THE AFFORDANCES OF AFFORDANCE THEORY FOR SUSTAINABLE FASHION DESIGN PEDAGOGY

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Abstract

'Affordances' are understood to be the subjective and embodied perception of what an object or material might enable one to do, or, in the words of ecological psychologist James Jerome Gibson, 'the affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill' (Gibson, 1979: 127). In a consumer culture context, the natural environment has afforded the production and use of vast amounts of materials and goods resulting in devastating amounts of waste. As a key contributor to this waste, the fashion industry - including fashion educators - are responsible for addressing and reducing this waste which constitutes an undeniably large proportion of the 'environment' in which the contemporary fashion designer now finds themself. This paper presents data collected during an introductory activity within the course *Fashion Design Body Artefacts and Accessories* in the Bachelor of Fashion (Design) program at RMIT, Melbourne (2021). Extending upon Glăveanu's research which utilises Gibson's seminal theory of affordances to re-evaluate the agentic role of material objects in the conceptualisation of creativity (2012), the activity *This is Not a Shoe* uses the material deconstruction and consequent 'defamiliarisation' of used shoesto explore how unconventional affordances can be perceived and utilised to inspire innovative fashion design outcomes. The research contributes to emerging sustainable fashion design pedagogies by developing and critically reflecting upon activities that assist a methodological shift from a design-led approach to materials, to a more sustainable material- driven approach to design. More than simply upcycling waste materials the research explores the embodied and transferable capabilities and knowledges that can be enhanced through material reuse in an educational setting.

1. Introduction

This paper reflects on the ongoing development of an introductory activity and assignment within the course *Fashion Design Body Artefacts and Accessories* in the Bachelor of Fashion (Design) at RMIT University (2020-2021) that uses fashion praxis to redress the ways we do fashion in a sustainable context. Through a theoretically-driven approach to learning design, the 'This is Not a Shoe' activity encourages students to 'unmake' a pair of used shoes and use the resulting components to inspire new accessory outcomes. In doing so, we join others in introducing a methodological shift from conventional and often unsustainable design-led approaches to materials, to a 'material-driven' (Karana et. al., 2015) approach to design. In this context and in line with established and evolving practices of upcycling, rather than sourcing materials to realise an accessory design, students are encouraged to utilise and collaborate with existing and available materials, often resulting in unexpected encounters, discoveries and design ideas. Eponymously named and developed from the lead researcher's doctoral study (Sherlock, 2014, 2017) the activity and course within which it sits uses Gibson's theory of affordances in conjunction with practices of defamiliarisation as a framework to effect this shift in design thinking and reflect on outcomes. In doing so the activity goes beyond establishing methods for upcycling - a practice often criticised for its limitations for scaled reproduction - to explore the embodied and transferable capabilities and knowledges that may be enhanced through the practice of material reuse. The co-researchers, themselves practitioners, bring further theoretical and embodied perspectives to the development and delivery of the course activities and interpretation of data (Joannides, 2017; Jagiello, 2017), discussion of which explores the conditions necessary to perceive and utilise unconventional affordances and enhance a perception of matter - increasingly important in these digital times. These data also present an opportunity to identify barriers and challenges faced when adopting a material-driven approach within design education and the research proposes specific methodological parameters that could enhance the meaningful, scalable and sustainable use or reuse of materials. By also positioning this research firmly within fashion design practice, we contribute across discipline fields and propose speculative future approaches to the way we teach design more broadly.

2. Literature:

2.1 Affordance theory, creativity and material-driven design

In 1979 ecological psychologist James Jerome Gibson wrote his seminal text *The Ecological Approach to Visual Perception* from which the theory of affordances has evolved. In an oft-cited quote, Gibson defines 'the affordances of the environment [to be] what it offers the animal, what it provides or furnishes, either for good or ill' (1979: 127). According to Gibson, what we see when we look at objects or materials is not an objective set of features or values, but their affordances - people only perceive and notice elements of the environment that might provide or furnish them with something (ibid.). Affordances therefore cut across the subjective-objective dichotomy, '[they are] equally a fact of the environment and a fact of behaviour'

(ibid: 128). Used for its simplicity, his theory has been described as an 'elegant and practical tool' (Davis, 2020) to counter persistent Cartesian perspectives in philosophy and cognitive science by 'relocating mental processes from "inside" the brain to "in between" mind and body, person and the surrounding environment' (Glăveanu, 2012: 193). Consequently, Gibson's theory has been developed by numerous scholars (Heft, 1989; Costall, 1995; Ingold, 2000, 2011; Chemero, 2003; Knappett, 2004, 2005) and its transition into design studies to consider how technologies encourage or discourage particular types of use (Norman, 1988, 1998) heralded the affordances of affordance theory for multiple disciplines such as science and technology studies, communication studies, education, anthropology, sociology and engineering (Davis, 2020: 25).

In contrast to its largely scientific use and in conjunction with a material turn in the social sciences and humanities over recent years, notable scholars such as Ingold (2010b, 2013) and Malafouris (2008, 2013) have adopted Gibson's theory of affordances to understand relationships between bodies and materials through practices of craft and making. This has had significant impact for reconceptualising notions of creativity (Glăveanu, 2012, Withagen and van der Kamp, 2018). Here, materials are understood to have agency (Knappett and Malafouris, 2008) becoming active 'collaborators' in the creative process (Ingold, 2013: 31), participating in and inspiring the generation of design ideas rather than being used as a solution (Barati and Karana, 2019:105). Creativity is therefore understood to be 'distributed' between the designer and the material world (Glăveanu, 2014).

Creativity is further defined by the *unconventional use* of an object's affordances (Withagen and van der Kamp, 2018: 4; Glăveanu, 2012), a process that is only accessible through practical interactions with materials such as 'tinkering, experimenting and making' (Barati and Karana, 2019: 118). In this context, conventional or 'canonical affordances' (Costall, 2012, 2015) can be overcome to perceive 'novel affordances' (Glăveanu, 2012), resulting in spontaneous discovery, invention of techniques and transgression of norms (Barati and Karana, 2019: 116-117). Furthermore, it is argued that affordances are not only *revealed* through sustained collaborative experimentation, but also 'generated' by this process (Barati and Karana, 2019), as the unconventional affordance did not exist prior and is therefore collaboratively 'invented' by the body/environment. Fisher asserts therefore that affordances cannot 'simply be "built into" or "read out of" artefacts, but are discovered by users through interaction with them' (2004: 26).

Withagen and van der Kamp explain that the unconventional use of affordances on its own however is an insufficient criteria for creativity; a sense of meaning and purpose is also required (2018: 4). The drive towards sustainable design, whether by reducing material use or reusing materials, provides purpose to enhance a perception of novel affordances, a point seldom recognised within current literature. Choice and availability of materials, tools and technology abounds students in higher education today, but it is the denial of choice that enables innovation and economical use of materials, and forces a focus on considered, sustainable over traditional design. As Fry, Dilnot and Stewart provocatively state in their analysis of design history, by continuing to follow conventional design methodologies students are 'educated in error', they are 'educated in defuturing actions' (2015: 16-20). The increasingly institutionalised

prioritisation of form over materials continues to be afforded by new technologies such as computer aided design (Pantazis, 2013 in Barati and Karana, 2019: 109). This of course is not to deny the affordances of CAD for a more sustainable future but as Pizzocaro highlights, 'matter still matters', perhaps *especially* in the education of design for an immaterial age (2018). [3] Despite this, a consideration of the potential of a material- driven approach for sustainable design is still in its infancy.[4] Frequent terminology referring to the 'exploitation' rather than 'utilisation' of materials, and 'invention' rather than 'generation' of 'novel' rather than 'unconventional' affordances suggests a continued anthropocentric approach and pursuit of a mastery over materials and the environment.

2.2 Rematerialising fashion design

While the theorisation of affordances in relation to creativity and material-driven design gains momentum, according to Barati and Karana there is currently no framework for the identification and discussion of the creative contribution of designers at 'design time' (2019:108). Furthermore, with the exception of Glăveanu's important study of traditional egg decoration activities in rural Romania (2012), there is a dearth of empirical research investigating the contexts in which designers and makers are able to perceive, generate and utilise unconventional affordances (Barati and Karana, 2019:112). This is of particular interest from our own perspective as fashion design lecturers educating a digitally native and largely materially illiterate generation of students. We suggest that the field of fashion design is ideally situated to both benefit from and contribute to the evolution of affordance theory within design in an ecological context, yet work in this area is difficult, if impossible to find.[5] This is perhaps because the ecological approach to visual perception has tended to emphasise direct perception and 'functional meanings at the possible expense of symbolic meaning' (Knappett, 2005: 85).[6] While clothing can be understood as highly functional, 'fashion' (from which no item of clothing is immune) is one of the most symbolic, culturally and socially mediated forms of consumer culture. Indeed, as Sampson eloquently states, 'the symbolic dematerializes things' (2020: 57) and it is the cultural dematerialisation of fashion that perpetuates its environmental impact. We suggest that the theory of affordances, when applied through material-driven design, has the potential to re-materialise fashion by overcoming conventional and unsustainable design practices and perceptions of materials.

[3] For example, Pinski, Kane and Evans (2018) discuss the value of a craft-based logic for ensuring sustainable approaches to CAD-based footwear design.

[4] Burgeoning research includes Bak-Andersen's *Reintroducing Materials for Sustainable Design: Design Process and Educational Practice* (2021).

[5] With the exception of Sherlock (2014) Gibson's theory of affordances is seldom, if ever, employed in studies of fashion and its value for sustainable fashion design practice is not yet recognised. See Ribul, Goldsworthy and Collet (2021) for a proposed material-driven approach to textiles design.[6] While the affordances of affordance theory within the field of product design is becoming established, a move to fashion design warrants a greater consideration of 'semiotic affordances' (Windsor, 2004; Michael,2000; Keane, 2003 & 2005; Jensen, 1995; Sherlock, 2014)

In summary, while the use of Gibson's theory of affordances to evolve and understand creativity and material-driven design is not a new proposition, the contribution of the present research explores what these developments look like in the context of fashion (a symbolically potent form of materiality) and, following Barati and Karana, how 'novel material potentials actually come about in practice' (2019: 112).

3. Methodology:

3.1 Defamiliarising fashion with footwear

When it comes to the dematerialisation and environmental impact of fashion, perhaps no item is more pertinent than shoes. In his book *Fewer Better Things* Adamson argues that '[s]hoes are among the many things contemporary society produces badly - not in the sense they are technologically unsophisticated (Nike, Adidas, and other brands spend a fortune on R & D) but in the sense that they are disastrous for the planet' (2018: 207). Similarly, Hoskins highlights the diverse materials, components and adhesives that render most shoes impossible to disassemble and recycle to scale (2020), yet the environmental impact of footwear remains largely unrecognised. When applied to footwear, material culture theory suggests that the symbolic status of shoes as metaphor, metonymy or synecdoche and their often ordinary and everyday use, renders them invisible (Sherlock, 2017, Sampson, 2020). From a design and production perspective, Bell et. al. argue that practices of 'making strange' or 'defamiliarization' are an important tool to enable designers to see beyond these naturalising devices and experiences; create space for critical reflection; open up new possibilities for design and challenge or rethink existing design legacies or habits (2005: 150). Indeed,Glăveanuexplains that 'affordances are of little use if they are not perceivable to the user' (2012: 197), therefore, we propose that making matter visible requires a process of 'making strange'. An activity to 'unmake' a pair of shoes is helpful on numerous levels as a strategy toencourage fashion students to 'unlearn' ways of knowing, 'see' matter, perceive material affordances andcritique conventional and unsustainable uses of materials.[7]

3.2 Learning design:

The activity providing the focus of this study was the deconstruction and reconstruction of used shoes. Practices of deconstruction are of course not unusual in fashion design (see Gill, 1998, 2016, and Granata, 2017), however the application of an affordances framework in conjunction with a material-driven approach to design, re-conceptualises the value of deconstruction for sustainable fashion design pedagogies, assisting students to develop strategies for the

[7] This research does not claim the deconstruction of shoes as an original pedagogical method, indeed one of the researchers had conducted a similar activity previously within RMIT's School of Art, designed by lecturer Natalia Milosz-Piekarska. The originality of this research is in its endeavour to articulate *why* shoes are so useful in an educational context and what we can learn from this activity to develop sustainable design methodologies.

sustainable use and reuse of materials. Inspired by Glăveanu (2012) and Sherlock (2017) the activity design, choice of artefact and assessment criteria aimed to prevent students from taking a normative course of action and access '"unperceived," "uninvented" and "unexploited" affordances' (Glăveanu, 2012). The outcomes of the activity were analysed to determine the success of the learning design and in what conditions unconventional affordances could or could not be perceived, generated and utilised. In the context of the twelve-week course, the activity was designed to activate a perception of matter to be further developed through two further assignments finishing with refined accessories or wearable artefacts. The materials used for these further assignments were disposable household items and packaging - much of which, like the used shoes, is conventionally perceived as unusable waste and rendered abject, ugly, insignificant or even invisible.[8]

The activity was designed in three parts: analysis, deconstruction and reconstruction, taking place across two classes over two weeks early in the course. Students were required to find a pair of shoes ready for disposal. We found the choice of shoes was directed by the kind of accessories students wanted to make, leading to pre-determined outcomes that undermined the intended material-driven approach. Pairs were therefore separated and mixed together for selection using a blindfold and sense of touch alone. Selected shoes were then reunited with their pairs. The swapping of shoes between students was an intentional (if unpopular) strategy to disable these preconceived ideas, marking the first of a set of requirements designed to open them up to perceiving new material affordances.[9]

Following this initial process of defamiliarisation, the physical deconstruction and reconstruction of the shoes commenced. Students were encouraged to use tools they had to hand - for fashion students this included scissors, a craft knife, 'quick-unpicker' and needle and thread (fig. 1). In addition, they were introduced to the affordances of a tailor's awl for driving holes through tough materials and pliers for material manipulation. In recognising therole of material agency in relation to affordances and material-driven design, students were encouraged to consider what interventions the shoes 'invited', 'permitted' or 'resisted'. This kind of language along with questions such as 'what do the shoes want you to do with them?' were used intentionally to nurture a sense of collaboration and communication with, rather than dominance over materials (an approach shared by Nimkulrat [2009] and Franinovic [2013] in Barati and Karana, 2019:115). Following deconstruction, a flat-lay photograph of the component parts was taken (fig. 2 & 3) before proceeding to a making phase where they were asked to consider how the component parts might want to be reformed, joined or adapted. Through interaction with the materials, students speculated on what these new forms might be used for or where they might be placed on the body. Importantly, the assessment criteria

[8] In a previous iteration of the course in 2020, fashion production waste was used for assignments two and three. Donated leather off-cuts by German footwear manufacturer Trippen provided a challenging assortment of colours, shapes and qualities of leather.

[9] In 2021 (the period of data collection for this paper), the course was shifted online due to Covid-19. Students were therefore able to use their own shoes, however a blind sensory analysis encouraged them to perceive the materiality of the shoes beyond the brand, style and colour that may have initially attracted them.

discouraged (although did not ban) students from using virgin materials such as adhesives, embellishments or jewellery findings and required them to utilise as many of their materials as possible. During the activity they were asked to visually record and reflect on their process and account for any leftovers.

Figure 1. Commonly used tools. Image: Ella Harris

Figure 2. Pre-deconstruction sneakers. Image: Ella Harris

Figure 3. Flat-lay deconstruction. Image: Ella Harris

3.3 Data collection and analysis

Data was collected over two semesters during 2020 and 2021 involving 72 students in total. Data presented in this paper focuses on the experiences of 27 students undertaking the most recent iteration of the course in July 2021, 14 of whom agreed to be identified. The activity in question was assessed through a five-minute visual-verbal online presentation. All data, including the recordings and transcripts of the presentations were uploaded to NVIVO where they were thematically coded in relation to the aims of the research. Emerging themes were regularly discussed in analysis meetings with teaching staff for verification purposes and cross-referenced with field notes taken during and after classes.

4. Findings and Analysis

4.1 Commonly perceived affordances

To understand how unconventional affordances can be perceived, we must first identify commonly perceived affordances. Data was therefore analysed for the repeated selection and use of particular shoes, materials, techniques and strategies. The most common styles of shoes selected were sneakers and slippers due to their 'interesting' appearance, 'promise' of diverse materials and a (sometimes incorrect) perception that they would be easier to deconstruct due to their fabric and stitched construction. Unlacing and unpicking were a common starting point, with the discovery that the removal of the sole made this process easier - soles and adhesives were a frequent area of difficulty. Commonly identified affordances included laces and eyelets (used during reconstruction to connect, secure and create an adjustable fit, for example figs. 4 & 5), and heel counters and toe caps (identified for their capacity to cup, protect and emphasise parts of the body such as breasts, elbows, wrists, knees and shoulders (figs. 6 & 7). The lacing and cupping, combined with the sparse materials provided by the shoes were identified by several students as affording a 'festival' or 'rave look'. For this reason, perhaps the most common outcomes were variations on corsets, bodices and harnesses, followed by bags and purses. Brooches and earrings were perceived as a way to use small pieces, as were belts comprised of multiple parts. It was the more unconventional outcomes, described here as *wearables* or *wearable sculptures* that indicated a more material-driven approach, influenced less by conventional archetypal forms and more through experimentation with materials on the body. The questions arising here were: what enabled or prevented students from going beyond commonly perceived affordances? In what ways might the learning design and assessment criteria have affected perception of unconventional affordances? And, what can be learnt from students' own strategies and responses to the activity and criteria?

Figure 4. Front view. Laces and eyelets used to afford an adjustable fit. Image: Ella Harris
Figure 5. Back view. Image: Ella Harris

Figure 6. Heel counter, toe cap and canvas upper. Image: Madsy McInnes-Smith

Figure 7. Heel counter and toe cap affording elbow protection. Image: Madsy McInnes-Smith

Importantly, in presenting these data it is of note that none of the students' submissions or practices were deemed incorrect. Far from critiquing work, the intention is merely to determine ways to enhance a shift from a legitimate and established design-led approach to materials to a

more sustainable material-driven approach to design. Here, an emphasis on material affordances is proposed as a way to facilitate and understand this shift which was evidenced to varying degrees by the students' responses to the activity.

4.2 More than just upcycling

During analysis, it proved useful to loosely divide students into three categories: those who exhibited or embraced a material-driven approach to making; those who continued to use traditional design-driven approaches (such as sketching, 'brainstorming', patternmaking and the use of research for visual inspiration and design precedents), and those who sat somewhere in-between, using a mixture of both. These in-between students provided the best initial insights to the strengths and weaknesses of the activity design. One such student who converteda sneaker into a bag (fig. 8 & 9) explained her process:

> "I was kind of brainstorming what the sole would be useful for, and I decided it would be probably best for something off the body, as the base of a little bag because it's, like, sturdy and quite bulky. So for the final one, I started with the baseof the shoe and then I kind of, I got, like, some bigger pieces and I just kind of gluedthem onto the bottom to make the base of the handbag. And I found that the superglue was working very well because I was planning on, like, sewing the fabricpieces together. But the superglue was just really easy and quick and actually reallystrong. So I just kind of collaged all the pieces using the super glue around the shoe.And yeah, I just tried to make it like roughly the shape of a bag. And then I used -I didn't want to create any waste - so I used the shoelace as the strap here. And I threaded it through the original holes that the shoelaces were on in the shoe. So yeah, that's the final artefact, there it is on the body."

The student clearly demonstrated a perception of the affordances of the sturdy and bulky rubber soles for use as the base of the bag and her aim to use all the materials ensured an effective use of the laces as straps and holes or eyelets for connecting. In contrast, her approach to design through 'brainstorming' and sketching, along with her efforts using glue to 'make' the materials take the shape of a bag, demonstrated a tendency to be guided by conventional accessory archetypes, precedents and practices. The outcome however was extremely effective and entirely legitimate in relation to established fashion design practices, indeed it was the kind of bag one might see from deconstructionists like Martin Margeila or, with respect to shoes more recently, Paolina Russo - a postmodern collage of materials bearing an almost humorous reference to the object's past life. The bag was however more the kind of 'upcycled' artefact one might typically associate with material reuse than a demonstration of a genuinely sustainable, material-driven shift in design thinking. Indeed, this more postmodern approach to upcycling had meant that rather than deconstructing and remaking the shoes beyond all recognition, the identity of the components had been intentionally retained for novel effect. She explained: "I could have taken apart the tongue fully and taken off the label. But then I would have just had really small pieces and I kind of liked having the effect of the full tongue in the final artifact."

Furthermore, part of the appeal of the bag was the recognisable sole resulting in a familiar, yet unfamiliar uncanny affect.

Figure 8. Pre-deconstruction sneaker. Image: Sophie Watt

Figure 9. Reconstructed bag. Image: Sophie Watt

In relation to this particular example, two key observations can be made. Firstly, the partial deconstruction and consequent references to the original shoe potentially denied the student the opportunity to move beyond its original function and meaning to perceive, generate and utilise the materials' more unconventional affordances. The second issue to disadvantage this and other submissions was the use of virgin materials. In this case, it was glue but for many others it was materials such as staples, eyelets, press-studs, jewellery findings and paint, whichenabled them to 'stick' safely to convention, control their materials and realise their preconceived ideas. Those who resisted the use of virgin materials were required to adapt by joining components in different ways that afforded the discovery of entirely new and often unexpected objects, forms and techniques.

4.3 "Too hard"

It was the process of discovery that provided a sense of enjoyment and motivated many students throughout the activity, yet this did not come easily. Glăveanu suggests that a cultural tendency

to respect the integrity of an object, especially in the case of precious things can prevent the perception and generation of unconventional affordances (2012: 198).

Deconstructing a shoe - an iconic, symbolic, even sacred object - can feel intuitively wrong. Under instruction however students often found this to be quite a liberating and rewarding process where concealed materials were discovered and a surprising quantity and variety of components revealed themselves. When decontextualised, many were indeed able to shed themselves of any preconceived ideas and the previously unperceived affordances of the shoes' components became apparent. Yet while many enjoyed the opportunity to overcome the integrity of the shoes, the hard rubber outsoles proved to be a common point of contention. Deemed 'too hard' they often featured in leftover piles and those who did use them tended to do so in their whole form (as previously demonstrated). A small number of students however did deconstruct them, going on to produce innovative outcomes.

One of these students articulated her process during the assignment presentations, explaining: "I became more absorbed by the materiality of what I was touching and what else these materials could rather be, than think about the actual end product and work backwards." To enable this to happen she identified the need for an almost "robotic" approach to deconstruction where "you have to just really sort of mentally keep going, [...] like you're a breaker, and that's it [laughs]".[10] She described that where previously she may have looked at the rubber outsole and thought, "oh I can just cut it in half and turn it into like bad looking coasters or something", as she deconstructed, she reflected "I could really start to see newer things that came into my mind, what I could actually make out of it, rather than when it was left as one solid thing, [...] things that I probably would never have seen, like mentally, had I not cut things up into smaller components." Indeed, close attention to the outsoles' construction and the pattern of the tread provided her with guidance about how they might be cut (fig. 10); its removal from the midsole revealed a grid structure that afforded a cube-like division into smaller parts that, with addition of a hole, were used like beads to make a bracelet and earrings (fig. 11).

[10] To successfully deconstruct the shoes, others described an 'auto-pilot' approach.

Figure 10. 'Robotically' deconstructing the sole. Image: Aysh Balakumar

Figure 11. Reconstructing the sole. Image: Aysh Balakumar

Aligning with this ‘robotic’ approach, another student described a process where she just kept cutting the soft rubber soles of her slippers (fig. 12) in concentric circles, becoming increasingly “intrigued by the shapes that appeared” (fig. 13). She reflected: “I think this abstraction process allowed me to make something that no longer had any connection to this original form.” Throughout the deconstruction, both students took an almost mindful approach, consciously resisting a tendency to want to predict what the materials could be made into, instead letting the materials reveal themselves. As Glăveanu asserts, acts of discovery of unperceived affordances stand at the core of creative practice (2012: 202) and both of these students produced unique final outcomes.

Figure 12. Deconstructed slipper soles. Image: Indigo Stuart

Figure 13. Slipper sole 'earrings'. Image: Indigo Stuart

One reason many of the soles were abandoned was the glue used to bond the layers together and to the shoe's upper, a production process that made deconstruction extremely challenging. Described by students as "sticky and gross" this residual glue rendered many of the materials functionally and aesthetically unappealing. Those committed to using all their materials persevered with strategies to either eliminate the glue or go as far as trying to make use of it. One student explained:

> "…so I tried first to remove the glue, a stickiness from this blue piece but it just didn't work. I used nail polish remover, it just didn't really work. Then I took advantage of that stickiness and just folded it on itself to make this lovely sort of flowery, I guess, looking thing? And I made a brooch out of it, with the parts that I got from the insole." (fig. 14)

Figure 14. Utilising the affordances of residual glue. Image: Aysh Balakumar

Interestingly, while a minority were able to generate affordances from the glue, the frustration of encountering the glue during deconstruction didn't stop many from using new glue during reconstruction. In contrast, some students who didn't encounter any glue during deconstruction clearly appreciated the ease with which the shoes just 'fell apart' using only an unpicker to reveal the soles' inner layers. One of these students insightfully speculated that perhaps it may

have been purposely designed for disassembly. In hindsight, further guided discussion at the time, encouraging students to recognise the significance of each other's discoveries may have led to more sustainably conscious reconstructions.

4.4 Too "gross" and too "ugly"

For many students, the stickiness of the glue, while inconvenient, was also considered abject, as were the dirty soles - the insole bearing the residual traces of the wearer (often unknown) and the outsole, the residue of the environment. According to Fisher, materials have different registers of meaning, in many cases the cultural, structural and sensorial mix. When it comes to used objects, he suggests, the usefulness of tacky or sticky materials is generally trumped by their cultural and sensorial associations with dirt and contamination (2004: 24). This was evidenced by students either avoiding components (compare, for example fig. 3 with figs. 4 & 5) or searching for sanitisation strategies, such as cleaning, sanding, scraping and discarding layers to ensure acceptable reuse. Others had no problem using dirty and abject parts of the shoes, but these tended to be those using them away from the body (as with the shoe-bag example). Those tending to develop their experiments on a mannequin didn't seem to perceive these components abject at all, yet transition from the mannequin to the body often presented a number of issues, including the realisation of some materials' abject status. Indeed, Glăveanu cites Costall (1995:472) to highlight that while objects 'can be used in other ways, […] even when these alternative uses occur to us, there may be sanctions against such deviation' (2012: 198).

In addition to the 'abject', another barrier to the perception and utilisation of affordances often (although not exclusively) was 'ugliness'. A general need to produce 'aesthetically pleasing' outcomes manifested in various ways, for example decorating and embellishing with things like paint, beads, sequins and ribbons, while for others it was the ability to produce symmetrical, repetitive and refined forms. One student who produced a highly successful "festival-ready" collar from his shoes (fig. 15 & 16), became frustrated when using discarded electrical wires for the subsequent assignments. The wires wouldn't conform to his desired aesthetic due to their cumbersome plastic insulation, which would cause them to spring back into form (fig. 17). This prevented him from being able to achieve the neat, repetitive forms he had prototyped with more compliant embroidery thread (fig. 18). He eventually found ways to work with the wires and his techniques became enhanced. The journey required to successfully collaborate with these materials resulted in a significant final sense of achievement for the student. On reflection,we realised that the symmetry and repetition afforded by the *matching* shoes in the first task didlittle to challenge conventional perceptions of beauty, and some students leaned safely towardsthese qualities to achieve their desired outcomes. We reflected that in addition to a subsequentlecture highlighting the often culturally constructed and highly subjective nature of beauty andugliness, swapping and mismatching shoes at the beginning of this first activity could have beena more practical early strategy to overcome these norms and discover unconventional affordances.

Figure 15. Pre-deconstruction Toms canvas shoes. Image: Phillip Toole

Figure 16. Reconstructed 'festival-ready' collar. Image: Phillip Toole

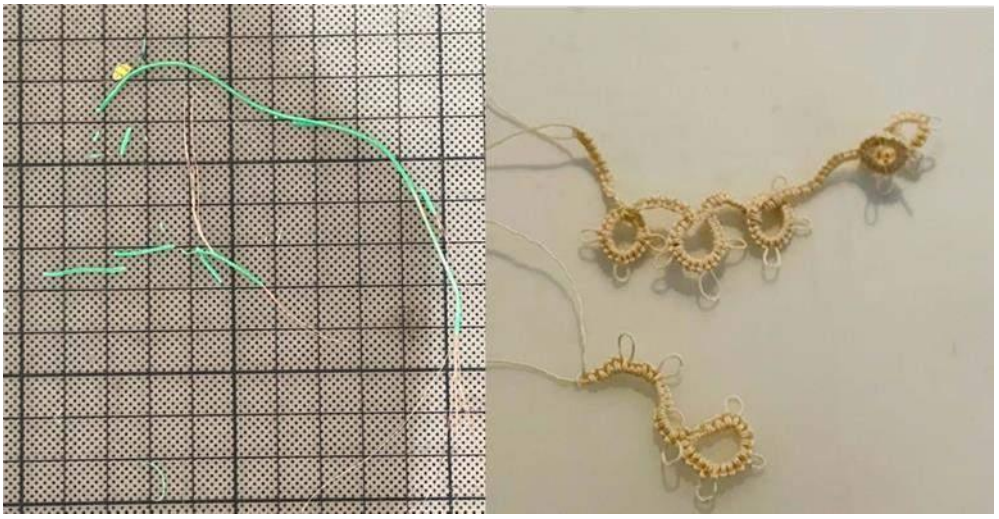

Figure 17. Attempts at extracting electrical wires from plastic insulation. Image: Phillip Toole

Figure 18. Intricate picot tatting afforded by cotton embroidery thread. Image: Phillip Toole

5. Discussion:

On reflection, examples such as those above emphasise the value of more explicit assessment criteria that go beyond merely discouraging the use of virgin materials to banning them entirely. This was highlighted later in the course when, due to the further relaxation of these rules, even those who had done well with the shoes found it too easy to slip back into old habits, producing upcycled final accessories stuck together with glue and tape. As explained at the outset of this paper, the use of glue was ‘easy’, a reliance on these materials early in the course and throughout the development of their material experiments set the students on an unsustainable

trajectory that could not be undone; the aesthetics produced could rarely be replicated in more sustainable ways. One student who resisted the use of virgin materials explained:

> "I think the outcomes would have been different as I know that I would have just bought more to achieve the outcome that I wanted […] It has not been until the end of this assignment that I have realised the value of the found/gifted supplies. When you are faced with limited supplies you have to strategise your experiments and working within constraints is a skill that I would like to continue to develop."

On reflection, the requirement to use all materials could also have been further emphasised through the assessment criteria. The effort and time required to use everything often resulted in a deeper respect and emotional attachment with the original artefact, its materials and the resulting outcomes. Often a sense of frustration with one's materials resulted in a love-hate relationship; the student who had struggled with the wires exclaiming in his folio: "ULTIMATELY I had to accept the wires as they were and try something else". For these students, there was often a recognition that while the materials had tested them, the skills they acquired made it all worthwhile. Indeed, another student commented that the hard work meant she didn't think she'd ever throw her accessories away. The intentionality of the materials was also something many reflected upon, particularly when the materials weren't doing what they wanted. The same student speculated that she felt the shoes were grateful to have been used: "It's almost like as if the shoes had some sort of a life form or an emotion, they were sort of 'thank you' because once you like deconstruct it [you] make it into something a bit more special'. Although beyond the scope of this paper, the notion of material agency (or even animism) as a motivating factor in sustainable design practice certainly warrants further discussion.

6. Conclusion

Barati and Karana argue that 'designers settle for low-hanging material potentials if the conditions for discovering novel affordances do not present themselves' (2019: 115). The 'This is Not a Shoe' activity and the adjustments proposed through analysis of its successes and shortcomings outline the conditions necessary within a pedagogical context to enhance a perception of unconventional affordances during the creative process. Shoes were discovered to be particularly useful for this activity due to their sociocultural significance and complex and varied material composition, providing students with an often challenging but rewarding opportunity to *un-make*, *defamiliarise* and *unlearn* fashion, and to *discover* how fashion might be done differently - more sustainably. For some participants, a sense of respect and emotional attachment arose through the reciprocal interactions occurring between body, artefact and materials. This was particularly true for those who pushed through the 'too hard' barrier during reconstruction to use every part of their shoes and resist the use of conventional (often unsustainable) virgin materials. In this respect, the application and enforcement of a more rigorous set of assessment criteria would have assisted *all* students to further develop these creative skills and values.

While the activity was conducted in a fashion accessories context it is proposed that the ubiquitous yet complex and underestimated 'shoe' would prove equally successful in multiple other creative disciplines as an introductory activity to encourage 'early material understanding' (Barati and Karana, 2019:119) and an enhanced ability to perceive matter, identify unconventional affordances and engender a more collaborative approach to making and 'design'. Furthermore, a material-driven approach to the making of fashion raises epistemological questions around 'design' as a concept based upon the use of materials to realise preconceived ideas. It is argued here that rethinking design traditions such as the use of sketching, mind-mapping, visual inspiration, design precedents and even the use of mannequins could help to overcome continued distinctions between bodies and materials and the desire for a mastery over, rather than collaboration with, environments. Aside from shoes therefore, the research argues for the importance of activities involving upcycling or reuse for developing embodied and transferable material capabilities and knowledges.

Moving beyond the field of design to consumption, one unexpected observation to emerge following the shoe activity and throughout the remaining course has been a potential correlation between the increased ability to perceive 'materials potential' and the practice of 'thinking twice' before disposing of artefacts that have outlived their conventional or intended function. It is suggested that a return to making and a consequential increased ability to perceive the opportunities these artefacts could provide the user, along with the psychological and emotional burden of wasting these opportunities, merits further investigation for an increased understanding of motivations to reduce consumption and re-use waste.

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We invite design educators to implement and adapt the activity and methodology presented in this paper, asking only that the authors are credited and outcomes are shared with the hashtag **#thisisnotashoe**

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