbin threads have been setup and the position numbers are noted, then this colour coded/numbered information is manually inputted into the colour sequence feature on the Amaya 2 OS CAD Software – thus instructing the digital embroidery machine when, where and how to perform each stitch of the design. Stitching cannot successfully begin without the correct correlating bobbin position number for each coloured bobbin thread – or the embroidered design will not match the onscreen saved design. Although, I have accidentally embroidered with incongruous coloured threads and the output was unexpectedly interesting.

An example of my abbreviated written notation, correlating the layout of the coloured bobbin numbers with the Amaya 2 Bobbin Holder are shown below (see figure 2).
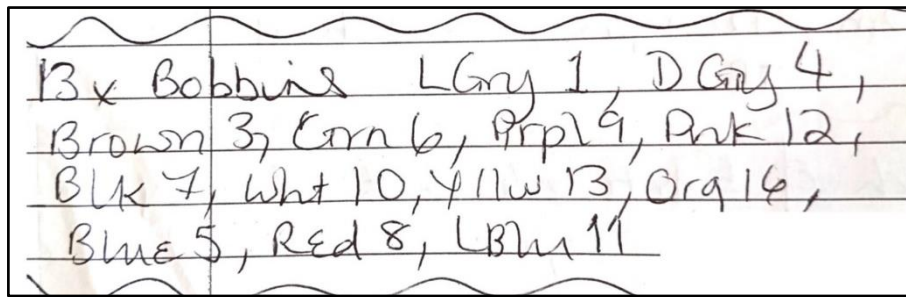
Figure 2 Example of Abbreviated Written Notation. Correlating Layout of Amaya Coloured Bobbin Numbers. [JPEG Photograph]

Explanation of figure 2:-

- 13 x Bobbins = 13 x Coloured Threads in Use

- LGry 1 = Light Grey Thread, Position 1

- DGry 4 = Dark Grey Thread, Position 4

- Brown 3 = Brown Thread, Position 3

- Grn 6 = Green Thread, Position 6

- Prpl 9 = Purple Thread, Position 9

- Pnk 12 = Pink Thread, Position 12

- Blk 7 = Black Thread, Position 7

- Wht 10 = White Thread, Position 10

- Yllw 13 = Yellow Thread, Position 13

- Org 16 = Orange Thread, Position 16

- Blue 5 = Blue Thread, Position 5

- Red 8 = Red Thread, Position 8

- LBlu 11 = Light Blue Thread, Position 11

An example photo of the previously mentioned Amaya 2 Bobbin Holder for multiple coloured threads, shown below (see figure 3).

Figure 3 Amaya Digital Embroidery Machine Bobbin Holder, Capacity x 16 Bobbins. [JPEG Photograph]

Example screen capture images taken from Uni Tube online resources, showing the Amaya 2 CAD desktop for coloured thread sequences and bobbin position numbers 1-16, see below (see figure 4).
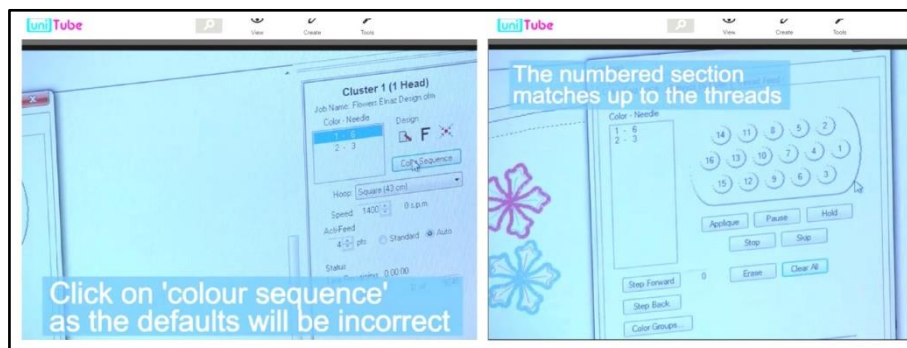
Figure 4 UniTube 'How To Use The Amaya Digital Embroidery Machine'. [Streaming video file].
[Screen Capture JPEG]

It has been integral to my research, to actively and systematically reflect on my practice at each step and phase of the process, usually in written notation formats and screen capture JPEG images (see Appendix 2 – Raw Data) and is available to view online at WordPress https://julietcrowther.com/screen-capture. This type of reflective practice not only documents and records my progress, but also serves as a form of qualitative and quantitative analysis which will be demonstrated in the Data Analysis subsection 3.1.2, (see Appendix 1 – Data Bar Charts) and is available to view online at WordPress https://julietcrowther.com/data-analysis.

1.2.2 Collection of Raw Data

- Written Notation
- JPEG Photos and MP4 Movie Clips
- Snipping Tool Screen Capture

Throughout my entire practice led research of two years, I have chronologically and systematically documented my digital embroidery artwork and CAD software usage via detailed written notation, screen capture images of Design Shop Pro/Amaya 2 OS CAD Software and Adobe Illustrator, JPEG photography and MP4 movie clips. Such systems of documentation predominantly serve as a technical file; an archive of activity; a 'virtual sketchbook'; a non-precious space for experimentation and essential raw data collection methods for analysis.

This detailed collection of raw data has been purposefully collated and used to create data bar charts featured in Appendix 1 - Data Bar Charts on page 76 and available to view online at WordPress https://julietcrowther.com/data-analysis. Each data bar chart illustrates both the contrasts and comparisons of the categories and anomalies that occur in each individual design at Beginner, Intermediate and Advanced levels within both Series 1 and Series 2 embroidered artworks. Please note that each individual design is representational of one embroidery hoop in use at any one time.

The recorded criterion for all digital embroidered designs, which form the basis of raw data analysis are as follows: -

- Hoop size and shape (corresponding hoop selection on Design Shop Pro/Amaya 2 OS CAD Software)
- Speed (stitches per minute 'spm') e.g.1100spm default setting
- Estimated stitch time to completion (time remaining in hours, minutes and seconds)
- Quantity and Placement of Bobbins 1-16 (capacity of 16 top bobbins in use at any one time, which can be swapped if more than 16 colours are required)
- Stitch Order of Coloured Threads for Bobbins 1-16, usually setup on Design Shop Pro before proceeding to Amaya 2 CAD for embroidering. Stitches must begin from the centre of the design/hoop and radiate outwardly in order to maintain a tight fabric surface
- Anomalies/Categories (Needle Issues, Thread Break, Bobbin Break, Software Error, Error Message, Colours & Other)
- Fabrics/Materials used for embroidering e.g. Double Layer Canvas or Single Layer Fabric with Tear-Off Interfacing at the reverse
- Miscellaneous e.g. Machine Malfunction/Breakdown

The 'Snipping Tool' screen capture feature has been an invaluable; crucial tool, which has enabled me to record the detailed software screen images in JPEG and PNG file formats depending on the desktop software in use. My understanding is that JPEG screen captures tend to be associated with Microsoft Office Software and PNG screen captures tend to be associated with Design Shop Pro/Amaya 2 OS CAD Software and Adobe Illustrator. In order to open the PNG files on my personal computer, which does not have CAD software installed – I resave and rename all PNG files as JPEG files, for ease of use and access. By capturing a screen image of the computer monitor display, I am instantaneously

recording the status, progress, functions and processes of my digital embroidered artwork – which in turn; provides me with references and details to aid my learning and memory. If I were to recreate an embroidery design, then I can quickly reference a screen capture image JPEG file for all the necessary setup information, which can prove to be both convenient and timesaving.

The frequent usage of the Snipping Tool screen capture feature has served me as a type of 'virtual sketchbook', whereby I can capture interesting and unexpected artistic images - many of which have become embroidered artworks themselves and are available to view online at WordPress http://julietcrowther.com/embroidery-artwork, I can add notes, zoom in to certain areas of a design and capture computer generated dialogue boxes. These types of documentation have become a fundamental component of processing my ideas and inspirations; my data collection and practice-led research – thus yielding a variety of uses and outputs. Without this source of visual documentation, my embroidery design projects would have resulted in completely different outcomes and would lack vital raw data statistics and recordings. Screen captured images have fundamentally impacted my textile artwork, not just visually, but also by providing valuable practice-led research findings that address and contribute to my overall aims and objectives.

An example screen capture 'Snipping Tool' image is shown below (see figure 5). Whereby, you can view the hoop size and shape, centre cross, image design, speed/stitches per minute, stitches sewn and estimated time remaining etc.
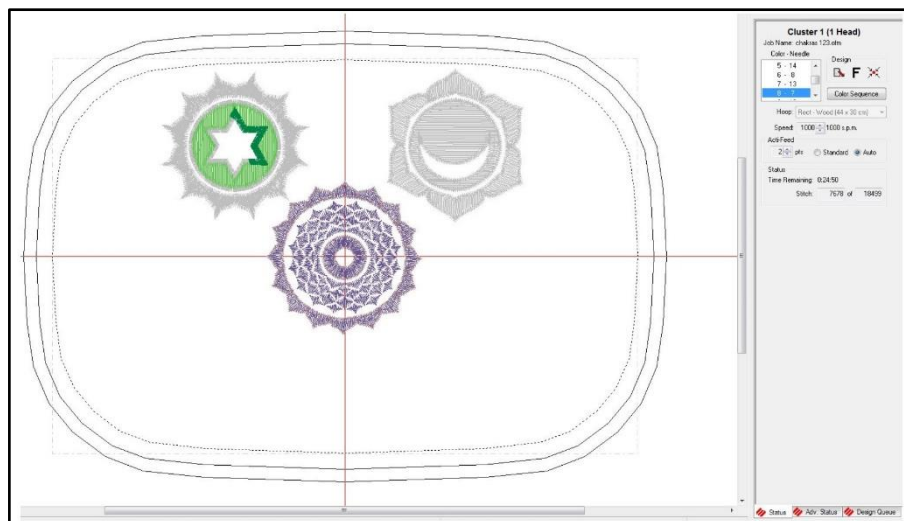
Figure 5 'Snipping Tool' of Amaya OS CAD Software. [Screen Capture JPEG]

1.2.3   Online Resources and Virtual Storage Facilities

- JPEG Photos & MP4 Movies Clips
- K Drive Online Storage
- Online Resources: Adobe Illustrator and WordPress

My extensive collection of screen capture images, JPEG digital photography and MP4 movie clips, have been used to record the embroidery artwork in progress - namely the Amaya 2 digital embroidery machine and desktop computer CAD software; to show the work conditions and environment; to capture

sensory and experiential elements and to convey a real-time audio-visual experience, available to view online via WordPress at https://julietcrowther.com.

An Audio-Visual installation featuring a compilation of JPEG photos, MP4 movie clips and screen capture images was produced for the Symbiotic Process, Human – Machine – Textiles exhibition, available to view at http://julietcrowther.com/exhibitions. My individual audio-visual compilation was later combined with Ellie P Smith's audio-video compilation for our collaborative exhibition at the Temporary Contemporary Gallery, Queensgate Market, Huddersfield. Thereby, demonstrating all aspects and processes of our shared human/machine textile production.

Shown below (see figure 6) is an example workstation photo of the Amaya 2 digital embroidery machine, Desktop Computer with Design Shop Pro/Amaya 2 OS CAD Software and where the aforementioned audio-visual compilation was captured throughout my studies January 2017 to May 2018 inclusive. The desktop computer shown in the photograph, is not connected to the internet and therefore, all design files/work done, needs to be saved on a portable flash drive.

Figure 6 Work Station: Amaya Digital Embroidery Machine and Desktop Computer with Design Shop Pro / CAD OS Software. [JPEG Photograph]

Another valuable online resource, which has contributed significantly to my systems of documentation and the development of my digital embroidery designs, is the University of Huddersfield online desktop computer lab resource and my personal K Drive storage facility. Accessible remotely, I have worked extensively on design software programmes such as Adobe Illustrator to develop my self-portrait artworks, then the remote files were uploaded into Design Shop Pro and subsequently embroidered via the Amaya 2 digital embroidery machine. Many screen captured images of my design processes via Adobe Illustrator software are available to view online at http://julietcrowther.com, some of which were included in the previously mentioned Audio-Visual exhibition installation movie. An example screen capture image of working remotely from my home computer on my imported K Drive self-portrait design in Adobe Illustrator software is shown below (see figure 7).
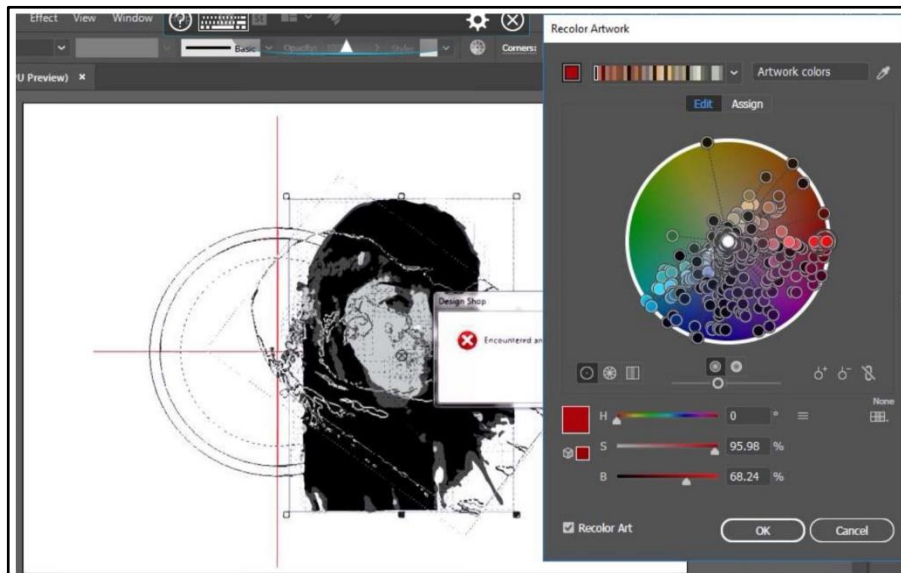
Figure 7 Adobe Illustrator & Self-Portrait Design. UniDesktop. K Drive Student Storage. [Screen Capture JPEG]

Online resources and virtual storage facilities, however technical and insignificant they may seem, are in no way less important than any other methods used as part of my research project. Infact, each online virtual file and image serves as a visual account, a virtual sketchbook, most of which have impacted and influenced the whole process from concept and design through to manufacture. Without this virtual online source of audio-visual information via online software systems, my embroidered outcomes would be less rich in content, with fewer sensory experiential values and the symbiotic process would be negatively affected. Each step and process equally contributes to my entire practice-led research project, therefore ultimately impacting my aims, objectives and my research question.

1.3   DIGITIZATION AND SAMPLING PROCESSES

I aim to justify and describe how the sampling process has contributed to my understanding and the development of my research aims and objectives throughout this section. The sampling process is the critical foundation on which all consecutive digital embroidery designs were based and subsequently developed further into more complex designs. The earliest sampling processes required important data gathering via written notation and audio-visual recordings, not only for reference to aid my learning and memory - but to chronicle and support my research project throughout every stage of the digital embroidery process. Errors, anomalies, tools and material issues were key contributory factors of my practice-led data collection, and which also helped me find answers to my questions. My practice-led research project questions 'how can portraiture, produced via industrial digital embroidery processes, connect me to my ancestral textile heritage?' Therefore, the sampling process is a fundamental first step toward achieving my aims and objectives, and only by starting from the beginning and building familiarity and confidence through practicing with samples – could I discover the answers to my research questions. The sampling process entails various methods and processes, such as working with digital software and machinery, engaging with fabric and thread and various necessary tools used to produce digital embroidery. Each component used during the sampling process, assisted my investigations, developments and data analysis collection regarding my reflective practice-led research project, as

detailed and illustrated in Series 1 'Beginners level' sample motif templates and the digitization processes involved, in section 1.3.1 and further subsequent sections.

1.3.1   Scanned/Uploaded JPEG Images for Digitization Process.

In order to understand and competently operate the Amaya 2 digital embroidery machine, I first had to learn the basic functions of the CAD design software programs - in particular, the digitization of JPEG images and templates. Therefore, the sampling process is a formative and developmental necessity. Without the digitization process, the embroidery production cannot begin, as the embroidery machine relies on design file commands and specific functions to commence manufacture. This mode of technical digital practice, assists me in the development and understanding of my research aims, including my industrial heritage connections.

The sampling process first began with my self-portrait photo and self-portrait line drawn image (see figure 1), which were both scanned using my flatbed scanner at home; transferred to my home computer desktop and then saved as JPEG files on my home computer and portable memory stick. Both JPEG designs were then accessed via my portable memory stick through Design Shop Pro, ready to begin the design process for embroidery preparation.

As previously stated in subsection 1.1, each self-portrait JPEG file is accessed in Design Shop Pro software; converted to what is known as 'Vector' design type file and then converted to embroidery settings. The vector design is then organised into the required settings for hoop size and shape, colour grouping, bobbin position number and stitch sequences (from the centre of the hoop/design and radiating outwardly) and saved as an OFM type file.

Whether it is a sample test piece or an advanced design - the process requirements remain the same for design files, software programming and machine/materials setup. However, JPEG files that are converted to 'Vector' files (also known as Auto Digitizing) tend to require little to no 'digitization' process, as the vector command reproduces the JPEG image; converting the image to embroider. Editing and marking out the parameters/required design areas for embroidery, organising/grouping the coloured thread sequences and quantities are all that is usually needed in terms of vector file digitization. Digitization is the equivalent of drawing and designing from the beginning stage, using the mouse and buttons to program the design requirements. JPEG images can be opened in Design Shop Pro software and used as a design template, which allows for easy replication of the image. Usually, different onscreen colours to that of the background design template are chosen, so that the onscreen digitization stitch functions are clearly visible. If the digitization colours correspond to the background design template, then unintended mistakes are likely – so it is advantageous to make visibly obvious colour choices that stand out from the background.

A screen capture image example of digitization stitch colour, differing from the background design template, is shown below (see figure 8).
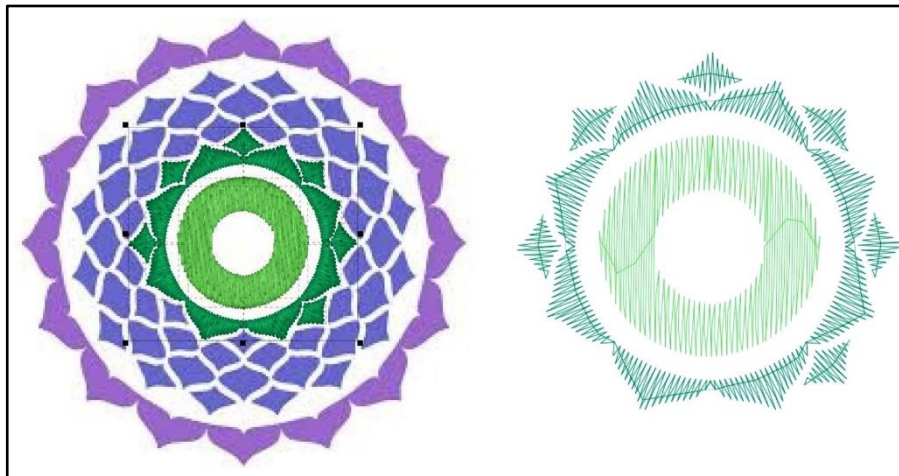
Figure 8   Left Image: 3D Green Stitches Over Crown Chakra Background Template in Purple. Right Image: Green Stitches without Background Template. [Screen Capture JPEG]

1.3.2   Digitized Sample Designs

Simplistic designs are recommended to begin the sampling process, e.g. 'Beginners Level' Chakra Motif Templates shown above (see figure 8), which allows for learning and understanding of the software operations, materials, tools and machinery used to produce digital embroidery. Each sample is multifunctional, demonstrating both the digital Design Shop Pro/Amaya 2 OS CAD design process and the physical embroidered output – including important noticeable errors, which enrich and aid the overall learning experience and support vital data collection as illustrated in subsection 3.1.1 Data Analysis.

Sampling with various fabrics, hoop sizes and shapes is important to determine what materials work best for the embroidery design. For instance, a delicate thin fabric like voile would need additional supportive interface backing to prevent the fabric tearing or being shredded by the velocity of the needles. Therefore, the type and quality of the fabrics used are probable key factors for ensuring successful embroidery outcomes. The fabric/embroidery surface must be strong enough for rigorous industrial quality stitching and it needs to be as 'tight as a drum' within the embroidery hoop, particularly at the centre point where the stitching begins. The embroidery hoops used in the Amaya 2 digital embroidery machine have manual tightening screws, to secure the fabric within and to keep the fabric taught. If the fabric is not taught enough inside the embroidery hoop, this will cause several problems with the needles, tension settings, threads and ultimately the overall design will distort.

Example photos of #7 Sample Crown Chakra Design in an 18cm Round Embroidery Hoop with Double Layered White Cotton, 3 x Coloured Threads and Tear-Off Interfacing, shown below (see figure 9).

Figure 9 Left Image: Front of Sample Crown Chakra Design. Right Image: Back of Crown Chakra Design.
[Digital Embroidery]

Initially, my samples were produced on double layered white cotton with strengthening/supporting tear-off interfacing at the back (see figure 9). As a result of my sampling practice, my preferred choice of fabric became double layered heavyweight cotton canvas with no tear-off interfacing or support necessary – as this fabric choice is incredibly stable and strong, particularly in larger embroidery hoop settings for larger, more complex designs.

The fabrics, embroidery hoops and coloured bobbin threads can be setup in preparation for embroidering either before or after the completed CAD design and digitization process – dependant on the time available in the booked session. However, my preferred method is to ensure that my designs are completed and ready to embroider beforehand, utilizing the Amaya 2 digital embroidery machine session fully. Preparation is key, as is time management and being readily prepared with coloured bobbins, threaded needles, threaded spool bobbin, fitted embroidery hoop and fabric – can implicate optimum productivity. The term 'stitching out' refers to the act of embroidering and during this process, I have often developed and digitized other designs in preparation for embroidering – whilst keeping a watchful eye on the progress of Amaya 2 digital embroidery machine at work.

The purpose and function of samples is of course to test out the materials, machinery and designs, whilst allowing for unexpected errors and anomalies to occur. I have classified the sample level of practice as 'Beginners Level', which is documented in subsection 3.1.2 Data Analysis. Sampling is a perfect arena to make mistakes and learn from them and in my case, retain all anomalies and visible errors to convey the whole process, not just the finished embroidery piece. I have acquired greater confidence, knowledge and knowhow through the sampling process – namely the 'Beginners Level' Chakra Motif samples shown below (see figure 10), before proceeding to higher advanced levels of

design, technicality and production. Recording specific details that reflect my progress and the process of each sample piece, have been compiled to formulate qualitative and quantitative raw data findings.

Figure 10 Left Image: Front of Chakra Samples. Right Image: Back of Chakra Samples. [Digital Embroidery]

1.3.3   Images of design templates and digitization processes via screen capture JPEGs

The aforementioned 'Beginners Level' sample Chakra Motif designs (see figure 10), first began life as imported JPEG image templates that were then digitized and designed on Design Shop Pro software, using the functions on the desktop monitor, mouse and keyboard. This series of design templates were purposefully selected to assist my learning of the digitization process on Design Shop Pro/Amaya 2 OS software, coupled with a basic guidance handbook for reference and Tutor/Technician assistance if necessary. Assessing the complexity of each JPEG Chakra Motif template, such as the components, detailed areas and shapes present in each design; stipulated the order of design and production from sample numbers 1 through to 7. As shown in the diagram below (see figure 11), the design order of complexity (simple first, complex last) for the digitization process are chronologically listed in numbered order.
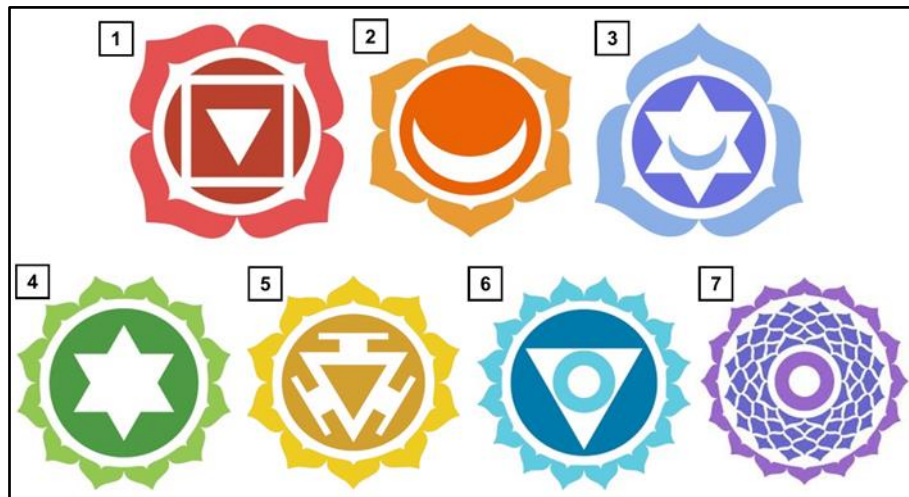
Figure 11 Chakra Design Samples in Order of Complexity. E.g. 1 = Simple Design, 7 = Complex Design. [Screen Capture JPEG]

A close-up example of the #7 Crown Chakra Motif Template design and digitization process, shown in the following screen capture image (see figure 12).

- *Mouse Right Click = Straight Line (Triangle Toggle)*
- *Mouse Left Click = Curved line (Circle Toggle)*
- *Central Scroll Button to Select/Complete Actions*
- *Green Circle Icon = Stitch Entry Point*
- *Red Cross Icon = Stitch Exit Point*
- *Black Perforated Line = Stitch Direction*
- *Green Zig Zag Lines = Complex Fill Stitching*
- *Black Selection Area = Select Area for Editing/Replicating etc.*
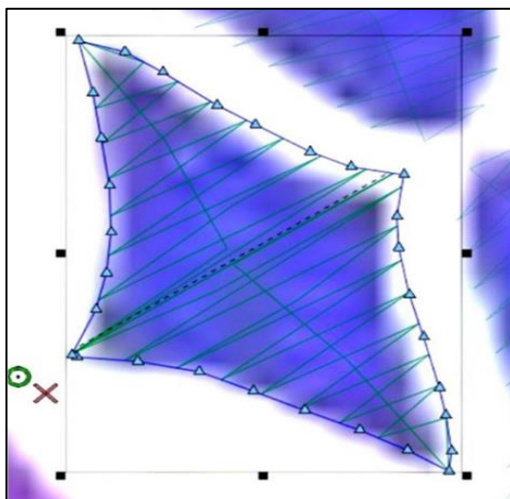
Figure 12 Close Up Example of Digitization Process. [Screen Capture JPEG]

During the mapping out phase of the digitization process, you can select the type/style of stitch required. For example; a 'Complex Fill' stitch is a function whereby you can fill a shape with stitches (similar to colouring in, but with stitches), by left clicking the mouse to anchor the first point in place and then using a combination of Left and Right Mouse button clicks to draw out the shape – finishing with a double click of the Mouse centre roller button (see figure 12). There is an onscreen option to view the design in three-dimensional, which helps to envisage how the embroidery will turn out, as shown previously in figure 8. Many of my designs have a variety of stitch types including the 'Walk' stitch (also known as a Normal stitch type), 'Bean' stitch (slightly broader than a Walk stitch) and sometimes (depending on the design) I have used a 'Satin' stitch outline around shapes, which can add further definition and boldness to the overall finish. However, if the Satin stitch is too thinly designed (in millimetres), it can leave a gap where it is meant to connect to/overlap the edge of the shapes and designs.

26

Example gap shown below (see figure 13).

Figure 13 Example Stitch Error. Arrow points to Gap between Complex Fill area & Satin Stitch Outline.
[Scanned JPEG]

1.3.4   OFM Files for use on Amaya 2 OS software program.

OFM Files are design files specific to the Amaya 2 digital embroidery machine Software and these file types are only accessible via Amaya 2 OS CAD software. Upon completion of the digitization and design process in Design Shop Pro, the design file is then loaded into the Amaya 2 OS CAD Desktop ready for embroidery setup. Usually, the last used design file and settings will show on the Amaya 2 desktop – hence the need to load a new design and then setup the hoop and coloured thread functions. It is always wise at this point to save the new design setup in the Amaya 2 desktop, ensuring the repeated use of the design without the need to input any further commands – unless using different coloured thread combinations. All further design developments which are saved through the Amaya 2 OS CAD desktop, are automatically renamed as Amaya 2 OFM type files.

1.4   THE PHYSICAL WORKSPACE

This subsection aims to highlight the important factors regarding the embroidery tools, materials, work station and work environment and how they affect my practice-led reflective research experience and subsequentially, how they contribute to the data analysis collection strategies in use.

Embroidery tools including the Amaya 2 digital embroidery machine, which has a specific set of embroidery hoops (referring to both desktop virtual software embroidery hoops and the corresponding physical embroidery hoops), from small 12cm round hoops to large 40cm x 44cm rectangle hoops; only suitable for fitting to the machine and not to be mistaken for regular hand embroidery hoops. The metal plates at either side of the hoop; both slide and clip into place in the hoop housing area on the machine and you must ensure that any fabric overhang is kept away from the stitch area - an error that I encountered during my Series 2 Final Project Embroidery (see figure 14 shown below), whereby I had to unpick each stitch by hand in order to release the hoop that was trapped inside the stitched area due to overhanging fabric which caught underneath during stitching. The hoop is fitted into the machine,

with the spool bobbin is positioned underneath and the needles and laser light sensor for mapping out the design before stitching are positioned above the fitted fabric and hoop.

Figure 14 Stitch Error due to Overhanging Fabric Trapped in the Hoop. [Scanned JPEG]

Each physical hoop used throughout my practice-led research, was purposefully allocated a design/hoop number for reference. The design/hoop number system is used for data collection and record keeping, which also corresponds with the Amaya 2 OS Software program, namely the onscreen hoop settings (virtual embroidery hoop). By systematically documenting the embroidery production performance of each numbered design/hoop, the findings were then collated into relevant categories and applied to quantitative and qualitative data collection methods, as referenced in Chapter 3. Data Analysis. Regardless of the quantity of images, texts and designs per hoop, one hoop equates to one design file in a bid to keep record keeping clear and concise.

Example photo of a fitted large rectangle embroidery hoop with double layer heavyweight canvas fabric, ready for embroidering (see figure 15).

Figure 15 Amaya Digital Embroidery Machine, Large Rectangle Hoop & Canvas. [JPEG Photograph]

Example photo within a 12cm round embroidery hoop (smallest size) for use on the Amaya 2 digital embroidery machine. The hoop has single layer heavyweight canvas and tear-off interfacing fitted within (see figure 16).

Figure 16 'Embroidering the Facts' Small Round 12 Hoop, Canvas & Tear-Off Interface. [JPEG Photograph]

Example photo shown below (see figure 17) of single layer heavyweight canvas with tear-off interfacing at the reverse side of the embroidery design, within am 18cm round embroidery hoop. As stated in the name 'Tear-Off Interfacing', this supportive material can be torn away, leaving only the embroidered design and the fabric. Also shown at the bottom of the hoop is the tightening screw, used to secure the fabric and interfacing in place within the hoop during embroidering.
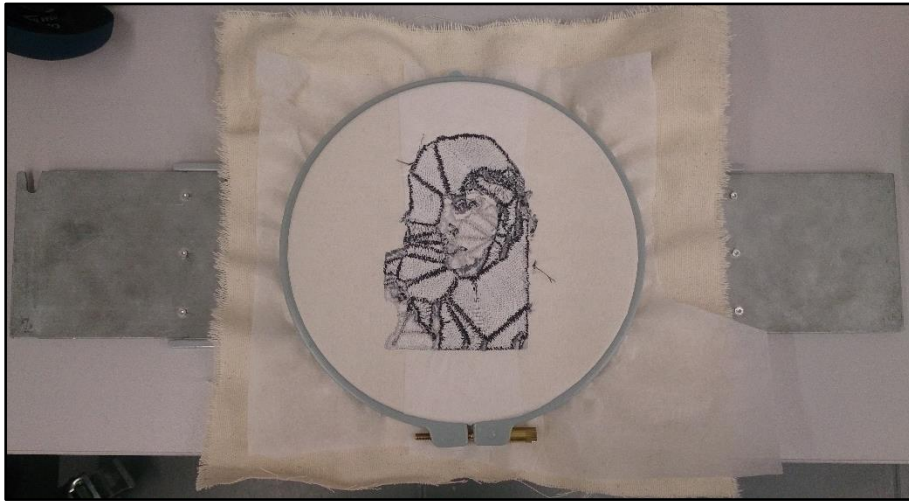
Figure 17 Reverse of 'Embroidered Selfie' 18cm Round Hoop, Canvas & Tear-Off Interface. [JPEG Photograph]

Example triptych photo shown below (see figure 18) of the necessary tools used to produce Amaya 2 Digital Embroidery. There is a variety of needles in various thicknesses and hole sizes, scissors and tweezers are used for the threading and repairing process and the embroidery hoops are stored at the workstation area alongside a large variety of coloured bobbin threads.

Figure 18 Work Station Triptych. [JPEG Photograph]

1.5   IMMERSION IN THE INDUSTRIAL PROCESS

This subsection explains, justifies and considers my immersion in the industrial process and highlights the advantages and disadvantages encountered during this process. My aim is to express an abstract concept; regarding my immersion in the industrial process; into a more realistic and tangible form.

The advantages of entering an unfamiliar unknown arena, whereby I have had to learn digital embroidery and CAD software with no prior knowledge, has allowed for unexpected discoveries, openness and receptivity to the possibilities. The disadvantages are few in comparison, as the whole learning process of which I was fully immersed in, was an important part of my journey and provided me with valuable

data collection for analysis. Any new method of learning requires dedication and repetition in order to master the tasks, which later become second nature and automatic. Immersion in the learning process and in my case, industrial processes, have proved more advantageous than disadvantageous. Comparatively, I may not have researched my familiar art practice as thoroughly and in the same context, as I have done with digital textile practice-led research – which was alien to me at first and perhaps the only slight disadvantage. However, I take the standpoint that there are no mistakes, only lessons learned and opportunities to grow and this notion aids my full immersion in the making and industrial process. When not concerned with what is deemed right or wrong (which I feel can stifle creativity), can permit a richer immersion experience and thus allows for creative freedom and greater expression.

When using Design Shop Pro/Amaya 2 OS CAD software programmes and the Amaya 2 digital embroidery machine, I am acknowledging and following predefined user guidelines to successfully operate the software and the machinery. This process requires less reflection and evaluation than the embroidered artwork production itself. However, the immersion in the digital computerised design process (also known as digitization) is equivalent to the immersion experienced in the production of my hand-drafted portrait artwork. The potential advantages of learning a new tool, can increase receptivity to the possibilities – particularly when coming from a fine art portraiture perspective and not a textile orientated background. My fine art portraiture background allowed for an unconventional approach to digital embroidery. As for the disadvantages, I find that there were none to speak of; as all learning requires time and dedication which I feel is not a drawback. Any unexpected errors and anomalies associated with the learning process, were chronicled along the way and resulted in the collection of raw data – later used in my data analysis section. Therefore, indicating that the whole learning curve was more advantageous than disadvantageous.

Familiarisation and practice of the CAD digitization process; builds confidence and speed, which can allow for a 'Zen' like state; more commonly known as 'the flow concept' Nakamura and Csikszentmihalyi (2002, p.89), which describes the concept of flow as being 'fully involved in the present moment' and 'characterised by complete absorption in what one does' – an experience achieved when I paint and draw and feel lost in my work. The paper 'Zen Gamma' as written by David Dobbs for SA Mind, explores Buddhist Zen meditation practices, to gain understanding of brain activity when concentrating or meditating. Dobbs quotes that 'Zen meditation produces not relaxation but an intense, though serene attention. Trained musicians also show superior gamma synchrony while listening to music – another form of calm but intense focus.' Dobbs (2005). I concur with Dobbs, Nakamura and Csikszentmihalyi (2002), that for me, a 'zen' state of mind or 'the flow', is both a calm and intense focus and complete absorption in the present moment.

During both hand-drafted and digitized creative practices, I am aware of and yet not concerned with time – therefore experiencing an automatic feel to the work and process. Learning to use a new tool requires patience, concentration, memory and repetition, before establishing an automatic 'zen' like feel in the creative process. When competent and practised in the digitization process, the design functions and operations mimic the hand-drafted art making process which require little to no thought of action – except that it is performed in a digital format with different tools.

My art practice was not necessarily learnt in the same respect as it was with the Amaya 2 Embroidery Machine and CAD Software; as I have always had the natural ability to draw and paint - although, I have had to learn how to use art tools and materials over the years. The automatic 'zen' like state was predominantly connected to this familiar art making practice; however, with more practice and experience of digital textile production – I am increasingly developing the equivalent of a 'zen' like disposition with CAD digitization. In my opinion, the level of immersion can be the same, while the tools and processes are not. The term 'zen like state' when creating or working, can be similarly compared to the experience of changing gears when driving a vehicle – whereby an accomplished experienced driver can automatically shift' gears, with little conscious thought or deliberate effort.

Reaching this zone through my creative practices, has raised the question of whether my ancestors would have experienced a similar 'zen' like state, when working with their familiar and repetitive textile production methods in the twentieth century? My ancestors working conditions in the textile mills will have differed substantially to that of my own when working on the Amaya 2 Digital Embroidery, particularly regarding the quantity, variety and scale of the machinery and the noise levels etc. However, when focused and competent in their textile production method – might my ancestors have entered an immersive, automatic flow of work? Based on prior visits to historical textile mill buildings and textile museums such as Saltaire Bradford, Crowther Mills Huddersfield (converted to living accommodation) and textile museums like Colne Valley Museum and The Tolson Museum, serve to enrich my awareness and understanding of my ancestral working environments and which subsequently, allow me to question of our shared sensory experiences pertaining to being in 'the flow', when concentrating on textile production.

In working with an industrial textile machine, my involvement in the industrial textile production process helps me to gain better understanding of my family textile heritage through immersing myself in learning with tools that are used in industry today – namely the Amaya 2 digital embroidery machine and CAD software. By being so immersed in textile design and production, I feel connected to my ancestral textile heritage in a sensory and experiential way.

Conclusion

Conclusion of methodology chapter 1, has addressed my autoethnographic reflective research practices through varying technologies, systems of documentation, design digitization and sampling processes as performed via the Amaya 2 digital embroidery machine and Design Shop Pro CAD software programs. The physical workspace, including relevant tools and materials, have significantly contributed to my immersion in the industrial process, which provided me with sensory experiential values and a broader understanding of my ancestral industrial textile heritage. Furthermore, my familiar art practice has been challenged and transformed by employing digital industrial textile methods to produce art, as discussed in chapter 2.

CHAPTER 2. REVIEW OF CREATIVE PRACTICE

Introduction

Throughout chapter 2, I will discuss my portrait practice, produced via digital embroidery processes and I will convey how textile methods, materials and tools have transformed and reinvented my familiar art making practice. Chapter 2 explores embroidery as an art medium, the different qualities and values of textile artwork, my ancestral industrial textile heritage and relevant comparative textile artists. My creative practice review; is a critical evaluation and analysis of myself; the portraitist, who is working in an unfamiliar arena in order to discover my lost ancestral textile knowledge, whilst contextualising and positioning myself practice wise.

2.1   PORTRAITURE

From my perspective as a professional portrait artist; portraiture is a representation of identity, a visual narrative, a chronicle, a portrayal – which depicts and captures a mood, an essence, a time and place. Richard Brilliant, who theoretically writes about 'Portraiture', quotes that 'simply put, portraits are art works, intentionally made of living or once living people by artists, in a variety of media, and for an audience.' Brilliant (2004, p.9). Brilliant goes on to say that 'Most portraits exhibit a formal stillness, a heightened degree of self-composure that responds to the formality of the portrait-making situation. Either the sitter composes himself, or the portraitist does it to indicate the solemnity of the occasion and the timelessness of the portrait image as a general, often generous statement, summing up 'a life'. Brilliant (2004, p.10).

Regarding the previous quotes by Brilliant, I can agree with certain elements pertaining to 'summing up 'a life'' and the sense of 'occasion', however, I disagree slightly with Brilliant's claim that portraiture is made for an audience, as not all portraiture is produced with this intent. My embroidered portraiture was not produced for the purpose of audience viewing, even though my portrait artworks were exhibited publicly. Furthermore, I feel that self-portraiture conveys a different message compared with the portrait of another. Agreed, a commissioned portrait of another is purposefully produced for an audience, to be viewed and critiqued, however, the motives and reasoning behind producing self-portraiture is usually opposite to the aforementioned and tends to be a more private personal enquiry. For my part, self-portraiture is an introspective discovery of identity which focuses on the continuity of ancestral lineage, as I believe that to know one's self, one must know where they originate from. Therefore, choosing the theme of self-portraiture is an ideal method to investigate personal heritage via autoethnographic research modalities and the following quote confirms my previously mentioned notions:-

> Portraits reflect social realities. Their imagery combines the conventions of behaviour and appearance appropriate to the members of a society at a particular time, as defined by categories of age, gender, race, physical beauty, occupation, social and civic status, and class. Brilliant (2004, p.12)

By autoethnographically researching myself and my ancestral textile heritage through the mode of Portraiture, I have not only enriched and informed my creative practice in various profound and meaningful ways – but I have also established lost connections to my ancestral past through my choice of textile portrait production, namely industrial digital embroidery. My research modality of self-

portraiture is not just an investigation of my personal identity and my cultural historical background – it is a juxtaposition of the familiar meeting the unfamiliar; the past meeting the present. My personal narrative as a fine artist (the familiar), is to discover how textiles, processes and materials as metaphors (the unfamiliar) can inform, contrast and enhance my portrait practice in a way that drawing and painting alone cannot do.

In choosing to work with 'selfies' (my self-portrait photograph and hand drawn self-portrait) produced via industrial digital embroidery, I have intentionally created a continuation of my textile heritage by producing an autobiographical account of myself onto cloth. Metaphorically speaking, I have literally embedded myself into the fabric of my ancestral lineage. Furthermore, I have purposefully attempted to bridge the gap between my ancestral textile heritage and my contemporary portrait practice.

Portraiture within a family context, can serve a similar purpose to that of a genealogical family tree; a visual chronical of ancestry (e.g. Portraits of British Kings and Queens). Correspondingly, textile crafts that are passed down through ancestral generations via knitting, sewing and quilting methods – are a means of continuation of tradition and the family narrative. Therefore, both modalities of portraiture and textile craft are relevant sources when referencing ancestral lineage. By bringing portraiture and textile heritage together, I hope to pass on my acquired knowledge and understanding to future generations. Another example of visual ancestral heritage is a Coat of Arms or a Family Crest – although this format describes heraldry; the origins of the family, rather than an individual portrayal. Example image shown below (see figure 19) of my Crowther family crest produced via digital embroidery. On further investigate of my Crowther surname, I have learned that the Crowther Textile Mills in Milnsbridge, Huddersfield, were manufacturers of worsted thread and cloth, the same textile field that both my Grandparents worked in.
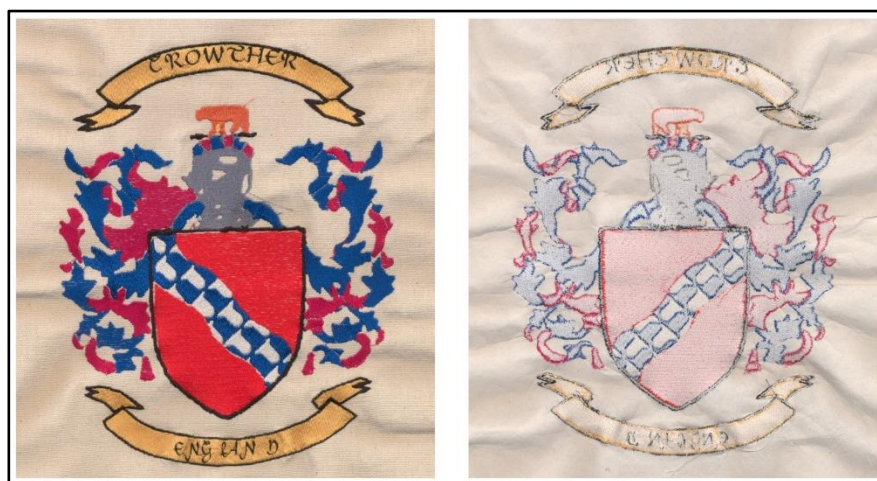
Figure 19 Crowther Crest [Digital Embroidery]

Portraiture; produced through the medium of embroidery onto cloth; employs various symbolic references and different qualities to that of hand-drafted painted and drawn portraits. Traditional portraiture tends to be aesthetic, emotive, descriptive, untouchable and is usually mounted, framed and displayed on a wall – often with the adage of 'Please do not touch'. However, three-dimensional painting techniques such as Impasto (thickly applied textured paint) can encourage tactility; the responsive wish to touch the textured surface – although this is often just a notion and is not usually encouraged or allowed. Textile portraiture on the other hand, is seemingly opposite to the guidelines of traditional

portraiture by being openly tactile, empirical, sensory and approachable. Depending on how textile portraiture is exhibited and displayed, there can be opportunities for audience interaction, whereby allowing the audience to touch, inspect and engage with the materials and processes and of course; to physically and personally connect to the portrait image itself.

2.1.1 Portraiture: Perfect finish (photo realism) versus Imperfect finish (errors/mistakes).

Portraiture; an integral component of my research; is reinvented and rethought through the medium of digital textile production. By solely working with digital textile processes and tools, I have been able to challenge and transform my familiar fine art portrait practice – resulting in a wide variety of unexpected outputs. My experience of fine art portraiture using familiar materials and processes, can in most cases, guarantee a certain level of expected outputs and timescales.

- Familiar Portrait Materials, Tools and Processes = Sketchbook (Sketches and Notes), Graphite Pencil, Charcoal, Chalk, Paint, Brushes, Palette Knives, Colour Pastels, Paper, Canvas, Easel, Desk, Drawing Board, Masking Tape, Clips, Subject Photographs, Lighting, Chair, Work Station, Mobile Phone (to capture step by step progress via JPEG/MP4 and to check the time) and a Radio for ambient background noise.

  Example 1/   Colour Pastel Pet Portrait on A4 Paper, using photographs as a reference, usually takes between 1-2 days to complete production.

  Example 2/   Colour Pastel Pet Portrait on A3 Paper, using photographs as a reference, usually takes between 2-3 days to complete production.

Therefore, working in a familiar way with familiar tools in a familiar setting – can ensure certain levels of consistency, expected timescales and output yields. With this knowledge, I can formulate a pricing structure and timescale for commissioned portraits and sales.

The commercial aspect of my portrait practice seems rather more concerned with perfection and accuracy of characteristics, akin to photo realism. However, I aim to achieve a noticeably artistic finish to my portraits through visible brush or sketch marks - otherwise, why not just take a photograph of the subject - if it is expected to be 'photo perfect'.

In a bid to move away from perfection, I have fully embraced the unknown; unfamiliar arena of digital textile production. In opposition to the aforementioned familiar traits of photo-realism portraiture, the Amaya 2 industrial digital embroidery machine represents all things 'unfamiliar', particularly when producing portraiture through this medium.

- Unfamiliar Textile Processes & Tools = Amaya 2 digital embroidery machine, Design Shop Pro/Amaya 2 OS CAD Software, Mouse, Keyboard, Computer Monitor Screen (Screen Capture JPEGS), Bobbin Threads, Needles, Hoops, Fabrics, Scissors, Tweezers, Screwdrivers, Desk, Chair, Work Station, Mobile Phone (to capture step by step progress via JPEG/MP4 and to check the time) and perhaps ambient background music in the studio.

By using the Amaya 2 and CAD software in a purposeful and meaningful way, the familiar has been cast into the unknown and the perfect has become imperfect, especially where the anomalies and stitch design errors occur. As a result of digital embroidery processes; portraiture produced in this way; no longer exists solely in a virtual aesthetic - it becomes concerned with fabrics, threads, tools, processes, machinery and the digital arena. I find that employing metaphors, symbolism and historical textile references pertaining to my ancestry are easily embedded into textile portraiture/artwork, thus enriching and deepening the narrative. Examples of hand-drafted pet portraiture production at various stages (see figure 20) is compared with the digital embroidery self-portraiture at various stages (see figure 21), showing the obvious similarities involved in the portrait making process - albeit the needlework is performed by machine and the drawing/painting is performed by hand.
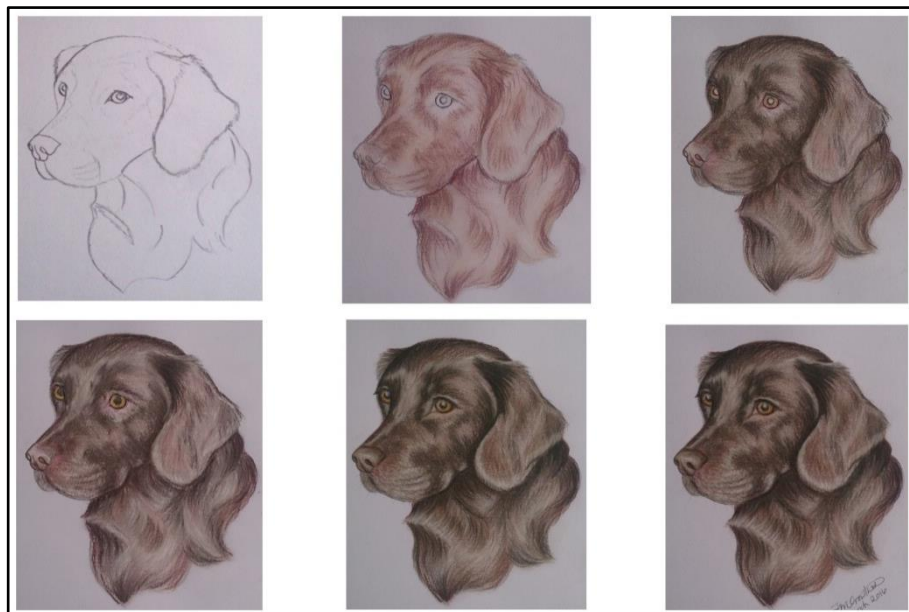
Figure 20 6 Drawing Stages of a Pet Portrait. [JPEG Images]

Figure 21 5 Embroidery Stages of my Self-Portrait. [Scanned JPEGS]

2.2   WHY CHOOSE EMBROIDERY AS AN ART MEDIUM TO CREATE PORTRAITURE?

By exchanging my familiar art materials and processes with embroidery materials and processes, my aim is to convey how the fabrics, threads and machinery used; can directly reference my ancestral textile heritage and the local historical industrial elements within my contemporary portrait practice. I first discovered the Amaya 2 digital embroidery machine, in the early stages of my MA by Research journey. My initial enquiries were based upon my study proposal, whereby I sought to explore symbolism, narratives and methodologies within Textile Art and Fine Art; particularly Portraiture via textiles, processes and materials as metaphors.

Embroidery; whether it be hand or machine produced embroidery; was not an obvious first choice for me as my textile heritage is more closely associated with industrial worsted weaving, hand bobbin lace making and millenary. However, my attention was drawn to the industrial textile element pertaining to the Amaya 2 digital embroidery machine, which became the most relevant industrial quality machine to begin my practice-led research with. The appearance of the machine; which is reminiscent of textile mill machinery (particularly multiple bobbins of thread); also contributed to my decision to produce textile art through this mode. When becoming more aware of the software and machine capabilities, the Amaya 2 digital embroidery machine soon became my preferred artistic tool of choice. The overall experience of working closely with an industrial textile machine; regardless of textile production type; allowed me to associate and connect with my ancestral textile heritage in an experiential and sensory way.

2.2.1   Different Qualities & Values of Embroidered Artwork

Choosing to produce portraiture through industrial digital embroidery methods and processes, imbues many varied qualities and values during the production of/and within the artwork itself. The said qualities and values are not purely monetary values; they can be a means of honouring the past by replicating the methods, materials and tools previously and historically used. Inherent qualities and values can be found in the concept; the design; the considered making process and application; the physical and tactile nature of the materials.

Aesthetic values and functional values seem to appear at opposite ends of the value spectrum and can either encourage or discourage tactility and engagement. That is not to say that aesthetic value is more important than functional value or vice versa, the intention here is to show that opposing values can share similarities in quality and values – whereby both are enjoyed, appreciated, respected and admired and the differences tend to lean toward purpose and concept.

An example textile artist, who explores the values of painting and drawing through the medium of hand-stitched embroidery, is Audrey Walker, an eminent portrait and figurative embroiderer (see figure 22). Audrey Walker brings together both aesthetic and craft values through her use of stitched layers that build up areas of tone, shade and light, in a similar way to the construction of a painting. The embroidered figurative representations by Audrey Walker, offer a glimpse into the life and times of the subject, evoking an emotional response and whose embroidered portraits convey a narrative value, a conceptual value through the choice of drawing and painting with thread.
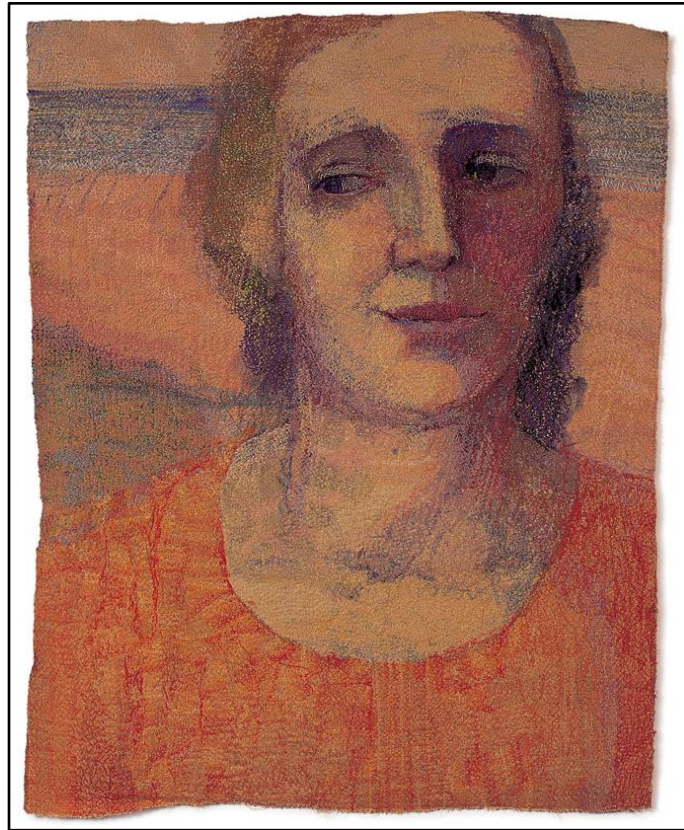
Figure 22 Audrey Walker, The Beach Woman, [Embroidered Portrait] 1996

As previously mentioned, quality and value can be identified through the production process and notably so when comparing hand-stitched embroidery with machine embroidery. The kudos of hand-crafted; skilled produce is of course justifiable, particularly when substantial skilled hours have been spent hand stitching and manufacturing and as hand stitched embroidery is an ancient craft, the historical and monetary value is often unquantifiable, as epitomized by artefacts such as The Bayeux Tapestry (see figure 23).

Figure 23 The Bayeux Tapestry [Embroidered Tapestry] c.1070

This important, hand-stitched embroidered tapestry, measures 70 metres in length and chronicles the invasion of William the Conqueror and the Battle of Hastings in 1066, via stitched woollen threads onto linen fabric. The materials used may not be particularly expensive as opposed to silk threads and goldwork, however, the value is based on the context, the historical importance and the age and rarity of the artefact itself. Distinct similarities exist between my own digital embroidered final project (see figure 24 below) and the hand embroidered Bayeux tapestry, whereby both artworks convey a visual narrative by chronologically illustrating a series of events onto a long piece of cloth.   Bar these

similarities, the values of the Bayeux tapestry are incomparable with the values of my own embroidered self-portrayal, as an artefact value compared with a conceptual value is inexplicable.
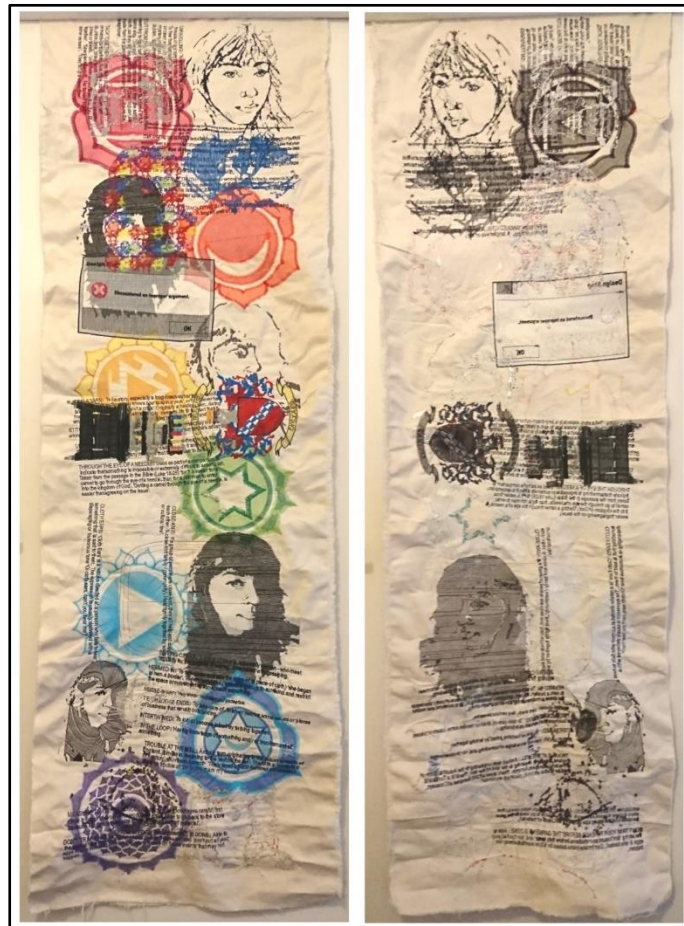
Figure 24 Final Embroidery Project [Digital Embroidery]

From my perspective; the value and quality does not reduce or lessen when using an industrial quality machine and CAD software to manufacture and produce textile artwork, as compared with handmade – even though a digital machine can dramatically reduce the production time from hours to minutes. For me, the qualities and values lie within the concept and the whole production process itself (including the textile materials and products used) and in particular; the valuable industrial ancestral links that this production method presents me with. Engaging with fabrics, threads, software and machinery is another qualitative value form, which has contributed to and generated a series of raw data collection methods. Of course, monetary values are an intrinsic part of any artform and making process, however this value alone does not necessarily convey quality, historical references or deeper contextual meaning.

2.3 ANCESTRAL INDUSTRIAL TEXTILE HERITAGE

During this section, I will explain the reasoning and purpose for referencing my ancestral industrial textile heritage. As I am born and bred in Huddersfield, a renowned historic and industrial textile mill town, I was compelled to pursue my practice-led research and exploratory textile portraiture processes due to the influences of my own ancestral textile heritage. My main influences correlate to three known

ancestral textile sources, namely worsted weaving and manufacture, hand bobbin lace making and millinery. My maternal great Grandmother was a hand bobbin lace maker, my maternal great Aunt was a Milliner based in Huddersfield and both my maternal Grandparents worked in the worsted textile mills in Huddersfield. My MA research studies are mostly concerned with industrial textile production which corresponds with my own reflective practice-led enquiries, produced via the industrial Amaya 2 digital embroidery machine. Importantly, my research project is based upon specific modes of industrial textile production as experienced by my ancestors. My acquired understanding of textile manufacture is gained through my physical engagement with similar textile tools, industrial machinery and processes and is not to be confused with hobby-crafts that are passed down through generations.

Both of my maternal Grandparents; Mary Hartley (nee Clements) and Edward Hartley met one another and married around 1940, whilst working at Joseph Lumb and Sons Ltd (see figure 25 below) a historical local textile manufacturer of worsted, based at Folly Hall in Huddersfield. Unfortunately, my first-hand knowledge of their work history is rather limited as both of my Grandparents are deceased around 40 years ago and their stories and personal accounts of working in the textile industry have passed away with them. However, the few details that I do possess regarding their work history and methods used, are valuable enough to base my practice-led research on and to make connective; relevant associations where applicable.

Figure 25 Joseph Lumb & Sons Ltd, Folly Hall Huddersfield [Online Photograph] (n.d.)

My enquiries of historical textile industry practices play a significant influential role in my contemporary creative textile practice. Using an industrial quality digital embroidery machine, not only contributes to and expands upon my known ancestral textile involvement, it helps me to update and evaluate my knowledge of textile manufacture, practices and processes. I am in a constant state of learning when engaging with industrial textile tools and processes. Without such use of textile industry references and experiences, I would lose important connective qualities that link my ancestral past to my creative practice in the present tense. In effect, I am bridging the gap of lost knowledge by researching my

ancestral textile industry, whilst making relevant associations with contemporary industrial digital embroidery processes. To emphasise relevant connections and similarities between my contemporary textile practice and my ancestral textile heritage, I have gathered a selection of archival materials and references to view throughout my thesis, and which are also available to view online at my website http://julietcrowther.com/textile-mills.

Shown below (see figure 26) and to the left, is an archival image of the Spinning Dept. at Joseph Lumb & Sons Ltd circa 1920, which is a primary example of my Grandparents working environment. Both of my Grandparents will have worked in this actual spinning department, producing worsted yarn for fabric production. Upon closer inspection of this archival image, I can fully appreciate the sheer vastness of the mill floor/spinning department and the volume of the large-scale spinning machinery. Via this image, my understanding is deepened regarding the roles of the mill operatives, the foreman and the engineer. Whereby, I can envisage what my Grandparents would most likely have encountered at work on a daily basis. Situated to the right of the archival image for comparison purposes, is a contemporary photo of the Amaya 2 digital embroidery machine which exemplifies my working conditions and role as an operative (see figure 26).
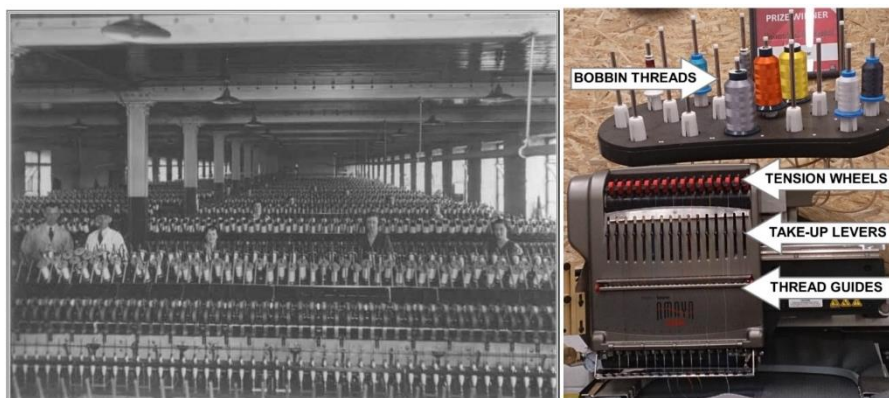
Figure 26 Left Image: Spinning Dept, Joseph Lumb & Sons Ltd [Online Photograph] 1920. Right Image: Amaya Digital Embroidery Machine [Photograph] 2018

This archival image shown above, helps me to make connective similarities between the industrial Amaya 2 digital embroidery machine used in my textile portrait practice. By association; the worsted spinning bobbins shown in the archival photo are representative of the bobbins of embroidery thread housed on the Amaya 2 digital embroidery machine. The worsted spinning tension wheels shown in the photo; which control the tension and feed of the thread; share the same function and purpose as that of the Amaya 2 digital embroidery machine and of course there are shared similar sensory experiences equating to noise levels and manual interaction pertaining to setting up the textile machines, ready for production. One notable difference between my textile engagement process compared with industrial mill textile processes, is that I am a one-person operative who performs some of the necessary duties including some aspects of maintenance and some elements of repair e.g. needle replacement, re-threading and cleaning. Historically, the textile mill workers performed their own individual duties specific to their job description and work department. For example, the foreman and engineers would work closely with the mill operatives, who would perform set work tasks, but who were not responsible for maintenance, repair and cleaning (each aspect had its own allocated worker/department).

However, the operatives would alert the necessary persons/departments to any problems and malfunctions occurring, therefore constant awareness and observation was/is critical (another shared experience with my own textile production and process).

2.3.1   Engaging with Industrial Heritage

Through engaging with industrial heritage via the use of the Amaya 2 digital embroidery machine and various relevant techniques, another aspect for consideration is that perhaps my lack of ancestral textile knowledge has in some way allowed me to discover and perform reflective practice-led research in a non-judgemental, more open-minded way. I am aware of and yet not overly concerned with every detail regarding the way in which my Grandparents would have worked within the textile industry, which has allowed for wider exploration and spontaneity. If I had attempted to replicate my ancestral textile production methods, the output of my textile portraiture artwork would have been dramatically different. Furthermore, my textile output would have been woven fabric and not digital embroidery. Therefore, perhaps my inexperience and naivety of my ancestral textile production methods and processes; serve me better with my own textile art practice, whereby I am acknowledging, associating and comparing my methodologies and processes to that of my ancestors. This 'nod' to my textile past is brought forward into my current textile portrait practice as an influential reference, rather than a replication.

2.3.2   Textile Language (Idioms)

Recalling my Grandparents use of textile language (idioms), also spoken locally and regionally by mill town residents and employees alike, has in effect, both informed and guided me to incorporate this language into my textile art practice. As I originate from Huddersfield (a historic textile mill town) and have grown up surrounded by textile mills, mill employees and the descendants of textile industry, I have first-hand knowledge of the textile language spoken and woven into everyday conversation. Of course, textile language idioms and expressions are not confined to my home town or the West Yorkshire region – this language reaches far and wide and is a large part of the English spoken language.

For instance, my Grandparents would often speak expressions such as '*ow cloth ears*' when I was not paying attention or responding, '*we're cut from t' same cloth'* meaning we are alike and/or we are related and '*thas spinnin a yarn'* meaning you're telling tales or lies. (Appendix 3 – Glossary of Terms).

My empirical knowledge and memories have aided me in the compilation of a wide selection of commonly used textile language idioms; namely a Glossary of Terms on page 83, whereby I have subsequently utilised and embedded each saying/expression within my digitally embroidered artwork. Therefore, purposefully weaving each meaningful word into the fabric by needle and thread; represents my connection to and the continuation of my ancestral lineage, through industrial textile processes. By digitally embroidering known textile language idioms, I am intentionally, literally and physically producing 'textile language', which is a wordplay; a pastiche and a form of homage. Idioms, sayings and expressions are by and large, wordplay formats - therefore it has been a natural process to develop and expand these terms into metaphorical, symbolic, conceptual artworks. The social cultural aspect of

textile language idioms; all of which are recalled from my memory; are embedded into my artwork to enrich and deepen my ancestral textile connections and when the said text is combined with the image of my self-portrait, the connection and meanings intensify further.

Example photo shown below (see figure 27) of digitally embroidered 'Textile Idioms' onto canvas.
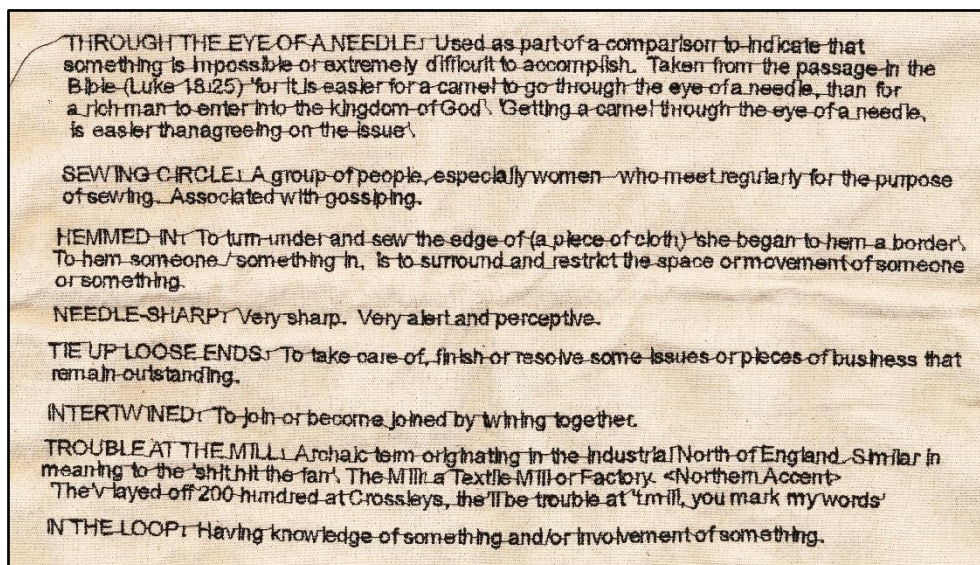
Figure 27 Embroidered Textile Idioms [Digital Embroidery] 2017

The definition for the idiom 'Embroider the Truth' is as follows:-

> **Embroider the truth** to adorn or embellish rhetorically, especially with ornate language or fictitious details: He embroidered the account of the shipwreck to hold his listeners' interest. To add embellishments; exaggerate (often followed by on or upon). (Appendix 3 – Glossary of Terms, p.84)

The scanned image (see figure 28) titled 'Embroider the Truth', provides a visible rhetoric and tangible quality to the idiom through embroidery and process. This considered act of digitally embroidering textile language onto canvas, conveys a rich abstract quality and narrative which epitomizes far more than just a spoken expression. Subsequently, the idiom has been further reduced to just one word 'Truth', which has been digitally embroidered and serves to convey the whole expression in its entirety (whereby I have literally embroidered the truth) and thus acts as an embodiment of the whole definition and term 'Embroider the Truth' (see figure 28).

Figure 28 Embroidering the Truth [Digital Embroidery] 2017

Similarly, another example of transforming an idiom into a tangible format through wordplay and considering materials as metaphors, is shown below (see figure 29) titled 'Embroidering the Facts'. As stated in the previous idiom 'Embroidering the Truth', similar processes and metaphorical qualities apply to this embroidered expression, allowing for materials and processes to enact the wordplay reference when defining the idiom.
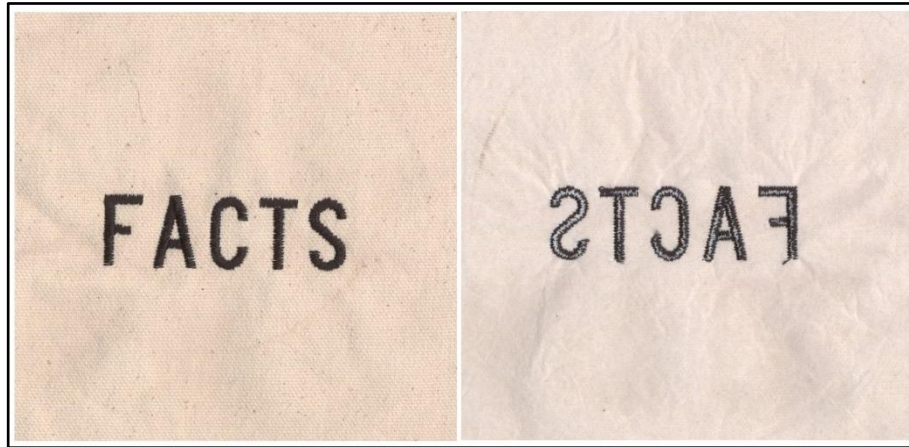
Figure 29 Embroidering the Facts [Digital Embroidery] 2017

2.3.3   Shared Experiences of Making

Employing materials to perform and act as metaphors; in my personal experience; tends to be a preconceived aware choice, usually as part of the initial idea and design process. Therefore, a significant reason for selecting certain relevant materials, tools and processes; which enact or symbolically reference an important aspect or theme during the design and making process, is fundamental to the overall concept. Regarding my own conceptual textile artwork, I have purposefully selected various attributes which convey certain qualities pertaining to my design ideas and personal historical links. For instance, the use of an industrial quality textile machine – the Amaya 2 digital embroidery machine and CAD OS Software, thus performs and produces my textile artwork and is a direct reference to my ancestral textile heritage and the local textile industry that they worked in during the 20th century, namely Joseph Lumb & Sons Ltd (shown to the left in figure 30). The overall appearance of the Amaya 2 digital embroidery machine (shown to the right in figure 30); with features such as multiple bobbins, are in principle; reminiscent of the larger scale textile mill bobbin machines used in drawing, winding and weaving production. Example photo shown below (see figure 30).

Figure 30 Left Image: Drawing Dept., Joseph Lumb & Sons Ltd [Online Photograph] 1920. Right Image: Amaya Digital Embroidery Machine [JPEG Photograph] 2017

Although the Amaya 2 digital embroidery machine is a much smaller scale equivalent to that of a historical textile mill machine, it is first and foremost an industrial quality machine, which is often collectively used in garment manufacture and embroidery production; usually with a person/operative present to oversee the process – similarly to that of their larger mill counterparts. My role as the Amaya 2 digital embroidery machine operative, is a contemporary representation; a sort of re-enactment; of my ancestors and their roles as textile mill operatives. My justification for using the Amaya 2 digital embroidery machine is not based on appearance, purpose and function alone. Through sights, sounds and experiential qualities of working with an industrial textile machine, the whole production process is enriched with symbolism. Furthermore, I have established a sensory understanding and connection to textile manufacture and processes, comparably experienced by my ancestors in their historical industrial working environment.

More obvious materials and processes being used as metaphors in my textile artwork production, are embroidery threads to reference painting and drawing mark making and cotton canvas to dually represent my ancestral background of woven fabric and my familiar fine art practice of painting on canvas. Many conceptual; contemporary textile artists use the term 'Painting with Thread or Thread Painting' to describe their art making process, probably with varying reasons for selecting this method and materials.

As previously and briefly mentioned above in paragraph 2, when considering my working environment and the sensory and experiential qualities involved/associated to the physical mechanical making process; my understanding and awareness of my ancestral textile heritage is enhanced through acquired sights, sounds, movements and feelings. Engaging with industrial digital machinery in the production of textile artwork and the various physical sensory experiences encountered, I can acknowledge and associate a 'shared' sensory experiential quality with my ancestors. Through our shared experiences as textile manufacturing operatives; we share a similar sense of responsibility, involvement and focus – thereby reinforcing and strengthening the connection between my ancestral past and my current textile art practice.

In many regards, the textile mill environment is dramatically different compared to a one-person workstation of the Amaya 2 digital embroidery machine. Notably, the differences are mostly associated with the size of the machinery, the environment and the noise levels. E.g. A textile mill department with many operatives versus one Amaya 2 digital embroidery machine and one operative, the machine volumes and capacities and the noise levels are much louder.   My Grandparents would have experienced a far louder and dirtier work environment in the 20th century and without modern Health and Safety regulations which are in place today. In response to my ancestral working conditions; I chose to work without ear defender buds so that I could not only clearly hear the embroidery machine production, but also to listen out for malfunctions and software errors. The machine embroidery process of one Amaya 2 digital embroidery machine, can be an extremely loud encounter and the noise levels would only amplify if more than one machine is being used. Therefore, this shared comparable sensory experience helps me to appreciate and understand how incredibly noisy and harsh the textile mill working conditions would have been for my Grandparents.

In support of the aforementioned, and to gain deeper understanding of the noise conditions when mechanically/digitally embroidering, I have recorded a series of audio visual MP4 movie clips. The collection of MP4 movie clips are available to view via my WordPress website at https://julietcrowther.com/mp4-movies, whereby you can experience the sights and sounds of the Amaya 2 digital embroidery machine during production, thus acknowledging my ancestral textile heritage and our shared sensory experiences.

2.3.4 Industrial Processes; Engaging with Virtual and Physical Methods of Production

This subsection briefly outlines the differences that I have personally encountered between virtual portraiture production and physical textile portraiture production.

My familiar portrait practice is predominantly two-dimensional when conducted using my familiar art materials, such as canvas, paper, paint and pencil; the exception being impasto style painting (thickly applied paint technique). Comparatively, when producing portraiture via digital embroidery processes and techniques (virtual), a physical output is guaranteed due to the nature and physicality of the embroidery materials being used. However, three-dimensional textile processes do exist within the digital design stages; usually via the Design Shop Pro/Amaya 2 CAD OS Software process; as evidenced in my collection of screen capture images, available to view online at WordPress https://julietcrowther.com/screen-capture-images, before being transformed into embroidered physical formats. Example virtual screen capture image shown below (see figure 31).

Figure 31 Design Shop Pro, Digitizing Self-Portraits for Embroidery. [Screen Capture JPEG]

As shown in the virtual screen capture image (see figure 31), a three-dimensional design function has been selected, providing a preview of the finished embroidery work including the direction of stitches etc. Furthermore, a paradoxical quality resides within this virtual screen capture image, whereby a replicated physical design function exists within a virtual screen capture format.

I have discovered through reflective practice, varying techniques and exhibiting my textile artworks; that physical textile artwork is more approachable, tactile and open to physical engagement and interaction, compared with virtual artwork, which is more aesthetical; usually for observation purposes. Typical

examples of portraiture exhibited purely for viewing purposes, can be found in The National Portrait Gallery, whereby you can look but you certainly cannot touch the artwork! The notion of untouchable virtual fine art portraiture; that is transformed into tactile physical textile self-portraiture; has challenged my expected notions of how portraiture can be experienced. Therefore, my decision to produce physical embroidered self-portraiture instead of virtual fine art self-portraiture, serves to push my own boundaries and challenge my expectations of portraiture.

Furthermore, I feel that physical textile self-portraiture versus virtual fine art self-portraiture can evoke varying tactile sensory experiences; and yet they share common ground through emotional engagement and responses. There is no right or wrong, better or worse when comparing virtual fine art self-portraiture with physical textile self-portraiture – each format possesses relevant; meaningful; symbolic qualities. However, as a portraitist working in both virtual and physical formats, I feel that I can successfully embed my ancestral textile heritage into my textile artwork via physical embroidery processes, more so than by virtual techniques and processes. The physical process also instils a metaphorical quality, whereby it imbues a deeper symbolic connection to my textile lineage pertaining to how the textile machine embroiders the fabric with my self-portrait, thus acting as a continuation of my heritage through machinery, thread and cloth.

2.4 SECONDARY RESEARCH

As my practice-led reflective research is first and foremost an Autoethnographic enquiry of portraiture combined with ancestral textile heritage; secondary research methods are employed to gain a broader understanding of my practice-led research project and the contextual positioning of my textile artwork. When researching comparative contemporary textile artists, who produce textile artwork based on life studies; such as portraiture; I have discovered several artists with whom I share commonalities through our choices of textile materials and processes. However, when researching artists who employ autoethnographic practice-led research; focusing on portraiture and their ancestral textile lineage – the lack of commonalities and shared interests become more apparent. This lack of common ground is by no means a negative disposition, it serves to accentuate my distinctiveness; whereby I use stitch to explore portraiture and ancestry; both visually and meaningfully; through the tool of the industrial Amaya 2 digital embroidery machine.

I can make connective associations with a variety of contemporary textile artists and specific elements of their practices, although it has proven difficult to reference a textile portraitist who fully works with the same processes and methodologies as myself. Therefore, I will compare, reference and explore shared commonalities, methods, materials, processes and notions between my own outcomes and various relevant contemporary textile artists, in a bid to position my creative practice through the mode of secondary research.

'Thread painting' and 'Drawing with Thread' are common terms used in contemporary textile art practices and are terms that I have capitalised upon in my own textile portrait practice, as specified throughout chapter 2. This textile artform genre is continuously growing in popularity, as evidenced on social media platforms such as Instagram and Pintrest and various relevant websites like tumblr, WordPress and TextileArtist.org, whereby hosting valuable sources of research information.

2.4.1 Comparative Textile Artists

My search to find comparative digital machine embroidery portrait practitioners has proven extremely challenging, therefore I have chosen to reference significant elements and processes of relevant textile artist and their practices, baring similarities with my own. The closest associations and most relevant connections made are with the following artists: - Andrea Cryer, a Textile Fine Artist & Portraitist who uses the term 'Drawing with Thread', Caroline Bartlett who investigates historical, social, cultural affiliations of textiles and their potential to evoke and prompt memories and Elaine Reichek who digitally embroiders conceptual, metaphorical content based on computer software programs and textile expressions.

2.4.2   Andrea Cryer

Andrea Cryer is a textile fine artist and portraitist, who uses the term 'Drawing with Thread', as declared on her website homepage. Andrea Cryer uses a combination of both hand stitching and machine stitching methods, to produce fine art thread paintings of portraiture and townscapes on canvas which are subsequently mounted on stretchers for wall hanging purposes. I have made several obvious connections between my own textile portraiture methodologies with elements of Andrea Cryer's textile artworks and processes, pertaining to our shared use of machine stitched portraiture on canvas and our shared notion of treating thread as a paint medium. An example of Andrea Cryer's stitched portraiture, titled 'Ellie' is shown below (See figure 32).

Figure 32 Andrea Cryer, Ellie (detail) [Embroidery Cotton on Canvas] 2011

This portrait is produced using black and grey threads on canvas via hand stitch and free motion embroidery is representative of ink and pencil, which is executed in the style of expressionist sketch drawing with purposeful loose threads acting as spontaneous marks. Comparatively, my digitally embroidered line drawn self-portrait is shown below (see figure 33), in contrast to Andrea Cryer's 'Ellie' portrait, whereby I have also used black and grey threads on canvas, produced via the Amaya 2 digital embroidery machine and software. There are visible differences between our portraits regarding application and finish, whereby Andrea Cryer's portrait is loose and freeform due to the noticeably long loose threads and my line drawn self-portrait appears controlled and neat in comparison. Although, I do feel that my self-portrait produced from a sketch, manages to translate the 'sketchiness' through the embroidered medium.

Figure 33 1st Embroidered Line Draw Self-Portrait [Digital Embroidery] 2017

Andrea Cryer comments on her textile artwork further, in an interview conducted by Daniel of TextileArtist.org titled 'Loose Threads', whereby Andrea Cryer responds to various questions relating to her textile background, her choices of textile materials and her preferred methods and processes used in creating stitch-based art, as shown in the collated excerpts below.

Although I like to experiment with different material and textures, my main concern is with mark making. I am most happy when stitching freely on my old Bernina sewing machine which I bought second-hand some years ago.

When drawing with thread, I tend to use black and a range of grey yarns on differing weights of fabric, such as cotton, canvas and linen. I love drawing, so that is the main focus of my work. It has developed over time into experimenting with scale and using different media. My work ranges from small intimate drawings with lots of tiny detail and texture, to large freely stitched loose images.

Most of my work, such as the portraits and townscapes are drawings which look like pen and ink from a distance, but which are shown to be something different on closer inspection.

> When starting a new portrait, I always begin by stitching the eyes. This is usually done with dense machine stitching. Once the eyes are in place, I can tackle the rest of the features, hair and shoulders using machine stitching. Hand stitching is done last. This could involve hundreds of tiny stitches to represent a beard or perhaps long crosshatched stitches to add shading to a cheek or forehead. Threads are left loose as part of the drawing to give an element of spontaneity and movement to the image. Cryer, A. (n.d.).

When Andrea Cryer is asked how she would describe her work and where does she think it fits within the sphere of contemporary art, her response is 'I'm not sure if it fits into any particular classification. It is a mix' Cryer, A. (n.d.).

Succinctly put, Andrea Cryer's response is one that I can resonate with, as I find it difficult to position and categorise my own textile portrait artwork. Furthermore, some of Andrea Cryer's comments correlate to my choice of textile materials, methods and processes involved in my textile portrait production. I too use thread to replicate drawing and painting mediums and when beginning portraiture, I also start with the eyes and build the image around them. We share a respectful appreciation of the embroidery machinery we use to create textile portraiture and yet we have differential reasons for using it. There are distinct differences relating to our use of machine embroidery, as Andrea Cryer uses a free motion embroidery foot on her sewing machine which allows for the fabric to be moved around by hand in any direction, whereas I do not physically engage with the machine or fabric with my hands during the embroidering process. The Amaya 2 digital embroidery machine replaces my hands; it is a tool that becomes an extension of me. Working with an industrial quality machine requires trust and an element of detachment, in the sense that I am trusting the machine with my design and allowing the machine to 'get on with it' and perform the task for me, often with unexpected; unanticipated results. Andrea Cryer describes her interaction with industrial textile machinery, in a similar way to my aforementioned notion, in the following quote:-

> My favourite machine at uni apart from the Irish Singer machine was the humungous, noisy industrial needle punch machine. This had a multitude of barbed needles which punched through layers of fabric pulling threads from the bottom layers up through to the top layer, basically destroying the fabrics in the process but also producing wonderful textural material. The idiosyncratic nature of the needle punch machine meant that you could never be guaranteed the result you hoped for but were often delighted with a happy accident! Cryer, A. (n.d.).

The commonalities between myself and Andrea Cryer are highlighted through our shared appreciation of industrial and domestic embroidery machines, materials and processes, the surprises and lack of guaranteed results and of course, fine art textile portraiture.

2.4.3   Caroline Bartlett

Caroline Bartlett produces artworks consisting of stitching, alterations, folding, erasing and imprinted porcelain. Caroline is a member of the 62 Group of Contemporary Applied Art and has exhibited her textile artwork in collaborative shows such as Cloth and Memory, Salts Mill, Saltaire, Bradford and the Whitworth Art Gallery, Manchester. When researching Caroline Bartlett's textile art practice, I can associate with themes and narratives within her work, more so than the textile artworks themselves. However, I find common ground with elements of Caroline Bartlett's work specific to the investigation of historical, social and cultural affiliations of textiles, which evoke memories and feelings connected to industrial heritage and as my own autoethnographic research textile practice hails back to my ancestral

industrial textile lineage, I can appreciate and understand Caroline's methods and themes of choice. During an interview with Daniel of TextileArtist.org, titled 'Embroidering the Truth' (see figure 34 below).
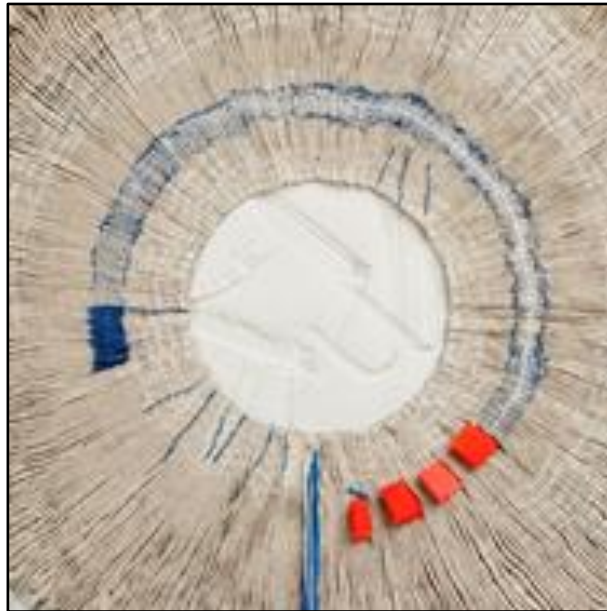

Figure 34 Caroline Bartlett, Embroidering the Truth, [Mixed Media Textiles] (n.d.).

Caroline responds to questions relating to her evolving practice, how stitch captured her imagination and the conceptual techniques used in her practice, are as follows:-

> As the years have gone on, I have become increasingly interested in what textiles can do through their varied and distinctive behavioural properties, and what they can say through their materiality, tactility, associations with the body and the domestic, and with a colonial and industrial past.

> Textiles have a history in which the embodiment of memory is culturally encoded and they can be a powerful trigger in stimulating individual or collective memories. I find it an incredibly rich area. Stitch, with its strong associations of mending and repair, opens up a language beyond simply process and technique.

> The application of stitch to my own work came largely as a result of the course at Goldsmiths, using stitch initially as a structuring device. It slowly escaped from this role into becoming a part of the surface in a series called Notations which drew on etymological links between text (derived from the Latin textus; from texere/textum -to weave) and textile and connections with textiles in language expressions; 'embroidering the truth', 'spinning a web' and so on.

> I am constantly looking to use techniques which nuance the particular idea I am working on so the techniques I use change accordingly. Although certain techniques may be carried through from one project to the next, this means that I am involved in a constant process of testing materials, and technique in relation to concept. Bartlett, C. (n.d.).

Key points raised in Caroline's comments, pertaining to the behaviour of textiles, the associations with industrial past, the embodiment of memory and cultural references are connectives that I resonate with and utilize in my own practice-led research. I particularly relate to Caroline's use of textile language e.g. 'Embroider the Truth' and 'Spinning a Web', evidenced in my subsection 2.3.2 Textile Language (Idioms), and her conceptual and metaphorical artwork, whereby thematic values are expressed through processes, techniques, materials, historical associations and site-specific venues. Caroline's sensory memory themed artwork is another significant association made with my textile practice, which is largely based on sensory experiential connections to memories of my ancestral industrial textile heritage.

2.4.4 Elaine Reichek

When researching comparative artists who employ digital embroidery methods and processes to produce symbolic conceptual textile artwork, Elaine Reichek's body of work stood out to me. Various similarities exist in both our contemporary textile art practices, notably how and why we use industrial digital embroidery and the metaphorical quality that this mode of production embeds in the textile outcomes. For now, portraiture takes a back seat, as I am more concerned with Elaine's reasoning and use of software programs and digital embroidery in comparison with my own. Elaine Reichek possesses an extensive body of conceptual textile artwork, although not all relevant to my research topic and therefore, I will mention significant relatable elements only.

Relevant and insightful writings by Paula Birnbaum, whose Art Journal paper titled Elaine Reichek: Pixels, Bytes and Stitches, invaluably describes and theorises the work of Elaine Reichek, as exemplified in the collated excerpts below. The paper highlights significant similarities between Elaine Reichek's conceptual textile artwork and my digital embroidered artwork, specifically our mutual use of digital software programs and textile language, conveyed and interpreted through digital machine embroidery. Paula Birnbaum writes:-

> Reichek uses the medium of embroidery to interrogate the complicated relationships among art history, representation, and technology. By juxtaposing hand-made cross-stitches with those produced by a computer-programmed sewing machine in samplers that simulate famous works of art. For those interested in cyber-based art practices, her long-time engagement as a classically trained painter-become-needlewoman with the history of technology and mechanical and digital production offers an interesting point of departure.

> Sampler (WorldWideWeb) (1998) (see figure 35 below), explores the relationship between digital technology and the seemingly traditional practice of "women's needlework." In this hand-stitched sampler on linen, the viewer is confronted with the familiar image of an early Macintosh computer screen with a random assortment of scrolling text on the theme of weaving and fibre arts ("Spin spin-off spin a yarn spin a web of deceit/net wove weave a spell, embroider the truth embroider a fantasy"). Reichek explains: The work is related to digital technology. Images are scanned through a computer, fed into a program; that program then spits out a chart in colour, which I then embroider either by hand or machine. Each piece thus refers to its process, certain pieces are painstakingly stitched by hand, others by renovated nineteenth-century electric sewing machines and still others with newly developed computer-programmable machines that transform Reichek's scanned and Photo shopped source material into beautiful, fiat surfaces that reference celebrated works of art. Birnbaum (2008).
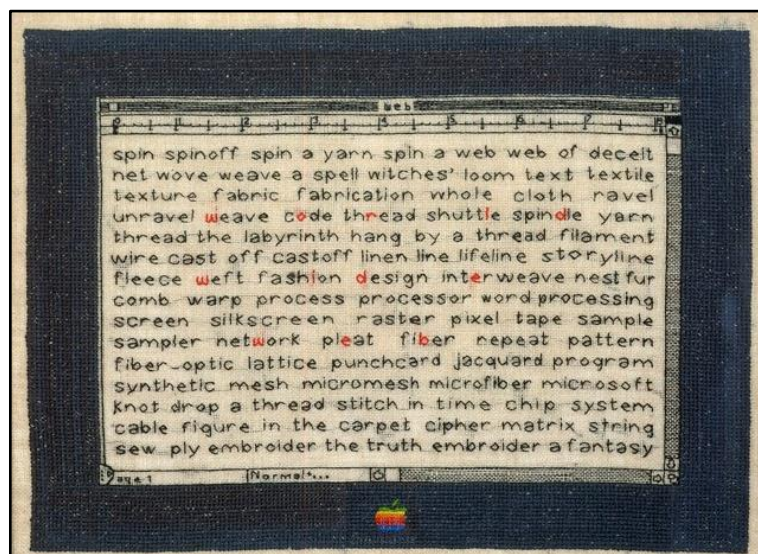
Figure 35 Elaine Reichek, Sampler (WorldWideWeb) [Embroidery] 1998

The hand-embroidered piece titled 'WorldWideWeb' (see figure 35), features textile language idioms such as 'Embroider the Truth' and 'Spin a Yarn', a recurring expression found in my textile art practice and that of 2.4.3 Caroline Bartlett's metaphorical textile artwork. However, the commonalities we share by use of textile language and expressions, are not necessarily representative of our individual motives for choosing them. Our reasons for incorporating textile language into our artwork are specific to the individual and for my part, I choose to incorporate textile language idioms to make connections to my ancestral past, evoking memories of my Grandparents, the way they spoke and to reference the local textile mill town that I originate from.

Reichek directly references computerised dialogue text as per an early Apple Macintosh computer screen as shown in the previous example image and although not produced by digital machinery or software in this instance, the piece interprets, references and conveys the relationship between human and machine. This comparable element is a significant factor found in my digital practice, pertaining to the symbiotic relationship between the machine, the human and how we interact and share information with one another. As with Elaine Reichek, the concept of 'translation' is a key theme within my processes and methods when working with the Amaya 2 digital embroidery machine and CAD software. My version of a screen captured, software generated, text dialogue box is shown below (see figure 36) titled 'Improper Argument' and produced via the Amaya 2 digital embroidery machine 2018. The error message dialogue box was the result of me asking the CAD software to perform an unorthodox request. Reichek utilizes software design programs and uploaded scanned imagery in much the same way as myself, whereby I screen capture a CAD image, reprocess it several times and then digitally embroider the finished design.
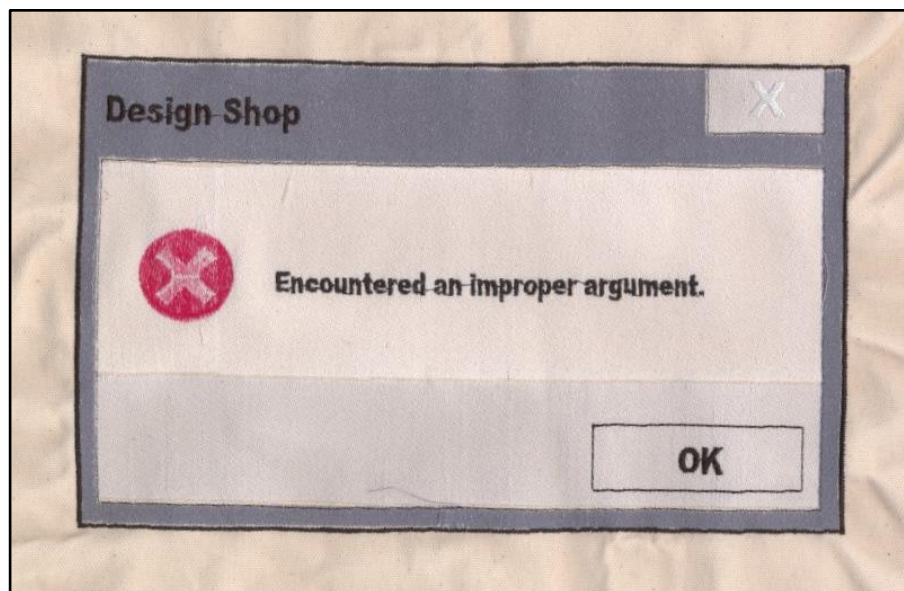
Figure 36 Improper Argument [Digital Embroidery] 2018

Conclusion

Throughout chapter 2, I have discussed and explained my creative practices, pertaining to digitally stitch-based self-portraiture. By creating self-portraiture via industrial digital embroidery methods, I have demonstrated how my familiar portrait making practice has been completely transformed by CAD software design methods, embroidery tools/materials and industrial textile machinery, whereby the Amaya 2 digital embroidery machine and CAD software programs have replaced my hands, my sketchbook and my familiar art materials.

Furthermore, I purposefully chose an industrial textile machine to produce my self-portrait, as a direct representation of my ancestral industrial textile heritage, and to gain sensory experiential understandings of their industrial textile processes during the 20th century. Due to the aforementioned primary research methods undertaken, I have reached an understanding of my contextual position as a conceptual textile portraitist, in comparison with other fibre-based conceptual, portrait textile artists such as Andrea Cryer, Caroline Bartlett and Elaine Reichek. I acknowledge that my textile portrait practice falls into the category of 'Thread Painting', however this description alone does not convey the concept or ideas behind my textile practice.

Autoethnographic research methods used throughout my creative practice, have contributed to answering my research question by means of physical engagement and reactions (not re-enactment) to industrial processes of manufacture, therefore, my aims and objectives have been continuously addressed and justified. Resulting from my creative practice primary and secondary research findings, theoretical understandings of my conceptual textile artwork are discussed throughout the next chapter.

CHAPTER 3. THEORETICAL UNDERSTANDING

Introduction

Throughout Chapter 3, explanations regarding the concepts of autoethnographic practice-led research, data analysis methods and human/machine symbiotic processes will be discussed and analysed against the scholarly writings of Steven Pace, who hypothesizes the concept of 'writing the self into research: using grounded theory analytic strategies in autoethnography', (2012). Dr Steven Pace is a Senior Lecturer of Digital Media and Head of Program for Multimedia Studies at the Central Queensland University. Pace completed a PhD in the field of human-computer interaction at the Australian National University in 2003 and won two national teaching awards in 2011 for Outstanding Contributions to Student Learning from the Australian Learning and Teaching Council.

Additionally, I will discuss the ideas of David Pye titled '*The Nature and Art of Workmanship'* and more specifically *'the workmanship of certainty and the workmanship of risk'* (2010, p.341), throughout subsections 3.2 and 3.3. David Pye OBE (1914 – 1993), was Professor of Furniture Design at The Royal College of Art (1964–1974). Pye's theoretical writings on design and handcraft, gained him recognition and the Sir Misha Black award, whereby, he was added to the College of Medallists. Pye was an accomplished craftsman, designer, woodworker, wood-turner, carver and writer. Pye's books include The Things We See: Ships 1950, The Nature of Design 1964, The Nature and Art of Workmanship 1968, The Nature and Aesthetics of Design 1978. Pye had taught several generations of furniture designers and remains one of the most respected British craftsmen, writers and theorists of the 20th century.

By theorising the symbiotic relationship between myself and technology via autoethnographic practice-led enquiries, I aim to justify my mode of research and to verify how my creative practice and methodologies used, can either argue for or against the theoretical art and craft models in place. Theory alone may not fully meet the criteria of my aims and objectives; however, it will explain and clarify my creative choices, actions and responses regarding my creative practice-led autoethnographic research, which will ultimately contribute to answering my research question and to fulfilling my aims and objectives.

3.1   ANALYTICAL ETHNOGRAPHY AND GROUNDED THEORY

In order to address and discuss the correct mode of theory, regarding my autoethnographic research enquiry and my creative practice methods, I must first understand what relevant style of theory is applicable. Autoethnography describes and contextualises my style of practice-led research pertaining to myself; the portraitist and my ancestral textile heritage, although there are limitations in addressing the theoretical values and arguments within my mode of research.

By compartmentalising my research methods into significant key areas, enables me to critically evaluate each aspect by means of key theories addressing the following areas:

- Autoethnography

- Reflective Research

- Creative Practice Methodologies

- Qualitative and Quantitative Data

Based on my key areas and my practice-led research mode, I can concur with the following quote, whereby Steven Pace summarises analytical autoethnography methods and characteristics, as written in his own journal article, pertaining to artist-researchers. Pace (2012) writes:

> Analytic autoethnography might employ analytic strategies from the grounded theory tradition while still preserving its essential characteristics. This methodological discussion might, therefore, benefit artist-researchers who identify themselves as autoethnographers, but who want to use analytic reflexivity to improve theoretical understandings of their creative practice. Pace (2012).

Analytical autoethnography using grounded theory methods, is a conclusive reflective practice-led research mode, which has been employed as the most relevant theory type in accordance with my process driven creative practice. To support my theoretical understanding of autoethnographic research, I have investigated the what's, why's and how's of my research question, through industrial digital embroidery processes, analytical theories based on sensory experiences, reflective practice-led research and gathered raw data. The following mind map flow chart that I designed and developed (see figure 37), illustrates my pivotal founding research question and connects with key areas of enquiry including theory, subsequently leading to various connective concepts, resulting in my aims, objectives and my research question being answered. Via this visual aid, I can gain an overview and better understand my reflexive research methods in use.
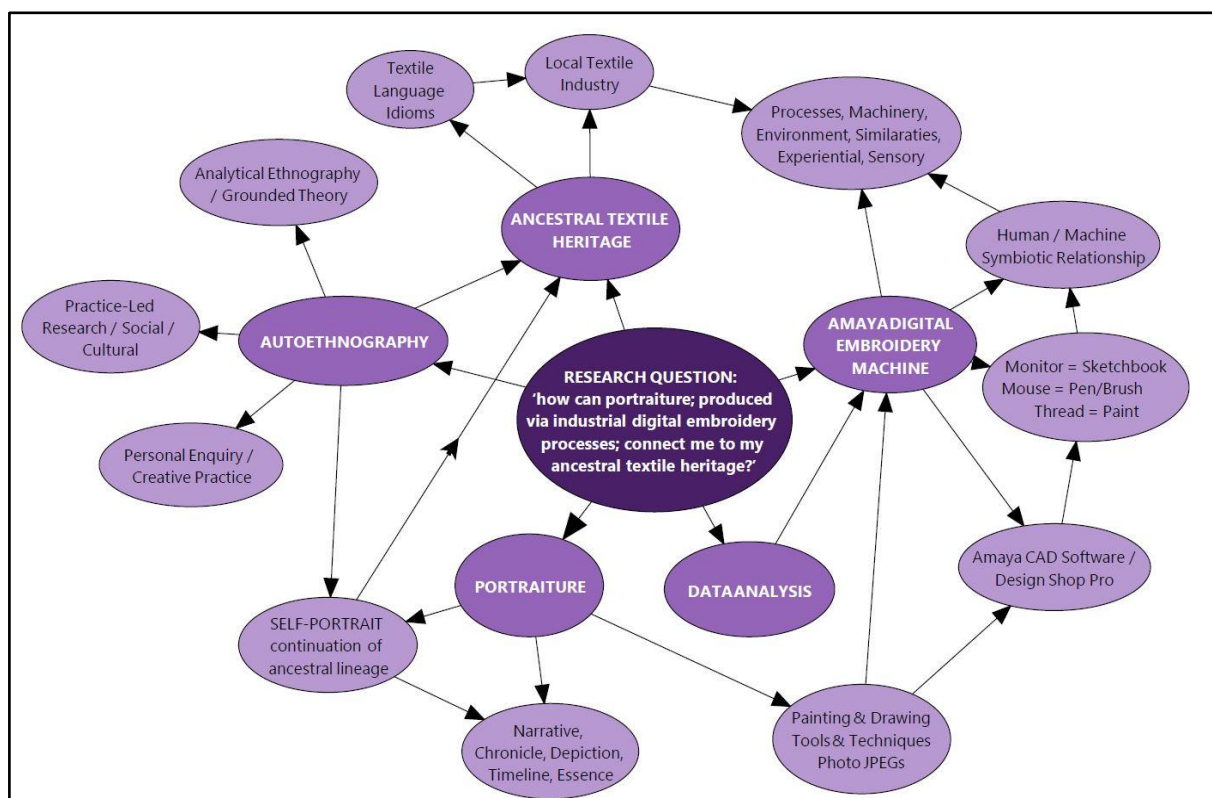

Figure 37 Research Mind Map Flow Chart. [Screen Capture JPEG]

With reference to my previously mentioned diagram (see figure 37), my chosen mode of theory is justifiable and relative to the following statement written by Steven Pace:

> The aim of this primarily inductive research method is to build theory rather than test it. Grounded concepts, relationships and theories are suggested, not proven. A grounded theory researcher does not commence a study with a preconceived theory that needs to be proven, as is common in deductive research methods. Instead, the researcher begins with a general field of study and allows the theory to emerge from the data. Pace, (2012).

Therefore, grounded theory concepts combined with analytical autoethnography underpin my creative practice and I concur with the following quote, that states how 'autoethnography and grounded theory aren't contradictory; they're different ways of making sense. (Ellis in Pace 2012, p.312).

3.1.1 Data Analysis

> Autoethnographers who wish to take an analytic approach to their work may benefit from examining the analytic strategies that are used in the grounded theory research method. Grounded theory is an investigative process for building a theory about a phenomenon by systematically gathering and analysing relevant data, Pace (2012, p.6).

As defined in the aforementioned quote, this data analysis section was conducted via grounded theory methodologies, pertaining to systematic collections of gathered raw data via written notation, screen capture images and JPEG/scanned images – all of which are available to view online at https://julietcrowther.com/data-analysis. Subsequently, the resulting data bar charts which have been formulated based on my raw data findings, serve to illustrate my autoethnographic reflective practice-led research processes, including unexpected outcomes and encountered anomalies specific to machine errors, throughout subsection 3.1.2. The purpose of gathering raw data, is not purely for monitoring progress and aiding my learning, it is intended to support my claim that industrial digitally produced embroidery does not equate to guaranteed successful outcomes as illustrated in subsection 3.1.3. Whereby, implying that humans and machines are equally susceptible to errors and anomalies, which will be discussed further in subsection 3.2. The writings of David Pye (2010, p.341) and his theory of 'free' workmanship of risk and the 'regulated' workmanship of certainty, will be discussed in relation to data findings and supporting visuals also.

3.1.2 Raw Data

> The final phase of grounded theory analysis involves sorting the theoretical memos into an outline and writing up the theory. Glaser (1978: 116) describes the sorting of memos as 'the key to formulating the theory for presentation to others. Pace (2012, p.12)

In the previously presented quote by Pace (2012), it is suggested that 'the sorting of memos as the key to formulating the theory', which aligns to my methodical approach when gathering raw data, except I not only use memos termed as written notation, I also collect digital screen capture JPEG images, photographs and MP4 movie clips to evidence my data findings, which are available to view online at https://julietcrowther.com. Furthermore, Pace writes 'The researcher begins the process by collating the memos on each concept and relationship and sorting them as they relate to the core concept. Each memo is compared with the others in a search for similarities, connections and conceptual orderings.'

Pace (2012, p.13). Correspondingly, my supporting data evidence is demonstrated in a series of explanatory diagram photos in subsection 3.1.3, which refer to anomalies and variants encountered during digital embroidery production, and as Pace quotes 'The researcher may also return to the coded data when necessary to extract additional evidence or illustrations of key points' Pace (2012, p.13). Therefore, evidence and illustrations indicate patterns of behaviour, similarities and anomalies which are theoretically discussed thereafter. Data bar charts and raw data visuals are found in the appendix and are also available to view online at https://julietcrowther.com/data-analysis.

Subsection 3.1.3, illustrates a collection of raw data key points, formulated and derived from series 1 and series 2 embroidered artworks produced during January 2017 and December 2018 inclusive. Both series 1 and series 2 embroidered artworks were manufactured via the industrial quality Amaya 2 digital embroidery machine and CAD/Design Shop Pro Software, based at the University of Huddersfield. All embroidered artworks consist of Beginner Level, Intermediate Level and Advanced Level Designs. Each individual embroidered design was detailed and recorded via written notation, screen capture, photograph, movie clip and then this collected raw data was subsequently compiled into bar chart format. The purpose of the collected raw data is to show contrast and comparisons between levels of understanding and ability, manual and digital performance, process/outputs/yields/productivity and Human/Machine interaction, which led towards my understanding of what I have entitled the 'Symbiotic Relationship'.

3.1.3 Collected Raw Data from Digital Embroidery Processes

The following data bar chart shown below (see figure 38), illustrates a culmination of all gathered data taken from each individual data bar chart (see Appendix 1 - Data Bar Charts, p.?), comprising of series 1 and series 2 embroidered designs, grouped key points, quantity totals and beginner, intermediate and advanced levels. Series 1 represents embroidered designs 1 to 26 and series 2 represents embroidered designs 1 to 28. NB: series 1 bars = solid colours and series 2 bars = striped colours. The colour coded legend at the bottom of the chart, has been applied to the corresponding anomaly diagram illustrations (see figs?-?), which will be discussed further.

As illustrated in the data bar chart (see figure 38), the data findings of series 1 embroidered artworks are relatively similar in comparison to the data findings of series 2 embroidered artworks, showing no obvious differences between beginner level and advance level of practice - thus indicating that advanced level design and familiarity of the process does not necessarily guarantee consistent, successful outputs.
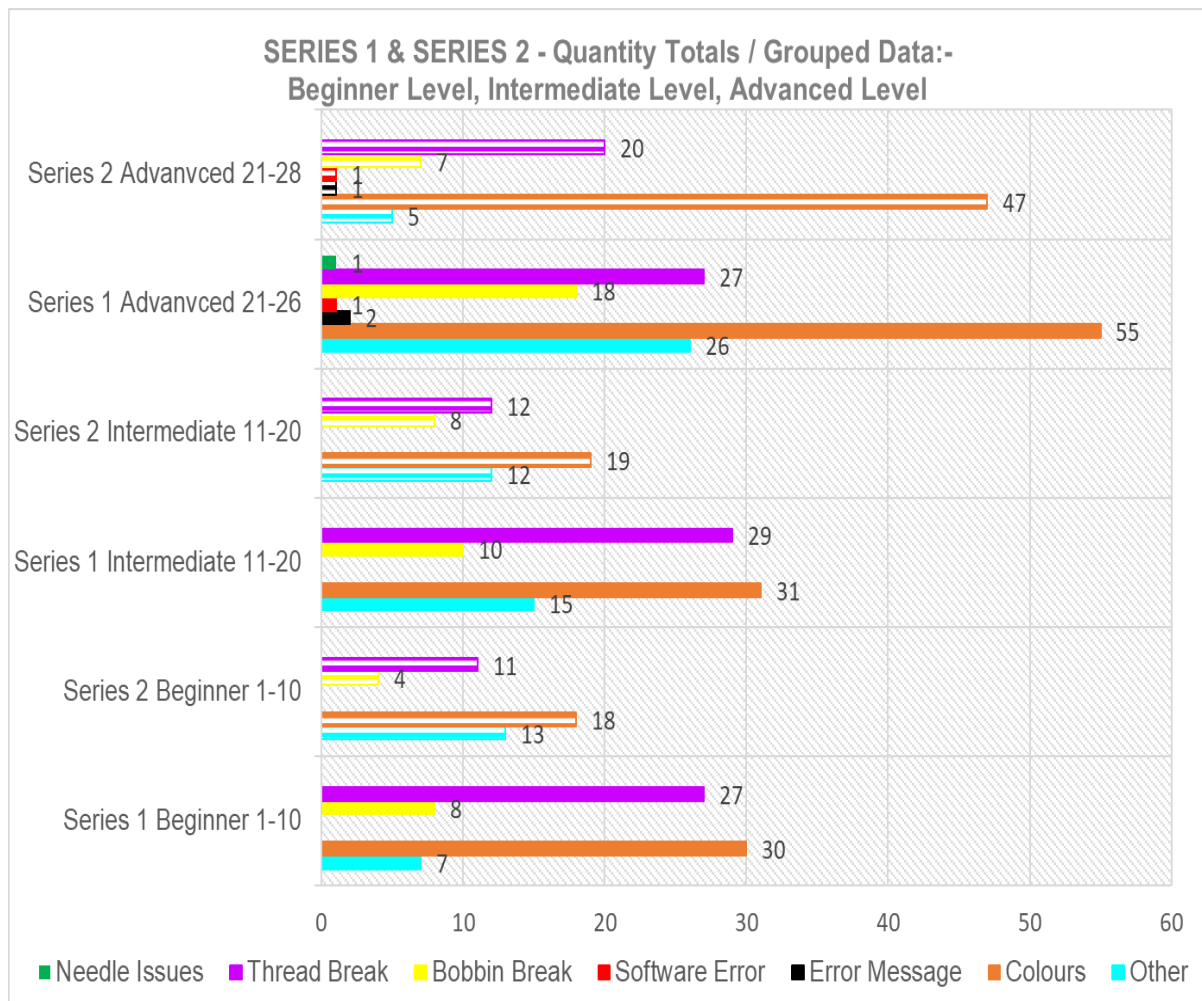
Figure 38 Comparative Data for Series 1 & Series 2 – Quantity Totals/Grouped Data: - Beginner Level, Intermediate Level, Advanced Level for All Designs

Comparative examples are explained further:

- Series 1 Beginner Level 'Other' Anomalies = 7 occurrences

  Series 2 Advanced Level 'Other' Anomalies = 5 occurrences

  A small difference of 2 occurrences exist between beginner level and advanced level.

- Series 1 Beginner Level 'Bobbin Break' Anomalies = 8 occurrences

  Series 2 Advanced Level 'Bobbin Break' Anomalies = 7 occurrences

  A small difference of 1 occurrence exists between beginner level and advanced level

The example results indicate that regardless of the practice level, e.g. novice/beginner level or experienced/advanced level, anomalies and errors can occur at relatively the same rate, therefore implying that machine performance is more at fault than the human operative. Anomalies and errors are to be expected at beginner level due to lack of knowledge and experience, however, the anomalies and errors remain a consistent factor at each level of design, stipulating that the unexpected is to be expected somehow. Human engagement ceases during machine production, with the exceptions of manual intervention to correct errors and for necessary maintenance. Therefore, the implications are that automated digital production is far from perfect, it is reliant on human intervention to correct the

anomalies and to make the necessary adjustments to ensure successful outputs, which is expanded upon in subsection 3.2 symbiotic relationship.

The theoretical writings of David Pye (2010, p.341) titled *'The Nature and Art of Workmanship'* and more specifically *'the workmanship of risk and the workmanship of certainty'* are particularly poignant, regarding my previously mentioned experiences and my raw data systems of analysis. Therefore, I aim to determine whether Pye's theoretical writings, do in any way, correlate with my practice-led experience of digital embroidery production.

Pye (2010) claims that *''free' workmanship of risk'* is specific to human-made, hand-made production methods, whereby the likelihood of errors and variable incidents are more probable and in contrast, the *'regulated' workmanship of certainty'* theories relate to automated mass-production methods, which yield guaranteed successful outputs.

> An operative, applying the workmanship of certainty, cannot spoil the job. A workman using the workmanship of risk assisted by no matter what machine-tools and jigs, can do so at almost any minute. That is the essential difference. The risk is real. Pye (2010, p.343).

In my experience and as justified throughout my data analysis section, I can argue that 'regulated' workmanship of certainty via digital automated industrial machinery, does not guarantee specific outcomes. Pye describes the outcomes pertaining to the workmanship of certainty, as 'exactly pre-determined' (2010, p.342), and to some degree, I can agree with this estimation, which is pertinent to digitization and design processes. Software programming is a 'regulated' process; a pre-determined approach with expected outcomes. However, I have discovered that when automated production is underway, there is a distinct lack of certainty, an inability to rely on the machine to complete production without any incidents occurring or the need for my intervention. As a result of working with the Amaya 2 digital embroidery machine and CAD software programs for approximately two years at beginner level, intermediate level and advanced level - I can justify my findings based on factual sources of raw data that I have collected during my encounters with technological processes and textile production, as demonstrated in the following illustrations (see figures 40 to 46).

In relation to human-made design and digitization processes, I recognise and agree with elements of Pye's theory regarding 'free' workmanship of risk, whereby, there is an increased risk of anomalies and variants due to human processing. However, once the design process is completed satisfactorily and saved as a command file ready for automated production, that is where the 'risk' ends in my opinion. Therefore, when automated production begins, the workmanship of certainty begins also, according to Pye (2010, p.341). However, my design files and embroidered outputs relay an opposing theory to Pye, whereby the repeat production of the same image file, has not once yielded identical replicas. Each copy of the same image file displays variants and anomalies, therefore, automated production does not equate to certainty.

The example image showing identical digitally embroidery design files, demonstrates the varying outputs and lack of certainty. Whereby, the same design file was used, the same threads and fabric were used, therefore, the same outputs ought to have occurred (see figure 39 below). This situation has recurred several times, concerning my design files during reproduction, thus reinforcing my argument that automation does not guarantee successful replica outputs and that the 'workmanship of risk' Pye (2010, p.341) is present within both human-made and machine-made processes. Examples of anomalies and errors occurring via the automated production process, and which correspond to the data bar chart legend, are illustrated next.

Figure 39 Same chakra design, left-hand image shows stitch anomaly. [Digital Embroidery]

3.2 DATA BAR CHART AND LEGEND INFORMATION

LEGEND: - ■ Needle Issues ■ Thread Break ■ Bobbin Break ■ Software Error ■ Error Message ■ Colours ■ Other

NEEDLE ISSUES Needle Replacement, Needle Breakage, Worn/Blunt Needle, Thin/Thick Needle, Small/Large Needle Hole

THREAD BREAK Top Bobbin Thread Breakages, Thread Tension/Feed, Thread Type

BOBBIN BREAK Spool Bobbin Breakages, Spool Tension/Feed, Gathering/Trapped Thread

SOFTWARE ERROR Design Shop Pro/Amaya 2 OS CAD Software Errors, Not Responding, Various Error Messages

ERROR MESSAGE Design Shop Pro/Amaya 2 OS CAD Dialogue Box, Various Error Messages

COLOURS Quantity of Colours/Top Bobbin Threads in Use Per Design

OTHER Various Unexpected Anomalies/Unknown Errors (Not Listed Anywhere Else)

VISUAL EXAMPLES CORRESPONDING TO LEGEND DATA CATEGORIES & ANOMALIES
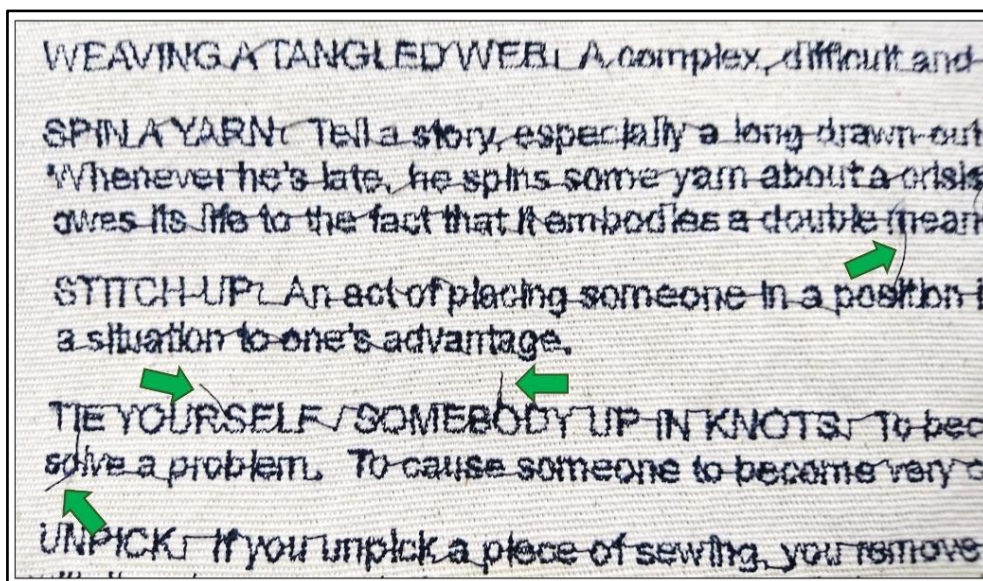
Figure 40 #1 Anomaly Image: Needle Issues. [Digital Embroidery]

NEEDLE ISSUES Example of several Needle Issues (see green arrows) - as per Series 1 Individual Design 19. Needle Issues causing repeated Thread Breaks. The existing needle was replaced with a finer/thinner type needle and performed much better for closely stitched lettering

Figure 41 #2 Anomaly Image: Thread Break. [Digital Embroidery]

THREAD BREAK Example of multiple Thread Breaks (see purple arrows) - as per Series 1 Individual Design 6. Various checks performed to identify the cause: Top Bobbin Tension Wheel/Feed, Thread Type, Speed of Stitches Per Minute (Amaya 2 CAD) etc.
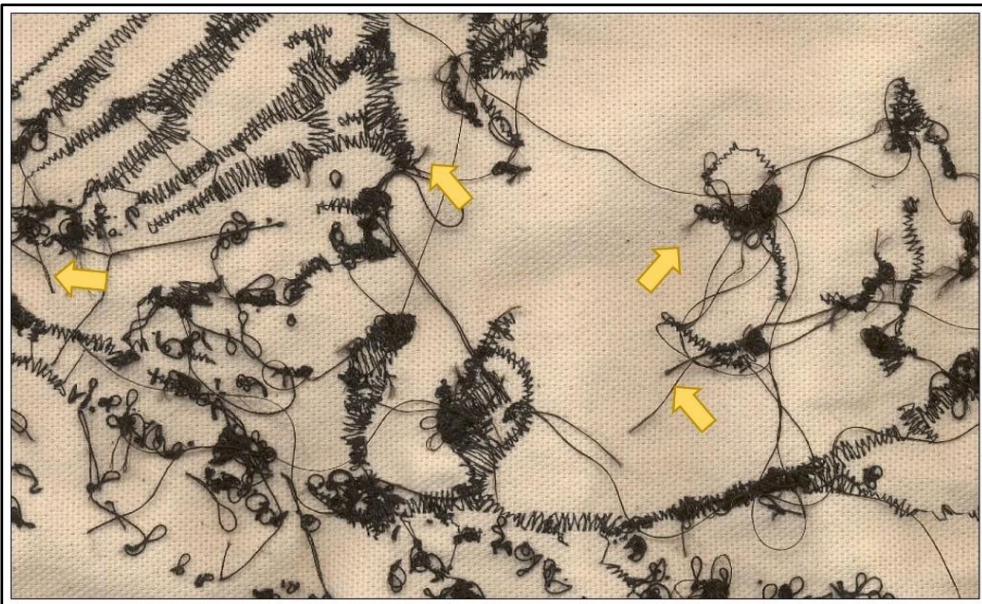
Figure 42 #3 Anomaly Image: Bobbin Break. [Digital Embroidery]

BOBBIN BREAK Example of multiple Bobbin Breaks (see yellow arrows) – as per Series 2 Final Project Design 2. Various checks performed to identify the cause: Swap Spool Bobbin, Check Spool Tension/Feed, Adjust Spool Screw etc.
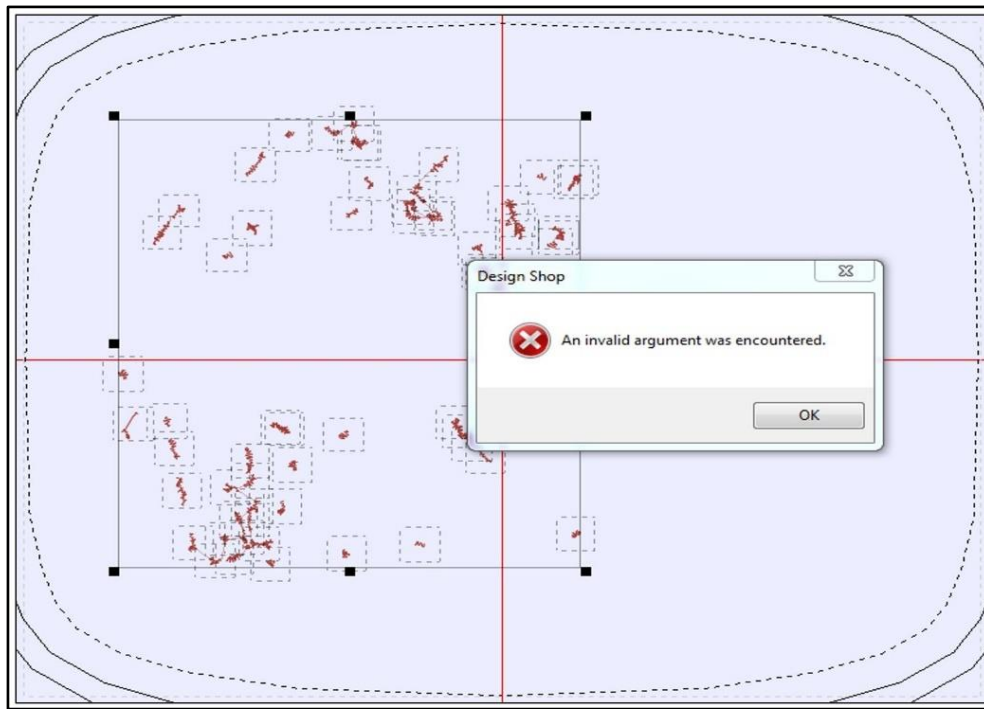
Figure 43 #4 Anomaly Image: Software Error. [Screen Capture JPEG]

SOFTWARE ERROR Example of Software Error Anomaly on Design Shop Pro CAD. Screen Capture image showing Software Error Dialogue Box, 30cm x 36cm Rectangle Hoop, Centre Axis and Design Selection etc.
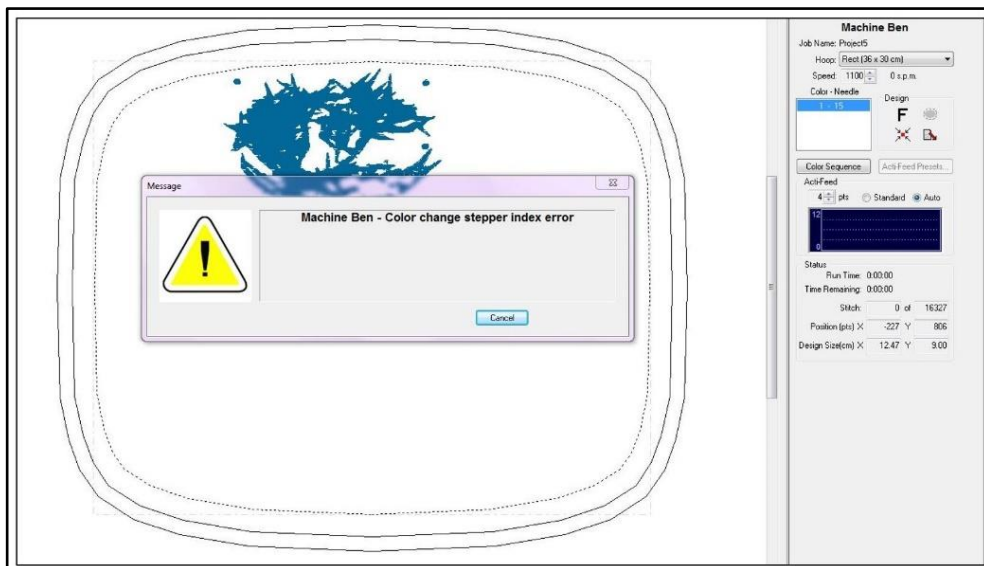
Figure 44 #5 Anomaly Image: Error Message. [Screen Capture JPEG]

ERROR MESSAGE Example of an Error Message Anomaly - as per Series 1 Individual Embroidery Design 23. Screen Capture of Amaya 2 digital embroidery machine (Ben)/CAD, Showing Error Message Dialogue Box.

Figure 45 #6 Category Image: Coloured Bobbin Threads x 16 Capacity. [JPEG Photography]

COLOURS Multiple Bobbins of Coloured Thread on the Amaya 2 digital embroidery machine - Capacity x 16 Bobbins/Colours. Coloured Threads can be swapped during design production, by pausing the Amaya 2 digital embroidery machine and replacing with an alternative colour.
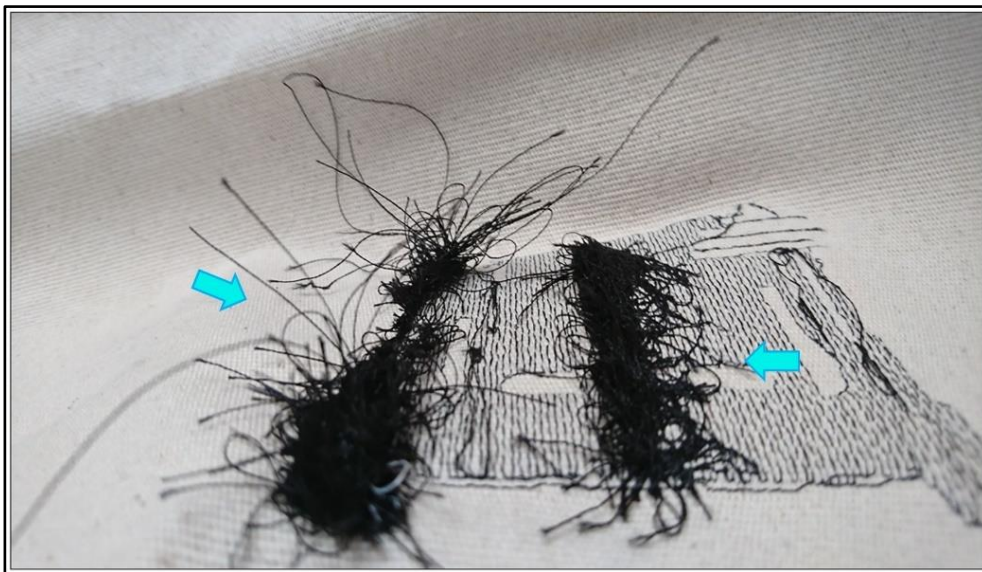
Figure 46 #7 Anomaly Image: Other. [JPEG Photography]

OTHER Example of Other Anomaly (see turquoise arrows) – as per Series 1 Individual Embroidery Design 25. Various checks performed to identify the cause: Spool Bobbin Looping/Gathering, Hook/Timing Misalignment, Bobbin Breaks etc.

Each illustration exemplifies the anomalies and category types as per the data bar charts, thus providing visual evidence that automation does not guarantee successful outputs. On the rare occasion when the digital embroidery process required no intervention from myself, is testament to the fact that the

workmanship of risk is apparent in both automated and manual production techniques. In respect of Pye's (2010) theory on the risk and certainty of workmanship, there would be no anomalies to speak of if automated programmable processes resulted in perfect outcomes. The unpredictability and randomness of the previously mentioned anomaly types have led me question the behaviour and reliability of the software and digital machinery, which is expanded upon in subsection 3.2. Perfection was never my intention and rather than alleviate and rectify the anomalies and embroidery errors, I chose to keep every incident to convey the entire production process, demonstrating a visual narrative achieved through the collaborative symbiotic process.

Additionally, my research project data analysis bar charts and supporting raw data images are available to view in Appendix 1, Appendix 2 and online at WordPress https://julietcrowther.com/data-analysis.

### 3.3 SYMBIOTIC PROCESS: HUMAN – MACHINE – TEXTILES

The title 'symbiotic process' came into effect as a result of my physical, sensory, experiential encounters of the Amaya 2 digital embroidery machine and Design Shop Pro/CAD Software. During my initial learning phase of design programs and embroidery tools as outlined in chapters 1 and 2, I was naive, and it was too early to form an opinion regarding the functioning, reliability and behaviour of the software and digital embroidery processes. In the early stages as an operative, I was preoccupied with CAD design and preparing the machinery, tools and materials for embroidery production. However, the more accomplished and familiar I became, the more apparent the random anomalies and unexpected incidents became.

Series 1, sample embroidery artworks and processes were of course trial and error and a necessary formative learning curve, whereby I would record all incidents and relevant data by written notation and screen capture images – which quickly became a continuous system of documentation throughout my research studies and later used for data analysis. At this formative stage, I would work separately on digitization design processes and save the design files for use during a half or a full day booked session on the Amaya 2 digital embroidery machine. In order to utilize the booked embroidery session fully, being prepared with saved design files was crucial, therefore all that was required was the manual setup of the threads, hoops and fabric. Series 1 embroidery artworks were entirely process based, focusing separately on the human/operative, machinery and textile compartments and which were not concerned with human/machine interactions at this stage.

When working on series 2 embroidered artworks at both intermediate and advanced levels, I had established a comprehensive level of understanding of CAD software and the Amaya 2 digital embroidery machine, therefore the separate aspects of series 1, now came together in symbiosis in series 2. Familiarity and practice of the design software, the embroidery machine and relevant tools, allowed for a more cohesive experience, which soon became known as the 'symbiotic process'. At this phase of my practice, the command functions became a method of communications, a dialogue between myself and the Amaya 2. Therein, I would communicate and respond to the Amaya 2 and the Amaya 2 would respond and communicate to me, in a cyclic reflexive manner.

Through this type of interaction, the symbiotic process translated into a collaborative working partnership, based on familiarity, practice and experience. Whereby, I could not have achieved my embroidered artworks in the same context without the Amaya 2 and the Amaya 2 could not have produced my embroidery designs without me. This can be said for any tool or machine that requires an operative, although there is an expectancy of digital automated machinery Pye (2010), that once set up and programmed correctly, the task should successfully complete without the need for human intervention. Unfortunately, this has not been the case in my experience and when referring to David Pye's (2010) theory of the workmanship of risk and the workmanship of certainty, automated digital production ought to equate to certain outputs. However, if automated production methods had achieved expected outcomes, I would not have developed the same type of symbiotic relationship with the Amaya 2, as less intervention from myself would have meant less engagement, less connectivity and less dialogue.

The more complex my design requirements (not in excess of the capabilities of the software and machinery), the more the Amaya 2 would respond and communicate with me, often with a message dialogue box as exemplified below (see figure 47). In this instance, the Amaya 2 is communicating through an error message dialogue box, due to an unknown random software anomaly. No explanations or descriptions were given in support of this error message and therefore, I was unable to rectify the issue.
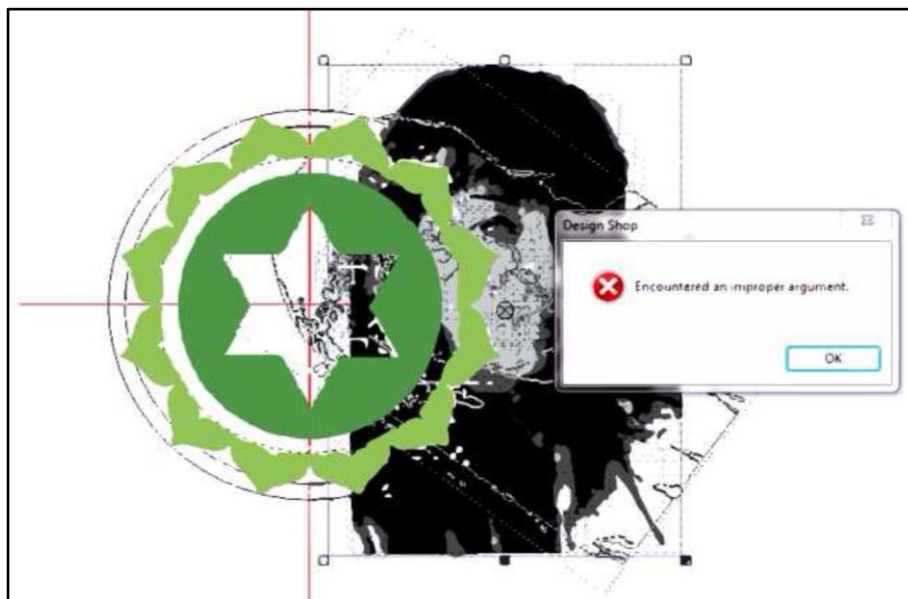
Figure 47 Error Message Dialogue Box. [Screen Capture JPEG]

Random anomalies of this type were a regular occurrence throughout my whole research project, most of which were unjustifiable and unexplained. Based on these experiences, I began to feel that Amaya 2 was displaying human characteristics and behaving in arbitrary unexpected ways, as if the Amaya 2 had a personality. I am aware that we humans tend to humanize our vehicles and machines, particularly when we spend ample amounts of time together, for example a boat is referred to as 'She', which in part surmises my humanization of the Amaya 2, but there are other contributing factors which have shaped my opinion over the last 2 years.

During various booked afternoon sessions on the Amaya 2, I would find the machine to be sluggish and difficult to perform my designs, almost like the machine was tired and in need of a rest after working with another operative. Several of my opinions were shared with the Embroidery Technician Elnaz Yazdani, who would make comments like 'she's tired, after working hard all morning' or 'she must be having one of those off days'. Sometimes the Amaya 2 would miss out sections of stitching for no apparent reason and often embroider the same design successfully in the first instance and unsuccessfully thereafter. Trying to understand and analyse random anomalies is difficult, particularly when the designs are configured correctly, and the machine is setup ready for production – whereby there is no reason for problems or interruptions to occur. General maintenance of all machinery is to be expected, however the unexpected, unjustifiable incidents as previously mentioned and illustrated above, are what give the impression that the Amaya 2 is displaying various arbitrary behaviour.

My final embroidered piece, a digitized portrait of the Amaya 2 digital embroidery machine (see figure 48 below), was intentionally produced to both honour the symbiotic relationship between myself and the Amaya 2 and to act as a pastiche, whereby my practice-led research began with my embroidered self-portrait and I wanted to conclude my research artwork with an embroidered self-portrait of the Amaya 2 digital embroidery machine.

Figure 48 Amaya Self-Portrait [Digital Embroidery] 2018

The digitized design process derived from a photo of the Amaya 2, thus replicating the methods used for my own self-portrait photo, was a relatively easy process. The machine was setup with 13 coloured bobbins of thread, the spool bobbin, the fabric and the hoop installed – all ready to begin, but alas, the Amaya 2 did not embroider its own self-portrait design. Unfortunately, this was my final booked session

to conclude my embroidery research artworks after 2 years and I was without a functioning machine! After several unsuccessful attempts to embroider the Amaya 2 self-portrait and after seeking mechanical engineering advice, I had to end the session and find an alternative method. Example triptych showing 3 embroidery errors of the Amaya 2 self-portrait (see figure 49 below).
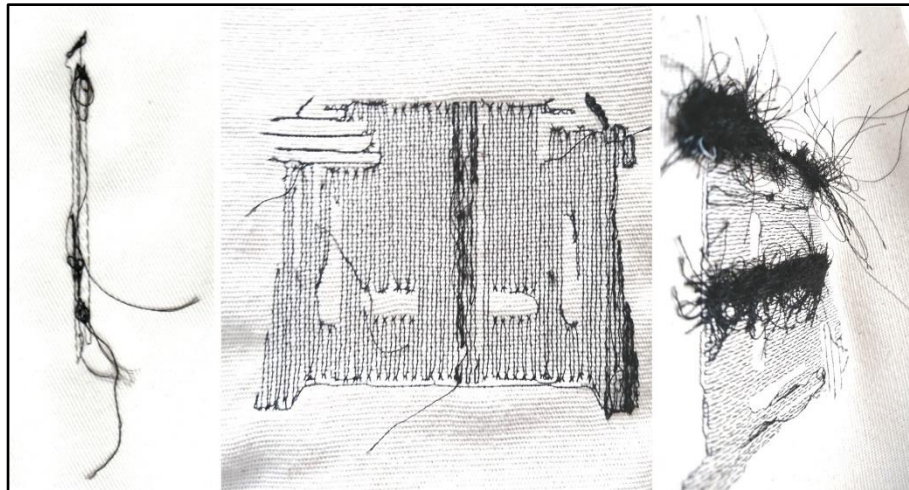

Figure 49 3 x Errors / Attempts at Embroidering the Amaya 2 Self-Portrait. [Digital Embroidery]

A sense of sorrow was present on the final day, particularly when the Amaya 2 could not/would not perform the required embroidery design tasks. I felt quite saddened that I would no longer be working on the Amaya 2 machine that I had grown so fond of, been so engaged with and had learnt so much from. Therefore, I questioned whether the Amaya 2 felt the same in return, by literally breaking down and being incapable of producing my/our last design together. I was rather moved at this notion. No technical or mechanical explanation as to why the Amaya 2 could not embroider its own self-portrait was available and therefore, I completed the embroidery design (see figure 48) on 'Machine Ben' the Amaya 1 machine, another slightly different version of Amaya Digital Embroidery Machine with the same CAD software programs.

The Amaya 2 digital embroidery machine was my preferred choice and was an integral part of my journey throughout my entire practice-led research duration, hence my decision to depict the Amaya 2 embroidery machine via its own embroidery methods, in a reflexive and honourable manner.

Conclusion

Chapter 3 explores theoretical understandings based on analytical ethnography and grounded theory methods used throughout my autoethnographic practice-led research enquiries, including references from the scholarly writings of Steven Pace (2012) and Heewon Chang (2008). My research findings relating to various methods of raw data gathering and data analysis, are compared against the theoretical writings of David Pye (2010, p.341) '*the workmanship of risk and the workmanship of certainty',* which provides me with a deeper understanding of the 'what's, why's and how's' of my practice-led research project. Through various modes of analysis, I have made significant discoveries

relating to the 'symbiotic process', the sensory experiential interaction and collaboration between human and machine. As a practice-led autoethnographic researcher in the creative arts, I have found that a mixed method approach to theory is appropriate for my enquiries and the fulfilment of my aims and objectives.

CHAPTER 4.   EXHIBITION SYNOPSIS

Chapter Introduction

Chapter 4 summarises the collaborative exhibition held at the Temporary Contemporary Gallery (in connection with the University of Huddersfield), Queensgate Market, Huddersfield, from 29th May to 2nd June 2018 inclusive. This joint exhibition features the textile artworks and audio-visual installations of both (myself) Juliet Crowther's digital embroidery and Ellie P Smith's machine knitting.

The exhibition theme; Symbiotic Process: HUMAN – MACHINE – TEXTILES, aims to convey through textile artworks and audio-visual installations, a shared sensory and experiential textile making process encountered between human and machine. Personal ancestral textile heritage is explored through the mode of textile production – notably my digital embroidery and Ellie P Smith's domestic machine knitting, whilst demonstrating the relationship and interaction with industrial textile machinery via audio-video installation, available to view online at (https://julietcrowther.com/exhibitions).

To gain a deeper understanding of both myself and Ellie P Smith's textile processes and artworks, this chapter synopsis includes our individual Artists Statements, Exhibition Poster, Exhibition Photographs and Audio-Visual Installation Links and Visitor Comments and Interactions.

4.1   EXHIBITION REVIEW

SYMBIOTIC PROCESS: Human – Machine – Textiles, a joint exhibition by myself and Ellie P Smith, featuring a variety of contemporary textile artworks and installations produced via digital embroidery and machine knitting processes. The purpose of this joint exhibition, was to convey human and machine interactions through textile production methods, as demonstrated in the audio-visual installation and via the display of various mounted textile artworks.

The show opened for one week from 29th May to 2nd June 2018, at the Temporary Contemporary Gallery, Queensgate Indoor Market, Huddersfield, a venue in partnership with the School of Art, Design and Architecture at the University of Huddersfield and Kirklees Council Markets and Creative Economy Teams. The Market Gallery is a space used to present and showcase the work of artists, researchers and lecturers based at the University. Huddersfield, a historical textile mill town seems the ideal environment to exhibit such artworks.

Firstly, my textile artwork was positioned to the left and the adjacent wall as you enter Gallery 1, featuring a chronological display of individual digital embroidery samples and artworks, ranging from exhibit #1 through to exhibit #23. The left-hand wall displays includes my detailed artist statement and features #1 to #7 Embroidery Sample Motifs, that illustrate the 'beginner level' first stages of the research project. Artworks from #8 through to #23, illustrate more complex digital embroidered designs, including self-portrait images, sample motifs and textile language (idioms). Opposite my exhibited artworks and positioned to the right as you enter Gallery 1, was Ellie P Smith's machine knitted artworks and samples, which were displayed in process order, with an adjacent imposing installation wall of machine knitting.

The knitted wall installation is position #25 and the process display exhibits range from #26 through to #33, including another detailed artist statement.

Secondly, the collaborative Audio-Visual Video Installation #24, is positioned inside Gallery 2, a darkened room including seating and a large screen TV that plays a movie loop of the audio-visual, human-machine interactions of digital embroidery processes by myself and machine knitting processes by Ellie P Smith.

The physical material qualities of the textile artworks being exhibited include my digital embroideries on canvas fabric, which were simply mounted to the wall by pinning the top corners to the wall and allowing the bottom edges to hang loose and unattached, which created a sense of relaxed movement, casting interesting shadows. The informal mounting of my artworks encouraged closer inspection, closer engagement, thus allowing for tactile interactions. Ellie P Smith's knitted wall installation, comprising of individual lengths of machine knitted designs with wadding beneath and attached to the wall by staple gun, giving the appearance and feel of cushioning. Ellie P Smith was specific in that she asked the audience to 'please touch'. Interestingly, whether asked to touch the artworks or not, the audience would automatically engage with all artworks on display and not solely textile pieces.

Whether digital embroidery or machine knitting, the narratives are basically the same, in that we artists shared similar experiences of making, albeit on a different style textile machine. Both of us artists are researching textile processes via reflective practice-led methodologies, whilst considering our ancestral textile heritage. My autoethnographic research practice, focuses on the self by means of self-portraiture and attempts to discover lost ancestral industrial textile knowledge, through the mode of the Amaya industrial digital embroidery machine. Ellie P Smith, a textile practitioner who professes that 'knitting is in her DNA', is an accomplished contemporary hand and machine knitter, with a broad family history of knitting. Although, we have differing background disciplines (myself in Fine Art and Ellie P Smith in Textile Practice) and differing ancestral narratives, our work was unified through our shared sensory experiential processes and involvements with machinery used to produce textiles, as demonstrated in the exhibited textile artworks and audio-visual video installation.

Ellie and I curated and invigilated our exhibition and therefore, we were available to converse, discuss and interact with the visitors at the show. Excluding friends and family visitors, the type of visitor to the gallery mainly comprised of market shoppers and passers-by, as the gallery was newly opened and little known during this exhibition and therefore, very few visitors came to view the exhibition because of its content or via advertising posters. The main reason for entering the gallery was out of pure curiosity when passing by. As a result of conversing with the audience, we discovered that all visitors were either directly or indirectly connected to textile manufacturing based in Huddersfield and the Kirklees area or involved with handicrafts that were passed down through their family generations and therefore, they appreciated and understood the context of our exhibition. The exhibition, albeit short in duration and conducted in an unconventional environment, was warmly received and enjoyed by the local town folk. The exhibition content was predominantly autobiographical and due to the market gallery environment within a historical mill town, the exhibition became demographic in its context.

Conclusion

Chapter 4 introduces and reviews the joint exhibition 'Symbiotic Process: Human – Machine – Textiles' by (myself) Juliet Crowther and Ellie P Smith, held at Temporary Contemporary Gallery, Queensgate, Huddersfield. Collated examples of artist's statements, audio-visual materials, exhibition promotional artworks and visitor comments are detailed throughout Appendix 4 – Exhibition Information on page 88.

Additionally, further exhibition details and audio-visual materials are available to view online at WordPress https://julietcrowther.com/exhibitions.

CONCLUSION

I began this research project within an intention to investigate my personal identity and historical background and in this process I have discovered how the transference of my textile heritage occurred through the application of digital-stitch processes. The exploration of digital textile machinery, embroidery tools and materials, has provided me with a rich source of physical, sensory and experiential knowledge and through this type of engagement, a shared experience of making, I have gained a deeper understanding of my ancestry and their industrial textile work lives in the 20th century.

Furthermore, my familiar portrait practice, and more specifically, my self-portrait was redefined through the mode of industrial digital embroidery as a method of expressing autobiography onto cloth. From my perspective as a fine artist, I have analysed the cultural context of where stitched portraiture sits and considered the role that digital processes play in portraiture, in comparison with other textile artists who practice the same or similar. Comparative associations were made with Audrey Walker, who approaches stitched portraiture with painterly techniques, Andrea Cryer a self-confessed thread painter of portraits and landscapes, Caroline Bartlett's conceptual textiles that evoke memories of bygone eras of the textile industry and Elaine Reichek's textile language, derived from digital textile software, idioms and expressions.

My background discipline of fine art and portraiture was both challenged and transformed when entering the arena of contemporary textiles. From a fine art perspective, I have made relevant connectives with the aforementioned renowned and practiced textile artists, pertaining to the conceptual rationale behind our creative practices. Textile artists have individual specific reasons and motives for producing, conceptualising and engaging with textiles and processes, mine being an investigation into personal ancestral textile heritage via an autoethnographic, practice-led, pragmatic approach.

Throughout each stage of virtual design and physical embroidery production, I have evaluated all contributory factors and processes involved in digital embroidery by means of raw data gathering and supportive audio-visual evidence. Whereby, the production output quality and the performance of the machinery and software were recorded and then subsequently formulated into data bar charts, which illustrate quantitative and qualitative data analysis findings. Systematic evaluations of each process through various systems of documentation, aided my enquiries of the symbiotic relationship, namely the collaboration between myself and industrial textile machinery. By performing an object-based study of the Amaya 2 digital embroidery machine and CAD design software, not only have I collected significant data for analysis, but I have grown in confidence in the acquisition of new technical CAD design and textile manufacturing skills, with the added ability to perform specific maintenance tasks and to problem solve where necessary.

From my perspective, many unexpected outcomes emerged as a result of virtual experiences and physical engagements with the Amaya and CAD design software. Most notably, the behavioural characteristics and nuances of the machine itself which contributed to the symbiotic relationship, the limitless palette of design possibilities and the transformation of my physical portrait practice to a virtual hands-free process. When concluding and evaluating my research project, the term 'hands off, mind on' emerged and is attributed to the Amaya digital embroidery machine which replaces my hands and physically produces stitched imagery on my behalf and the virtual design digitization process that refers

to my mind and corresponds with designing, inventing, planning and problem solving. Through this process, the Amaya became less of an object and less of a tool. The Amaya became my hands, whereby 'we' were collaboratively and unconventionally creating portraiture. Initially, the Amaya was chosen to reference my industrial textile heritage and to redefine my creative practice, however the Amaya became the centre point and the subject matter of my research project. Subsequently, the portrait of the Amaya emerged which was capitalised upon by means of a pastiche, a digital embroidered self-portrait, produced by the Amaya digital embroidery machine.

Autoethnographic research theories of Stephen Pace (2012) and Heewon Chang (2008) have contributed to my understanding of this reflective practice as method. Whereby, analytic ethnography and grounded theory methods have informed the 'what's, why's and how's' of my practice-led research project. As a creative practitioner, I have employed a pragmatic, methodical approach to research, which has yielded successful analytics for qualitative and quantitative purposes and therefore, demonstrating the variables found in digital automated production processes. My findings are compared with the theoretical writings of David Pye (2010) who claims that 'the workmanship of risk' relates to handmade production and 'the workmanship of certainty' pertains to automated production. However, in ending this study, I have argued against Pye's theories, as they are not justifiable in accordance with my practical experience and which is evidenced in my raw data illustrations.

Future research considerations, possibly at PhD level, would be to conduct a practice-led reflective study of worsted weaving and hand lace making, as a continuation of my ancestral textile traditions, from a contemporary fine art perspective. Family crests were briefly touched upon during my Master of Arts by Research project and therefore, I would like to further my investigations of textile heraldry, family crests, coat of arms, motifs, sigils, flags, banners and logos via CAD design and textile design production processes.
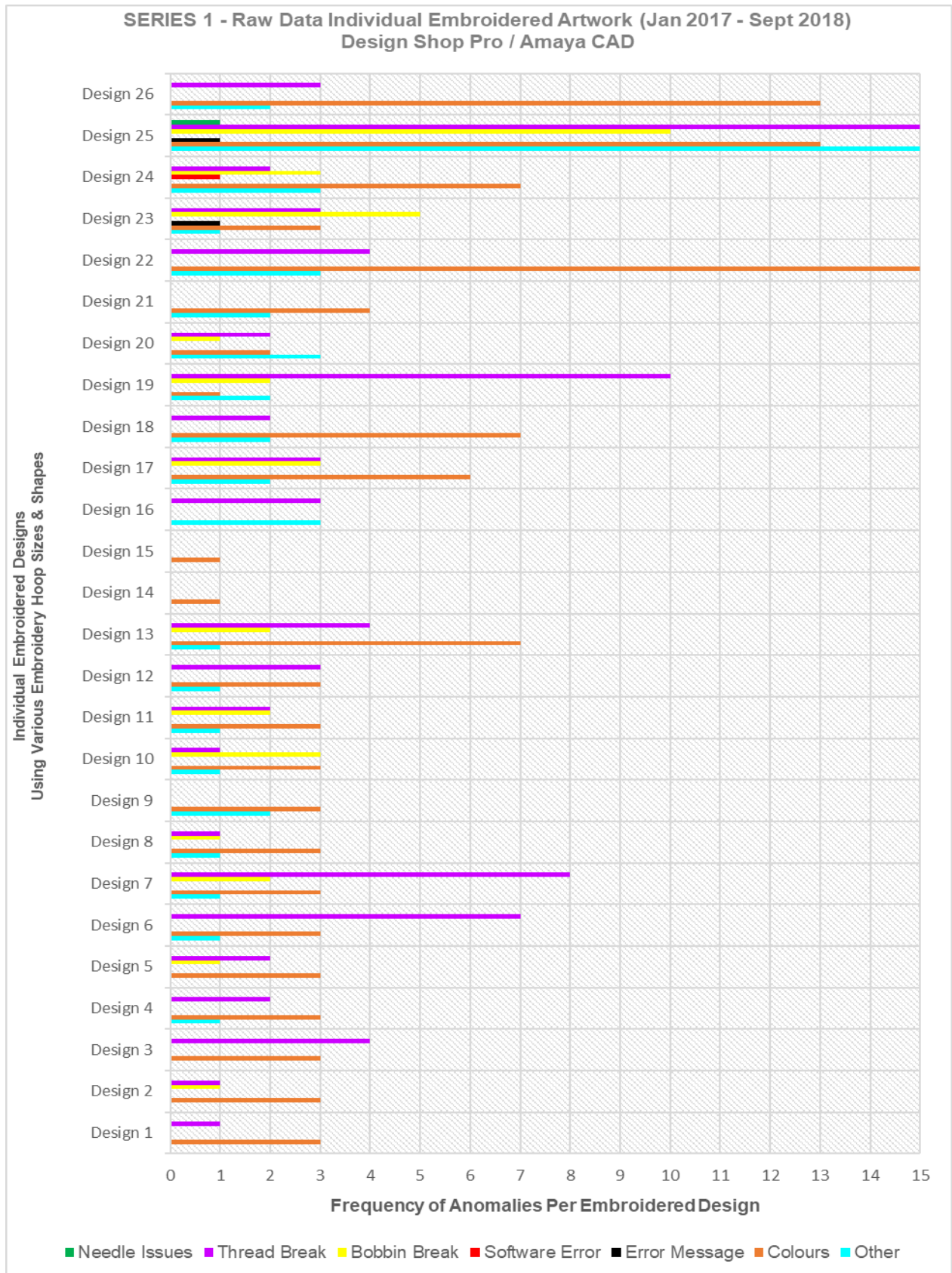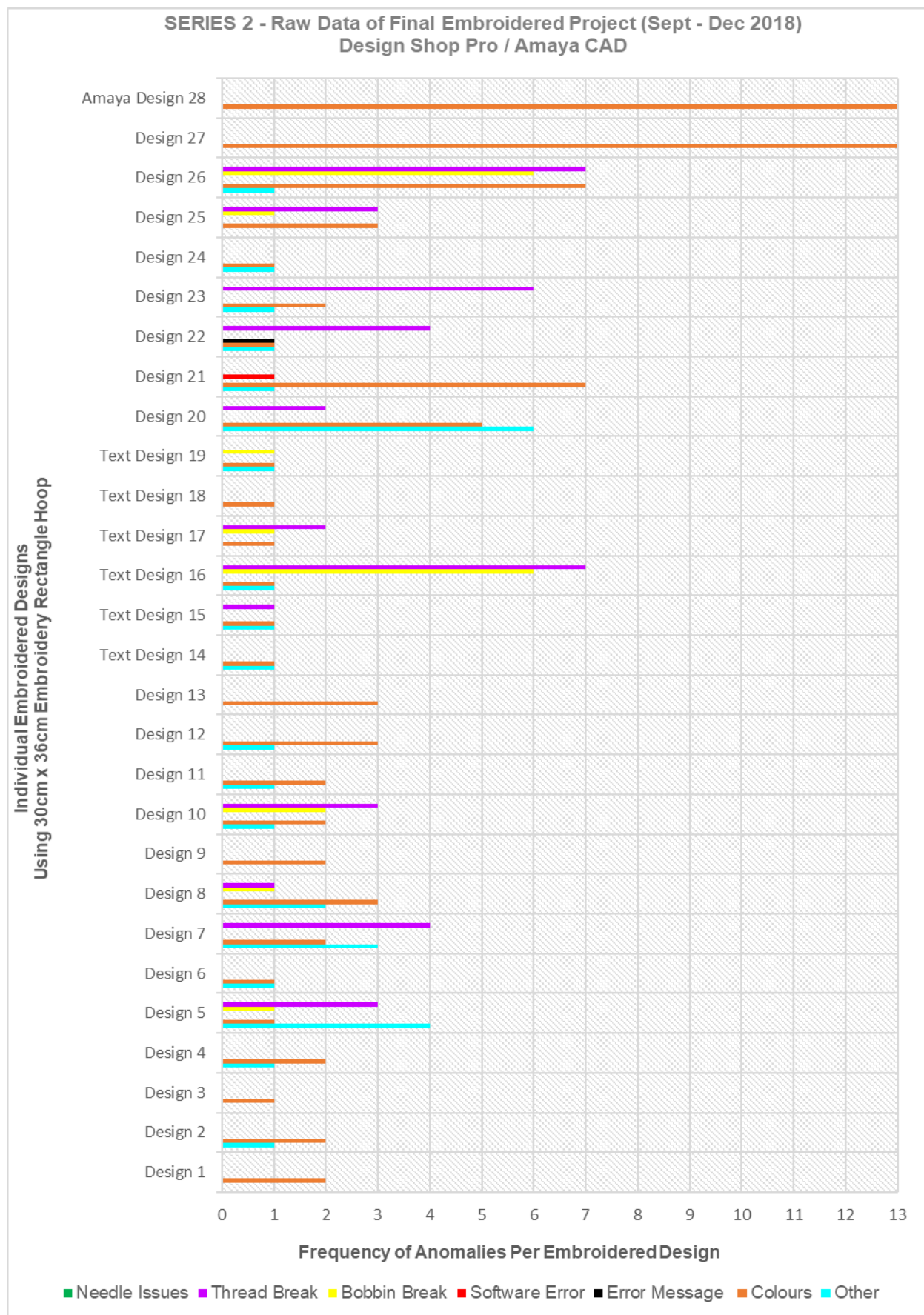
APPENDIX 1 - DATA BAR CHARTS

Figure 50 #1 Data Bar Chart

Individual Embroidered Designs, Showing the Frequency of Anomalies Per Individual Embroidered Design. Various Embroidery Hoop Sizes & Shapes Used:- 12cm Round Hoop, 18cm Round Hoop, 30cm x 36cm Rectangle Hoop, 44cm x 30cm Rectangle Hoop

Figure 51 #2 Data Bar Chart

Final Embroidered Project, Showing the Frequency of Anomalies Per Individual Embroidered Designs x 30, using 30cm x 36cm Rectangle Embroidery Hoop.
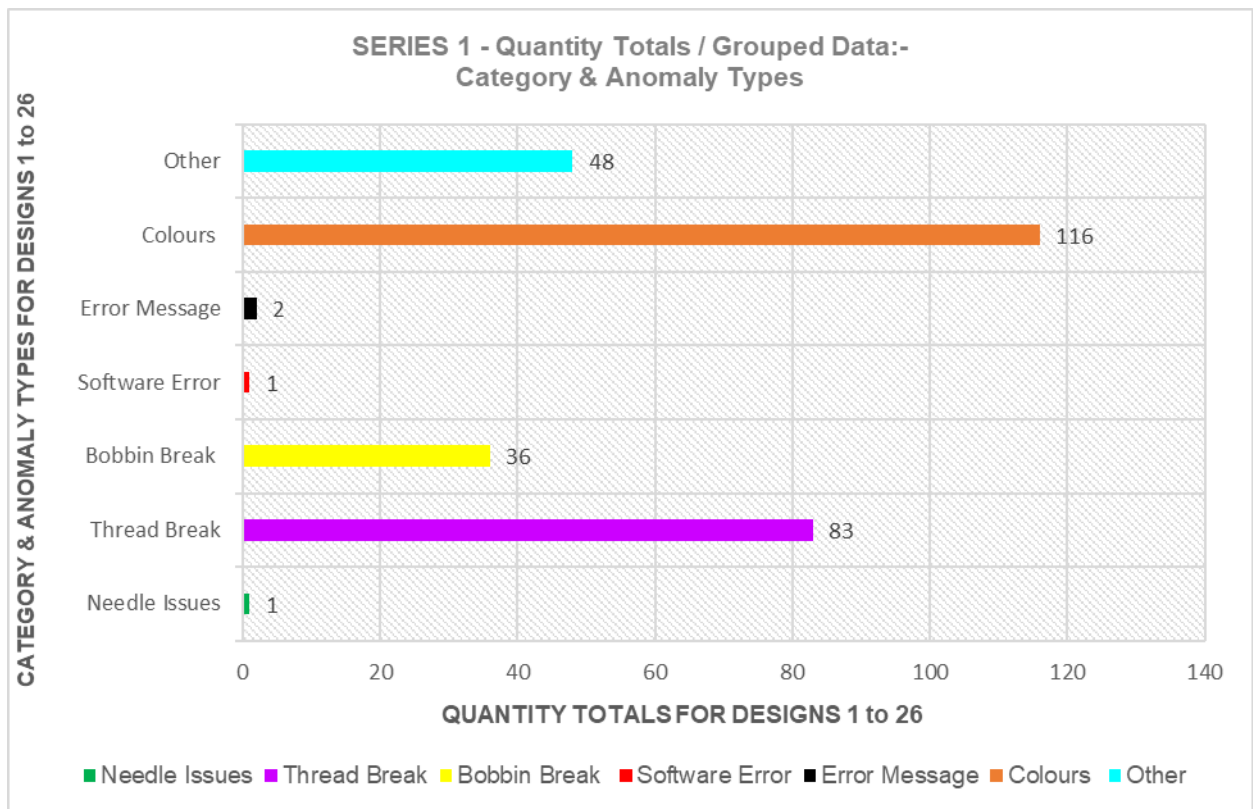
Figure 52 #3 Data Bar Chart

Series 1 – Quantity Totals / Grouped Data:- 7 x Category & Anomaly Types, for Individual Designs 1 to 26
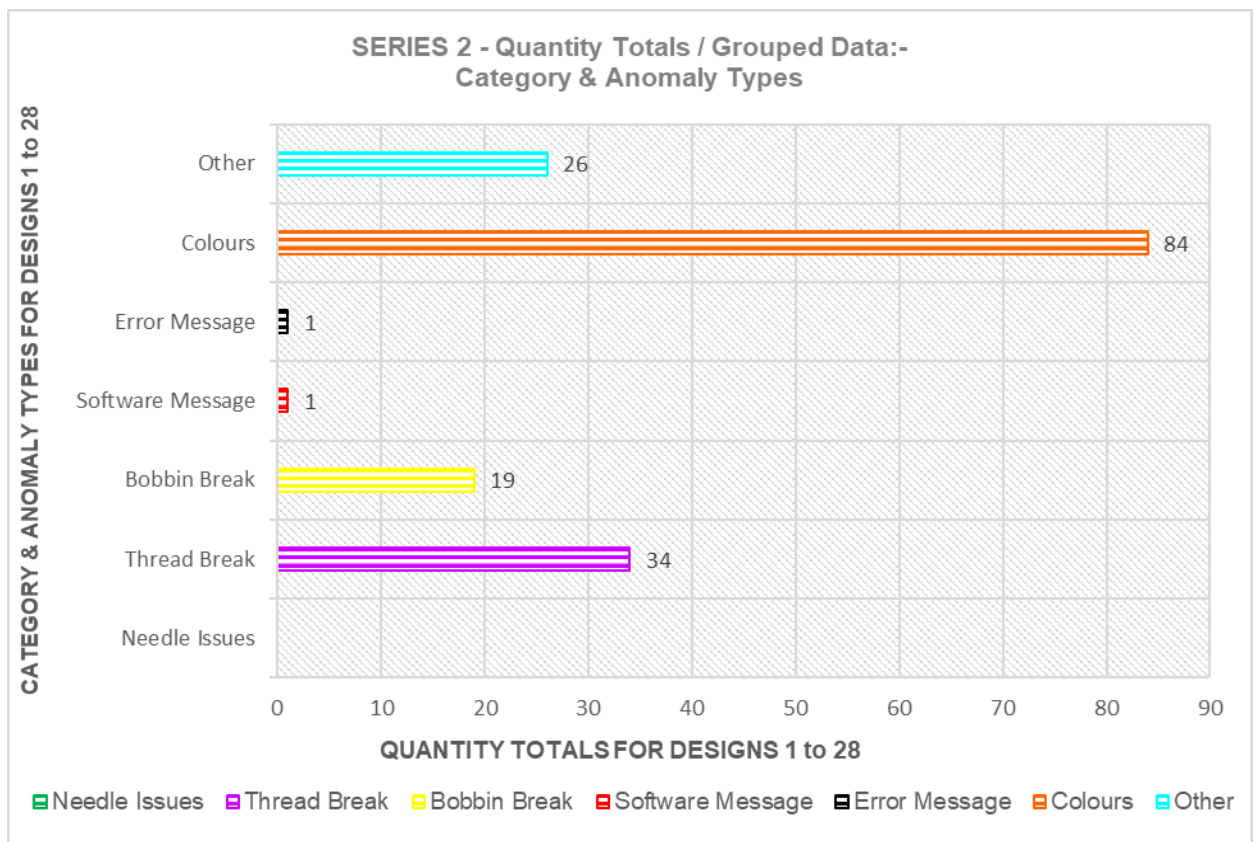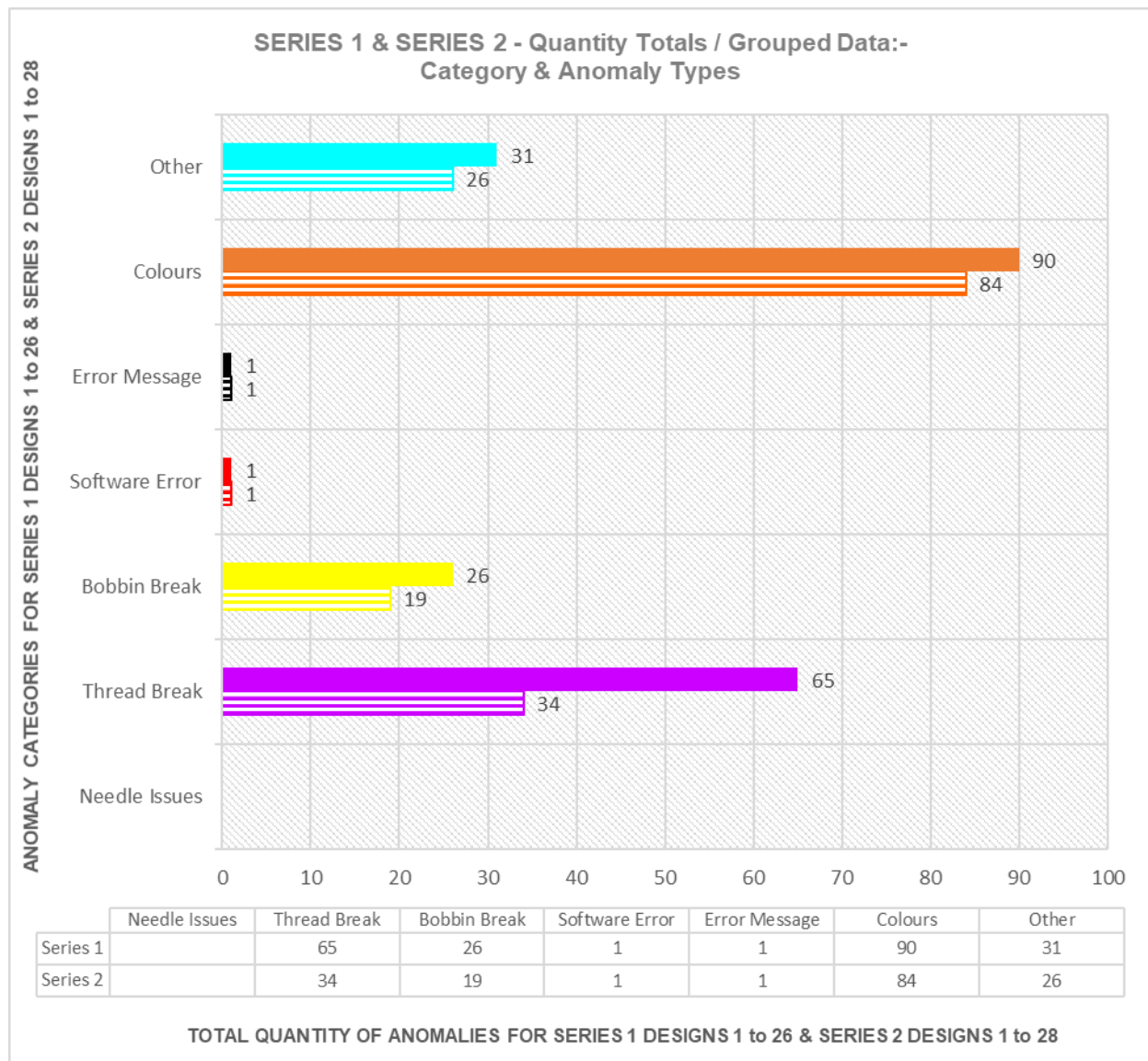

Figure 53 #4 Data Bar Chart

Series 2 – Quantity Totals / Grouped Data:- 7 x Category & Anomaly Types, for Final Project Designs 1 - 28

Figure 54 #5 Data Bar Chart

Data for Series 1 & Series 2 – Quantity Totals / Grouped Data:- 7 x Category & Anomaly Types for All Designs

Figure 55 #6 Data Bar Chart

Series 1 – Quantity Totals / Grouped Data:- Beginner Level, Intermediate Level, Advanced Level for Individual Designs 1-26
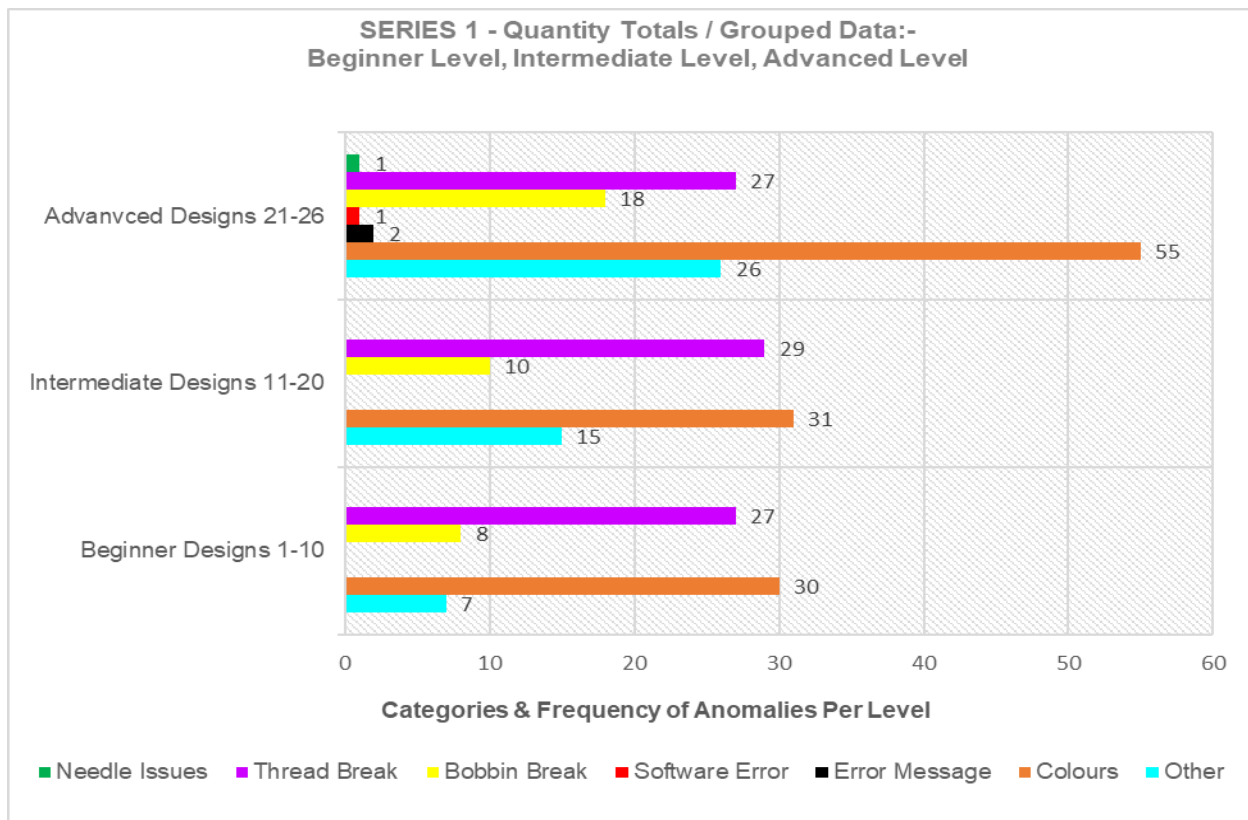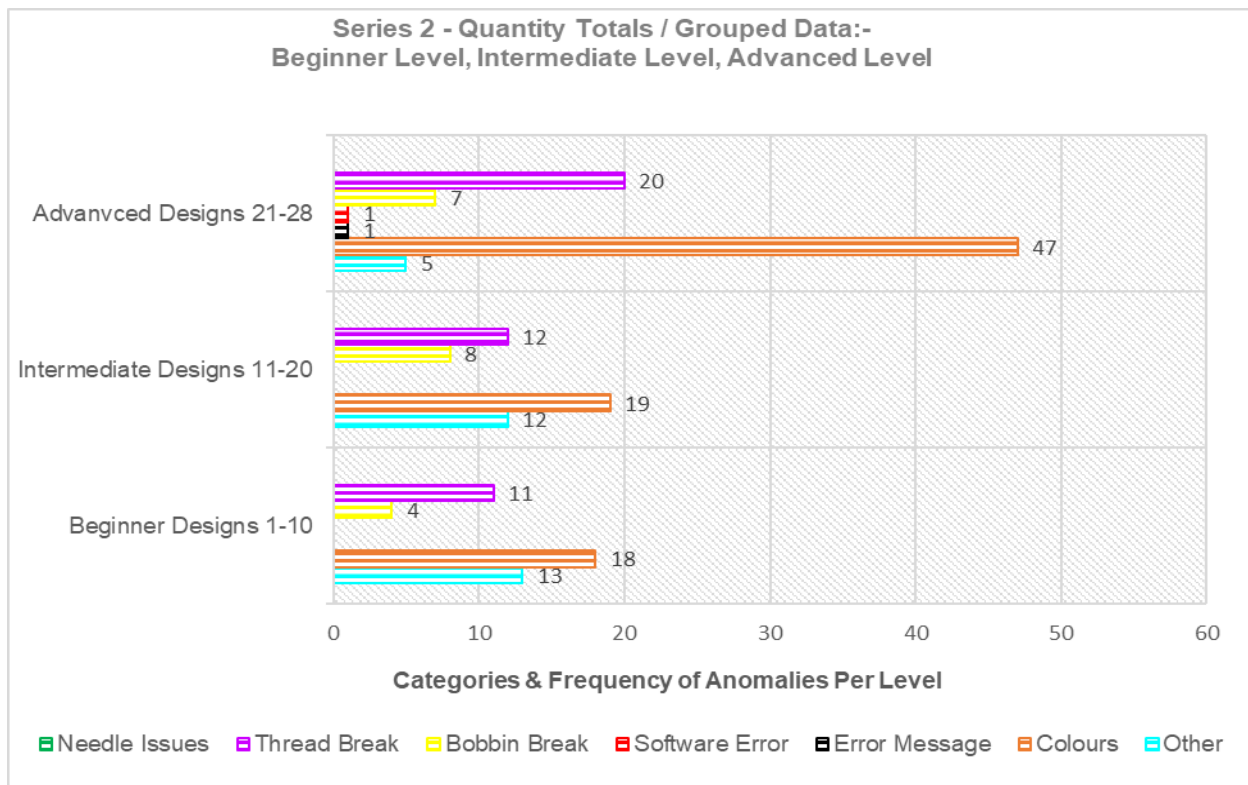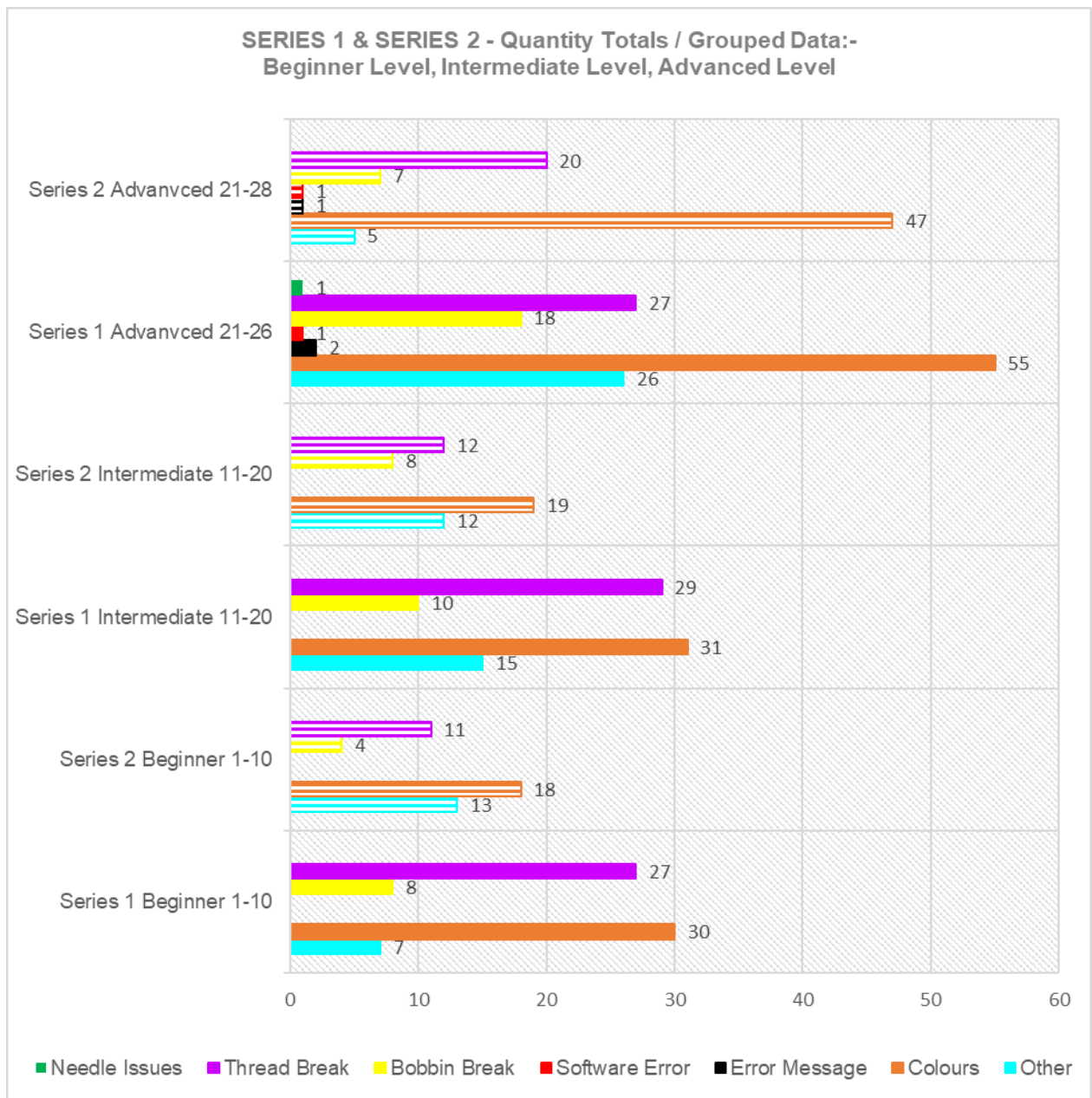

Figure 56 #7 Data Bar Chart

Series 2 – Quantity Totals / Grouped Data:- Beginner Level, Intermediate Level, Advanced Level for Final Project Designs 1-28

Figure 57 #8 Data Bar Chart

Comparative Data for Series 1 & Series 2 – Quantity Totals / Grouped Data: - Beginner Level, Intermediate Level, Advanced Level for All Designs

APPENDIX 2 – RAW DATA

JULIET CROWTHER, MASTERS BY RESEARCH WORDPRESS WEBSITE https://julietcrowther.com

Full collection of MA by Research Audio-Visual research materials available to view via the following links:-

- **Data Analysis –** WordPress Website: https://julietcrowther.com/data-analysis/

- **Exhibitions –** WordPress Website: https://julietcrowther.com/exhibitions/

- **Embroidery Artwork –** WordPress Website: https://julietcrowther.com/embroidery-artwork/

- **Huddersfield Historical Textile Mills -** WordPress Website: https://julietcrowther.com/textile-mills/

- **JPEG Photos -** WordPress Website: https://julietcrowther.com/photos/

- **MP4 Movies -** WordPress Website: https://julietcrowther.com/mp4-movies/

- **Screen Capture Images –** WordPress Website: https://julietcrowther.com/screen-capture-images/

APPENDIX 3 – GLOSSARY OF TERMS

TEXTILE IDIOMS, PHRASES AND EXPRESSIONS

A stitch in time (saves nine)

Said to mean that it is better to act or deal with problems immediately, because if you wait and deal with them later, things will get worse and the problems will take longer to deal with.

16/05/2017 @ 19:34. Cambridge Dictionary. Retrieved from
http://dictionary.cambridge.org/dictionary/english/a-stitch-in-time-saves-nine#translations

Close-knit

Close-knit, adj. If a group of people are close-knit, they all help and support each other: a close-knit family/community. Held tightly together, as by social or cultural ties: a close-knit family.

Close-knit. (n.d.) American Heritage® Dictionary of the English Language, Fifth Edition. (2011). Retrieved April 23 2018 from https://www.thefreedictionary.com/close-knit

Cloth Ears

A humorous name for one who has not heard something that has been said. Primarily heard in UK. Come on, cloth ears, she practically shouted the answer—how did you miss it?

If someone has cloth ears, they do not pay attention or listen to something important. We've tried telling the government on numerous occasions, but they have cloth ears. Note: You can also describe someone as cloth-eared. Even cloth-eared politicians have finally realised the scale of the problem.

An inability to hear or understand clearly. British informal derogatory

Collins COBUILD Idioms Dictionary, 3rd ed. © HarperCollins Publishers 2012. Farlex Partner Idioms Dictionary © Farlex 2017. Retrieved from https://idioms.thefreedictionary.com/cloth+ears

Come apart at the seams

To be in a bad condition and about to fail or lose control. Large segments of the world economy seem to be coming apart at the seams.

Related vocabulary: come apart

Etymology: from the idea that when the seams (places where two pieces of material are sewn together) in clothing come apart, it can no longer be used

Come apart at the seams. (n.d.) Cambridge Dictionary of American Idioms. (2006). Retrieved May 16 2017 from http://idioms.thefreedictionary.com/come+apart+at+the+seams

Cut from the same cloth

Sharing a lot of similarities; seeming to have been created, reared, or fashioned in the same way. She and her brother are cut from the same cloth. They both tell lies all the time. Father and son are made from the same mould and even sound alike on the telephone.

For Collins COBUILD Idioms Dictionary: cut from the same cloth. (n.d.) Collins COBUILD Idioms Dictionary, 3rd ed.. (2012). Retrieved February 6 2018 from

https://idioms.thefreedictionary.com/cut+from+the+same+cloth

Don't trim your threads before the garments' done

Akin to the saying 'don't count your chickens before they've hatched' and 'don't put all of your eggs in one basket'.

Don't count your chickens before they're hatched: Don't make plans based on future events that might not happen. When my mom heard that I was preparing my campaign before even being nominated, she warned me, "Don't count your chickens before they're hatched."

No title reference source available.

Don't count chickens. (n.d.) Farlex Dictionary of Idioms. (2015). Retrieved April 23 2018 from

https://idioms.thefreedictionary.com/Don%27t+count+chickens

Embroider the truth

To adorn or embellish rhetorically, especially with ornate language or fictitious details:

He embroidered the account of the shipwreck to hold his listeners' interest.

To add embellishments; exaggerate (often followed by on or upon).

Embroider. (n.d.). Dictionary.com Unabridged. Retrieved May 16, 2017 from Dictionary.com website

http://www.dictionary.com/browse/embroider

Fray at/around the edges

If you say that something is fraying at the edges or is fraying around the edges, you mean that it has an uncertain or unsteady quality, for example because it is gradually being spoiled or destroyed.

There are signs that the alliance is now fraying at the edges.

Their marriage is getting a little frayed around the edges.

The champion, too, looked frayed at the edges.

16/05/2017 @ 19:21. Collins Dictionary. Retrieved from

https://www.collinsdictionary.com/dictionary/english/fray-at-around-the-edges

Hemmed In

To turn under and sew the edge of (a piece of cloth) 'she began to hem a border'

To hem someone/something in, is to surround and restrict the space or movement of someone or something.

Oxford Dictionaries. Retrieved 16/05/2017 from website

https://en.oxforddictionaries.com/definition/hemmed

Intertwined

To join or become joined by twining together.

Intertwined. (n.d.) Collins English Dictionary – Complete and Unabridged, 12th Edition 2014. (1991, 1994, 1998, 2000, 2003, 2006, 2007, 2009, 2011, 2014). Retrieved May 17 2017 from http://www.thefreedictionary.com/intertwined

In the loop

Having knowledge of and involvement in something. Watkins didn't go out of his way to keep his employees in the loop. Opposite of: out of the loop. Related vocabulary: in the picture.

In the loop. (n.d.) McGraw-Hill Dictionary of American Idioms and Phrasal Verbs. (2002). Retrieved May 17 2017 from http://idioms.thefreedictionary.com/in+the+loop

Knit and Natter

Knit: knit (verb) (MAKE CLOTHES). Using two long needles to connect wool or another type of thread into joined rows: She's forever knitting. She's busy knitting baby clothes.

Natter: Natter (verb) to talk continuously for a long time without any particular purpose: Once he starts nattering you just can't stop him. My mother and her friends natter away on the phone all evening. https://dictionary.cambridge.org/dictionary/english/knit
https://dictionary.cambridge.org/dictionary/english/natter

Measure twice, cut once

An axiom that encourages careful first steps in order to avoid extra work later on. I have to go back to the store because I cut the wrong size out of my last piece of material. "Measure twice, cut once" should be my new motto!

Measure twice cut once. (n.d.) Farlex Dictionary of Idioms. (2015). Retrieved April 23 2018 from https://idioms.thefreedictionary.com/measure+twice+cut+once

Needle-sharp

Very sharp. Very alert and perceptive.

Needle-sharp. (n.d.) Collins English Dictionary – Complete and Unabridged, 12th Edition 2014. (1991, 1994, 1998, 2000, 2003, 2006, 2007, 2009, 2011, 2014). Retrieved May 17 2017 from http://www.thefreedictionary.com/needle-sharp

Sewing circle

A group of people, especially women, who meet regularly for the purpose of sewing, often for charitable causes.

Sewing circle. (n.d.) American Heritage® Dictionary of the English Language, Fifth Edition. (2011). Retrieved May 16 2017 from http://www.thefreedictionary.com/sewing+circle

Spin a yarn

Tell a story, especially a long drawn-out or totally fanciful one, as in this author really knows how to spin a yarn, or whenever he's late he spins some yarn about a crisis. Originally a nautical term dating from about 1800, this expression probably owes its life to the fact that it embodies a double meaning, yarn signifying both "spun fibre" and "a tale."

Spin a yarn. (n.d.) McGraw-Hill Dictionary of American Idioms and Phrasal Verbs. (2002). Retrieved May 16 2017 from http://idioms.thefreedictionary.com/spin+a+yarn

Stitch-up

An act of placing someone in a position in which they will be wrongly blamed for something, or of manipulating a situation to one's advantage.

Oxford Dictionaries. Retrieved 16/05/2017 from website
https://en.oxforddictionaries.com/definition/us/stitch-up

Tack together

Create by putting components or members together. Assemble, put together, set up, piece, tack, bring together, join - cause to become joined or linked; "join these two parts so that they fit together"

Tack together - create by putting components or members together; "She pieced a quilt"; "He tacked together some verses"; "They set up a committee"

Tack together. (n.d.) WordNet 3.0, Farlex clipart collection. (2003-2008). Retrieved April 23 2018 from https://www.thefreedictionary.com/tack+together

Through the eye of a needle

Used as part of a comparison to indicate that something is impossible or extremely difficult to accomplish. Taken from the passage in the Bible (Luke 18:25), "For it is easier for a camel to go through the eye of a needle than for a rich man to enter into the kingdom of God." You'd have an easier time getting a camel through the eye of a needle than getting them to agree on the issue.

Camel through the eye of a needle. (n.d.) Farlex Dictionary of Idioms. (2015). Retrieved May 16 2017 from http://idioms.thefreedictionary.com/camel+through+the+eye+of+a+needle

Tie up loose ends

To take care of, finish, or resolve some issues or pieces of business that are not critical but have remained outstanding. I'm just about ready to move to Europe, but I need to tie up some loose ends with my ex-girlfriend before I go. Tie up loose ends. (n.d.) Farlex Dictionary of Idioms. (2015). Retrieved May 17 2017 from http://idioms.thefreedictionary.com/tie+up+loose+ends

Tie yourself/somebody up in knots

To become very confused or worried when you are trying to make a decision or solve a problem. To cause someone to become very confused or worried. They tied themselves up in knots over the seating arrangements for the party.

Tie in knots. (n.d.) McGraw-Hill Dictionary of American Idioms and Phrasal Verbs. (2002). Retrieved May 16 2017 from http://idioms.thefreedictionary.com/tie+in+knots

Trouble at the mill

Archaic term originating in the industrial North of England. Similar in meaning to the shit hit the fan

the mill, a textile mill or factory. <Lancashire accent> 'The'v layed off 200 hundred at Crossleys, the'll be trouble at 't mill, you mark my words'. By Blue Cawdrey November 23, 2004, Urban Dictionary: trouble at the mill https://www.urbandictionary.com/define.php?term=trouble%20at%20the%20mill

Unpick

If you unpick a piece of sewing, you remove the stitches from it.

If someone unpicks a plan or policy, they disagree with it and examine it thoroughly in order to find any mistakes that they can use to defeat it.

Collins Dictionary. Retrieved 16/05/2017 from website

https://www.collinsdictionary.com/dictionary/english/unpick

Unravelling (see Unpicking)

Weaving a tangled web

A complex, difficult, and confusing situation or thing. 'a tangled web of lies'

Oxford Dictionaries. Retrieved 16/05/2017 from website

https://en.oxforddictionaries.com/definition/a_tangled_web

To separate or disentangle the threads of (a woven or knitted fabric, a rope, etc.). To free from complication or difficulty; make plain or clear; solve: to unravel a situation; to unravel a mystery. Informal. To take apart; undo; destroy (a plan, agreement, or arrangement).

Unravelling. (n.d.). Dictionary.com Unabridged. Retrieved May 17, 2017 from Dictionary.com website http://www.dictionary.com/browse/unravelling

Web of deceit (see Weave a tangled web)

APPENDIX 4 – EXHIBITION INFORMATION

EXHIBITION THEME, SYMBIOTIC PROCESS: HUMAN – MACHINE – TEXTILES

The exhibition theme and title evolved as a result of discovering our shared commonalities, our textile processes, ancestral links and art practices. My digital embroidery process imbues a connection to my ancestral industrial textile heritage through the medium of industrial CAD technology and digital machinery and Ellie P Smith's machine knitted installations, represent her continuation of family knitting traditions through the mode of the domestic knitting machine.

The exhibition title '*Symbiotic Process: HUMAN – MACHINE – TEXTILES*' is further explained to highlight the relevant aspects correlating to my embroidery practice and Ellie P Smith's machine knitting practice:-

- **Symbiotic** =   *A physical association and interaction between two different entities*
- **Process** =   *In order to achieve a particular outcome, a succession of actions is needed*
- **Human** =   *Operative, designer, programmer and manufacturer*
- **Machine** =   *1/ Amaya 2 digital embroidery machine/CAD Software.*
                           2/ Domestic Knitting Machine
- **Textiles** =   *1/ Digitally Embroidered: Motif Samples, Portraits, Family Crest & Text Idioms*
                           2/ Domestic Machine Knitted Wall Installation and Knitted Samples.

Each aspect of the exhibition title directly corresponds to our individual methodologies used in our textile art practices. Even though our narratives and backgrounds are quite different, the processes and methods we employ are the shared connectives; the common ground that exists between us.

Further detailed exhibition information can be viewed online at WordPress

https://julietcrowther.com/exhibitions and https://julietcrowther.com/mp4-movies.

ARTISTS STATEMENTS – JULIET CROWTHER AND ELLIE P SMITH

JULIET CROWTHER (Researcher)

Art and Design (MA by Research) January 2017 – January 2019

ANCESTRY, TEXTILES, PROCESSES & METAPHORS

Exploring Personal Heritage, Narratives & Industrial Processes through Textiles

- Autoethnographic Methodologies
- Textile, Art, Materials & Processes
- Ancestral Links
- Textile Industry
- Textile Language (Idioms)
- Digital Process & Machine Production
- Symbiotic Relationship/Process

My current body of work is a culmination of research, fine art, portraiture, ancestry, textile heritage, language, CAD and machine embroidery. I am researching myself (autoethnography) as a Fine Artist and Commercial Portraitist, intentionally replacing my traditional familiar art materials and processes with thread, fabric, CAD and digital machinery. The CAD digital process has become my virtual sketchbook and drawing/painting tools; thread has become my drawn/painted line. The Amaya 2 embroidery machine not only produces my artwork, but it also aids me with connecting to my ancestors and provides me with a deeper understanding of their involvement with the textile industry. Through the medium of industrial textile machinery and process, I feel a shared sense of labour, responsibility, frustration, skill, repetition and intimacy. Another nod to my ancestry and the local textile industry, is my use of textile language (idioms) and metaphors – which are woven throughout my artwork; sometimes in a literal sense (e.g. Exhibit No. 21). Textile language is an integral element to my artwork. Through digital, mechanical and textile processes, it has been possible to bring past influences of lace making, worsted weaving and embroidery into my current practice – in a way that drawing and painting alone cannot do. For me, the textile art process is intimate, sensory, experiential, metaphorical, tactile and historical. I am not concerned with perfection and finish with my textile artwork, which is in opposition to my fine art and commercial portrait practice. All is revealed; including the mistakes and all the materials used; nothing is discarded. This series of textile artwork, aims to convey an open honesty, embracing the imperfect, rich in symbolism with personal historical references. The technical challenges, software errors and issues with materials have all contributed to the metaphorical aspect of my artwork. Human and machine working symbiotically, is not without challenge and requires constant monitoring and engagement during the digitisation and machinery process. I have discovered that digital textile machine production does not equate to 'easy'. Working with digital textiles, has proven to be a constant challenge that has pushed my ideas, designs and artwork in many unexpected varied directions. My work in progress, has become my work in process.

ELLIE P SMITH (Researcher)

Art and Design (MA by Research) 2017-2019

KNITTED TEXTILES, HUMAN BODY, CREATIVE PROCESS

Exploring knitted textiles in an art context, through creative process and personal experience

- Textile Art
- Domestic Machine Knitting
- Family
- Human Body in Isolation
- Colour
- Gallery
- Process

In a literal sense, textiles' is art. I find it to be expressive and creative; it is an art form and it is emotive – everything that art should be. Art is an expression of the artist and the skills they possess, amalgamated into a piece of work to show to others. With this in mind, I consider the emotive nature of knitted textiles… it is close to the skin, close to the heart and close to the mind. Textiles has been experienced by its user, viewer and maker, through touch, which provides a connection. Bringing this into an art world means it can explode and open up how textiles and art can be viewed together. Knitted textiles has always been natural to me. I have been surrounded by knitting my entire life, having come from a creative family with a keen interest in textiles and a desire to create. I find there is something so calming about the physical act of knitting. This is the same when it comes to using the domestic knitting machine. It becomes a full body experience because I have to manually move the carriage across the bed of the machine in order to knit a row. I have used the human body in isolation to create intrigue and exploration, as it may not be obvious at first what the designs are. The human body is relatable as everyone has one, but by detaching each section from a whole body, they become an object rather than something to compare yourself to. This paired with the use of colour makes it more playful and pleasing on the eye, to encourage discovery. I am passionate about getting knitted textiles into more art gallery spaces, to be recognised as art. I want the knitting to take over the gallery, to alter the environment by not allowing the walls to be visible in the areas it occupies. This way, the gallery has no choice but to show off the textiles. Through this exhibition, I have been able to investigate my own creative process, which up until now I have not necessarily paid much attention to because it is entrenched in me. My relationship to my craft and the machinery I use is quite a close one because I see it as an extension of myself. Everything has to be in harmony in order to work properly and effectively. If I am having an off day, then my machine will notice this and I will struggle to produce a piece of work on the first attempt, if at all.

EXHIBITION POSTER AND BOOKLET ARTWORK

The poster and booklet artwork for the Symbiotic Process: Human – Machine – Textiles exhibition, features the combined imagery of both Ellie P Smith's machine knitted figurative designs in the background, overlaid with my digitally embroidered self-portrait and a top layer of exhibition information text (see figure 50). By combining images of our differential textile artworks, a visual symbiosis occurs thus reinforcing the meaning and theme of the exhibition, whilst also providing a precursor to the show.

Figure 58 Exhibition Poster

EXHIBITION PHOTOGRAPHS AND AUDIO-VISUAL VIDEO INSTALLATION

Photographs taken of the exhibition venue and the artworks on display, can be viewed online via WordPress at https://julietcrowther.com/exhibitions.

The exhibition Audio-Visual Video Installation, showing MP4 movie clips of textile machinery production, miscellaneous photographs, screen capture images, textile language idioms, tools and workstations is available to view online via WordPress at https://julietcrowther.com/exhibitons.

EXHIBITION COMMENTS AND VISITOR INTERACTIONS

While invigilating the exhibition, both Ellie and I witnessed the visitor interactions with our textile artworks, most of whom wanted to discuss the exhibited artwork to gain more insight into our practice. Individually and collaboratively, myself and Ellie described our textile processes and methods used with enquiring visitors and there was much interest and discussion regarding our ancestral textile heritage. Ellie's machine knitted wall installation was intentionally installed in a specific way that encouraged and welcomed touch and interaction, with an adjacent notice inviting the audience to 'Please Touch'. Ellie would then monitor and evaluate the interaction, for primary research purposes.

Unexpectedly, my digital embroidered artwork attracted equal amounts of physical interaction and engagement, perhaps due to the way in which my artwork was mounted and displayed. Whereby, I had pinned the top corners of each piece directly to the wall, leaving the bottom corners and edge loose. Each piece appeared to flow, move and cast shadows – which I feel allowed for and invited physical contact. If my textile artworks were mounted and displayed differently e.g. Stretched as a canvas painting or mounted in picture frame – then the visitor interaction and engagement would have been dramatically different. Fabric is tactile and therefore there is a distinct urge for most people, to want to touch and experience it.

An interesting contribution to our exhibition, came via the visitor stories and recollections of their personal involvement of textile manufacture and taught hobbies and crafts that were passed down through the generations. These personal accounts served to enrich our exhibition and both Ellie and I felt great appreciation and connectedness through this dialogue. A small selection of comments and feedback entries were written in the exhibition visitor book and overall, the comments are positive and supportive, as shown in the scanned pages shown below, also available to view online at WordPress at https://julietcrowther.com.
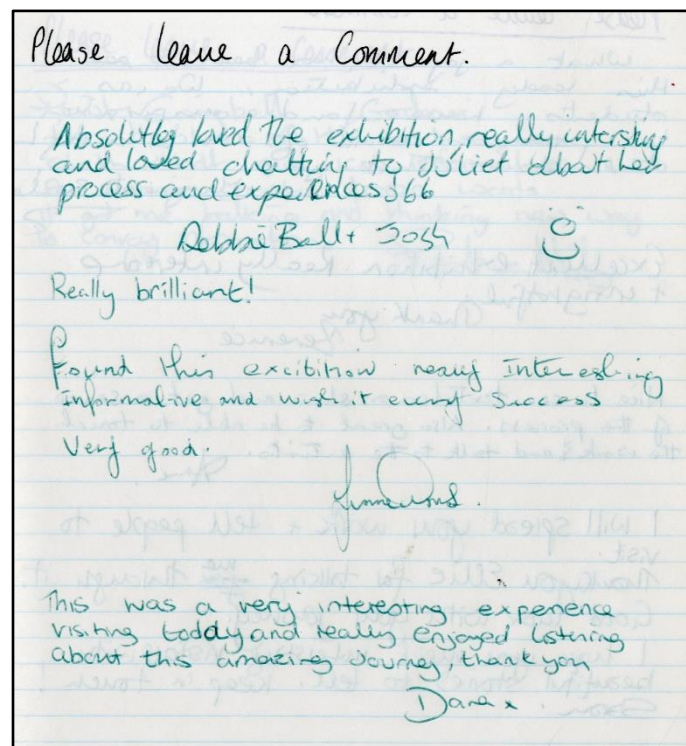

Figure 59 Page 1 Visitor Comments Book

Figure 60 Page 2 Visitor Comments Book

Figure 61 Page 3 Visitor Comments Book

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