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Materialising weaving: embedding a narrative of construction time within experimental woven textiles

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Abstract: This paper responds to the theme of processes, and poses the question: what methods and tools of design could be utilised in order to connect the user to textile making processes, in particular, the time involved in hand weaving? I share insights that I have gained from my own creative practice and postgraduate research, and draw on diverse literature including the work of Bauhaus designer and weaver Anni Albers. I reflect on how by attempting to aesthetically capture my own processes in cloth, the weaving act is revealed as a sometimes-flawed marker of time. The potential outcome of this research is the development of a framework for textile designers and weavers that privileges cloth as a conduit for temporal connections between maker and user. I posit that amplifying traces of time through the design of textiles may connect the eventual user/wearer to the ‘pulse’ of (a) weaving.

Keywords: weaving; making; textiles; time

1. Introduction

In the past three decades, global shifts in cloth and garment production have resulted in the typical person in Australia having low levels of exposure to textile weaving processes. To counteract the implications of a disconnect between consumption and production, the fashion and textile industry has made movements towards greater transparency and traceability using a variety of technologies and media. The intention of my research is not to disregard the role of this additional media, but to explore the potential for the textile itself to serve as the site for further user engagement. Responding to the conference theme of processes, this paper considers a possible synergy between maker and user, and asks: what new methods and tools of design could be utilised in order to aesthetically express a weaver’s time through cloth? I explore this by applying a practice-led research methodology, utilising a weaving log to track my actions, and employing Bauhaus weaver, artist and author



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Anni Albers' hierarchical 'three elements of weaving'; texture (weave), yarn and colour (1965).

Through practice-led experimental weavings, I propose a turn to the textile as the site for user engagement with the temporal aspects of weaving, and practice-led research as the vehicle to achieve this. This is akin to Nithikul Nimkulrat's practice-led research in textiles, where she writes of how research can "not only transform ways of designing or making artifacts, but also theoretically inform practice so that the practice can develop the practitioner's aesthetic intelligence, the results of which are craft objects that can be understood more easily by viewers" (2012, p.1). The potential outcome of this research is the development toward a processual aesthetic and a framework for textile designers and weavers that privileges cloth as a conduit for connections between maker and user.

Textiles already show faint traces of their making, though they may be very small or invisible to the naked eye. Additionally, woven cloth has been used throughout history to tell stories, sometimes of making, usually through symbolic and pictorial means, employing a variety of weaving and embellishment techniques. However, as we grow distant from traditions and rituals we lose ways of understanding and transferring craft knowledge, particularly in regard to time. In the global north this is compounded by our inability to operate at different speeds, a tendency towards permanent acceleration and a failure to 'teach time' (Thackara, 2013). There is also a growing inability to pass down cultural stories, that could be embedded and interpreted semiotically, arguably due to "the destruction of [traditional/cultural] ornament within the Modernist movement" (Fuller, 1988, p.117). In response to this, I examine what an aesthetic rhetoric, or narrative of construction time, might look like, with attempts to measure time, express time (and to eventually even 'teach time') through a weaving.

Reflecting on various lengths of woven cloth that I have designed and/or made, this paper examines weaving as material creation. In her essay 'Work with Material', Anni Albers suggests that if we "want to get from materials the sense of directness, the adventure of being close to the stuff the world is made of, we have to go back to the material itself, to its original state, and from there on partake in its stages of change" (1938b, p.1). Here, I explore how making processes – or 'stages of change' – might be intentionally etched in woven cloth. The experiments explored in this paper were predominantly created by myself in Australia, my place of residence, and Bangladesh, a country known for its high level of garment and textile production for export. As I highlight the tactile intricacies of weaving through practice, I reflect on its inherent complications too: to navigating the unavoidable synthesis of personal life and research. By recording the materialisation of processes in cloth, the weaving act is revealed as a sometimes flawed explicit and implicit marker of time, and the person behind it.

2. Methods and Methodology

Though the experiments here take multiple shapes, forms and origins, the goal was to eventually produce a series of small woven ‘samplers’. Approximately 12cm x 12cm, these samplers were designed to be used in my postgraduate research interviews in order to determine particular aesthetic markers that may allude to construction processes. The inspiration for the sampler¹ was from Sheila Hicks’ mini weavings². As mentioned previously, I have also employed Anni Albers’ hierarchical ‘3 elements of weaving’: texture (weave), yarn and colour (1965). Albers’ hierarchy worked on the philosophy that the weaver should prioritise texture – or structure³ – and then yarn, with colour only as a third consideration. This was in order to express the more spatial and temporal aspects of a textile. In this project I utilise this hierarchy in order to provoke greater haptic experiences to the potential user, rather than relying purely on optical cues.

The woven samplers and lengths of cloth discussed in this paper were created as I was learning to weave in early 2015 in preparation for this portion of my project⁴. I believe that despite lacking the tacit textile knowledge of a master weaver, my initial minimal skill provided an opportunity for my research. In Anni Albers’ essay ‘Weaving at the Bauhaus’, she considers the new textiles students of the Bauhaus to be fortunate to not have prior training in the craft, as “it is no easy task to throw useless conventions overboard” (1938a, p.1). Much like these students, I had to start at the beginning, “focussing upon the inherent qualities of the material to be used” (ibid.) and disregarding traditional handling techniques. My weaving samplers, while similarly ‘amateurish’, strive to continue a line of thought from the Bauhaus, where introducing a new craft to an untrained person leads to “an unprejudiced attitude toward materials and their inherent capacities” (ibid.).

My postgraduate research is about expressing traces of making processes through cloth, with my personal goal to allow people connect with everyday textiles – the primary source of this being garments. So though somewhat experimental, the idea of usefulness was still at the forefront of my work. While my work here was occasionally impractical⁵, I did employ a kind of ‘disciplining’⁶ to ensure that all textile samplers and lengths of cloth were seen as something that could potentially be adapted to be worn.

In this paper, I take influence from practice-led research that has taken shape during the last

1 The name ‘sampler’ is taken from the traditional term for a small textile practice piece (Humphrey, 1997), though usually showcasing embellishment.

2 As featured in her retrospective text *Weaving as Metaphor* (Danto et al, 2018).

3 This hierarchy represented a position shared by the majority of weavers that I worked with in both Bangladesh and Australia.

4 I learnt to weave through attending a variety of workshops, talks and meetings facilitated by *The Spinners, Dyers and Weavers Guild of WA*, *The Hills Weavers Group*, and the *WA Fibre and Textile Association*.

5 Some dyes used were not colourfast, and the structural qualities of some samplers may not stand up to regular washing.

6 Anni Albers describes the shift from free play cloth to utility/purposeful textiles at the Bauhaus as a kind of ‘disciplining’ (Albers in Danilowitz (ed) 2000, 4).

three decades in the field of design research. My motivation for using a practice-led research methodology is to produce and express new knowledge and theory originating from my design practice (Pedgley, 2007). As Owain Pedgley states of practice-led research, it is “highly personal, being centered on the creative practices of the self” (2007, p.464). To capture my own personal time, I utilised recording techniques such as my weaving log (Figure 1), to record the quantitative and qualitative aspects of weaving that I had recently encountered.

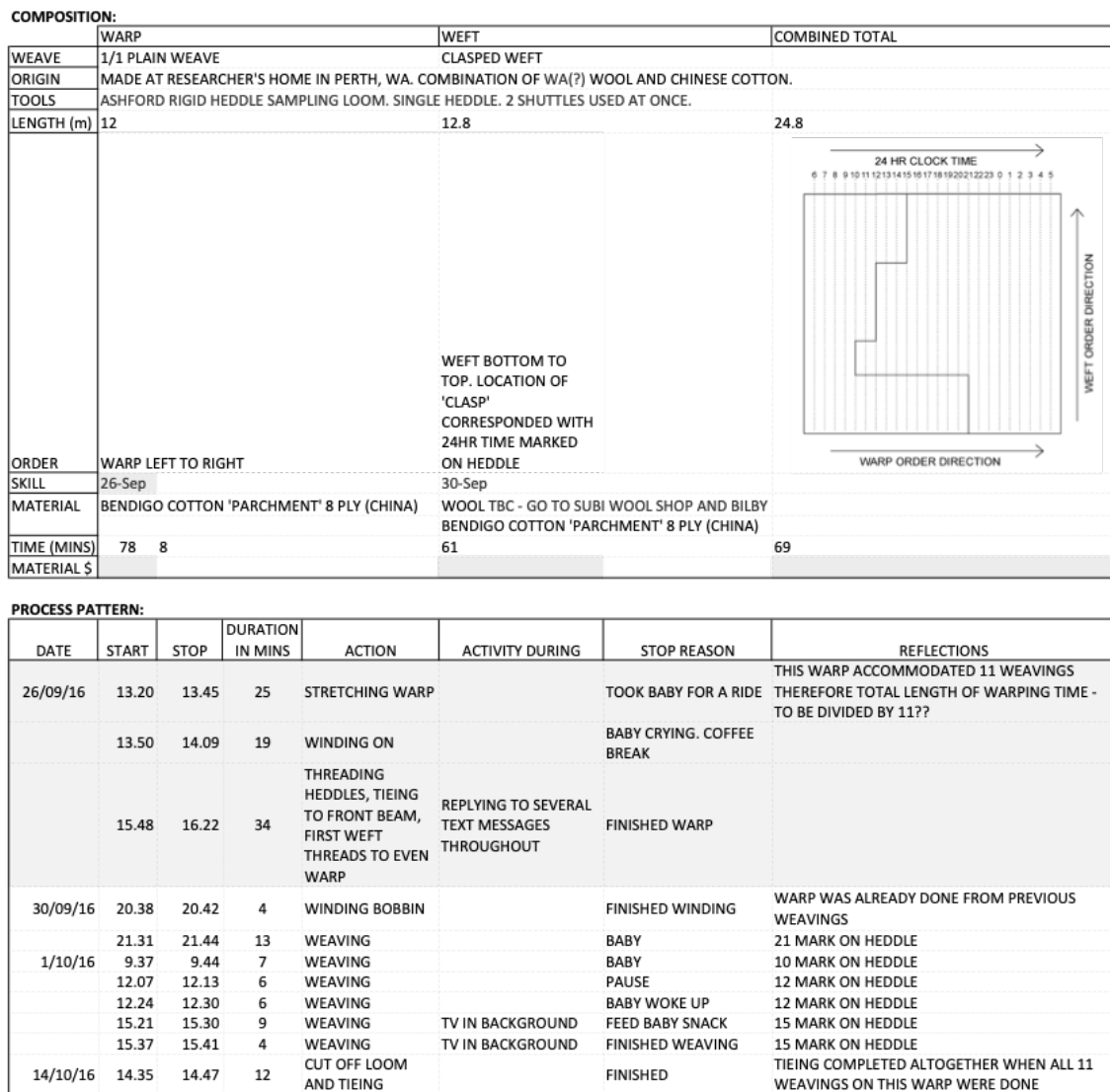


Figure 1 An example of my 'weaving log', tracking the creation of textile sampler 2Y1⁷

I remain mindful that by trying to express temporality I risk reducing it to the measurable, possibly designing cloth that becomes – as interior theorist Suzie Attiwill might describe–

7 It is worth acknowledging that tracking rhythm disrupts rhythm – something that I had already identified from the *Time Fabric* experiment at TSDS. For this reason, the samplers cannot be considered an accurate reflection of weaving without a log. However, for this project, the maintenance of the weaving log was part of the process, and therefore the activity of 'log-keeping' was inevitably embedded in many of the final textile samplers.

“*about time*” rather than “*an experience of time*” (2005, p.6). However, I look toward time as organised and understood through my weaving practice, and how it materialises. I then attempt to amplify these processual traces in order to narrate a textile’s construction through the cloth itself. Every weaving sampler produced in this paper acts as “a piece of evidence from the event [of weaving] itself, a material witness” (Solnit, 2003, p.17) – or the temporal journey of a thread.

As previously mentioned, the act of weaving is commonly defined as forming fabric by interlacing horizontal and vertical threads. The creation of a woven fabric requires much more than just the act of ‘weaving’ fibres together. Constructing a textile involves multiple people, multiple tools and multiple processes. These multiple processes could be included in experiments, such as yarn preparation; spinning, dyeing, winding skeins or balls, or even the picking of cotton and the shearing of livestock. However, due to my own limitations I restricted the total weaving time recorded to include the warping (or preparation) of the loom and ending with the cutting and tying off of ends after completing the weaving.

In her text ‘Hands-on Intellect: Integrating Craft Practice into Design Research’, Nimkulrat discusses how “craft as a way of thinking through material can be incorporated into practice-led design research” (2012, p.1). She states that “through handling materials in practice, a form of tacit knowledge arises, providing a particular way of understanding the practice that is grounded in the hands-on practice itself” (2012, p.3). Reflecting on Nimkulrat’s work in textiles and practice-led research, this project demonstrates how weaving can drive a practice-led research process, and how research can potentially enhance woven cloth.

3. Rhythm

The event of weaving involves repetitive cyclical motions – spinning, winding, warping the board, ‘throwing’ a weft left to right, right to left, looping back and forth of what is essentially a very long line, directed as a snaking thread, reflecting back the “rhythm that [weaving] imposes on the body” (Frampton, 1988, p.61). I initially explored the idea of rhythm in cloth when working with Mst. Shuily Khatun, a hand weaver at Thanapara Swallows Development Society (TSDS) in Rajshahi, Bangladesh. TSDS is a collective of weavers I had previously worked with for my former fashion and textile practice. Time Fabric (Figure 2 and 3) was a length of cloth woven on a hand-loom, with each stripe representing a visible change that marked the stopping and starting of Shuily’s weaving.



Figure 2,3 Creating the Time Fabric on the loom, rhythms of working amplified through the fabric

During my time at TSDS, I observed that it takes a considerable amount of strength and endurance to operate a large fly-shuttle handloom. As a weaver begins, they have more energy and pull both the fly shuttle cord with one hand and beat the weft hard and consistently with the other. However, as the weaver works they gradually become more tired, and the beater is pulled less vigorously. As a consequence, the weave may progressively get less dense and looser, until the weaver needs a break. When they return from their break they have somewhat regained their energy and will go back to weaving at full speed. This narrative becomes embedded in the cloth. The change in weave closeness is visible. I refer to it here as the ‘rhythm stripe’.

In *Time Fabric*, the rhythm of the weaver is visually amplified. Whenever she decided to pause or take a break she was asked to switch bobbin colours. Through the varied widths and quantity of stripes a pattern of work became visible; reflective of both “an experience and actualisation of time” (Attiwill 2005, p.7). The outcome is completely dependent on the maker and the situation – designed to map a weaver’s rhythm of making. This temporal and bodily narrative becomes embedded in the cloth. Like Sue Rowley, I similarly ponder whether it is overly romantic to suggest that the “temporalities of craft are somehow bound up with those of the human body” (2012, p.234), even though the shared perception of craft through literature (as well as my own experiments) align with this notion. According to Octavio Paz, craft encourages the sharing of physical life by transforming an everyday item, such as a textile, into a “sign of participation” (1987, p.60).

Throughout the following creative experiments, the rhythms of my own life and body were analysed alongside the rhythms of weaving. In order to explore this further, a weaving log was designed to track not only the material concerns of the samplers, but also my own rhythms. *Time Fabric* only examined the rhythm of weaving the weft. The *Rhythm Scarf* (Figure 4 and 5) incorporates both the warping and weft weaving as a more encompassing examination of a weaver's work. A warping board was used to prepare this particular loom⁸, and the stopping and starting of the warping was recorded by changing the colour of the yarn. The *Rhythm Scarf* was the preliminary example of recording warping time through the amplification of rhythm.



Figure 4, 5 Using a warping board to prepare the *Rhythm Scarf* warp, before it is transferred to the loom. A gradient emerged by changing yarn colour every time that I stopped.

For the *Rhythm Scarf*, I recorded the duration of each period of weaving by writing down the times that I started, and the times that I stopped. Like the *Time Fabric*, the pattern of working was actualised through the textile as I changed the colour of weft yarn every time that I paused. The resulting data (Figure 6) – both recorded in writing and recorded through cloth – was used to calculate the speed at which I was working. Initially I wanted to use speed as a measure of skilfulness in these experiments. However, as I was performing the calculations I realised that my speed was not akin to skill, but rather, general productivity, affected by multiple rhythms and events occurring throughout the weaving process. I finished the final five rows while watching a movie late at night, and kept taking extended breaks and working slowly, occasionally looking up to glance at the screen. It occurred to me that these experiences of weaving were not being recorded. I adapted the future weaving log with a section to remark what I was doing simultaneously, highlighting any possible distractions. However, I am still unsure of how such fleeting moments might be wholly embedded – and interpreted – in cloth.

⁸ An 8-shaft table loom, where 4 shafts were utilised to achieve both a plain weave and 2/1 twill.

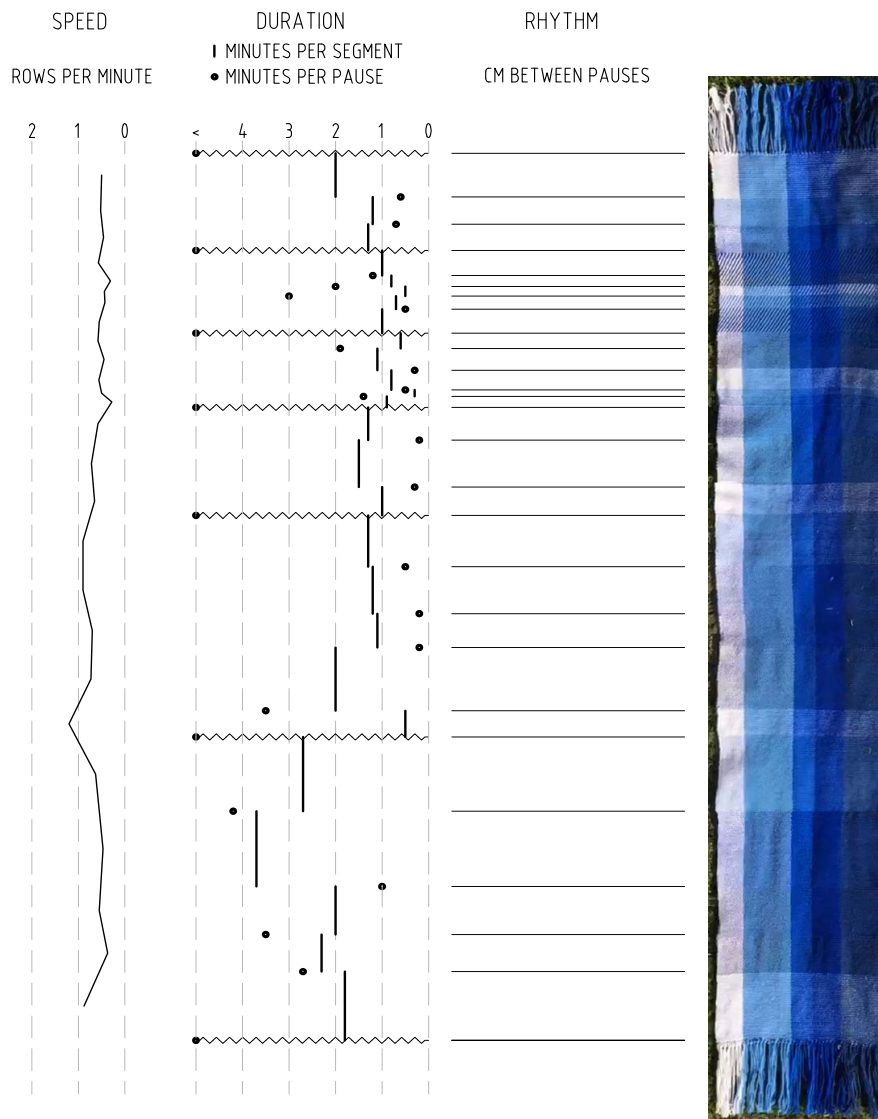


Figure 6 Rhythm Scarf data

User feedback on the *Rhythm Scarf* indicated that it may be a little complicated for a user to decipher, and thus difficult to interpret⁹. The decision was made to experiment a simpler version, and as such, the following two samplers focussed purely on the weft rhythms only. Both were plain weave samplers produced through the same brief – that I was to change yarn whenever I stopped working. Textile sampler 1Y1 (Figure 7) was produced using a contrasting yarn of a similar colour, and 1C1 (Figure 8) was made with a contrasting colour and yarn¹⁰. Though using the same weaving brief (only the colours varied), the stripes produced were different sizes due to the event of weaving being unpredictable and dependent on the moment in time.

9 This reflection was obtained during a pilot study involving participant feedback on the textile samplers and other lengths of cloth, including the *Rhythm Scarf*.

10 Produced on a rigid heddle sampling loom (single heddle)



(L-R) Figure 7 Textile sampler 1Y1, Figure 8 Textile sampler 1C1, Figure 9 Textile sampler 1TCY1

Though I expected the patterning to vary in size, by creating irregular stripes it seems to almost contradict the rhythm of weaving that I had experienced. Being in the workshop at TSDS meant hearing the constant rhythmic clicking of the looms – a rhythmic chaos, or as Paz describes it, “the heartbeat of human time” (1974, p.24). Getting out of sync or losing rhythm on the loom would result in mistakes. However, there was not as much consistency to my own weaving on my small table-top loom¹¹. Manually feeding the shuttle between raised/lowered warp threads was quite different to using a fly shuttle loom (shown in Figure 2) at TSDS. Keeping constant rhythm on a fly shuttle loom is a necessity and guided by the loom, whereas the rhythms of working on a table top loom (shown in Figure 5) were much more dependent on the mood of the weaver and the movements of the hand.

As mentioned, the rhythms of weaving have a repetitive regularity to them, as does the physical grid of the textile itself. Textile sampler 1TCY1 (Figure 9) has a check pattern echoing the structural grid of weaving through the (graphical) intersections of two ‘threads’. This particular sampler aimed to incorporate all three of Albers’ ‘elements of weaving’ – *weave* (through the use of two heddles to create a twill), *yarn* (by using wool, cotton, and polyester), and *colour* (utilising a colour scheme/gradient to indicate change and order for both warp and weft). This sample involved a lot of unexpected stopping and starting, and subsequently more stripes (or checks) than projected. Samplers 1Y1 (Figure 7) and 1C1 (Figure 8) had less stop-start moments, purely by accident as there were less distractions at the time. At TSDS the *Time Fabric* was usually disrupted either by choice (taking a break) or by running out of yarn on the shuttle bobbin. However, many of my interruptions during the weaving of the previous three textile samplers reflected a large impactful event in my life – having a child.

11 Perhaps due to the absence of economic pressure to be constantly productive, as was the case for the weavers at TSDS.



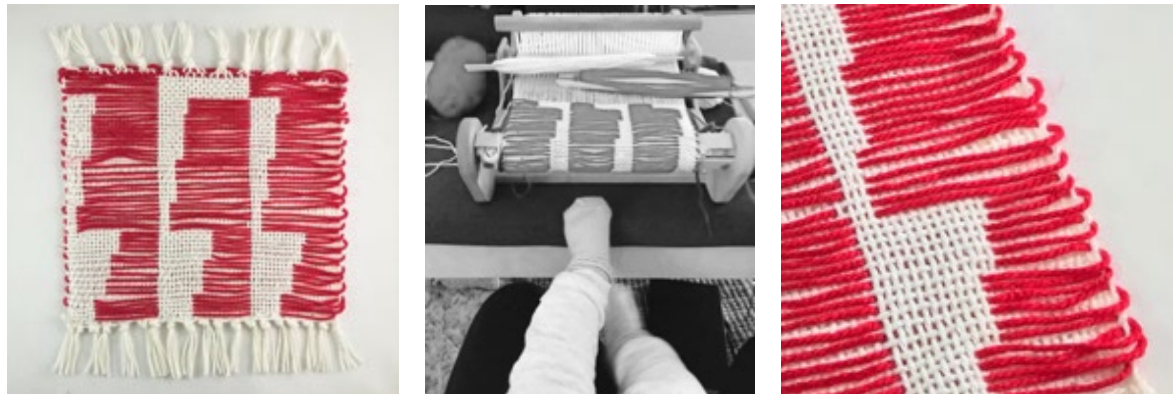
Figure 10 An 'interruption' recorded in both my weaving log and inevitably, the weaving sampler.

Despite cloth being made for our body, the mechanised looms on which our everyday textiles are produced are a technology that, as Solnit states, “regards the very terms of our bodily experience as burdensome” (2003, p.11). In contrast, the speed of my small table loom is comparatively slow, and the effect of parenting on timing is dramatically disruptive. The urge to control time must be released as every day is full of unpredictable events, even though having a baby comes with suggestions of scheduling in itself. At the time I was recording feeding times and sleeping times, as well as weaving times. Though recording my child’s movements originally seemed excessive, Pedgley states that “practice-led researchers must subscribe to the goal of making public one’s private design discourses” (2007, 464). The *Rhythm Scarf* was completed before the birth of my child, and the similar sampler *1TCY1* was completed when she was almost one year old. Whilst questioning the unevenness of the weave in *Time Fabric* and *Rhythm Scarf* as being unreflective of a weaver’s working rhythms, there was an irregularity to my circumstances that synched with the outcome of *1TCY1*. In this way, the maker, the body and rhythm were inextricably linked.

Textiles are constantly in flux. Construction, use and disintegration are all temporal processes that the textile undergoes throughout its life: it’s becoming (or unbecoming). However, the focus here is not on human use and its impact on cloth and its life/death, but rather an examination and amplification of the duration of the weaving process. According to Pallasmaa, we live in a world inundated with youth, beauty and perfection and therefore we “need experiences that mark and measure the course of time” (2007, para.16) in order to express time’s depth, and its availability (2007). I had endeavoured to measure time in a textile, and had some success measuring the patterns of making through my *rhythm* studies. However, representing the amount of time spent in quantifiable terms proved difficult. In the following experiments I attempted to acknowledge abstract time (or clock time) through cloth as a way to track *duration*.

4. Duration

For textile sampler 2C2 (Figure 12) I determined how many warp threads to skip at a time based on the 24-hour clock (for example, if it was 10:00am then I would skip ten threads). I was frequently disrupted during the weaving of this textile sampler. I left it set up in my living room for several days, just catching a moment here and there, often with a child on my lap. The resulting pattern captures that rhythm through the shifting size of the red thread *float*, as well as marking the time of day that I was weaving (the weft).



(L-R) Figure 11, 12 and 13 Textile sampler 2C2, reflecting duration, in various stages of its production

Using Albers' hierarchy, I also explored ideas solely through weave techniques. Textile sampler 2T1 (Figure 13) was made using a loop pile technique, similar to that used for making carpets. In this case, different diameters of timber dowel rod were cut, and the weft looped around. The diameter of dowel rod used corresponded to the time on the clock while weaving.



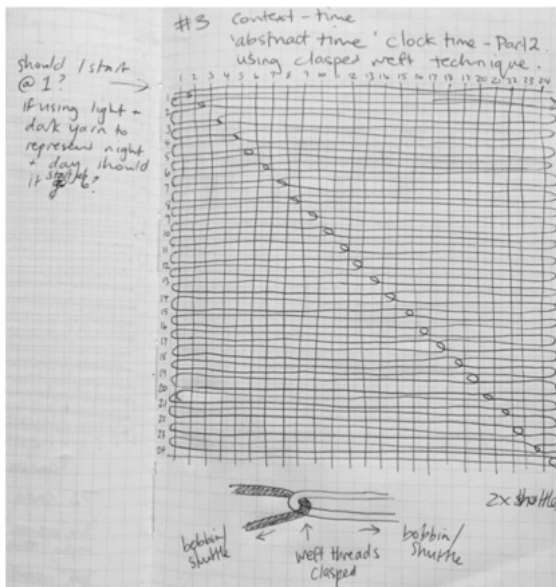
(L-R) Figure 14 Textile sampler 2T1, the length of pile corresponds to the time of day woven, Figure 15 Textile sampler 2C1, Figure 16 Textile sampler 2Y1.

To make a more 'disciplined' or garment-like textile¹², I designed samplers 2C1 (Figure 15, contrasting blue cotton weft) and 2Y1 (Figure 16, same colour, contrasting wool yarn weft),

¹² The reasoning for this is explained in the Methods & Methodology section of this paper.

using a clasped weft technique to mark duration. This was done using a similar technique to the previous experiments where clock time was marked on the heddle. However (like most of my weavings attempting to embed clock time), when the sampler is turned over then the coding is reversed, and the 'message' becomes undecipherable. While there is such a thing as a textile having a right side up, especially in pictorial fabrics, woven cloth is generally experienced in a multitude of ways. We feel cloth from the inside and see it from the outside. We may stand upright in clothing, but we also sprawl across upholstered furniture and lie horizontally wrapped in bedlinen. The common experience of cloth at multiple axes (Krauss, 1997) and from multiple sides is one that I would have to consider in future research.

PROCESS SKETCHES



TIME MARKINGS SHIFTED - TO REPRESENT DAY TO NIGHT RATHER THAN 1AM - 12AM

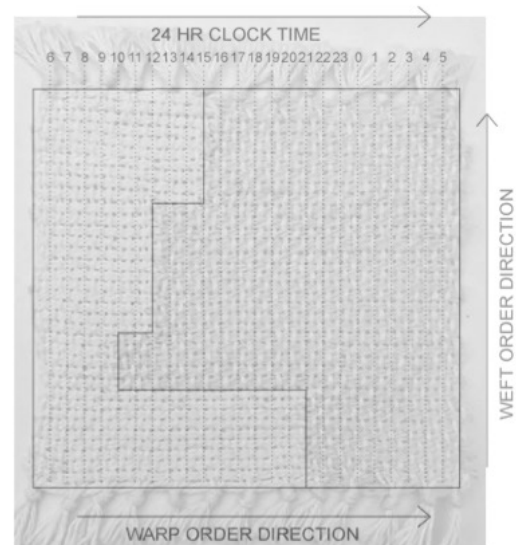


Figure 17 Duration sketch - to determine how to record clock time within cloth using a clasped weft technique and by assigning a time to each warp thread, Figure 18 Textile sampler 2Y1 diagrammed, with 24-hour clock time shown.

Additionally, the actual amount of time (duration) spent weaving was not quantified through the textile itself, only the accompanying process pattern data recordings. The resulting textile sampler may therefore be a better representation of rhythm, aesthetically logging patterns of making throughout the day. There is also the issue that duration is experienced differently, particularly experiences of time making textiles, wearing textiles, or simply sitting and touching textiles. Solnit describes how Einstein, in his attempts to explain relativity to the public, “repeatedly seized upon the image of a train running across the landscape, a train whose passengers were experiencing time differently to those who were on the ground” (2003, p.13). This can also be likened to one of Mihaly Csikszentmihalyi’s eight characteristics of being in a flow state: the *transformation of time* – time as experienced differently when engrossed in weaving and appearing to speed up or slow down depending on engagements and/or enjoyment (1990). One hour of weaving with concentration, bodily actions and movement, would be experienced differently to one hour of somebody sitting and holding a

cloth that had already been woven. The subjectivity and relativity of time are the things that I must consider when trying to express something such as duration.

5. Conclusion

Making my own cloth, and handling cloth made at human speed, allowed me a chance to see myself in a textile; to participate in a wholeness (Solnit, 2003) that has been taken away from many of us due to technological and global changes. There are multiple aspects of time and memory that I successfully recorded on my weaving log but proved difficult to capture in cloth – such as background noise, distractions and life-related reasons for pausing. Though I did not record my own mood for this project, it is worth nothing that there are ways in which to capture and record emotional aspects of making textiles. Using similar recordings, Nimkulrat writes of how research can theoretically inform practice in order to develop a designer's aesthetic intelligence in order to design objects that can be interpreted more easily (2012). As the future intention for this work is to distribute the samplers and ask a series of questions in order to gauge how they might express temporality to others, by exploring and employing more of Nimkulrat's methodology in my future work I might work towards a clearer implicit and explicit expression of time through cloth. The cloth samplers continued to represent a rhythmic pattern of working without any explicit stories visibly attached. Tacit findings may be detected through the interviews with participants in my future research.

The outcome of this research was the movement toward the development of a processual aesthetic, supported by a framework for textile designers and weavers that privileges cloth as a conduit for temporal connections between maker and user. However, most textile experiments and samplers featured here were physically incapable of expressing (explicit) quantitative aspects of time. They cannot be read and interpreted without some kind of accompanying chart, and even if a decoding chart was provided, it could only show the abstract time or 'clock time' at the moment of making. As Rowley suggests, there are multiple temporalities to textiles that are already present (1999), without having to reduce it to the measurable or calculable; to space (Grosz, 1999). Some of the textile temporalities that I intend to explore further in my weaving involve mutability, or *changefulness* - including movement, order, and subsequent wayfinding.

Another consideration of the temporal qualities of woven cloth lead to the question: when does a textile begin, or end? In light of this query, the textiles in this paper might be considered more as projects, or processes. Throughout my research I have struggled to identify a beginning or end point to weaving, with the woven textile being constantly in a state of becoming. As a *changescape*, textiles "tend not to finish" (Gibson, 2005, p.17). It remains open as to whether the woven textiles in question were ever 'finished' or whether they are still unfinished – remaining infinitely in-process.

Working with what is basically an ancient technology, using plant and animal yarns, and restricted to an unregimented and slow – yet chaotic – rhythm due to being a new mother,

weaving these samplers often reminded me of larger forces at play, as well as my own impermanence (Macklin, 2007). On making and corporeality Paz states that “handiwork teaches us to die and hence teaches us to live” (1974, p.24). The weaving log recorded the unpredictability of the things around me – a mixed tempo, often distracted and bodily affected pattern of weaving. The samplers attempt to display what Attiwill might describe as a “performative quality ... event-objects where objects are part of events and not discrete, self-contained objects” (2005, p.6). The work eventuating from these experiments will eventually be examined beyond this paper for not only its temporality but also its mutability, a creative outcome “where material and process becomes content” (p.6). Based on my weaving experiments I posit that amplifying traces of time through the design of textiles may connect the eventual user/wearer – or in this case, the interview participant - to the ‘pulse’ of (a) weaving.

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