



Nasrat/Isamiyyat, 2014, Dauvit Alexander.
Materials: Reclaimed Rowan Wood, Silver and Red Cotton Thread.
Photo: Simon Murphy.

Volume 2 Editorial

Welcome to Volume 2 of the **Journal of Jewellery Research**. This volume represents an exciting collection of papers from five international authors. Their articles discuss jewellery from an eclectic range of perspectives and contexts demonstrating once again how multifaceted the field of jewellery is. We officially launched the first volume in March 2018 at Munich Jewellery Week with support and hosting from Chrome Yellow books. From the numerous positive comments and rich discussions that this prompted it was made clear to us that our discipline was ready for a dedicated research platform.

For the completion of the second volume we would like to thank our international Advisory Board, who are the backbone of this endeavour and offer precious support across the whole process of reviewing and advising the development of the journal. The time, care and dedication that each reviewer and advisor has given is incredible and hugely appreciated. Every paper has been peer reviewed by at least two reviewers and received support and constructive criticism from advisors. Within our process we have been keen to nurture authors as much as needed, which can mean giving authors time and support to enable them to redraft pieces of work and receive further review critique. We are passionate about how jewellers view the world, their skillset and ways of combining these through research practice. There is something incredibly valuable in how jewellers interpret and communicate things, often with a poetry and humanity that is particular and exciting. We hope that this open access online space can serve as a consolidation of research and practice by jewellers (and scholars about jewellery) and open up the particular value of how jewellers think and act for a wider multidisciplinary audience.

How we engage with people as jewellers and how we

pay witness to their experiences through ourselves and the things that we make is one focus of Dauvit Alexander's paper **Join the Car Crash Set: Jewellery, Violence, Ethics**. The second focus concerns the ethical implications of our nuanced actions in projects that involve other people. The paper raises difficult, important questions from a project where the context of violence and living with its consequences serve to heighten the implications of not fully appreciating the range of ethical considerations needed. Dauvit's honest, self critique of a project is valuable as an example in its own right, but also serves as a call for collective debate and discussion in our field about the ways in which we engage with people in our work. Beyond adopting ethical approaches from social science or other disciplines there is a need to consider what it means to be working with people from the specificity and particularity of jewellery as a field.

Carla Castiajo in her paper **Purity or Promiscuity? Exploring Hair as a Material** explores her own practice using human hair and its potential to carry human memories, connect people and also repulse. She considers both the academic literature on the subject as well as reflections on her own practice and exhibitions. Through this analysis she concludes that jewellery has different meanings in different contexts – so the object cannot be considered by itself without also considering its wider context of display, and use.

Trine Højbak Møller draws on a number of disciplines (jewellery, fashion, product design, health) to present the collective framing of accessory design and its value to reconceiving health wearables in **Access through Accessories**. An examination of fashion and jewellery literature and practice form the grounding for this work and three experimental design cases are used to illustrate how the hybrid design skills of a maker pooled from both jewellery and fashion skills, methods and practices can

bring something new to interpretations of what it means to wear something that is actively supporting health. The paper is a gentle polemic to both jewellers and designers of digital health devices, but also highlights the absolute need for each field to bring their skills and expertise to a central meeting point if truly meaningful, wearable digital health artefacts are ever to be realised.

The web of meanings that jewellery exists in is also a subject tackled by Ana Passos in her paper **Jewellery: From Material to Affection**. Five pieces of jewellery that Ana was asked to remodel and repair in her studio are explored. The narratives associated and accumulated with these objects and the web of meanings in which they exist is described and discussed. She further adds to our understanding of the meaning of materials acknowledging, as Tim Ingold puts it, that they are not fixed, discovered or objectively determined but rather experienced as they flow and change.

From a different perspective jewellery is researched by Annika Pettersson in her paper **Craft in the Age of Digital Reproduction - a Research into Digital Reproduction and its Aesthetics**. The investigation discussed in this study highlight a significant change that occurred in recent years with the advent of digital technologies in jewellery design and making processes. The discourse on the impact digital manufacturing can have on various stages of production has caused makers, artists and craftspeople to discuss common issues concerning the quality and authorship of outputs. In relation to this view, Annika's paper provides an investigation into the generational loss that occurs as a result of a digital reproduction process based on a feedback loop with the use of 3D-printing and 3D-scanning. She researched the aesthetic of the digital artefact and she demonstrates how digital reproduction techniques affect the way craft practitioners relate to

fabrication and production.

The papers of this volume suggest the jeweller as polymath – someone who has a broad learning of different subject areas – someone known to draw on different disciplines in order to address particular issues. The papers also represent the jeweller as interdisciplinary practitioner i.e. not just drawing on interdisciplinary literature but also practicing alongside other disciplines as in Dauvit Alexander's paper. These papers therefore speak to the meta debates in research more widely of how we position ourselves - [Intra-disciplinary: working within one discipline, Cross-disciplinary: viewing one discipline from the perspective of another; Multi-disciplinary: working as a collective from different disciplines, each drawing on their disciplinary knowledge; Inter-disciplinary: integrating knowledge and methods from different disciplines, using a real synthesis of approaches; and or Trans-disciplinary: creating a unity of intellectual frameworks beyond the disciplinary perspectives.] Depending on each researcher's practice it can be any of these things, but in an increasingly complex world a jeweller can be a highly valuable member in a team providing unique insights.

In developing this journal we continue to seek ways to help people communicate research/practice in ways that are analogous to creative thinking through making and how creative people formulate ideas and convey these. There is clearly a way to go here and the expectations of a journal are bound up in existing academic conventions of how a paper looks. Although we have tried to broaden this to include what we have described as visual/ textual papers (see <http://www.journalofjewelleryresearch.org/papers/>) we have received very few of these submissions. We have even struggled as an editorial team to decide whether to adopt the popular Harvard referencing model of citing references in the text or use a more social science

based approach that tries to advance thinking and ideas and so uses endnotes and footnotes.

Publishing the journal online however gives us an opportunity to exploit more digital means of communicating and interacting with research. Many digital tools such as augmented reality, 360 views, live webinars, the use of hyperlinks and live streaming rely less on text and would provide practitioners with the opportunity to communicate directly the value of applied arts research with a wider audience. This would potentially enable the journal to disseminate research via curated exhibitions and artefacts; interviews with researchers and perhaps even the haptic engagement with artefacts.

We are therefore looking to host at some point in the future a contemporary jewellery research communication retreat to bring together international jewellery practitioners and writers to explore these digital tools and explore more nuanced approaches to communicating our outcomes for the benefit of the wider field. Through the retreat we are aiming to explore the advantages and benefits associated with using the digital in communicating research through play and experimentation with the different tools. If you would be interested in joining us in this we would love to hear from you.

Meanwhile we hope you enjoy this volume of the journal.

Roberta Bernabei, Jayne Wallace and Sandra Wilson

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With thanks to Glyn McPheator for the amazing support producing the design and layout for the Journal in Adobe InDesign.



Journal of Jewellery Research

www.journalofjewelleryresearch.org

ISSN 2516-337X

Loughborough University,
Northumbria University, University
of Dundee.

First published in February 2019,
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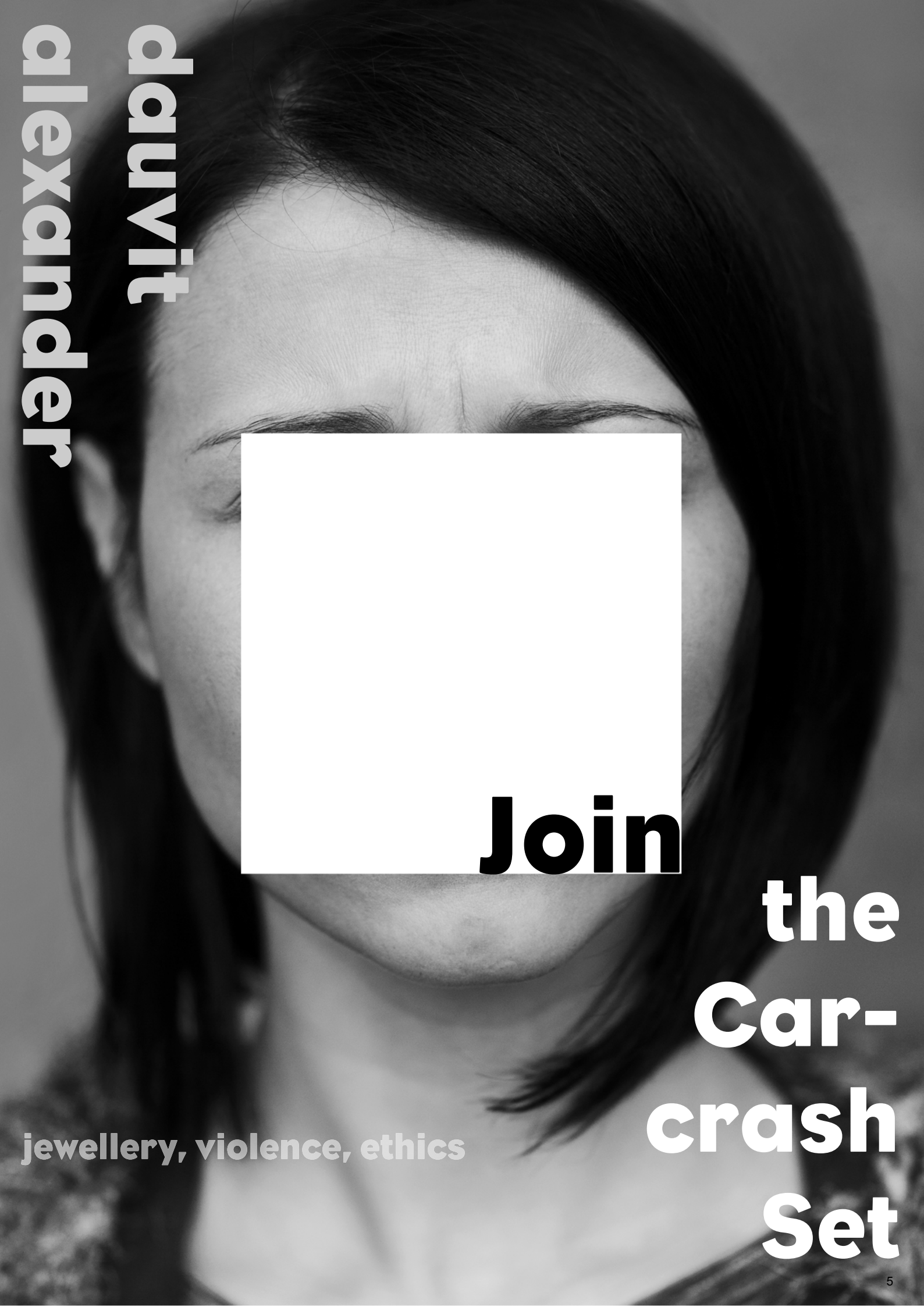
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Journal of Jewellery Research is a
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journal supported by an International
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Join The Car Crash Set: Jewellery, Violence, Ethics

Author: *Dauvit Alexander*





**dauvit
alexander**

Join

**the
Car-
crash
Set**

jewellery, violence, ethics

"He just missed my head with the wheel of the car and he drove away. I was rushed to hospital with my injuries and he burnt out his car... He used the car like a weapon."



Necklet made from parts of a burnt-out car, sterling silver, garnets, quartz and black spinel.

Abstract

Jewellery can have great power in mediating the confusing, frightening and dangerous world in which young people sometimes find themselves, allowing them a physical manifestation and cathartic release of their pain and fear, an object which reminds them that someone has listened, believed and cared.

Working with five young people, photographer, Simon Murphy, and I documented a series of narratives exploring how violence has affected their lives, producing a body of work which was subsequently exhibited at the Centre for Contemporary Craft (CCA) in Pittsburgh, USA, as part of their “Enough Violence: Artists Speak Out” exhibition in 2014.

This paper is a personal account of the background to the exhibition and the responses to it and suggests ways in which this type of work could be developed by other jewellers. I take an honest, self-critical look at the importance of the rigorous ethical thinking in creating this kind of work, especially in relation to the authenticity of voice and the ownership of transcribed narratives.

Introduction

It is, perhaps, hard for us to imagine the Venn diagram in which jewellery, domestic violence, witchcraft and child abuse intersect. That is something for which we can feel grateful – maybe our lack of imagination is a form of protection.

In 2012, Kate Lydon of the CCA asked if I would be willing to take part in an exhibition of work in which artists respond to ideas of violence. The exhibition was commissioned by Professor Rolf Loeber of the University of Pittsburgh, an expert in youth violence. I was invited because of the “weapon-like qualities of [the] pieces” (Lydon, 2012) I make and because I had taught metalwork in prisons and with young offenders. Understanding the background to the exhibition and knowing why I had been invited coloured my approach and I decided early on that my submission would not simply be a response which aimed to make a single statement, but an actual “speaking out” about the impact of violence on peoples’ lives.

Having started off the project by studying news stories about violent crime, I quickly realised that 21st Century humans are so exposed to stories of this nature that violence has become normalised: it ceases to shock us. I wanted the project to engage the viewer with the realities of violence, tackling the glib media façade and telling the stories of the victims, real people whose lives had been upended by their experiences.

This work was undertaken outside of the realm of academia and, as such, did not come under the scrutiny of an ethics committee and this, as I will show, had a major impact on the way in which the results were presented and my own thoughts about the outcomes of the project. It was not intentional to sidestep the scrutiny of an ethics committee and to undertake the project privately: this happened purely as a result of the enthusiasm of everyone involved and the need to get the project completed in time for exhibition. On reflection, this is something I will never again avoid.

Within this paper, the names of all participants have been anonymised.

We are entertained with an average of five violent scenes per hour in prime time and between two and three murders a night. One out of every four or five news stories features violence (Gebner, 2018. p.27)

This has a twofold effect on those who consume popular media:

- 1) They increasingly perceive the world as being a violent place (Liebert & Sprafkin, 2017) and;
- 2) Violence becomes an accepted part of their world and they become desensitised to it (Owen et. al., 2017 and Gebotys et. al., 1988).

Presenting valid responses to violence in a climate where people have become desensitised to it is challenging. In order to re-connect the gallery audience to the human lives behind the violent acts, I needed to re-humanise the casualties and to rescue them from sensationalised victimhood which, at best, invokes sympathy. Keen (2006. p.213) suggests that key elements of narrative have the power to engender empathic connections:

Narrative theorists [...] have already singled out a small set of narrative techniques – such as the use of first person narration and the interior representation of characters' consciousness and emotional state – as devices supporting character identification, contributing to empathetic experiences, opening readers' minds to others.

In empathy, we feel what we believe to be the emotions of others. [...] Empathy is distinguished in both psychology and philosophy (though not in popular usage) from sympathy, in which feelings for another occur. (Keen, 2006, p.208. Emphasis added.)

As a maker of 'narrative' jewellery, this approach seemed very appealing but narrative jewellery lacks some of the key elements which Keen identifies as critical. To address this, I realised that it would be necessary to take an interdisciplinary approach in order to capture and respond to the realities of violence in a way which would meaningfully engage an audience.

Project/Practice

The project began in early 2013 with conversations with potential partners, leading to me working with Simon Murphy, an internationally renowned photo-journalist, and with youth counsellor, Kate Sangster; my own voluntary work led to discussions with the National Society for the Prevention of Cruelty to Children (NSPCC). With these stakeholders, it was decided that the exhibition submission would consist of three specific elements:

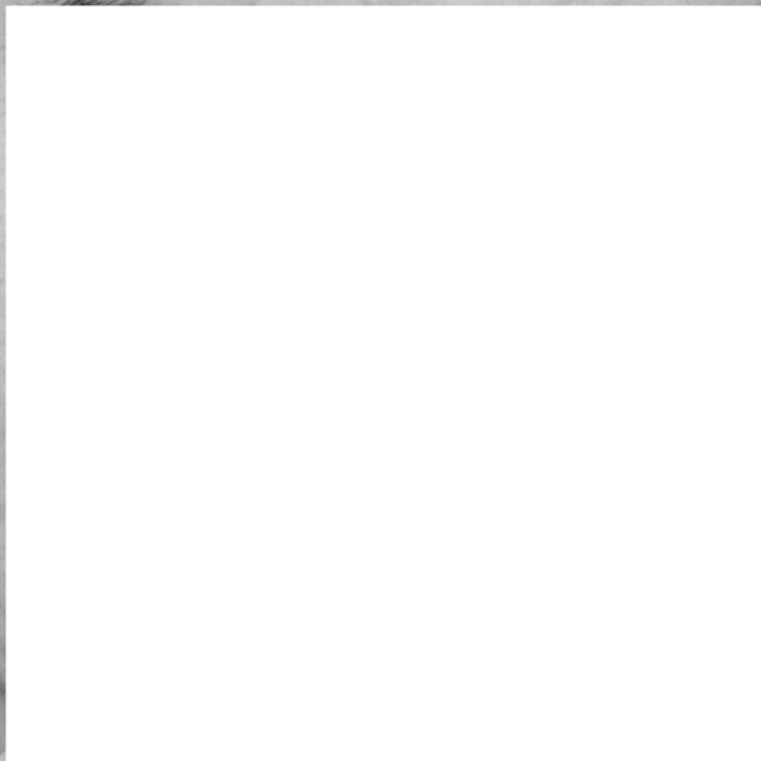
The NSPCC pulled out - without explanation - before any work had commenced but had a role in shaping the final form of the project.

- 1) A collection of narratives from four young people about their experience of violence;
- 2) A series of photographs of the young people and their environment, and;
- 3) A collection of jewellery which was made in response to those narratives and which would be given to the participants after the end of the exhibition.

Sangster and I identified a group of young people who had experienced violence, three individuals and two close friends. In

March and April 2013, interviews were conducted, recorded and transcribed by me.

"That's the thing. It's what you do when you're drunk... you get drunk and then you go to the fighting, fucking let off a bit of steam, fucking fight, but it's gone too far, far too far. Pure adrenaline. Thinking 'we're the top boys'".



These “denaturalised transcriptions” (Bucholtz, 2000) were the basis for all the work created for exhibition, starting in May to July 2013 with the making of the pieces of jewellery. Murphy then photographed the jewellery, the young people and the environment where the narrative was set. These photographs became the basis of a book which recorded the text of the transcripts as well as a background to the exhibition of the jewellery.

The work itself was developed from the narratives of the young people in conjunction with found objects which came from around the sites of their lives or where the acts of violence took place. Visiting these sites was a key part of the development of the project, providing physical, narrative and photographic materials, as well as contextualising the narratives for both myself and the visitors to the exhibition. Working with found objects is a key part of my practice and here represents a step forward in using real-life narrative to arrange the objects into works which empathise with the lived experience of others.

Transcribing narratives in a denaturalised manner always brings the risk of misinterpretation. I was prepared to accept this risk of some level of opacity – potentially all the greater for crossing an ocean to the primary audience on a different continent.

Jewellery Context

The works were created as contemporary amulets or talismen, keepers of narrative secrets with the power to make the wearer feel safe and protected, a practice which seems at odds with our technological society but which is explored by many makers, such as Pond (2018), Bernabei (2016) and Ebendorf (2018), either explicitly or obliquely.

Narratives Condensed

In order to understand the nature of the project, there follows condensed versions of the narratives. All quotes in the text are from the participants. (Alexander and Murphy, 2014)

LYNDSEY refused to allow her eight year-old cousin to be used to hide stolen goods for a local criminal, a man she had known since her schooldays. He used his van “as a weapon” to crush her against a fence and repeatedly ran the van over her body, causing damage which required her legs to be rebuilt. As the police were involved, the family of the criminal started targeting her own family and assaulted her mother, her cousin and, on her release from hospital, he attacked her again with a car.

She and her family have been relocated and she now lives peaceably with her husband and child.

STUART grew up in a deprived area of Glasgow where young people in school would regularly drink, take drugs and get involved in fights as “something to do”. He lost five of his friends in separate stabbing incidents and was present each time they died.

He has given up on drink and drugs and now lives quietly in a different area of the city, looking after his elderly mother.

RAYMOND, his brother and mother were emotionally and physically abused by his alcoholic father over a period of many years. He cannot remember a time when his father did not abuse him. He started using drugs and ended up using heroin, which estranged him from his brother and mother.

He no longer uses drugs but is living alone, disconnected and fearful, and struggling with mental health issues.

"Dad stayed with his mother and he was a raging alcoholic. He used to beat me up, stuff like that. At one point, because I got suspended from the school he put me in - secondary school - he beat me up that much... he got up in the morning and urinated on me before he went to work."



NASRAT AND ISLAMIYYAT are refugees from Nigeria, living in Scotland. Their parents were involved in politics in Nigeria and they witnessed bombings and shootings both in their home and school lives. Within their university, they became targets of what they called “cultists”: practitioners of ‘black magic’ and witchcraft who “kill, fight and do whatever they want to”, including rape, mutilation and murder.

Their parents sent them to Scotland as refugees. They are studying in universities in the UK but still fear for the safety of their parents.

Ethics/Politics

[The] set of ethical issues encountered by arts-based researchers may involve the manner in which the researcher justifies the initiation of and engagement in a research study that reveals the deeply personal stories of other peoples’ lives. (Barone and Eisner, 2011, p.125)

The project was always going to throw up ethical issues. I wanted the project to be an honest reflection of the lives of the participants, for their voices to be authentic and for the telling to be cathartic but it was also essential that the participants were kept safe, protected from the potential trauma of revisiting their experiences and that they understood the implications of participation. Reviewing the project from this distance, it feels as if we were walking along the edge of an abyss. The issues I failed to consider were:

Police guidance means that some photographs cannot be shown in the UK: the images are literally de-faced; all names are changed.

Using images throws up more ethical issues. Mannay (2016, p.110) writes, The visual image is a powerful means of communication and including photographs of participants homes, schools, streets and families in a publication would require far more of the researcher than a mere change of name. This, however, can be seen as tantamount to silencing the voices of the research participants. (Ibid.)

1) *Ownership of the narratives* – who owned the narratives – including the images – after the work had been assembled? This issue was never addressed. Barone and Eisner (2000) suggest that the works only become powerful to the participants when they retain ownership of their narratives and the narratives become an intermediary,

Sharing power with informants and readers in a textual conversation (Ibid. p126)

The participants knew the structure of the project but their role in and ownership of the project was never explicitly discussed.

2) *Authenticity of voice* – Before beginning the project, I was very clear about wanting authentic voices. Re-reading the texts, I question my role in the project: the original recordings of

the interviews no longer exist, I forget the detail of the interviews and because of this and issues around presentation of the narratives, I now question the authenticity of representation of the voices.

- 3) *Supervision of my interviewing and transcription techniques* – I am confident that I conducted the interviews and transcriptions as ethically as I thought possible at that time: this is not enough. I should have had supervision for at least a part of both stages of the process.
- 4) *Post-project support* – Months after the project finished, a participant called me in a state of distress. He felt his mental stability was degenerating and he had nobody to turn to. In this case, I managed to get him the appropriate help but I was unprepared for this. If a post-project support plan had been worked out, this could have been avoided.

Bracelet made from found kitchen knife, 18ct white gold and five diamonds.



- 5) Support for the interviewer – I was listening to some harrowing stories. Iffe and Steed (2000) describe “vicarious trauma” as a risk for people who are in this kind of position. I undertook this project without considering this issue. That I feel compelled to critique this project four years on suggests that I have not dealt with some of the issues raised.

Issues 1 and 2 are conceptually ethical; 3, 4 and 5 are practically ethical and are of less importance to this paper as the project is long-completed, so can be viewed as learning and addressed in future practice. Thornier are the problems of conceptual ethics, mainly around authenticity and ownership of both the verbal (transcribed) and visual (photographic) narratives – these problems will not go away for as long as there is a record of the project. Kara (2015. p.35) identifies that,

[...] ethics should underpin every single step of research, from the first germ of the idea to the last act of dissemination.

In this project, the emotional and physical safety of the participants was broadly considered but the political and social implications were not: this project was not conceived as “narrative research” but clearly is. While I had considered some of the issues arising from this type of research – authenticity of voice, the role of the researcher/transcriber – it has also been unsettling to revisit the work and discover flaws in the ethical design which undermine the authenticity.

Squire et. al. (in Andrews et. al. 2008. p.5) identifies that the audience (listener/reader/viewer) has a role in shaping the narrative. For this project, the audiences were multiple: the transcriber of the interview; the photographer; the jeweller and; those who attended the final exhibition. The jewellery was presented to both the participants (physically) and the audience (visually and textually) as being intentionally cathartic: this is where the fracture in the ethics occurs, undermining the authenticity of the transcribed narratives by imposing at least the notion of catharsis. The photographing of the participants wearing the jewellery further undermines this, showing the subjects smiling, laughing or in aspects of despair but with no explanation. These photographic and object narratives are unethical in that they offer the viewer a glib – worse, safe – conclusion. This could have been avoided by involving the narrators in the making of the narrative jewellery objects and also by recording their own thoughts and feelings on the pieces made.

Reception and Legacy

Despite these identified flaws, the reception of the work was overwhelmingly positive. The participants were moved by the jewellery when it was presented to them, being stuck for words, crying or even laughing (Nasrat and Islamiyyat). In each case, they felt that the work represented a facet of their lives. I am unclear how much of this was pre-cognition of the fact that I was going to make them a piece which responded to their stories, whether they were reflecting their own thoughts and feelings onto a piece which had been designed and constructed to do just that.

The project was ended at this point and it now feels incomplete. More could have been done to follow up on the participants – although I have been in fairly regular personal contact with Lyndsey and was delighted to learn that some of her family in the USA had managed to visit Pittsburgh to see the exhibition – but the others have drifted away where they should have been followed up, something which would have made the project feel less exploitative at this distance.

Of the exhibition, Rachel Saul wrote in American Craft,

I consistently find myself gravitating toward the work of Dauvit Alexander. On the surface, I enjoy that he communicates with the audience by engaging multiple learning styles. More significant to me, though, is that he has taken the time to not only tell the stories of these individuals, but also that he has met them, he has learned about them, and he has connected us to them. His work in this exhibition has encouraged me to experience a moment with someone else. It leaves me asking myself difficult questions like: Who is the victim, who is the perpetrator, where is the overlap, and what role can each of us play in regard to making a difference in the life of another? (Saul, 2014. p.38)

Professor Loeber (2014) felt that this particular project “nailed the idea of what he wanted to achieve” in funding the exhibition.

As a result of this exhibition, I was subsequently invited to be part of Boris Bally’s 2016 exhibition about gun violence, “I.M.A.G.I.N.E. Peace NOW!” and am currently working on an exhibition about knife crime in the UK with Professor Norman Cherry.

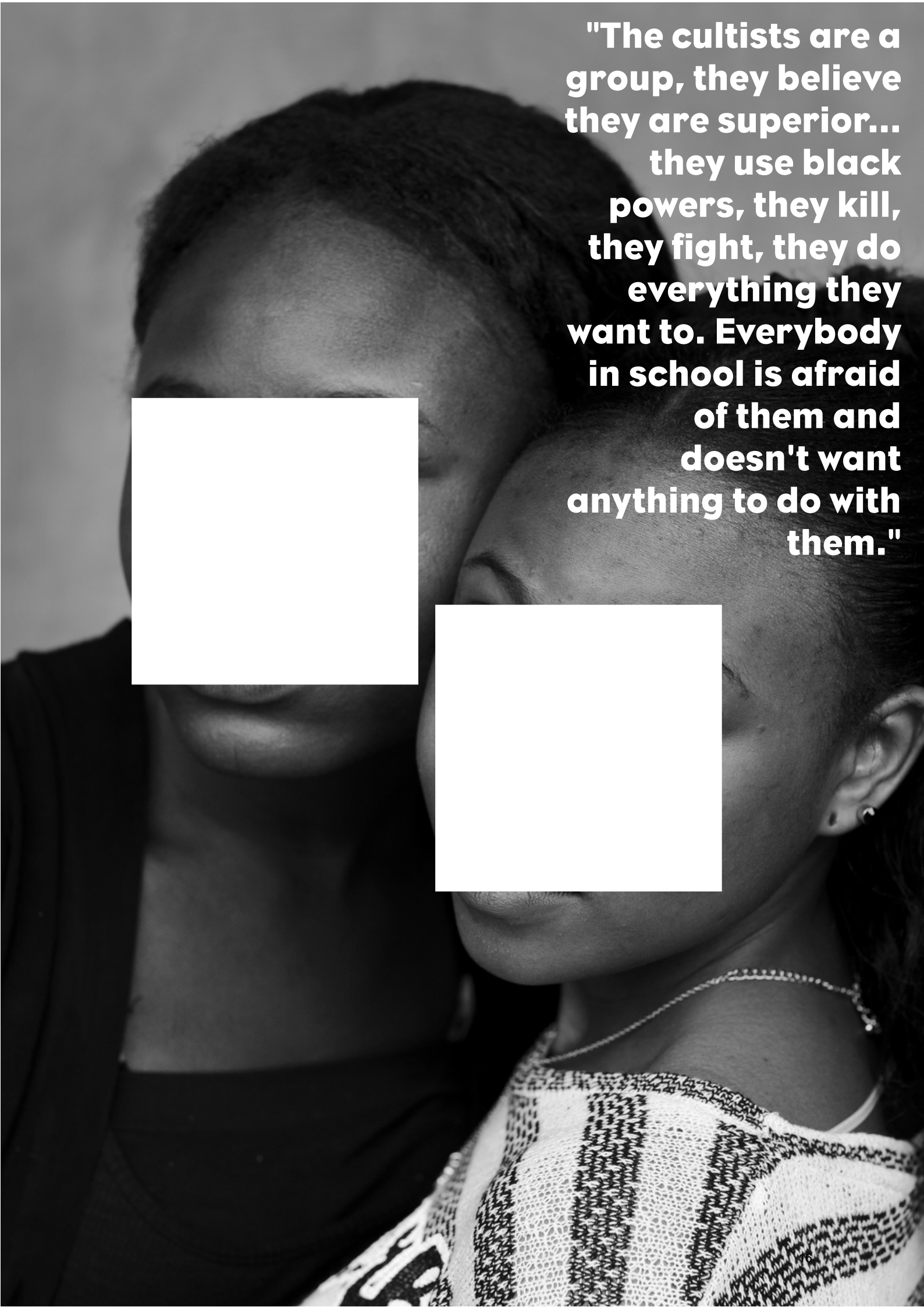
Conclusions

Jewellery can be a powerful tool for making narrative tangible. Like text, jewellery is capable of holding meaning far beyond the materials of its construction, can have the power to change opinions and even of catharsis when carefully deployed.

Taking an interdisciplinary approach to socially-engaged projects can be powerful and rewarding but while we broadly understand the ethics of our own practices, we may be blind to the ethical issues surrounding the practices in other fields. It is essential that socially-engaged, interdisciplinary practitioners take a long, hard look at their ethics and that they seek advice and support from people with experience in this area. Rather like early anthropologists, it is too easy to overlook the damage that can result from an ill-considered practice. Invalidating the results of the outputs is almost inevitable but the actual human cost of getting it wrong could be unbearable.

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A black and white photograph of two young Black women. The woman on the left is in the foreground, her face partially obscured by a large white square. The woman on the right is slightly behind her, also with her face partially obscured by a white square. Both women have their eyes closed or looking down. The woman on the right is wearing a patterned top and a thin necklace. The background is a plain, light-colored wall.

"The cultists are a group, they believe they are superior... they use black powers, they kill, they fight, they do everything they want to. Everybody in school is afraid of them and doesn't want anything to do with them."

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Thanks to **Sian Hindle** for guidance on the text.

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Pair of rings made from silver, rowan wood and red thread.

(A cross made from rowan wood, tied with red thread is a traditional Scottish protection against witchcraft.)

ABOUT THE AUTHOR

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Dauvit Alexander is a jeweller and educator, respected for his narrative works made from found objects and waste materials. His work is often socially-engaged, political or transformative.

Based in Birmingham at the School of Jewellery, he is widely represented in books on Contemporary Jewellery.



Journal of Jewellery Research

www.journalofjewelleryresearch.org

ISSN 2516-337X

Loughborough University,
Northumbria University, University
of Dundee.

First published in February 2019,
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double blind peer-reviewed research
journal supported by an International
Editorial Advisory Group.

Purity or Promiscuity? Exploring Hair as a Material

Author: *Carla Castiajo*

ABSTRACT

This research explores the dichotomies frequently present in human hair and the potential of hair to produce contradictory meanings when used as a material in contemporary art and jewellery creation. The aim is to contribute to the study of a material provided by our bodies; to explore its characteristics and potentialities for the creation of new pieces of jewellery/body objects and, through this process, to discover the qualities and technical possibilities of this material, what sensations hair is able to induce – the alluring characteristics or divergent reactions that the material awakens are analysed and questioned. Finally, all these aspects – including the responses to my own creative work – are interpreted in order to provide some analytical perspective on its potential meaning.

During the research several body pieces and objects created with hair were exhibited to express unexpected symbolic meanings and to open up my work to possibly intriguing and reflexive aesthetical experiences. Three site-specific exhibitions have been produced in Tallinn from 2014 - 2015. The locations chosen were the following: Dominican Monastery, Requiem Chapel; Bathroom, Lembitu 3 and Pirita Convent Graveyard.

INTRODUCTION

My interest and motivation in using hair as a material began quite by accident. My first 'encounter' with hair occurred in 2005, when I was looking through my materials for a thin thread of black colour. After a long and exhausting search, I brought my hand to my head. In that moment, a very thin black hair fell from my head onto my white table. I looked down at it and imagined using this thin hair as the thread that I was looking for. I had never used hair before and I was not even sure

that it would work. I was under the impression that it would break very easily. To my amazement, it was quite resilient and worked perfectly. Based on that discovery, I began researching how hair, as a raw material, had been regarded over the years. I was fascinated by the idea that it could become a thread which could materialise and be used for the construction of new creative meanings. I also began to study its symbolic significance in both historical and contemporary contexts. During this process, I discovered many intriguing aspects about hair. I became perplexed by its ambiguity and potentialities. From that moment on, I knew there was a certain depth to exploring the creative use of hair as a material.

For creating these works I decided to utilise human hair and pubic hair, as well, occasionally horse hair. Horse hair, is resistant and proved to be an excellent material for create the structure of some works (to hold the shape).

This research led me to discover many different authors and artists. Their ideas and creative work regarding the symbolism of hair were thought-provoking. I discovered many interesting works with hair, for example the Colombian artist Doris Salcedo used human hair as a material in her creative work, entitled *Unland*, a series of three sculptures, *Unland: the orphan's tunic*, from 1997; *Unland: audible in the mouth*, from 1998; and *Unland: irreversible witness*, from 1995-1998. This series was based on testimonies of victims of violence, a frequent situation in her country, on testimonies of orphaned children whose trauma was caused by witnessing the murder of their parents. For several years, the Palestinian artist, born in Lebanon and exiled in the United Kingdom, Mona Hatoum, collected her own hair from bathtub drains, combs and brushes. She used hair as well her own hair including pubic hair in several works like: *Keffieh*, 1993–1999; *Jardin Public*, 1993; *Exodus II*, 2002; *Traffic*, 2002; a live video performance: *Pull*, 1995;

the installation: *Recollection*, 1995; the photograph: *Van Gogh's Back*, 1995, among others.

The Finnish artist Marja Kanervo, used human hair as a material for the installation: *Reupholstered*, 2011, or for the installation *MORE/LESS*, 2013, as well for doing pillows and blankets for the installation *Pallet I-III*, 2013; in the exhibition *(Dis)appearing* at Museum of Contemporary Art Kiasma in Helsinki, 2013. The Polish artist Mirosław Balka in this work 52 x 360 x 25, 2004, created a guard-rope made not only from the usual fibres but also from different colours of hair strands bound into its weave. The performance of Bahamian artist Janine Antoni *Loving Care* from 1993, is a work that involves hair, her own hair and body. In this performance, the artist soaked her hair in hair dye and then 'mopped' the floor with it.

The American jeweller Melanie Bilenker collects and uses her own hair in her creative work. The themes she explores concern her own intimacy and everyday life. The duration and the laborious process of 'creating' are visible in her works. I noticed that the issues of memory have been explored and the works able to provoke contradictory significance. I realise that human hair was the chosen material, because of all the meanings that it is connected to it. I suppose hair cannot be separated from symbolism. By considering and reflecting on the creative work of others I could perceive more of my own creative work.

The methodology applied to my research is based on qualitative and interpretative methods. Thus, it makes use of different methods, such as direct observations, reflections and text analysis that concerns different theories. Research in the arts takes place in and through the creation of new creative work. I carry out practice-based research in the arts, and this kind of research

requires that it should be based in hermeneutical knowledge, that it should concern my interests, experiences and skills (Hannula, Suoranta & Vaden 2005, p. 42-45). It is not focused on one particular discipline, it is interdisciplinary, moving across and combining different discourses. I employ a self-reflective and self-critical method which concerns my own observations, comprehension, and experience in describing my working process, creative work and experimentation, looking at my creative work while framed in a wider context.

Hair is both a private and a public symbol. To interpret and conceptualise the use of hair for creative purposes, I have turned to the research in the psychoanalysis domain and, with particular importance, theories from social anthropology. By considering theories from psychoanalysis, I sought data referring to the individual and in particular, the unconscious. In looking towards social anthropology, I sought references to society and how it regards the consciousness of the public and social values.

PURITY AND PROMISCUITY

The term 'pure', from the Latin dictionary *purus*, means 'unblemished', 'clean', 'unmixed', 'simple', 'without ornament' (Ferreira 1996, p. 961). According to researcher Professor Amy Mullin, from the University of Toronto it is associated with 'good', 'chastity' or 'sexual morality' (Mullin 1996, p. 509-524). Pure is related to "the elimination, suppression or control of sexual desire" and it is considered actually an "embarrassing virtue" (Mullin 1996, p. 509). However, "[p]urity most basically is about order, both social and personal." (Mullin 1996, p. 509).

The term 'promiscuous', from the Latin dictionary *promiscuus*, from (*pro*, *-miscuus* < *misceo*), means for instance 'mixed', 'indistinct', 'common', 'the confusion of the divine and human things' (Ferreira 1996, p. 941). Impurity is related to mixture and can be considered an offense to purity, so it seems possible to me to establish associations with promiscuity and impurity. Impurity can be considered a metaphor for immorality, sexuality (Kristeva 1982, p. 93 & 98). I can add even promiscuity, which the Catholic religion considers a sin. According to the Catholic faith, the practice of sexual promiscuity is certain to lead to a conflict with traditional moral standards or values. Rituals of purification are common among different cultures and religions. These are ceremonies that involve the individual or society in order to maintain purity. In many religions, such as Christianity, holy water is the liquid substance used for baptism, and baptism is considered a ritual of purification (The Bible 2008, Mark 1:4). Many purification rituals involve water (or bathing), because in order to achieve 'purity' it is necessary to 'clean' what is considered 'unclean'. And water is the ideal element to remove all the 'impurities' (Eliade 1972, p. 194). Apparently, hair cannot be considered a pure matter, which may be why it is cut in rituals of purification or needs to be covered when

entering into sacred spaces. Even in some public spaces, it is considered immodest and indecent if a woman does not have her head covered when she goes out of the house. This is often the case in the Punjabi culture (Hershman 1974, p. 277). According to the Hindu belief, hair is considered polluted and impure (Biddle-Perry & Cheang 2008, p. 156 & 164). When the hair is found somewhere and we don't know who it belongs to, when the source is unknown or lost, this matter can now be abject and repulsive. Abjection is related to rejection, a rejection of something we dislike (Kristeva 1982, p. 102).

Human hair is a body material that becomes abject and repugnant once separated from the body and as soon as it appears in another place, a place where it is not expected and does not belong. This disturbance is intensified depending on the kind of hair that is being considered, for instance if it is head hair or pubic hair. The meaning of the term 'abject' is developed in Julia Kristeva's book *Powers of Horror: An Essay on Abjection*. In this book, the Bulgarian-French philosopher argues that abjection is directed to the part of ourselves that we want to exclude, the abject is what must be repulsed because it cannot be assimilated and therefore must be expelled (Kristeva 1982, p. 1-6). We expel all that we do not want, as the abject consists of all the things that intimidate our sense of cleanliness or anything filthy, such as body fluids (Kristeva 1982, p. 108). According to Kristeva, abject is "what disturbs identity, system, order. What does not respect borders, positions, rules. The in-between, the ambiguous, the composite." (Kristeva 1982, p. 4). Since the abject is situated outside of the borders of what is usually socially acceptable, this compulsion of being forced to face it is an unkind experience that provokes repulsion. This feeling of repulsion is often caused by confrontation with something unexpected or repugnant, for example things put in the wrong place or disgusting matter like

dust, waste, or corpse, or even human hair.

It is easy to overlook a fallen strand of hair that falls from the head. How many hairs are falling every day and how many hairs can be found in public spaces? This, often ignored, matter sometimes appears and is noticed in unusual places and is able to provoke different feelings. Hair, although intrinsically human, takes on the quality and characteristics of dirt. According to the British anthropologist Mary Douglas dirt is what disturbs social order, is “matter out of place” (Douglas 1984, p. 41). For her, dirt is any element that does not occupy its rightful place in the system, “dirt is essentially disorder” (Douglas 1984, p. 2). Hair, when is part of the head or even of the body is something that we are familiar with, but when it is separated from the body or head it acquires a different condition and can become unfamiliar. Could it possibly create an ‘uncanny’ feeling?

The concept of ‘uncanny’ was explored by the founder of psychoanalysis, the Austrian neurologist Sigmund Freud, in his essay “The Uncanny”, from 1919. He analyses the etymology of the German term ‘heimlich’ and ‘unheimlich’, that was translated (‘uncanny’), and according to Freud this is a word that is not always used in a clearly definable sense (Freud 1955, p. 219). The word ‘heimlich’ which means ‘familiar’, ‘native’, or ‘homely’, that is, which belongs to home and, obviously, ‘intimate’. The word ‘unheimlich’ is connected with the notion of ‘unfamiliar’, and can create a ‘frightening’ feeling precisely because it is not known and it is not familiar, but naturally not everything that is unfamiliar or new generates feelings of fright (Freud 1955, p. 220-221). The German psychiatrist Ernest Jentsch (1867-1919) wrote about the concept of ‘uncanny’ in his essay “On the Psychology of the Uncanny” (1906). Jentsch suggests that ‘uncanny’ is something unusual which causes ‘uncertainty’, Freud (1955, p. 227) remarked,

something we cannot figure out, something that creates doubts, about whether something is alive or not, like wax-work figures, artificial dolls and automatons. I think this uncertainty can be reinforced when human hair is added to these figures, (see for instance the work of the sculptor Ron Mueck). The word ‘uncanny’ has also been explored by the German philosopher Joseph von Schelling (1775-1854). Referenced by Freud in his essay, Schelling considered “the uncanny as something which ought to have remained hidden but has come to light.” (Freud 1955, p. 241). Freud expands this idea by saying that it is the return of the repressed (Freud 1955, p. 241). The individual’s repression is linked to fears (especially the fear of castration), (Freud 1955, p. 231-232) the return of something forgotten, something familiar and intimate, something that had disturbed the individual’s childhood and, finally, the return of primitive fantasies. ‘Uncanny’ is not really anything new or unfamiliar, but something that is familiar and old, established in the mind and separated from it only through the process of repression. These two concepts, the ‘uncanny’ and the intimate, seem to be opposites, but can, in fact, be related.

Jewellery can embody the concepts of ‘privacy’ and ‘intimacy’, but the idea of the strange and uncomfortable can also be applied, particularly if it is made from human hair. Body materials like hair or teeth can be used as a material resource in jewellery, but these materials can create a strange kind of feeling or sensation, particularly if they come from someone we are not familiar with. The ‘uncanny’ can inhabit the familiar and the unfamiliar. Hair can be closely connected with familiarity, sexuality and human behaviour. This may be partly why it can figure into a strong bond between loved ones. Otherwise, hair coming from someone we are not familiar with can be an object of abjection, that creates distance.



Fig. 1 Carla Castiajo, 2014, Purus et Promiscuus, Dominican Monastery, Requiem Chapel, Tallinn. Photo: Tiit Rammul.

The location chosen for the first exhibition on 4 – 10 September, 2014, was the Requiem Chapel of the Dominican Monastery in Tallinn. The title of the installation was in Latin – Purus et Promiscuus (translated as Pure and Promiscuous). The senior researcher of the Estonian Academy of Arts Katrin Kivimaa commented at the pre-review of the exhibition: “Culturally and linguistically the notion and understanding of purity and cleanness has in all known patriarchal cultures required the repression of, and control over, the female body, its functions and its sexuality.” And the artist and associate professor at Tallinn University, Baltic Film, Media, Arts and Communication School Kai Kaljo observed: “Maybe there is no such a thing as purity and promiscuity, just the desire to control human sexuality?”



Fig.2 Carla Castiajo, 2014, Purus et Promiscuus, gloves and pubic hair. Photo: Tiit Rammul.

I chose to use a Latin title as a reference to the liturgical language used in Catholic ceremonies because the main purpose of this work was to consider the abuse of children that has occurred in the Catholic Church. In developing this work, it was important to collect and invoke religious iconography. Photos of a sacred nature were displayed along with my creative works. In the exhibition, several pairs of gloves were exhibited, together with three photographs displayed and organised as a triptych, alluding to Catholic iconography.



Fig. 3 Carla Castiajo, 2014, Purus et Promiscuus, gloves and pubic hair. Photo: triptych: Tiit Rammul.

The work was intended to be a reflection on sexual repression and abuse of power. It is this power which sometimes seems to be used to 'penetrate' everything and everyone unscrupulously. In the exhibition, the issues of sexuality, power, the idea of being corrupt and being corrupted were explored. I saw that the first reactions of the viewers when entering this sacred space, illuminated by candles, were of silence and respect, evident by a slow walk, accompanied by a contemplative and reflective attitude. However, after a closer look seeking to understand the material used, there was some visible discomfort. Most of the viewers felt intrigued by the presence of something 'dirty' in that space, as it seems that pubic hair is improper and should not be allowed to enter into such a space. The profane seems to invade the sacred. The force of power can corrupt what was thought to be incorruptible, and the promiscuous is able to contaminate the pure. About this work I consider and say:

*There was purity, but suddenly
someone came and took innocence
away.*

*All light was obscured by darkness,
and promiscuity reigned.*

What was taken, cannot be replaced.

*What was once hidden, will now
welcome to light and be revealed.*

SEXUAL IMPORTANCE

Why is hair seemingly powerful? As described in The Bible, Samson was a Nazarite with great strength, who combated the Philistine enemies of Israel (The Bible 2008, Judges 16). Samson's hair was associated with power. When Samson's hair was cut, the very essence of his power and virility was lost. Samson lost his strength and his ability to fight, and when hair began to grow again, his strength returned. (The Bible 2008, Judges 16:21). The psychoanalyst Charles Berg recognised that an abundant and luxuriant hair is a key indication of male virility and vigour (Berg 1951, p. 29-31). Berg claims that hair is a conspicuously genital symbol and the sacrifice of hair is associated with the sacrificing of the genitals (Berg 1951, p. 27-28 & 67). That is why when someone's hair is shaved, they suffer a metaphorical castration. The anthropologist Paul Hershman considered hair rituals as having sexual associations. However, even when observing a single culture, such as Punjabi culture, it is difficult to explain the symbolism of hair. Hershman suggests that hair cannot be reduced to a simple singular symbol (Hershman 1974, p. 296). The word 'hair' indicates a polysemy. It seems to have a strong capacity and potential to create meaning, and it is frequently used in rituals because of its symbolic value and one possible interpretation of the symbolism of hair can be sexual. Pubic hair covers the genitals and cannot be easily separated from sexuality. Over the course of my research, I could confirm that hair not only plays an important part in seduction, but it also constitutes a sign of sexual maturity (Firth 1973, p. 263). There is some evidence to demonstrate that sexual maturity is typically revealed by the growth of body hair, particularly pubic hair (Cooper 1972, p. 7 and Ofek 2009, p. 14). Associations of hair with sexuality have made hair the symbol of a remarkable force, with important qualities as a sign of attractiveness,

and function as an intimate material. A woman's long hair is a symbol of femininity. In many cultures, having a long hair, strong and loose, is associated with having an active sexual life (Leach 1958, p. 154 & 157). Punjabi women, for instance, believe that they become more sexually attractive if they let their head hair grow (Hershman 1974, p. 275).

The cutting of hair is not physically painful, but it can be very disturbing and humiliating. There are instances from the period of World War II in Europe when the women who cohabited with the 'enemy' were forced to shave their heads as an act of punishment. The shaven heads marked women who collaborated with the enemy or had sexual relationships with them and were considered as having committed an unforgivable crime (Brossat 1992). Matter detached from individuals, such as blood, hair, nail parings, and so on, everything that can be cut or removed from the individual body and can symbolize this person can be used for sorcery. The bodily remains appear to carry on and be inhabited by some potency (Frazer 1993, p. 233).

William Pietz, the writer of a series of essays on the problem of fetishism, explains that fetish is a development of the pidgin word *fetisso* (Pietz 1985, p. 5). *Fetisso* derives from the Portuguese word *feitiço*, and the African religious and social objects are named by the Portuguese Catholics, *feitiços* (Pietz 1985, p. 14). The Portuguese word *feitiço* means 'magical practice' or 'witchcraft' (Pietz 1985, p. 5). The word *feitiço* derives from the Latin adjective *facticus*, which originally meant 'manufactured' and 'artificial' (Pietz 1985, p. 5 and Pietz 1987, p. 23-25 and Ferreira 1996, p. 472). According to Pietz the nineteenth century economic, sociological, anthropological and psychological discourses agree in that the fetish is a certain material object (Pietz 1985, p. 9). Berg sees hair as one of the most favoured fetishes.



Fig. 4 Carla Castiajo, 2014, Rope, human hair and thread; 2015, Warm Nest, human hair, leather, fabric and oxidised silver. Photo: Tiit Rammul.

The use of hair as a sexual fetish can be related to its potential to be effective sexually and to work effectively as a fetish object (Berg 1951, p 42 & 60). In Freud's perspective, the fetish can be a "substitution of the phallus" (Freud 1961, p 152). And for the American artist and writer Mike Kelley an art object can be a species of fetish (Kelley 2003, p 81). A fetish can be considered the embodiment, the replacement, of something that is missing and that is somehow connected to personal attachments. One could perhaps say that its meaning and purpose seem to be replacing something that once was and is no more, of something that was extinct. According to Pietz, a fetish can be "something intensely personal" (Pietz 1985, p 11). This means that hair jewellery can be a fetish (Browne 1982, p 89-106).



Fig. 5 Carla Castiajo, 2014-2015, Wild, human hair, leather, fabric and oxidised silver. Photo: Tiit Rammul.

For Pietz, the fetish holds an attractive and illusory power (Pietz 1985, p 14). This quality resembles amulets that bring good fortune and are endowed with the power of protection when worn upon the body (Pietz 1985, p 16 and Van der Star 2002, p 14). The use of certain materials is directly connected with their preventive and magical value, since certain supernatural powers are associated with specific materials. This magical power is the most important characteristic of an amulet. The amulet can be any object, made from any material, but the owner must believe that the object has the power to protect from danger or damage (Luthi 1998, p 4).

I am interested in the sacred and secret aspect of fetish and the special connections established with it.

The space/location chosen for the second exhibition in Tallinn in 3 – 5 June, 2015, was a Bathroom in Lembitu 3, a building from the 1930s designed by the architect Eugen Sacharias. As an important premise of the exhibition, the Bathroom was impeccably clean. The title of the exhibition was *Filthy/Chastity*. A Bathroom is an intimate space where we execute contrasting actions and behaviours. We use this private space daily to clean ourselves – by washing our bodies, our hands and our hair – of the impurities that accumulate. This intimate space is also the place where we expel our filth – our repugnant fluids and excrements. Thus, this was the ideal location to highlight the contrasts of clean and dirty, intended to be also noticeable in the use of hair as a resource material. Usually we have a reaction of repulsion when we find hair in an unexpected place – on the floor (even on the Bathroom floor), in our food or on our clothing. We are repulsed by it! Finding hair in public bathrooms is disgusting, and this disgust can be intensified when we discover it is pubic hair. When pubic hair is used in a creative work, exhibited in a bathroom and made visible, does the idea of disgust change? Is the taboo of pubic hair removed or intensified?

Jewellery is a manageable object that can be experienced through touch, creating a physical proximity and a tactile experience. There is a response to touching and feeling it in the hand. Jewellery is an object that can be held in the hands, surrounded warmly by our fingers. We can touch and handle it over and over, again and again, but what happens if the jewellery is made out of hair? Concerning the works exhibited the artist and lecturer at the Estonian Academy of Arts Paul Rodgers said in the pre-review of the exhibition: “What runs through all is an obsessive eye for detail and meticulous craftsmanship with the fine weaving and plaiting of hair, the knotting of hundreds of tiny pubic hairs.”

Hair strongly appeals to our senses. We often want to touch hair, but whose hair will we touch? Who will we allow to touch our hair? Will we allow a stranger to touch our hair, or only someone who is familiar? What about

those conditions of allowance when we think of our pubic hair? Even if allowed, who will approach these works made from intimate hair of the body and touch them? Hair as a material is a strong medium used to represent memory, intimacy and to convey sentimental significance. Hair can represent someone we love or are close to, so incorporating it in jewellery can become a tender gesture. To those who have no connection to the source of the hair, it can be interpreted as inadequate and possibly even disgusting.

The creative work shown in this exhibition aimed to analyse hair as a material, to explore its possible opposing reactions, to observe the viewer's reactions. This invitation was given at the exhibition:

After washing of hands, the viewers were welcome to touch the objects.

During the exhibition, some viewers demonstrated enthusiasm and appreciated being allowed to have close contact with creative works made out of human hair, pubic hair and horse hair. Many had a motivational approach for touching it. Others, despite being invited, refused to touch the works. But the ones who refused to have approximate contact, did they have that reaction because it was a bodily and intimate matter? Or was it due to some other reason? This concerns the personal, the private and the intimate, which can be observed but should not be forced. Boundaries must be respected. This shows that such a consensual approach about the use of hair as a material does not exist.

At the exhibition *Filthy/Chastity*, I collaborated with the sound artist Paul Beaudoin. He created a sound installation inside the Bathroom where it was possible to listen to the sounds of everyday rituals and routines performed in the Bathroom. Like the hair used in my creative work, Paul Beaudoin took the ‘private’ and often ‘intimate’ sounds of the Bathroom and transported it to the public domain. Matter and sound are excellent means used to remember moments passed.



Fig. 6 Carla Castiajo, 2014-2015, Bodily Nature/The Great Orifice, pubic hair, horse hair and oxidised silver. Photo: Tiit Rammul.

REMEMBRANCE

For centuries, the potential of hair to convey memory has been continually discovered and used. There are several ways to keep the presence of what is absent. Evocations can be made through jewellery. I am creating jewellery or body objects, because among other attributes of jewellery, jewellery is often weighted heavily with personal remembrance.

The human body can be invoked through processes of defilement or redemption. Materials such as hair, teeth, fingers or toe nails (that have either fallen from the body or have been removed intentionally), or even human bones, have been used to create jewellery and holy relics within the Christian tradition. This can be acceptable for some and disgusting for others, depending on the

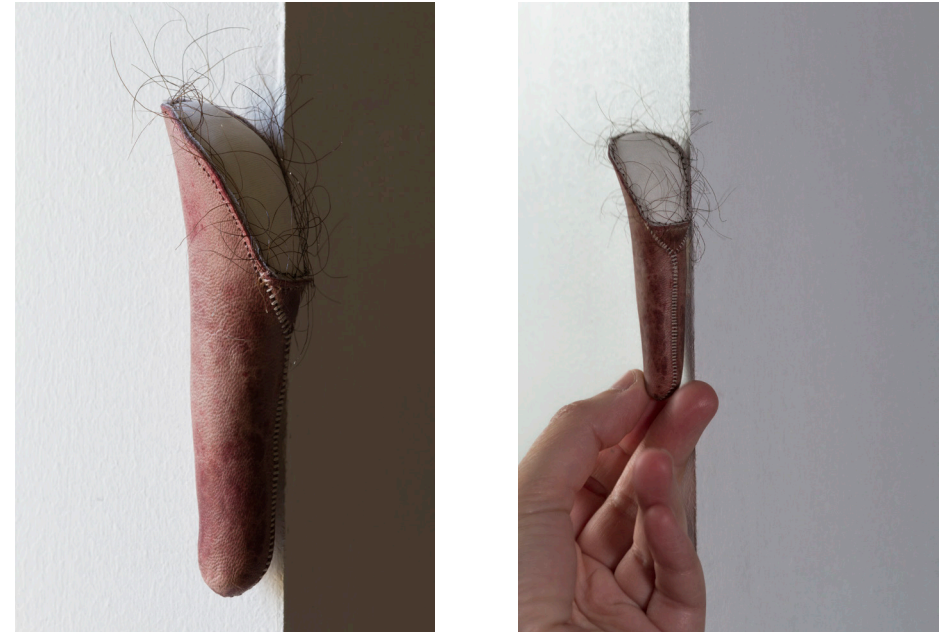


Fig. 7 Carla Castiajo, 2015, Symbolic Castration, leather, cotton, fabric, thread and pubic hair. Photo: Tiit Rammul.

affinity and closeness one has to the bodily materials or on religious beliefs. For instance, many Catholics believe in the 'miraculous' energy that emanates from the relics. Human remains and organic materials have the power to represent one's individuality. This is an important aspect concerning relics, the remains serve the purpose of reminding us of a particular person. It is commemorative.

The very word, relic, taken from the Latin reliquiae, means 'that remains', 'the remains', 'the rest', 'remains', 'ashes', 'traces' (Ferreira 1996, p 998).

According to Patrick Geary, a distinguished professor at the Institute for Advanced Study in Princeton, relics might be reminders of martyrs and saints, and can consist of some parts of their clothing or even objects linked with them (Appadurai 2003, p 174). In the Middle Ages, it was

believed that relics were imbued with magical powers, powers for regenerating life and protection against all kinds of calamities. There was a belief that from the material vestiges of saints and martyrs a mysterious and permanent energy would emerge, which had the power to console and cure whoever contemplated or touched it (Appadurai 2003, p 176).

Jewellery has been made from, or incorporated, human hair for centuries (Browne 1982, p. 89). During the second half of the seventeenth century and into the late nineteenth century, it was more frequent (Pointon 2009, p. 293). Jewellery can integrate the hair of a loved one who is still alive. In this case, it constitutes an intimate reminder of a particular person and the desire to keep close a part of that person, the loved one. On the other hand, jewellery can also integrate hair that was saved or cut from a deceased person. This serves as a reminder, a way to remember the dead, as a residual belonging of the departed. This kind of jewellery is known as mourning jewellery (Luthi 1998, and Bury 1985). We can find a similarity here with holy relics. Memorial/mourning rings were made to remember the execution of King Charles I in 1649, in the United Kingdom. Some of these rings contain locks of his hair, and they were distributed at the funeral to be worn in his memory, as *memento mori*, (from Latin, meaning 'Remember that you must die'), (Luthi 1998, p. 4). After this occurrence, mourning jewellery started to become widespread (Luthi 1998, p. 4-5). In the United Kingdom, the early death of Prince Albert in 1861 led Queen Victoria to the beginning of a long period of mourning, that lasted for the rest of her life (Luthi 1998, p. 16).

Hair was used in arrangements under glass, or could be worked plaited and woven in a similar way to lacemaking (Luthi 1998, p. 22 & 24). Hair-work jewellery became so popular during the nineteenth century, that many

women started to do hair-work at home. Hair-work is slow work. It requires a great amount of time and patient hands (Pointon 2009, p. 309). The value of hair-work jewellery was mainly sentimental (Bury 1985, p. 686). The sentimental importance is able to replace the economic value, and the use of hair as a material was a strong medium used to represent memory, intimacy and create sentimental significance. At the end of the nineteenth century, hair-work jewellery lost its popularity (Luthi 1998, p. 29). Hair was used less and less during the twentieth century. Instead, other mediums like photography filled the role of perpetuating remembrance.

Throughout the twentieth century, photography became more accessible and an important visual process used to preserve memory. According to the French philosopher Roland Barthes, photography is evidence that something has been (Barthes 2007, p. 76). Photos and objects can be interesting intermediaries, transmitting memories and allowing for a feeling of closeness to those who have departed and are no longer living.



Fig. 8 Pirita Convent Graveyard, Tallinn.
Photo: Jean-Loup Rousselot

For the third exhibition, *Remain/Cease* on 7 of September, 2015 the location was in a Graveyard in the ruins of the Pirita Convent, in Tallinn. Fragility is implicit in life, the body slowly exhausted and declining and going through a process of deterioration. Hair is one aspect of the body. Hair, however, does not decompose. Some of the works in the exhibition are very meticulous, requiring detailed and close manipulation, a very patient and slow work. It was a repetitive work, made day by day, in a kind of ritual, a habit, but also somehow a necessity, maybe even an obsession. The Artist and Professor at Estonian Academy of Arts Jaan Toomik said in the pre-review of the exhibition: "I appreciate the artist's devotion to her work and its connection with meditation practice. Crossing the lines of different arts, playing with different media, seeking new and bold site-specific contexts." In some works, I used human hair, pubic hair and horse hair, in other works I used human hair in combination with



Fig. 9 Carla Castiajo, 2015, *Bodily Nature/Turf*, my own hair and gold.
Photo: Tiit Rammul.

gold, the material used most often in jewellery. Gold is a valued material, although the value and importance of some jewellery depends more on the relationship that has been established with it. To whom it belonged and the memories it can carry within it are extremely relevant, and so the hair, like a piece of jewellery, will continue when we cease.

What will remain when you/we cease?

I observe that in this exhibition the work appealed to touch. Why were the viewers more interested in touching these works? I think maybe it was because most of the works are very meticulous and delicate, and the way the hair was worked, doesn't seem anymore to be hair, it was more difficult to see that the matter used was hair and maybe was a need to touch to be sure.



Fig. 10 Carla Castiajo, 2013, On Corps II, my own hair, horse hair and oxidised silver. Photo: Tiit Rammul.

For this exhibition, I did a collaborative work with the sound artist Paul Beaudoin, who created a sound environment. There was also a collaboration with Fideelia-Signe Roots and Risto Tali, in the performance called Harvest. In this performance, their head hair was cut. And I Must Confess, was a collaborative work with Paul Beaudoin and Maria Tegzes. In this work, I addressed the different qualities, potentialities and feelings that hair can provoke, in a way that was very intimate, personal, kind of a confession. For those who heard it, it created a strange feeling, as if they were listening to something forbidden, too personal to be released out there, for others to hear.

Available from: <https://bit.ly/2sO4MXV>

<https://soundcloud.com/paul-beaudoin/i-must-confess-carla-castiajo-text-maria-tegzes-voice-1>

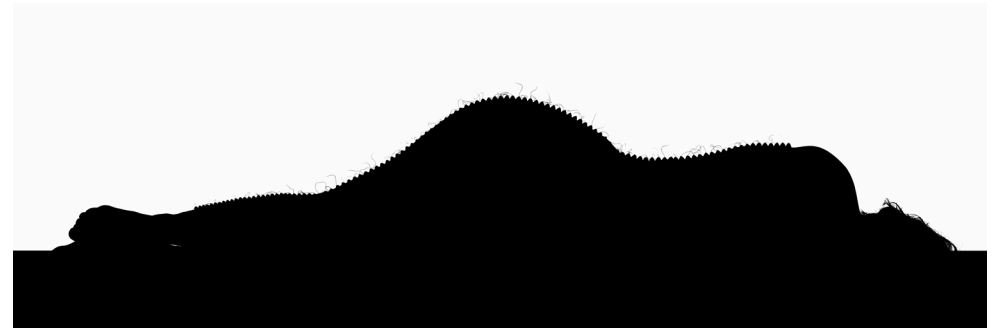


Fig. 11 Carla Castiajo, 2014, Fertile Field for Fertility, body piece: soil, pubic hair and thread. Photo: Tiit Rammul.

CONCLUSION

One of the purposes of this research was to analyse and improve my own creative work. Another objective was to explore, and reveal the meanings and contradictions of hair in different contexts and environments for the benefit and interest of the wider contemporary jewellery field.

Human hair, pubic hair and horse hair proved to be excellent working materials, with immense potential because of its manipulative and malleable properties. Raw materials are chosen in order to be worked and to transmit ideas. I learned that hair never has any particular and unique meaning, but it can express diverse significance, in various contexts.

Hair has tactile qualities that are appealing to the sense of touch. When used as a material for creative purposes. I could see that it was capable of causing distinct reactions

due to its appealing and tactile characteristics. I observed this during my exhibitions. When viewers were allowed to touch the works, many did so. It seemed that it was often necessary to touch the creative works, to see that the material was hair; however, other observers did not want to touch the creations, and the reasons for their choice not to touch are likely to be within the personal realm. I could verify that the 'encounter' with hair can provoke contradictory reactions. Once separated from its owner, it is able to attract or repel us, as the abject. The abject disrupts our established rational order of things. And to disturb social order and disrupt the familiar seem to be attributes of the 'uncanny'.

The oppositions and contradictions about hair are constant, highlighting the ambiguous significance of hair despite all the meanings that have been previously considered, it seems evident that it cannot be considered Pure, but rather it is considered impure or even Promiscuous. Hair seems to possess a marginal status, to disturb social order, like dirt. It does not respect the borders, it is located in a boundary state between the living and the dead. Maybe this is the reason why it is considered a polluted and dirty matter. So, hair can be regarded as a Filthy matter rather than a Chaste matter.

Hair, as observed previously, was a strong medium used for remembrance and holds a presence of the individual and the personal in the absence of the body, invoking a memory of having lived and of having passed away – a person's life and possesses notable qualities of durability that are opposite to the body's frailty. If there is one thing we can be sure of about hair is that it will be able to Remain when we Cease. Art also has the capability to remain, and helps us to understand and question the world we live in by offering new significance.

The artistic research Purity or Promiscuity? Exploring Hair as a Raw material in Jewellery and Art was realised at Estonian Academy of Arts in Tallinn, Estonia, 2011-2016, with scholarship from Foundation for Science and Technology (FCT), Portugal, 2011-2015, was supervised by Professor Kadri Mälk and Professor Robert Baines. And won the First Prize in Estonian National Contest for University Students in the field of culture and society.

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Journal of Jewellery Research

www.journalofjewelleryresearch.org

ISSN 2516-337X

Loughborough University,
Northumbria University, University
of Dundee.

First published in February 2019,
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Journal of Jewellery Research is a
double blind peer-reviewed research
journal supported by an International
Editorial Advisory Group.

Jewellery: Access through Accessories

Author: Trine Højbak Møller Gøtttsche

ABSTRACT

Drawing on methodologies from jewellery design, clothing technology and fashion studies this article presents the interdisciplinary perspective of accessory design to propose ways in which these methodologies can be applied in the design of accessible health wearables.

The paper asks how we can conceptualise access for the wearer through wearable health design and whether accessory design skills, methods and practices can contribute in the form of a personalised approach. Could an accessory approach drive the development of such designs in order to meet the identity of the wearer?

The article reflects on how to create accessible health wearables by examining the literature of jewellery and fashion in combination with standard wearable health design. Three experimental design cases show how accessory design skills, methods and practices have benefitted the creative processes of making different health wearables. These cases demonstrate the importance of material knowledge, small-scale refined making skills and empathic understanding of the wearer.

INTRODUCTION

Wearable health design is a category of objects that relate to a wearer with specific needs, e.g. a wearer of spectacles, a person wearing an ostomy pouch, or a wearer of an artificial limb. In Figure 1 we see a fall detection device as a typical wearable health device designed with an impersonal, functional character (Bingham, 2017).

Next to it, we see a delicate gold bracelet with a completely different narrative. The image illustrates the dissimilarity in the two design approaches – a real-life scenario from a care home – to exemplify the state of



Fig. 1 Photography of a care home resident and her fall detection alarm. Photo: V. Stegeager

existing wearable health design.

The image is intriguing, as the bracelet offers a different narrative than the fall detection device. Someone especially chose this bracelet, because of the wearer's personality, whereas the fall detection device is chosen due to the wearer's troubles with falling. The bracelet is part of the wider scope of accessory design (Møller and Bang, 2016), which in this case is conceptually related to access. The category of accessory design – which belongs neither completely to fashion design nor to jewellery design – stands at a halfway point which favours the stimulation of the two groups in their respective practices (Durschei, 2005). Similar to both practices is the expressive need of the wearer for body adornment.

THE INHERENT NEED FOR BODY ADORNMENT

Anthropologist Polhemus (2005) and sociologists Roach and Eicher (2007) have argued that wearers possess a universal propensity to adorn themselves; “Human beings have been adorning their bodies with decorative objects for as long as there have been human beings” (Polhemus, 2005:30), an argument that is widely accepted by writers of dress and fashion (Roach and Eicher, 1965; Entwistle, 2015; Rouse 2007) and contemporary jewellery (Cunningham, 2007, Nygaard and Winther, 2018). Cunningham outlines the importance of body adornment in relation to contemporary jewellery design (2007), and Entwistle compares the human propensity of adornment to playing a role in how we dress ourselves (2015). The inherent need for body adornment influences what we wear and how this act is related to identity (Roach-Higgins and Eicher 1992). Thus wearing an accessory or a wearable health design expresses the identity of the wearer.

Body adornment is presumably often misunderstood as simply having a decorative function (Polhemus, 2005), while others have proposed clothing and accessories serve to alter or display the body in order to gain positive attention (Roach-Higgins and Eicher, 1992; Rouse, 2007; Roach and Eicher, 2007). Rather than viewing wearable health design from a narrow functional view point, it might be advisable to view the display of these accessories that a person must wear in order to ‘make’ him- or herself, from a perspective of not just being acceptable, but even being pleasing. In regard to jewellery design, in which more than body adornment is involved, Nygaard and Winther highlight the embedded personal and relational meanings “...that emerge between the object and the wearer over time, and which often have profound symbolic layers” (2018:74).

When designing health wearables to meet the identity of the wearer it is therefore relevant to consider the potential and important role of body adornment. A starting point in design for ‘accessible’ health wearables could be to gain insight and knowledge about adorning factors and the wearer’s personal preferences (Møller, 2018). By establishing an ‘empathic’ relationship one can identify and define the inherent needs of the wearer and thereafter add insights into beauty and desirability – or diverse descriptions of ‘normality’ – as well as account for the medical requirements which tend otherwise to convey their own biomedical aesthetics (Dunne, 1999); Pullin, 2009; Bush, 2015;)

ACCESSIBLE WEARABLE HEALTH DESIGN

Looking at the etymology of the relevant terms can give some insight into their connotations and significance. ‘Access’, which originates from the Latin word *accessus*, means: “A coming to, an approach, entrance”¹. Developing this concept, Ribot and Peluso define access as “...the ability to benefit from things – including material objects, persons, institutions, and symbols,” (2003:153). From ‘access’ is derived the term ‘accessory’ as a thing that is “subordinate to something else.”². In this particular relationship the ‘accessory’ can be seen as a symbol to regulate access or entrance, meaning an object with the “...habit or power of getting into the presence of someone of something” (Vainshtein, 2012:164). According to Ribot and Peluso, these ‘powers’ constitute material, cultural and political-economic strands (2003), whereas accessory design also manifests gender (Brand and Teunissen, 2007) and personal choice (Møller and Bang, 2016).

¹. Etym Online, Access, viewed 3rd of May 2018, from 2. <https://www.etymonline.com/word/access>

². Etym Online, Accessory, viewed 8rd of May 2018, from <https://www.etymonline.com/word/accessory>

Accessibility refers to the design of products, devices, services, or environments for people who experience disabilities (Henry et al., 2014). The concept and practice of accessible design ensures both “direct access” (i.e. unassisted) and “indirect access” meaning compatibility with a person’s assistive technology (NCPPSAD, 2018). “Assistive technology is any item, piece of equipment or product system whether acquired commercially off the shelf, modified, or customized that is used to increase, maintain or improve functional capabilities of individuals with disabilities,” (Herriott and Cook, 2014:1). According to Jacobsen, all products should be commonly assistive, whereas accessibility covers a broader definition, to be overall inclusive (2014). This is due to the stereotype of disability versus an ideal body, as “The stereotypical characteristics associated with people with disability are often exaggerated, unjust, and concern a person’s entire identity and life, not just disability” (Jacobsen, 2014:43). Pullin, for example introduced the term resonant design, as an approach to meet the requirements that are similar to people with and without disability (2009).

In theory and in practice, accessible wearable health design can draw on the tradition of accessory design. Reflection on access, or the lack thereof, in existing wearable health design, is therefore of relevance. In this light, the accessory can be seen as a power object as it has these material, cultural, political-economic, gender and personal choice qualities. Since the accessory belongs neither completely to the field of jewellery nor to that of fashion, it can be seen as an autonomous object providing access to the wearer, as he or she can choose the design of the object according to his or her personal preferences. At the interface between jewellery and fashion, the accessory necessitates the active collaboration of professionals from both the jewellery and the fashion disciplines, in order to embed both functional and expressive factors.

This article therefore falls within the realm of contemporary jewellery research, because many design researchers who have critically explored the field of wearable health design have a background in jewellery practice (Wallace, 2007; Kettley, 2007; Ahde-Deal 2013; Frankel, 2014; Bush, 2015; Silina and Haddadi, 2015).

The article presents a literature review and applied PhD research, which generated several design experiments carried out with accessory design students and small and medium sized companies that develop wearable health design, with the purpose of proposing an accessory approach for accessible product development.

THE CURRENT STATE OF WEARABLE HEALTH DESIGN

In the context of wearable health design, the idea of the accessory as a power object is intriguing, since current wearable health devices are traditionally designed within a biomedical model; they are concerned with medical requirements (Bush 2015) and illness (Jacobsen, 2014), as opposed to accessory design, which is concerned with aesthetic appeal and attraction (Pullin 2009). This inquiry is based on the fact that several assistive wearables are rejected by the wearers, their personal tastes with regard to aesthetics being the main reason for rejection (Ravneberg and Söderström 2017). Other researchers state that personal and sociocultural values are somehow under-appreciated in the design of current health wearables, as these devices have a technology-driven background (Versteg et al. 2016), meaning that the focus is primarily on functionality (Silina and Haddadi 2015, Shinohara and Wobbrock 2011). The study argues in favour of the synthesis of the approaches used in accessory design and design for health wearables.

Wearable health products often rely on technological solutions that focus on functionality and efficiency (Koulidou, 2018), where the wearer's body is seen as a source of pure data (Seymour 2010; Ryan, 2014). The problem with this approach stems from the requirements of technological components and advances of knowledge from computer scientists and biomedical or electrical engineers (Frankel, 2014). Additionally, wearable health design is worn on or attached closely to the body, and while the devices become personal and intimate their biomedical nature does not often reflect the wearer's personal preferences (Møller 2018). This is a paradox, as personalisation for the wearer is perceived as vital to the functional performance of the object in question (Bingham, 2017).

PRESENTING AN ACCESSORY APPROACH

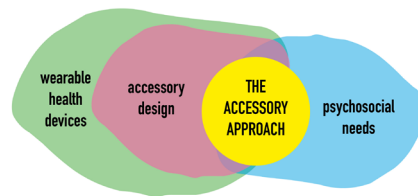
The paper puts forward an accessory approach as an enabler of a particular framing for accessible wearable health design, as illustrated in figure 2. This insight is based on findings from a literature review of jewellery and fashion design research in combination with wearable health design. An accessory approach is furthermore developed by findings in several design experiment cases (Møller, Ravnløkke and Bang 2016; Møller and Kettley, 2017; Møller 2018, Møller and Bush 2018, Møller 2018b). Here an accessory approach facilitated designs of health wearables to be objects worn on a person, with the inspiration from accessory design for a person and to be objects about that person's identity.

Three of the design experiments are presented in the later sections, and small-scale refined making skills and empathic understanding of the wearer is crucial in order to frame that material knowledge. These findings are followed by a description of a personalised accessory approach – based on accessory design skills, methods and practice, with a subsequent conclusion.

THE ACCESSORY AS SOCIO-TECHNICAL ACCESS POINT

Access through accessories from which to approach design challenges is also informed by the idea of designing for complex sociotechnical systems (Norman and Stappers, 2015), a notion that sociotechnical systems can be a vehicle for the complex relationships between the designer of wearable health devices, its wearers and the viewers (Møller and Kettley, 2017). With the current development of electronic components and advances in digital technology sensors have become tiny and more affordable (Koulidou, 2018). This calls for a humanistic approach to health wearables as well (Møller and Kettley, 2017). Very often designers' attempts to make the appearance of wearable health devices acceptable are not particularly thorough being severely limited by the health problem involved. This means that the product often merely "serves as a nice box to host the technological equipment" (Koulidou, 2018:21).

Fig. 2 Positioning of an accessory approach involving the creation of accessible wearable health design; worn on and for a person, and to be about the wearers identity. Trine Møller@2018 all rights reserved.



Here the broad category of accessory design offers a different approach inspired by the style evolution of wearable health technologies such as glasses (Pullin, 2009; Royeen, 2015) and prosthetics (Vainshtein, 2012; Bingham, 2017). In these cases, worn health objects have gone through a design transformation to become interesting examples of objects one could frame as accessible. Today, glasses are sold in supermarkets, high street fashion shops or airports and come in many different shapes, colours and materials. Current prosthetics are designed with the help of haute couture designers to become ready-made objects as an "...aesthetic artefact to be treasured" (Vainshtein, 2012:147). We can also see prosthetics produced with the help of 3D printing to present personally fitted versions that meet the physical as well as the cultural requirements of the wearer (Bingham, 2017).

LITERATURE REVIEW

The main thrust of the literature review is that accessory design is a combination of design skills, methods and practices, influenced by the making of jewellery, shoes, bags, clothing accessories and hats e.g. jewellery, functional accessories and clothing accessories. As the accessory design field is wide and combined with wearable health design, the main research contributors come from the field of jewellery, although softer accessories also provide examples of the development of wearable health design, e.g. garments inspired by fashion and textile design.

IDENTITY, AESTHETICS AND EMPATHY

With reference to contemporary jewellery, Cunningham (2007) investigates cultural identity and narrative and suggests a maker-wearer-viewer approach as a way to perceive narrative jewellery and its relationship between the maker and the wearer of the piece, as well as the individuals viewing it (2005). Cunningham's definition expands the health wearable designer's thinking to include considerations of the wearer actively engaging the viewer. This framework unifies the concept of jewellery and clothing as well as functional accessory design based on the assumption that the designer is addressing a universal human propensity for body adornment (Cunningham, 2007).

In her doctoral dissertation Wallace (2007) focussed on the subject of emphasising the personal emotional significance of digital jewellery for wearers to claim that many designs "...are inspired by the technologies that make them possible, rather than the people who will experience them" (2007:58). She concludes, "The relationship between technology and the human body is fundamentally limited both in terms of physical conception and emotional diversity and richness" (2007:42). Wallace's distinctive notion of wear versus use, is relevant when exploring the discourse of wearable health design, as user-centred design is being a preferred term by several researchers in the inclusive design and disability literature (Bergman and McGregor, 2011; Herriott, 2012). Highlighting the personal experience of wearing objects on the body is furthermore relevant when discussing access: "The user interacts with an object because it enables or carries out a certain function. The wearer is engaged in a more body-centric relationship with the object" (Wallace 2007:47). Indeed, this notion of wear, as opposed to use, in wearable health design, seems key when framing personal preferences and purposes that are cultural fits for the wearer.

Kettley (2007) reflects critically on the evidence of both the need for and the acceptance of an aesthetic approach to wearable design. In her work she calls for an authentic experience for the wearer of wearables, stating that the idea of a person's 'lifeworld', in relation to the design process, can be used when dealing with the problem of describing the complex textures of the everyday environment into which authentic objects might be introduced.

In relation to dress and softer accessories, Seymour argues that design and style are tremendously important when creating meaningful wearables, stating that early wearables were functional but awkward to wear and to look at, while they "...are rapidly rising to meet the fashion world on its own terms, by producing garments that are both stylish and comfortable" (2008:13). In regard to accessories, Seymour conceives of 1) material and physical functions which relate to protection, concealment, and attraction, while 2) cultural functions are related to communication, individualistic expression, social and economic status and political or religious affiliation (2008). Seymour's experience with designed body-worn objects is based on the idea that experimental projects represent a test bed for fashionable wearables since, "...their success is determined by a product's ability to capture human motion by meeting a need and its aesthetic performance" (2010:16). Thus, Seymour's term "fashionable wearables" becomes a statement for describing expressive and functional objects of accessibility, through accessories that the wearer can identify with, on a physical, psychological and social level. Recently, Seymour (2016) worked on a health wearable designed as an accessory that can communicate the condition of the heart to the wearer thus assisting in preventing heart diseases later in life. In this case the product is a bra that measures the parameters of the heart to monitor physical activity levels ³.

³ www.supa.ai

In Wallace's later research (2014), she focusses on the bespoke processes of design and how empathy between the wearers and the designer can be a vehicle for this relationship; her research also emphasises the distinct personhood of the wearer. Figure 3 shows a brooch designed for a woman with dementia, made from textile cut from her dresses that her husband kept.

To enable reminiscent experiences for the woman, Wallace designed the brooch that includes samples from her dresses, reflecting the woman's personal preferences with the purpose of catalysing memories and stories. Thus the woman could wear the brooch with inspiration from accessory design and create personal memories about her identity.



Fig. 3 Dress brooch from the Personhood project Photo: J. Wallace



Kettley's recent work (2017) focusses on person-centred design approaches to include the voices of the persons the designer is working with in order to foster an empathic relationship between the maker, the wearer and the viewer (Møller and Kettley, 2017). Her lead role in the project 'An Internet of Soft Things' resulted in a framework to practice ethical participatory design (Kettley et al., 2017), in collaboration with computer scientists, smart textile designers, psychotherapists, design researchers and mental health participants – both as individuals and professionals. In the project Kettley and her team used different basic accessories for the participants to choose which objects they preferred and could associate with, to assist them during difficult periods. In this way, through the basic accessories, the participants were given a voice in describing their everyday challenges in order to demystify electronics and to determine to what extent they should be embedded into the materials. The use of every-day objects facilitated tangible dialogue tools (Møller, Ravnløkke and Bang, 2016) to raise new questions and issues in a safe environment.

In figure 4 we see a basic accessory – a pair of ear muffs – which Josie, one of the participants, preferred. She even wore them at a Christmas market as part of a social gathering for the project participants. The basic accessories facilitated an idea of soft things to be worn on Josie, with the inspiration from accessory design to meet Josie's personality and as objects that cater to her identity.

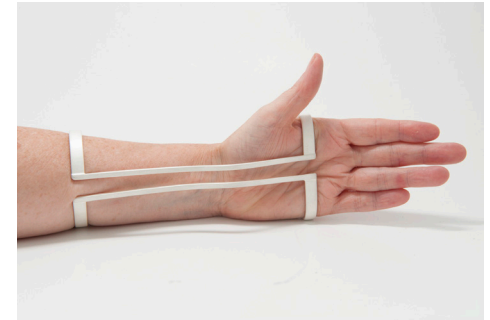


Fig. 4 A pair of ear muffs designed to demystify sensors, light and other electronic components, for wearers with mental health conditions.
Photo: T. Møller.
Josie Collier wears the ear muffs at a public Christmas market.
Photo: S. Kettley.



Bush and ten Hompel (2017) also focus on use versus wear in their research into the field of wearable orthosis design. Bush, who is also trained as a jeweller, turned to design research when the symptoms of Ehlers-Danlos Syndrome – a type of hypermobility from which she suffers – resulted in jewellery-making becoming too difficult to practice. Her own frustrating experience of health wearables led her to question the approach of current orthosis design, which is why she started to investigate methods that support co-design and craft sensibility in the design processes for orthosis design (figure 5).

In the analysis section of her PhD project Bush developed a biopsychosocial model of eight layers of wearability to define important factors that affect a wearer's adoption of worn objects (Bush and ten Hompel, 2017). Her model identifies fit, function, style, aesthetics, materials, making,



emotional engagement and meaning as important design factors affecting wearability – a term that describes how wearable an object is perceived to be by its wearer. All these factors were raised in her co-design research with other wearers of orthosis design. Bush's jewellery-inspired approach facilitates the design of wearable orthosis design to be worn on a person, with the inspiration of accessory design for a person, and to be objects about the identity of that person.

Fig. 5 Peta Bush's collection of "Therapeutic Jewellery" demonstrating the potential of traditional craft technologies in orthosis design (Bush and ten Hompel, 2017). Photo: P. Bush

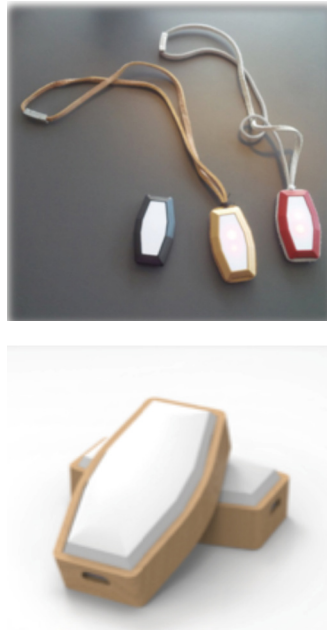


Fig. 6 The company's first prototype of a fall detection device, to be carried around the neck of care home residents. Photo: V. Stegeager

CASE STUDIES

The case studies were analysed using Brinkmann's (2014) approach 'Stumbling upon Experiences', which presents a qualitative inquiry of describing astonishing incidents to recognise multiple modalities of social actions (Atkinson, 2005). Navigating through such social actions, abductive reasoning can be used in situations of uncertainty in order to understand explanations of something that happens (Brinkmann, 2014). According to Brinkmann, abduction is driven by astonishment, mystery, and breakdowns in the researcher's understanding. The 'stumbling' upon astonishing incidents in the three design experiment cases will be presented in the following sections.

A COFFIN-LIKE FALL DETECTION DEVICE

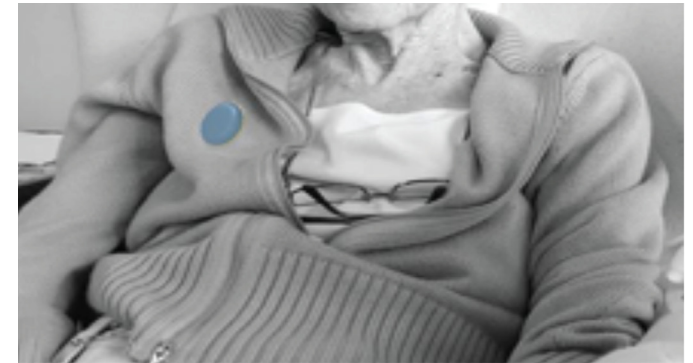
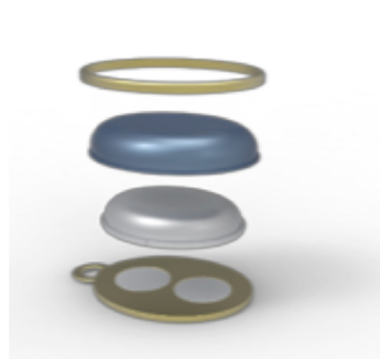
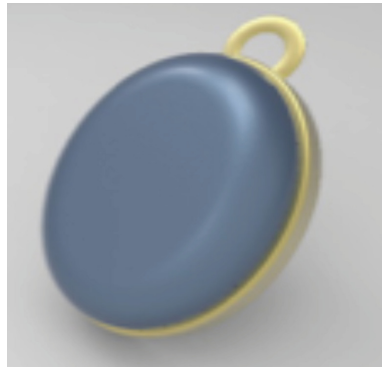
The first design experiment case is presented to show how an engineering-driven company altered their design in response to a clearer understanding of the users' psychosocial needs (Møller, 2018). In figure 6, the company's first prototype of a wearable fall detection device is shown.



Fig. 7 Inspired by the care home residents' personal favourite accessories, the interns developed new prototypes based on the personal preferences of the individuals. Photo: V. Stegeager and A. E. Vladioiu

When developing the device, the company did not involve the wearers but based the design of the prototype on their own imagination of their grandparents wearing a piece of jewellery. Unfortunately, and because of the company's production method (3D printing), the resultant 'jewel' ended up resembling a mini coffin.

The company therefore looked for new input and presented their first prototype to the author, which was an astonishing coincidence. They were about to hire two jewellery design interns, and I asked for permission to present my accessory approach to them in order to test it. The company consented, and during a two-and-a-half-hour visit I presented related written material from the literature review and showed examples of previous design experiments with accessory design students working with ethnographic methods to explore why we wear accessories (Møller and Bang, 2016). After introducing the accessory approach to the interns, they visited the care home with whom the company collaborated. They were subsequently given permission to do research about the residents' favourite accessories, see figure 7.



As a result of this work the company realised that by emphasising the identity of the care home residents, they could change their understanding of the wearer and personalise the design of the fall detection device (figure 8).

In this particular situation, access is given to the wearer, as he or she can choose the design of the device that best corresponds with his or her personal preferences.

This way of using access is totally different from the approaches used in the literature of inclusive design (e.g. Herriott, 2012).

This might be due to the use of the word user-centred design which strongly emphasises functionality. In this case, high functionality is also apparent, but the design of the aesthetic qualities of the device takes on a high priority, resulting in the company changing their thinking and starting to empathise with the wearer's identity.

Fig. 8 The final fall detection alarm device, designed as a brooch, with an individual choice of cover (The blue top, illustrated in the image). Photo: V. Stegeager

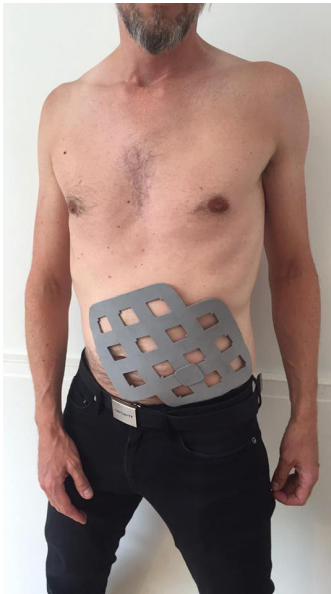


Fig. 9 Questioning whether the form of an ostomy pouch should follow the movement of the body rather than being a traditional oval shaped pouch. Photo: T. Møller

FROM OSTOMY TO FASHION ACCESSORY?

To explore personalised design and critically consider whether wearable health objects such as an ostomy pouch should be seen as a fashion accessory at all, another design experiment involved a workshop with an ostomy pouch designer, a person who wears an ostomy pouch and a former stoma nurse.

The idea was to create personalised ostomy pouches that cater to the participants' personal preferences and to raise a discussion about current ostomy design (Møller 2018b). To further discuss an accessory approach, the workshop facilitated an opportunity to create personalised wearable health design for each participant to create a 'mild and a wild' version of their bespoke ostomy pouch. In figure 9, the ostomy design shows this 'wild' version of a redesigned ostomy pouch, to be a completely new form of reservoir for the body waste of the wearer, which was an astonishing incident.

In accessory design in general there is an inherent need for changing accessories for special occasions, for example when lying on the beach or participating in a carnival. Thus, one of the workshop participants came up with a 'wild' version – a 'noisy' and a 'festive' ostomy pouch, as shown in figure 10.

Figure 10 The workshop facilitated different styles of ostomy pouches, for different personalities as well as occasions. Here the stoma nurse's creation of a 'wild' version Photo T. Møller, 2018.

Designing the ostomy pouch with a different and personal approach might question the taboo and the stigma surrounding the wearer. The astonishing incident raised new questions: Could an accessory approach change the way the wearer is viewed by others?

The idea of changing larger socio-technical systems through accessory design seems unlikely, since health and care services tend to be massive and complex political systems (Norman, 2015). Nevertheless, the accessory can be seen as part of the larger fashion system, as one element in a complex network that could affect societal change to some extent. Similarly, in the early 1900s, Coco Chanel, the fashion, jewellery and accessory designer, launched a collection of clothes that changed customers' expectations of physical activity and comfort due to its new pattern cuts, stretchable materials and fashionable style (Brand and Teunissen, 2007). What Chanel did for women's freedom to wear clothes that allowed them to move their bodies more easily had a huge impact on fashion and thereby the sociotechnical systems throughout the 1900s up to the present day (LaMontagne, 2013).



Fig. 10 The workshop facilitated different styles of ostomy pouches, for different personalities as well as occasions. Here the stoma nurse's creation of a 'wild' version Photo: T. Møller, 2018.



Fig. 11 The existing wearable health technology; a TENS machine for Transcutaneous Electrical Nerve Stimulation. Photo: A. Varga

DESIRABLE WEARABLE HEALTH DEVICES

Together with Peta Bush and nine accessory design students an evaluation of an accessory approach drew attention to which accessory design skills, methods and practices could be used to transform emotional information about the wearers and their personal needs into tangible solutions (Møller and Bush, 2018). The students were asked to develop quick prototypes to challenge existing perceptions of a Transcutaneous Electrical Nerve Stimulation (TENS) machine, figure 11.

Another astonishing incident occurred, when one of the students presented her re-design of a wearable health device (see figure 12). Practising an accessory approach to which she was introduced at the beginning of the course the student used natural materials to design a wearable health device with simple functions that can be charged through the motion of the body.

Bush is wearing the TENS machine, and her jewellery-led approach (Bush and ten Hompel, 2017) inspired the student to use pieces of jewellery, nanotechnology and natural and precious materials. Even though the student is trained in product design, the accessory approach is apparent in her solution for the redesigned TENS machine. According to Bush the existing machine still has many problems such as the placement of buttons, the way it is worn, as well as the application of the pads to the body. The student's redesign of the device challenges the perception that wearable health devices have to be chunky and sporty, which appears to be what the designers behind the existing TENS machine, figure 11, aimed for.



Fig. 12 Aurélie Varga's redesign of the TENS machine, a piece of jewellery to support the wearer's personal choice of material, colour and shape. Photo: A. Varga

The student's concept is a neat and desirable solution that addresses important factors of wearability (Møller and Bush, 2018). Treatment of the materials and the accessory design methods solutions as well as the focus on the relationship between body and object in particular inspired her process of making. By treating the objects in a refined manner with a strong emphasis on materials the student created a very convincing prototype.

Influenced by an accessory approach she made a fitted, functional, stylish and aesthetic artefact that greatly emphasised the emotional engagement and meaning for the wearer, thus accomplishing all eight important design factors of wearability (Bush and ten Hompel, 2017; Møller and Bush, 2018).

COMPARATIVE ANALYSIS OF THE THREE DESIGN EXPERIMENTS

Comparing the activities of the design experiments, several astonishing incidents frame the analysis (Brinkmann, 2014). Inspired by the insights of the literature review, which focussed on issues of identity, aesthetics and empathy, the comparative analysis explores related significant findings of the activities, based on the researchers' state-of-the-art insights and work;

The categorisation frames a pattern of accessory design activities which appears in each design experiment. The design experiments thereby propose a framework for new openings for an accessory design approach towards accessible wearable health design.

	<i>Identity</i>	<i>Aesthetics</i>	<i>Empathy</i>
Case study 1 "A coffin-like fall detection device"	Embedded ethnographic methods facilitated insights of the wearer's identity to foster the creative design process.	Small-scaled refined making skills and material knowledge generated an aesthetic approach towards the wearer's preferences and health wearables.	Identity and aesthetic considerations of the wearers inspired a re-design of the mini coffin and thereby resembled empathy for the wearer's situation.
Case study 2 "From ostomy to fashion accessory?"	Involving wearers and non-wearers of ostomy products to resemble personal versions of ostomy pouches, focusses on the identity of the wearers.	The personal aesthetic considerations and choices involved small-scaled refined making skills and material knowledge to create a 'mild' and a 'wild' ostomy pouch.	Empathic understanding was generated outside the remit of the company, to foster new ideas; sharing of personal preferences and identity issues.
Case study 3 "Desirable wearable health devices"	Engaging with wearers of wearable health design, to focus on wearability involved personal challenges for the individual, such as identity issues.	To match the personal and aesthetic preferences of the wearers, material knowledge and small-scaled refined making skills were activated.	Going back to the wearer to discuss the re-design of a wearable health device fostered insights of empathy towards a personalized design approach.

NEW OPENINGS THROUGH ACCESSORY DESIGN SKILLS, METHODS AND PRACTICE

Combining literature on jewellery research, object narratives, adornment, aesthetics, person-centred approaches, style, craft sensibilities, wearability, empathy and identity, the involved design practices is of relevance when designing access for the wearer through accessories.

In light of the literature review and the three design experiment cases the designer's role can be discussed in regard to an accessory approach towards wearable health design; Material knowledge, small-scale refined making skills and empathic understanding of the wearer are crucial. As a premise, this means that the wearable health designer could start with:

- Generating insight about the state of the wearer's physical, psychological and social body
- Considering and involving the inherent need for body adornment
- Engaging in an empathic relationship with the wearer to understand cultural and psychosocial factors

The designer might come from one of several sub-disciplines but could apply accessory design to achieve a clear impact. The synthesis of an accessory approach is thus a combination of accessory design skills, methods and practices, based on state-of-the-art designs and research as visualised in figure 13.

SKILLS

The categorisation of accessory design skills directs the maker's creation of wearable health objects that;

- Empathise with the wearer's physical, psychological and social body



- Catalyse information about the wearer's personal preferences
- Embed the wearer's personal stories
- Focus on wearer identity, in the past, present and future
- Contain a tangible understanding of materials
- Perform small-scaled refined making

Such skills include a focus on materials embedded in small-scale refined making processes when creating accessories. When developing health wearables the designer could be aware of the narratives of accessories and their relationship with the body, i.e. the emotional and sensory experience of wearing the objects. If the designer aims for fashionable objects the health wearable becomes a statement of expressive and functional qualities, thus it raises questions concerning accessibility for the individual. In that sense the designer needs to know how to gain insight into the wearer's personal preferences at the biopsychosocial level (Møller and Bush, 2018). In that process, the designer might also be knowledgeable about electronic components and digital technology in order to ascertain whether wearable health design for the body should be fashionable and how it might fit the cultural preferences of the wearer.

Fig. 13 How an accessory approach might facilitate different skills, methods and practices within wearable health design. Trine Møller@2018 all rights reserved.

METHODS

A starting point would be to gain valuable insight and knowledge about wearer preferences and the cultural fit purposes of the wearer. This could be done through standard design research methods, i.e. participation, observation and interview, with an additional emphasis on wear as in emotional and sensory qualities, rather than use as in the functions and qualities of the design prospect. Getting insight into the wearer's existing accessories, e.g. jewellery, functional accessories and/or clothing accessories, a visit to their own home and an interview with them about their favourite accessories could be a starting point for empathic understanding and an emphasis on identity (Møller and Bang, 2016; Møller and Kettley, 2017; Møller 2018). There are, however, some ethical issues embedded in this type of request, which the designer has to be aware of.

This conception could expand the designer's thinking to include considerations of the wearer actively engaging the viewer and frames the relationship and understanding hereof in the maker-wearer-viewer relationship (Cunningham, 2005).

PRACTICE

When introducing the accessory approach, practice can vary within the different accessory design disciplines, such as shoemaking, jewellery making, weaving or knitting a scarf, creating a hat or crafting a bag. Thus, wearable health design has the ability to be both pleasing haute couture artefacts, bespoke products (Vainshtein, 2012), or on-site 3D printed objects (Bingham, 2017). Accessories making differs in its categories of practice. With haute couture and bespoke objects, the practitioner has to be very patient and skilled to manage the craft, whereas 3D printing makes use of a machine. In that case the practitioner has to have technological insight into machinery and materials. Practicing wearable health design, material and physical functions relate to protection, concealment and attraction. Cultural functions (including social and psychological functions) are related to communication, individualistic expression, social and economic status and political or religious affiliation. Industrially designed and produced basic accessories can create a natural engagement between accessory designers and non-designers, as well as the wearer. Thus, the accessory becomes a familiar and tangible tool for dialogue to raise the voice of the wearers and their every-day challenges.

CONCLUSION

Access literally means 'a coming to' or 'an approach'. In this paper I have discussed how access is related to accessory design, with the purpose of presenting an accessory approach as an enabler of a particular framing for accessible wearable health design. By framing the discourse of current wearable health design, accessory design offers a different approach. In relation to the wearer, the accessory can be seen as a power object due to its qualities of material, cultural, political-economic, gender and personal choice. An accessory approach is therefore different, as it is related to personal issues of what we wear, rather than the traditional user-centred design of health wearables, related to pure functionality. Accessibility refers to the design for people who experience disabilities, and in theory and practice assistive and accessible wearable health design can draw on the tradition of accessory design to embed a broader perspective than implied by only disability, personal preferences and the cultural fit purposes of the wearer. In that case, functionality is still highly relevant; thus an accessory approach activates further dynamics of the inherent need for body adornment. With insights from the disability, jewellery and fashion literature, as well as several design experiments, I suggest that an accessory approach facilitates wearable health designs to be objects worn on a person, with the inspiration from accessory design for a person, and, to be objects about the identity of that person. Maybe the emphasis on access could change the way we approach wearers of wearable health design to support their personal experience of body worn objects?

The framework I have created is based on the findings from the literature review and the design experiment cases, including identity, aesthetics and empathy as important indicators that synthesise accessory design skills, methods and practices that can be valuable for other designers of health wearables. A starting point is to gain insight and valuable knowledge about the personal preferences of the wearer by establishing an empathic relationship. Material knowledge and small-scaled refined making skills are also key factors in approaching the design of health wearables differently. Such an accessory approach challenges the taboo and the stigma related to traditional wearable health devices and could change current wearable health design by creating access, through accessories, for the wearer to be able to choose a design that is 'me'. This article claims that an accessory approach might very well provide a more effective way to design such wearable health products.

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Journal of Jewellery Research

www.journalofjewelleryresearch.org

ISSN 2516-337X

Loughborough University,
Northumbria University, University
of Dundee.

First published in February 2019,
UK. Copyright© Journal of Jewellery
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Journal of Jewellery Research is a
double blind peer-reviewed research
journal supported by an International
Editorial Advisory Group.

Jewellery: from Material to Affection

Author: *Ana Passos*

ABSTRACT

Through the centuries, jewellery has developed a variety of different functions, being able to adorn and also bear symbolic meaning. It is capable of carrying reminiscences from its makers, its owners and those who appreciate it (Unger, 2012). This paper summarises the approach and the interdisciplinary literature gathered in order to understand the meaning of objects in particular family jewellery passed down from one generation to the next, pieces that effectively work as tokens of memory.

In particular this analysis is informed by the concept of things from the philosophy of Heidegger (2013), Deleuze and Guattari (2012) and the anthropology of Ingold (2012), expanding the traditional approach to considering the meaning of jewellery and how it changes through time. The main objective of this research is to understand from the microcosm of a jewellery studio and the relationships forged through the decades what the meanings of jewellery are, especially those related to affection and memory. In these terms, jewellery as a carrier of memory can contribute to the study of the value of jewellery beyond a historical approach, considering its meaning through time to different owners who have also been connected through familial and or other bonds. This also suggests that jewellery should not be considered as a discipline in its own right but rather as transdisciplinary. This has significant implications for future research into the meaning of jewellery.

Key-words: jewellery, meaning, memory, materiality, history, transdisciplinary.

INTRODUCTION

The origin of this research is an inquiry into how a piece of jewellery changes from material to affection? Or, presented differently, how does the meaning of jewellery emerge, particularly over time and how these meanings can change?

The concept of affection is central to this research and it is based on the philosopher Spinoza, who defines affection as the ability of something to move or paralyse us, to increase or decrease our power to act and think. He considered that human actions and appetites should be understood as if they were a matter of lines, surfaces, or bodies. (Spinoza 2017: 98). This description is very similar to what the anthropologist Tim Ingold uses to describe his concept of meshes of materials and processes (Ingold, 2012). He considers that materials do not exist, they happen. Therefore it is necessary to follow the mesh of materials and processes in order to understand their being and their meaning. Still, according to the philosopher, each person regulates their thoughts and appetites from these affections, and that one thing can cause joy, sadness, desire or repulsion. If we believe that a thing similar to the one that affects our mind can trigger the same reactions of love and hate of the first, we can conclude that an accumulation of affects guides our desire. In discussing the mechanisms of the imagination, Spinoza says that “to imagine is nothing more than to feel the traces that are in the brain due to the movement of the spirits, a movement that is excited in the sense by objects” (Spinoza, 2015: 199).

The affections arise in this space between bodies where forces of encounter end up affecting those bodies. They are cumulative and make us who we are. They are actions on bodies rather than reflection, although they are not totally separate from thought. What is at stake is the

variety of interactions and encounters that contribute to the rise of our self-consciousness.

It is difficult to understand the change from material to affection simply from the jeweller's bench alone and so I have looked at a broad interdisciplinary literature that enables fluidity between different fields of study and a non-fragmented understanding of the universe of jewellery.

The anthropologist Ingold proposes a comprehensive approach to the world that is an ecology of materials (2012) that incorporates into his work the idea of mesh. This approach contemplates materials and processes, and is constructed from the invitation to the interaction present in the concept of 'thing' in Heidegger (2013) and in the concept of lines of flight in Deleuze and Guattari (2012). The History of Art, History of Culture, Anthropology, studies of Material Culture, and Philosophy are important disciplines adding to Ingold's concept of an ecology of materials.

Understanding jewellery from the material perspective intersects with the narratives that show affections can reveal contradictions. Sometimes, the result of in depth observation of material and processes at the bench reveals that narratives are made of vague reminiscences more than actual facts that can point to a wider and more complex construction of meaning. It is from the understanding of the materials and forces acting in a mesh of interwoven lines of continuous processes of growth and movement proposed by Ingold (2012) that this trajectory from material to affection can be elucidated.

The object of study reveals even more layers of meaning when there is a clear understanding of the coexistence of three different scenarios in the studio. The first

requires the person to make an interpretive effort to materialise the desire of the customer, it being a restoration, a renovation or the creation of a new piece of jewellery. A fertile transition between the artisanal and the commercial takes place in this customer-jeweller relationship. The second involves a certain level of intentionality of personal expression (Bernabei, 2011: 4) on the part of the maker, a conceptual work aligning itself with what can be loosely named author jewellery, closer to the goldsmithing tradition and not necessarily affiliated to the contemporary art jewellery scene. This has points of contact with den Besten's concept of authorship, where it is possible to identify the craftsmanship, the artistry and the vision (Besten, 2011:11) at the same time that traditions, attributions and systems of value has a prominent role. The third is born of a reflection that is not based on the binomial do-think approach to making (Sennett, 2009). It leaves the bench, plunging into the intricacies of academic studies to build a certain history of jewellery. This process ends up becoming the search for an understanding of how the relationship people have with jewellery is built. Drawing, creating, choosing, acquiring, using, donating, keeping, caring, and disposing of jewellery, all these interactions, and more, may be influenced by the meanings invested in jewellery.

Jewellery can be categorised by materials, typologies, uses, authorship and discourse. Overlapping these categories is the point of view of those who make, wear and observe jewellery (Unger, 2012). There are also classifications ranging from origin - crafts, art and design - to result - traditional jewellery, authorial jewellery and art jewellery (Besten, 2011: 9-11). There is a mesh here to be investigated. This kaleidoscope of small fragments makes sense as it is approached with the lenses of Ingold's ecology of materials (2012).

The other question guiding this research has to do with the implications of the contemporary interest in personalising jewellery though acknowledging key life events currently promoted by the commercial jewellery market and as seen in the global success of Pandora, the Danish brand created in 1982. Its marketing strategy is based on the sharing of life stories through the use of jewellery, especially bracelets of charms, that mark significant life events. The company also encourages its customers to register these stories and their images with the pieces of jewellery on social networks (Bitti, 2014). In the same way that market dynamics and communication dynamics influence the configurations of the arts universe in the present temporality, their effects can be noticed in the world of jewellery.

The discomfort of not relying on a great organising narrative that characterises our times makes people question the experience of the present as a way of being contemporary. Nowadays, all the options are always open; there is no restriction; the inquiry is incessant; and at the *kairos* moment of pure and fleeting opportunity, they are well suited to understand the new forms of subjectivities, the new sensitivities that emerge. Agamben (2009) is one who advocates certain inadequacy necessary for existing in the contemporary world. Otherwise, it is not possible to recognise ourselves as contemporary.

Lipovetsky (2014, 2016) offers ways to interpret the opportunities and discomforts of this temporality. For the author, the present with its unbridled consumption and fuelled by the superficiality of the entertainment industry creates paradoxes that are ever deepening, generating a new discontentment with civilisation in Freudian terms. There is access to more and more information, but its excess can be disturbing. The world shapes people's desire in unbridled personalisation, but nobody knows exactly who they are, and most people are likely to feel

disoriented in a crisis of subjectivities. Although material comfort is still far from universal, it is superior to what it was 100 or 200 years ago. In many regions of the planet and in many layers of the population, the issue of quality of life is present and often tied to concerns about sustainability.

One of the greatest paradoxes is the commercial exploitation of these concerns that creates mechanisms where abundance and obsolescence coexist with aestheticisation and conscious consumption. Society promotes happiness, but people are disoriented with all the excesses of information and objects. Lightness becomes a desirable concept. They try to mitigate this desolation that comes from the fatigue caused by the speed and voracity of the everyday life, buying this idea or finding particular forms of anchorage. In a framework where individualism is uprooted (Lipovetsky and Serroy, 2015: 245), they seek authenticity and belonging, often returning to an idealised past through the things around us. Things that are brought to the market, on the one hand, by the creative economy that flourishes through embracing the complexity and lightness of these days and on the other, by the traditional economy that struggles to survive in its difficulty of reviewing and anticipating possibilities.

Increasingly, perhaps in contrast to this conscious consumption, there is a desire to connect with sentimental jewellery, often heirlooms that are kept in a drawer but not used. Many modern jewellers offer a remodelling service where they can take a customer's sentimental jewellery and rework it into something new that can be worn every day and this is an area worthy of exploration that has previously not received much attention.

The starting point of this investigation are the small treasures revealed through reminiscences, memories and narratives of personal and family histories, as well as some silences, which accompanied the jewellery and the requests for new jewellery that arrived at my studio over the last 15 years. This has been stimulated by the constant growth of the demand for the renewal of jewellery and for the creation of jewellery with specific meanings. The relationship between jewellery and memory deserves to be investigated, but the memory ceases to be only an object in itself and becomes, in addition, a methodological process and resource to access the changing meaning of jewellery.

Faced with a wide variety of questions and possible paths, the study of the meaning of jewellery and of its construction required drawing on a broad interdisciplinary literature. Jewellery, metallurgy, gemmology, history, anthropology, material studies and philosophy were all fields of study that I had explored and that were uppermost in my mind as I worked at the bench. This also suggests that a jeweller needs a broad understanding of interdisciplinary literature.

In particular I chose what Ingold describes as ecology of materials to inform my analysis. His ideas facilitate the recognition of jewellery as a thing – its matter and flows – and allows for an understanding of it without losing part of its value and meaning, following the lines of processes and relationships that constitute the fabric of life (Ingold, 2015). Working with his concept of mesh, it became possible to approach jewellery as objects, now things, following their materials and dynamics, trying to understand their meaning not as dead objects, but as dynamic objects, alive and able to be understood in this way. Each piece of jewellery had its constituent materials studied in the studio, as well as the narratives that surround them through investigating their origins. They

were alive and as an intersection in the mesh of matter and flow being able to unfold their potential.

Metal and gemmological identification were made in laboratory. Styles and techniques were compared for identification purposes. Ethnographic qualitative research studies were used for inspiration to obtain the narratives associated with the jewellery. Cultural history and anthropology literature were consulted to understand social practices and representations of jewellery as a cultural object.

This paper speaks of the role of jewellery in the construction of organising narratives of memory, and identity. It deals with some possibilities of an approach to the subject and suggests that be they historical, familiar or created in contemporaneity, jewellery can help people to give order and meaning to their reminiscences. As Manuel Castro Caldas (1998, cited in Filipe, 2012: 123) explains:

In a new broader sense, jewellery retains its specific effectiveness and economy as a record of the reading of the bodies and the way it is inscribed on their accomplishments, ambitions, collective and individual dreams and affections, while at the same time signaling one of the disciplinary places where the rules of the negotiating plan, the very chessboard of communication is created and changed in society. [Author's translation]

UNVEILED TREASURES

Jewellery has been around for a long time, and people are still completely fascinated by it today, as Barthes points out (2001: 90). Why do people like jewellery so much? Why do people want to give and receive jewellery as a gift? Why does jewellery often mark transitional moments, rites of passage? Why is it so important to know who made the necklace of the soap opera character or what the princess's engagement ring is made of?

Jewellery can be a store of value, an adornment, a symbol of tradition, art, insignia, an indication of belonging, a souvenir, a proof of love, an amulet, a talisman, and even bling-bling (Wayne, 1999). Its multiple meanings can be economic, social, anthropological, symbolic, religious, magical, ornamental, and sentimental. In the midst of all these possibilities, there is still great potential in jewellery to bring together the most diverse stories, narratives present for those who make it, as well as of those who carry or possess it and also for those who appreciate it.

The authorship of jewellery potentially contains a narrative of its creation, be it the history of its genesis or its conceptualisation. An owner's possession of a piece of jewellery also produces its own narrative. Pieces are inherited, received on commemorative dates, bought to celebrate an important life event. The occasions on which they are used also adds layers of meaning. The ways in which they are presented, displayed, photographed, disseminated, and even grouped in collections create and accumulate new meanings. The precious materials from which much of our jewellery is made seem to be immune to the passage of time and for this reason, they appear in the building of memories of individuals, groups and even countries.

Among the universe of traditional jewellery, made of precious materials and classic typologies; the universe of authorial jewellery, which expands the spectrum of materials and typologies in the name of the expression of its author; and art jewellery, which flirts with other art forms, expanding still more the boundaries of materials and typologies, sometimes beyond the relation with the body; there is a universe of matter and processes to be explored.

The term jewellery, as defined by Unger (2012, 2017), means an object worn by people as a decorative or symbolic addition to their outward appearance. This definition, for its simplicity and comprehension, is the most adequate starting point to explore the various meanings of jewellery. History reveals that people appropriate objects that are arranged on the body and in contemporaneity, this is even more significant, even when any of the aspects usually related to jewellery are abandoned, whether noble materials, techniques of realisation or traditional typologies.

Jewellery is fascinating and curious. Artistic or not, called contemporary or otherwise, jewellery will continue to be a way to make someone more attractive and intelligible to ourselves and to the other. den Besten highlights how jewellery becomes a bearer of meaning:

Jewelry is often conceived as a sign, as an object that gives meaning. People are used to reading jewelry, whether it is a conventional gold heart, a medallion or a name on a chain, a wedding ring, a pearl necklace, a piercing, a glittering fake bijou, a medal, an ethnological or antique piece of jewelry or a unique handmade piece of art jewelry. Having said that, I should add that it is also the wearer that makes the meaning of a piece, attributing stories, memories and their personality to it, charging a piece of jewelry with meaning. (2011, p.24)

Jewellery meets two urges of contemporaneity: attractiveness and intelligibility. Understood as adornment, it is capable of fulfilling both aesthetic and magical functions, be it embellishment or protection. It can also be understood as an object charged with material and emotional meanings. As a personal treasure, jewellery acts as a store of value or social distinction. All these aspects contribute to the construction of its subjectivity. Simmel, in a text originally published in 1908, outlines how adornment "... increases or enlarges the impression of the personality, because it acts, as it were, as an emanation of it" (2014: 67-68) [Author's translation].

The complexity of the subject is clear and it is necessary to address the subject from a variety of different disciplines. Drawing on this literature also informs an interdisciplinary approach to the important relation between jewellery and memory. The meaning of jewellery therefore cannot be exclusively approached from just one discipline.

For example, the social and cultural patterns that emerge in the contemporary world are not clear and there is a possibility of them not becoming clear ever again. The mechanisms by which consumer behaviours are created and spread, moving in the social fabric from top to bottom from the outside to the inside, no longer make sense. The process of absorbing the new behaviours of the consumption system becomes increasingly difficult to track as nowadays it happens in a multi-directional way. These mechanisms are now diffuse and difficult to follow, not only for their speed, but also for the overall complexity they have taken.

It is also important to observe that although issues surrounding trauma prevail in part of the literature on memory and the uses of testimonies in historical

research – where topics such as slavery (Gilroy, 2012), postcolonialism (Hall, 2003), holocaust (Pollak, 1989) and dictatorships (Sarlo, 2005) are discussed – it is noticed that there are psychoanalytic mechanisms of erasure that combine with the attachment to and the destruction of jewellery. Thus, the jewellery that comes to us, in their great majority, bring sentimental narratives more than traumatic ones, showing that the decisions of what to keep and what to discard (Ricoeur, 2007) determine the nature of memories.

This research sought to understand from the microcosm of the author's jewellery studio and the relationships forged over decades with customers what the meanings are of the jewellery now. What follows are a few examples of pieces of jewellery that were studied.

FAMILY JEWELLERY

Not all jewellery has the same lifespan. Often jewellery stores, antique shops, flea markets, auction houses and pawnshops are sought for the sale, exchange or creation of new pieces from old ones. The intrinsic economic value of jewellery causes it to be perceived as a store of value, as merchandise. In trying to understand its real meaning to the owner, sometimes intriguing narratives arise. It is not uncommon for the person to realise the sentimental value of the piece and give up on negotiating it. Sometimes, the piece has cultural and artistic importance for its design or the quality of craftsmanship involved, and the recommendation is to hand it to an expert in the jewellery market so that it does not go out of circulation.

In their workshops, studio jewellers frequently receive family pieces with sentimental value that the owner does not want to discard, perhaps by understanding the paradox pointed out by Miller, that the "...immaterial can only be expressed by the material" (2013: 111). Sometimes the owner seeks its 'resignification'. On other occasions, he or she wants to keep it intact and just have it maintained to put it back into use. Not always of great economic value, it carries reminiscences, memories narrated by different people, a whole series of remembrances. This is exemplified by the five pieces of jewellery and their respective stories told by their owners, drawn from over 120 renovation projects of family jewellery, recorded through photographs and interviews, in the author's work as a jeweller for the last 15 years.

The following examples were chosen in order to show the variety of pieces of jewellery studied in terms of typology, work on the piece and level of importance to the owner. One of them had important intrinsic economic value (a brooch), another had no value at all but was embedded in sentimental reminiscences (a necklace). One of them was

melted down to open space for new narratives (a pair of wedding rings), another was barely cleaned and polished just to reveal its fragile beauty (a ring). Another one was carefully restored to keep its strength as a major heirloom for the next generations (a pearl ring). The images presented are of the finished works as the major concern here is their meaning and not the technical work at the jewellery bench and also because unfortunately some of them lack a before and after photographic register, since the work on them took place before the beginning of the academic interest in them.



Fig. 1 Wedding rings in gold.
Photo: Ana Passos.

FROM AN UNCLE TO HIS NEPHEW

Upon announcing to the family that he would ask his girlfriend to marry him, a man was offered the wedding rings that belonged to his grandparents from his uncle. After a thorough consideration, he decided to use those wedding rings to make completely new pieces. The gold of the wedding ring was of good quality, but with an unidentified alloy, which was quite common in the interwar period. That is why the material was very brittle. Refining the metal was not a choice since the client considered it somehow magical. After numerous attempts at melting, rolling and forging, and some consultations, it was decided to allow the metal to determine the possible shape, and micro fusions were made on the cracks that insisted on appearing. At the end of the work, the fiancé was thrilled to consider that this whole process with the metal clearly portrayed the challenges of a relationship and incorporated this story into his marriage proposal, materialising the link between three generations and two families through those objects.



Fig. 2 Necklace with glass beads, resin and gold-plated metal.
Photo: Ana Passos.

A PIECE OF COSTUME JEWELLERY

A woman received a small purse with loose beads and pieces of an old costume jewellery necklace from her mother and put it all aside for a long time. After becoming a mother herself, she decided to get it fixed. The glass beads were somewhat worn out, a clear sign of many years of life. However, there was reminiscence there. The necklace had been bought on a sea cruise, during her parents' honeymoon. It had been part of her entire childhood and adolescence, and inhabited many of her best memories; thus, it did not deserve to remain abandoned. She wanted very much to use the piece that, after restoration, gained new life and might even last for further generations. It took some time to find suitable replacements for the damaged beads because of their colour and exceptional quality. All metal pieces were sanded and gold coated. When the necklace was finally mounted, the client was quite happy.



Fig. 3 Brooch with aquamarine and diamonds in gold.
Photo: José Terra.

FAMILY HEIRLOOM

A brooch was brought to the studio by a customer for evaluation with the intention of creating new pieces. It was a legacy from her grandmother to her mother, who passed it down to her. Because it was already in her possession, it became one of the only pieces of family jewellery left after a robbery. The customer was considering the idea of breaking the brooch up to give a new piece to each of the original owner's great-granddaughters. She thought it was outdated and unlikely to be put to use again. It was a good example of the traditional jewellery of the 1950s. Upon analysis, it was discovered that four diamonds were missing. She then realised that her grandmother had already removed those gemstones to make pairs of earrings for her great-granddaughters. This information triggered a series of memories and made her reassess the sentimental value of the brooch and the whole content of the inherited jewellery box. All the pieces were restored, distributed among the women in the family and put into use again.



Fig. 4 Ring with synthetic ruby in yellow gold.
Photo: Ana Passos.

FROM A GRANDMOTHER TO A GRANDDAUGHTER

A young woman wanted to use a ring of her grandmother's, but it was too small. She went to the studio to have it enlarged to the correct size. Informed that the gem was synthetic, that the gold was of a very poor alloy and that the operation could hopelessly damage the piece, she insisted that it was very important to have it done because her grandmother had given her favourite ring to her – as the eldest granddaughter – and in a few days, they would celebrate the elderly lady's birthday. With great care and with the supervision of a much-seasoned goldsmith specialised in restorations, the piece was correctly sized, cleaned, polished and presented in a new box. She broke into tears when she fetched it. Later, she said that her grandmother and all the family were delighted with the gesture of having the gift restored and of her using it every day.

Family jewellery, passed from generation to generation, is clearly evocative of individual and collective memories. It reveals shared beliefs and identities constructed collectively. Even in absence, ties can be maintained and strengthened. Legacy objects, given, found, and even stolen seem to carry and update these ties. However, it should be taken into account that there is also the spectre of an invented past, something strongly associated with fictional identities created for social networks.

A VERY SPECIAL FAMILY HEIRLOOM AND A METHODOLOGICAL DECISION

A young woman received a ring that had belonged to her great-grandmother as a gift from her mother, apparently a piece of costume jewellery of no intrinsic economic value that she had been using very often since she received it in the beginning of the 2000s. This piece was brought to the studio for conservation because it was considered the most precious asset of the family, in the words of its current owner. It happened to be a white gold ring with a fake pearl. Its origins had to be studied.

The ring is owned by the descendants of an African Brazilian enslaved woman from the region of Rio de Janeiro. It had been given as a gift to her great-grandmother by her “owners” upon her release from slavery. It is not known whether she was released by force of law or whether she had acquired the means to pay for her freedom or even whether she had been released at the will of her owners. Nor is it possible to know when that happened. The truth is that there is an effort to erase those circumstances on the part of the family, leaving only the symbol of freedom and struggle of an ancestor, passing from mother to daughter, among the first women of each generation.

The ring had many signs of use and had undergone more than one restoration as can be seen from the presence of welds in the yellow gold, quite different from the original. In one of these renovations, probably in the passage from the grandmother to the mother of the present owner, the pearl must have been replaced by a fake glass pearl, very common in the years 1950-60. After the cleaning, polishing and the rhodium coating, the ring received a new pearl of good quality, as requested. It will be continuously worn by the proud owner until it is time to pass it down to the next generation.

What makes this last piece different from the other examples? Although ownership was clearly traced until the end of the 19th century, and it belonged to an African



Brazilian enslaved woman, this ring does not bear any of the characteristics of a Creole jewel. On the contrary, it is a ring with a very simple European design. In addition, until the advent of large-scale cultivation, pearls were very expensive, and the white gold alloy was only beginning to be used in the last decade of the 19th century, the probable time of its production. This piece of jewellery must have been produced and purchased for a woman from a wealthy family. Indeed, there is the possibility that it may have been made in the first decade of the 20th century, and this might have to do with erasing its exact origin if the permanence of an African Brazilian woman in the service of a family until many years after the end of slavery in Brazil in 1888 is to be considered.

This ring is priceless, as its owner said. It was priceless even when it was considered a costume jewellery of enormous sentimental value. Its appraisal did not change anything. Its material points to the complexity of its existence. Even putting to one side the exact time and the way it entered the family, it incorporates the journey of these women until today, composing an important rite of passage and updating its meaning with each new generation.

Fig. 5: Ring, possibly made between 1890 and 1900.
Photo: José Terra.

CONCLUSION

The narratives surrounding these pieces do not bring with them accurate dates, manufacturers or sellers. They deal more importantly with affection and identity. Even so, sometimes by following their constituent materials, techniques and adopted styles, it is possible to reflect about the circulation of jewellery in Brazil, as pieces are passed from generation to generation and how they contribute to the idea of belonging to a family, a social group and to the identity of an individual. Through this process new layers of meaning can be added to these narratives.

Memory is plastic. It is built and rebuilt from conscious or sub-conscious choices and reminiscences, but also the act of forgetting or consciously erasing that allows people to bring an event or feeling into the present time. When choosing to highlight the materiality of those pieces of jewellery, the importance of the narratives established within the framework of their owners' families is brought to the foreground. At the confluence of listening carefully to these narratives and following their journeys, based on their materials and processes we get a sense of the memories embedded within these objects. Therefore, in the words of Ingold, all that is necessary is to "...follow what is happening, tracing the multiple paths of becoming, wherever they lead (2015: 41).

The pearl ring may not be a Creole jewel, but it is a piece of jewellery that belonged to an African Brazilian woman enslaved for much of her existence. The circumstances of her release are not known. The silence around that does not fail to refer to the possibility of unspeakable suffering. It was decided to recognise that piece as precious because it is part of the family's origin story. The older woman of each generation is proud to wear it daily as a symbol not only of belonging to the group, but of affection between generations and especially, of power and struggle.

As the meaning of jewellery is observed beyond the object and there is a search for the information its material can present as well as what has been happening throughout its existence, a network of processes and relationships that gains in complexity can be built, breaking with the myths that diminish the power of matter.

The conclusion that can be reached, following all the evidence that the materials provide, is that the direct reasoning that leads from the appearance or the origin of the objects in this last example can distract the observer from the possibility of a more comprehensive and perhaps more complete and accurate history of the jewellery and its significance within the history of these families, and even a history of Brazilian jewellery. Or, in the words of Ingold, a practical experience relation with the jewellery:

And just as the environment unfolds, the materials of which it is composed do not exist - as do the objects of the material world - but they do. Therefore, the properties of materials, considered as constituents of an environment, cannot be identified as fixed essential attributes of things, but are, on the contrary, procedural and relational. They are neither objectively determined nor subjectively imagined, but practically experienced. In this sense, every property is a condensed story. Describing the properties of materials is telling stories of what happens to them as they flow, blend, and change. (2015: 65)

Therefore to look at jewellery as a cultural artefact, a cultural object or simply as an object, removes part of its meaning because it is possible to lose sight of the experiences along the fabric of its existence. In addition, an observer immersed in the present temporality can miss many of the possibilities of approximation available to its understanding. The current historical focus on materials and styles then misses a great deal about the value and

meaning associated with jewellery that is handed down through generations. Further than this sentimental pieces of jewellery that have been remodelled may also act as an anchor, in our temporality that is fluid, light, fast and therefore challenging.

It takes a careful look, attentive ears, keen curiosity and assumed intuition to investigate the course of the formation of the meaning of jewellery. To that end, and based on the foundations of Lipovetsky and Ingold, the possibility of jewellery not as a discipline in itself but rather the idea of jewellery as transdisciplinary emerges. This has significant implications for future research into the meaning of jewellery.

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Journal of Jewellery Research

www.journalofjewelleryresearch.org

ISSN 2516-337X

Loughborough University,
Northumbria University, University
of Dundee.

First published in February 2019,
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Journal of Jewellery Research is a
double blind peer-reviewed research
journal supported by an International
Editorial Advisory Group.

Craft in the Age of Digital Reproduction - a Research into Digital Reproduction and its Aesthetics

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ABSTRACT

In the course of this research project, I bring together the process of making jewelry with both open manufacturing technology practice and an experimental approach towards a craft. The artistic practical research is framed within the Contemporary Jewelry field.

The purpose is to investigate the aesthetic created by digital reproduction techniques through practical research. The findings of the experimental practical research have been analysed on the basis of visual expression. This essay analyses how digital (re)production relates to the concept of aesthetic expression, authenticity in creating, and originality within craft.

In this research project, digitally crafted jewelry is created in a multi-stage process resulting in wearable jewelry pieces. The project investigates the generational loss that occurs as a result of a digital reproduction process based on a feedback loop. The digital reproduction methods that have been used are 3d-printing and 3d-scanning. The research project has developed a method for these digital reproduction techniques to create an iteration-based production line that exposes the preferential aesthetic of the nuanced digital reproduction techniques.

Parts of this research paper have been presented in the article "Glitch in the Copy – Research into noise artifacts in digital reproduction" published by the Fashion Institute of Technology that were presented in conjunction with the conference "Digital Meets Handmade" that took place in May of 2018 in New York, USA. The paper is framed in a relation to the concept of craftsmanship and skill that builds upon David Pye's thoughts of workmanship of skill and workmanship of risk.

INTRODUCTION

This project is situated in the context of Contemporary Jewelry. It is a term that describes the broad range of activities that exist in the field of jewelry, including studio jewelry, art jewelry, and autore jewelry, or research jewelry, a field which started nearly 70 years ago. A primary defining factor of Contemporary Jewelry is its development to focus on the author and express value due to its uniqueness and creativity rather and material value. (Bernabei, 2011; Skinner, 2013; Besten, 2011)

Contemporary Jewelry has started to move away from the world of public use or adornment, away from the public domain, and has assigned itself to the gallery, on the proverbial plinth, and in museums. When this shift happened, Contemporary Jewelry began to adopt notions of autonomy, resonating with the fields of visual and conceptual arts. (Besten, 2011) Jewelry was no longer ordered by a patron; the bespoke pieces were rather created for an artistic expression based on the maker's vision.

Damian Skinner analyses the definition of Contemporary Jewelry in his book *Contemporary Jewelry in Perspective*. In it, he states:

The term contemporary jewelry balances a number of approaches: for example, practices that emphasizes the artistic agency of the maker, and place all the focus on the object as an autonomous work of art; and practices that treat contemporary jewellery as an opportunity to create interactions between people or to intervene in contemporary life from what we might call a jewelry point of view" (Skinner, 2013.15)

Skinner argues that modernistic jewelry and art jewelry from the late nineteenth and early twentieth century freed jewelry from the idea that its value was based on the materials it was made from, opening up for contemporary jewelry to become a form of artistic expression that is self-reflexive. (Skinner, 2013)

In the field of craft, a digital revolution has taken place and has created crossroads for the innovative crafts-person. One can define the digital revolution as the massive change within digital technology that alters the way knowledge is generated and objects are materialized in all fields from product manufacturing, including both the fields of the fine arts as well as crafts. (Johnston, 2015)

In recent years, a significant change has taken place as makers, artists, and craftspeople began to embrace digital technologies in their work. As digital manufacturing can produce copies, the quality of handmade and the norm of uniqueness has been blurred. (Johnston, 2015)

This research project embraces contemporary methods of making that originate from the digital revolution. In this research project, digital fabrication has been used as a method and as a tool, to research the aesthetic of the digital.

This project aims to questions how digital reproduction techniques affect the way craft practitioners relate to fabrication and production. How does digital reproduction within a craft relate to concepts of the machine-made, of authenticity, and of the unique? The focus of this project is concerned with the examination of the aesthetic within the physical findings, and aims to explore the hidden nuances of digital (re)production tools.

RELATION BETWEEN AESTHETIC AND TOOLS

The aesthetic of craft can be seen as a result of the direct relationship between maker, tool, and material. The development of technologies and tools throughout history has been constant and consistent. These developments as a whole have frequently changed the relationship between maker and the material.

During the Industrial Revolution, a huge shift occurred concerning the development of tools and machines. Rather than by brute human strength, tools became powered by electricity and, respectively, this paradigm shift in power led to the development of more advanced and efficient machines. As time passed, the machines became smaller, more powerful, and more specialized. These changes had a major impact on a craft practitioner's relationship to the making process and materials. (Marx, 1887) The use of machines made it possible to create products faster while still maintaining a high level of accuracy.

Almost a hundred years later at the end of the 20th century the computer has developed to a point where it has become available for a large consumer market. By the 1990's, computers quickly became a common household appliance, a trend that only increased with the development and cultural implementation of networking and the internet. "CAD," or Computer-aided design, was developed in the 1960'S and was adopted by craft practitioners in the late twentieth century. This digitalization of the making process signified a dramatic shift that drastically changed the creative process. (McCullough, 1996) The hand of the maker no longer necessarily interacted in direct relation to the material; instead, the hand carefully created digital objects by refined movements of the cursor through the use of a

mouse. Formal changes were created by touching the potential crafted object virtually, with a high levels of precision through digital instruments.

In the early twenty-first century, digital fabrication became accessible to a large audience with the development of 3d-printers. In this way a "digital revolution" took place in the craft field, changing the way that craft practitioners created and thought about their process as a whole. Digital fabrication tools are fundamentally different from earlier automated machines; they offer a different level of flexibility. Digital fabrication tools can move in dynamic motions by using multiple axes of travel, and the use and rapid development allows for increasingly fast generative techniques as well as customizable generative environments. Complex and highly adaptable production lines can be set up with today's digital fabrication. (Unfold, 2014) These advances have given craft practitioners an opportunity to work with industrialized production on a small scale.

An artist that was involved with digital fabrication at an early stage was Dutch Jeweller and designer Ted Noten who created numerous projects based on digital fabrication. In the series entitled Paper Replicas, nearly a hundred of Notens's works produced over the previous decade have been 3d-scanned and 3d-printed in paper. (Noten, 2015) With this monotone series of reproductions, Noten is questioning the audience's perceived notions of value, originality, and the difference between the genuine article and the reproduction.

These questions of originality and reproduction come naturally when makers work with digital production techniques as creative ideation methods. The digital, in itself, holds a notion of repetition and reproduction; it is inherent in the media.

In the book *Abstracting Craft* McCullough states:

“A tool directs your attention. Its function becomes your focus: as the saying goes, when you hold a hammer, all the world looks like a nail. Its function extends some power of your hand and prevents the use of others. In other words, it serves a specialization.” (McCullough, 1998: 59)

The widely spread accesses to digital fabrication has changed the way that craft practitioners relate to their process and to their materials. Digital fabrication tools gave craft practitioners an opportunity to think in new ways and have opened up new ways of relating to processes and means of fabrication.

Roberta Bernabei analyses the consequences of digital manufacture in the paper “Digital jewellery: the democratisation of authorship and ownership.” She discusses how digital production opens up for a democratisation in Contemporary jewellery by examining how digital production favours multiples and variations and questions the status of the one-off pieces. This gives craft practitioners possibilities to democratise access to their work. (Bernabei, 2014)

Just like the hammer, digital fabrication tools augment the hand of the maker while at the same time introducing specific tool based limitations. The aesthetic of the digital is built upon creating within a digital environment, meaning that the objects created do not originate from a physical, analogue world but from an immaterial, numerical environment structured by rules and equations. Due to this environment, the digital aesthetic is often calculated and developed through the use of algorithms. Digitally crafted objects can inherit aesthetics from making processes; the medium in itself carries with it a visual language based on code, a language that can easily affect the physical finished result. (Myerson, J, 1997)

When makers start to use digital technology, it is common to be interested in the tool itself and to emphasize the digital aesthetic that is specific for that tool. This creates objects that have a “digital look” since the maker has focused on the visual expression created by the computer controlled machine or software. When digital fabrication has been used for a longer time, it’s more likely for makers to apply ideas that are not based on the core structure of the digital tools. Instead, there is a wider range of aesthetic qualities and visual expression. (Harrow, Brayman, 2014)

AUTHENTICITY IN CREATING

The roots of a studio-based craft practice can be traced to the methods of making. With industrialization, craft production changed, not as much in relation to the product but more so in the way of working. (Fariello, 2011). Craft is unique in its way of relating to the physical execution, the process of making creative works. With the digital revolution, several shifts were introduced into craft production. In this way, the crafted product was not changed fundamentally but the way of working and the approach to the making was affected.

Craft practitioners that were educated in the latter half of the twentieth century were trained to define craft less by its making and more by its use. (Fariello, 2011). This changed the way that craft practitioners were working and relating to process, which led to a different approach to the use of ready-mades in the craft field.

Craft started to change its focus from the maker that creates to the maker that selects. An early example of this can be found in the work of Swiss jeweller Bernhard Schobinger, born in 1926. Instead of carefully making jewelry from raw material, Schobinger began to create by juxtaposing different ready-mades. The objects that Schobinger selects are often parts of tools or objects that have a function that relates to the making processes. (Schobinger, 2013) His work is constructed of scissors, saw blades, or nails in combination with traditional jewelry materials such as gold, pearls, and precious stones.

Glenn Adamson discusses this further in the book *Rings of Saturn*, and he states “what Duchamp called ‘assisted ready-mades’, in which a found object is extended or contextualised without mitigating its autonomous status, is among Schobinger’s most common methods of operation.” (Adamson, 2014:15)

Schobinger chooses his materials with care and precision. He examines materials from a phenomenological point of view and finds jewellery qualities in ready-mades. Discovering that a shattered part of a glass bottle reflects colour in the same way as a precious stone is a clear example of Schobinger’s experience with a material. (Adamson, 2014)

In the middle of the twentieth century, philosopher Martin Heidegger wrote the paper “The Thing,” in which he analyses a ceramic jug from phenomenological perspective. “The object has a function and a form and it is made of a particular material (fired earth). But these qualities are all derived from a fundamental ‘thingness’ which must precede any understanding of it by a subject.” (Heidegger, 1950:404)

Heidegger’s conclusion is a poetic one; he sees the jug as constituted essentially by the hollowness inside it. The jug shapes the hollowness and the hollowness shapes the jug, defining the jug by the way of using it. In the essay “The Question Concerning Technology,” Heidegger extends this argument further and claims there are ways within making that connect to our existence, to the world that we live in, implying that the way we as human beings make connects us to the time that we live in. (Adamson, 2010)

An artist that connects to the time that we live in is Lisa Walker, born in 1967, an Australian contemporary jewelry maker. Walker freely uses different ready-mades and assembles them in different constellations to create jewelry that connects to the existential qualities of living in today’s world. The ready-mades that Walker uses are contemporary objects such as computers, cell phones, synthetic beads, and colourful plastic objects. (Walker, 2008).

“Younger generations in jewellery also succeed in creating pieces that are empowering and imposing because they are cheeky and fanciful products of their time.” (Besten, 2011:29) Walker is exploring today’s consumer culture by appropriating and assembling contemporary objects. Walker rejects traditional craft techniques, her work often held together by different glues and other taboo craft solutions. Walker’s jewelry can be seen as an assemblage of ready-mades that captures the spirit of the artist that selects instead of the artist that makes. (Walker, 2008)

Many contemporary craft practitioners, use ready-made components, reproduction, outsourcing, upcycling and assemblage in their practices. “There is a tension between the modernist ideal, of truth to materials, which sees skill as unlocking the essential language of the substance at hand and conceptual approaches that treat jewelry as contemporary visual art – as an idea that’s independent of the skill involved in its realization.” (Skinner, D. 2011:29)

Estonian jeweller and researcher Sofia Hallik, born in 1991, is in the process of conducting research investigating the relationship between handwork and digital production. Handwork, by her definition, is based on a direct connection to material and tactility, while digital production lacks materiality and tactility; the digital is in itself lacking in direct physical connection between the marker and the material. In Hallik’s Ph.D. she investigates the possibility of making work that has never been touched by a human hand, with the aim is to examine if the computer can design and create without physical human interaction. (Hallik, 2018)

We are in a fascinating era, in which change is being driven by massive computational powers and social movements. New networks for sharing knowledge are creating new types of makers and fuelling new

communities of practice. Craft is mixing with digital practices and finding new audiences. Models of fabrication, production, and distribution are being revisited. (Charny, 2011)

In the book, *Abstracting Craft*, Malcolm McCullough attempts to deconstruct the meaning of craft in an attempt to identify the core values of craft. McCullough aims to find a place for digital tools, techniques, and concepts to connect to craft. Craft is neither the design or the individual artefact, he argues. Instead, McCullough ties it to production. “Craft implies working at a personal scale, acting locally in reaction to anonymous, globalized industrial production”. (McCullough, 1997:21)

By taking a step back from the artefact, or the hand of the maker, McCullough places the focus on the wider context of craft and opens up for the possibility of using machines and methods reclaimed from industrialism and the digital revolution in craft.

ORIGINALITY WITHIN CRAFT

Originality traces back to one Greek word, *poesis*, which Plato and others used to mean “something where before there was nothing.” Originality is a marker of time; it denotes the sudden appearance of something where before there was nothing, and because something suddenly comes into existence, it arouses emotions of wonder and awe. (Sennett, R. 2008). The core values within craft have been widely discussed during its history, particularly within the last century.

“Craft can easily become a vehicle of nostalgia, whose primary purpose is not just to remind us of what we have lost, but thereby imply that we are diminished by our very humanity” (Miller, 2011:16)

Ever since the Industrial Revolution, there has been a reminiscence of the loss of manual labour. Due to the industrialization, we have gained wealth but lost the human touch. This is a view that builds upon the writing of in the nineteenth century by William Morris, John Ruskin, and the Romantics.

The perception of craft is in a constant change and Dennis Stevens is discussing the changes that naturally occur due to generational change in his essay “Validity Is In the Eye of the Beholder.” Stevens is analysing how the baby-boomers and Generation-X have a different relation and perspective to craft in comparisons to Generation-Y that grew up with the home computer and the internet. Stevens states:

At the core of this movement is the belief that the old structural systems are not working anymore. This is a normal evolution; as younger generations are often ready to defy the work of older generations as soon as the

opportunity presents itself. (Stevens, 2011:48)

The access to digital production and digital archives containing massive amounts of information has changed the way that today’s craft practitioners relate to their practices - with new media comes new ways of thinking.

New ways of thinking in relation to originality is something that Kaja Marczewska talks about in her paper “The Iterative Turn” (2016). Marczewska is a Postdoctoral fellow at the department of English, Linguistics and Cultural studies at the University of Westminster. A unifying strand of her research is an interest deriving from concepts of appropriation, and she discusses the possibilities of re-contextualization through copying as a creative strategy.

Marczewska claims that the act of copying and reproduction can be seen as an original creative act. Through the rise of new virtual and digital culture, the concept and the definition of the original and the reproduced have changed. With new developments within production technology, there has been a change in our relation to the unique original, the copy, and the multiple.

“This is not to say that a propensity for originality is abandoned when increasingly more advanced technologies emerge; rather, the attitudes to originality alter as technologies develop.” (Marczewska, 2016:22)

Within today’s craft practice, high-tech digital production, as well as local small-scale manufacturing, are readily available to any given individual, giving craft practitioners possibilities to investigate new ways of making, creating, and manufacturing in this changing context. (Sennett, 2008)

Digital reproduction gives makers a possibility to not start from zero. Instead, they can build on already existing objects, and once again the focus shifts from making to selecting. New ways of producing will facilitate opportunities and new perspectives just like the readymade once did.

Dries Verbruggen discusses the way today's craft practitioners are creating and modifying tools in his paper "The Digital Craftsman and His Tools." Verbruggen claims that the development of the personal computer, open source culture, and a range of other digital technologies, has given craft practitioners new possibilities to create and modify their own tools.

We are in a time where craft practitioners are investigating new aesthetic standards for new methods of production, and by doing so, new territory can be discovered and new knowledge can be created.

METHODOLOGY

In this research project, data has been collected through a practical research where a craft studio practice has been the focus. The methodology is set within artistic experimental research, which has been achieved through a physical investigation of the aesthetic development due to digital (re)production. The gathered data has been examined based on the physical expression. The physical findings have been analysed in relation to the four criteria of detail, holes, shape, and expression.

METHODS

Methods of reproduction that have been used are 3d-scanning and 3d-printing. The focus has been on these two digital reproduction methods since 3d-scanning and 3d-printing are techniques which are used by today's craft practitioners in North America and Europe.

There is a value in knowing the preferred aesthetic of digital reproduction methods, and it gives a broader understanding of the potentials and restrictions of 3d-scanning and 3d-printing.

PRACTICAL RESEARCH

The practical part of this research consists of a series of repetitive actions, and the use of iteration, a repetition of a procedure applied to the result of a previous application. The practical research can be divided into four steps:

1. 3d-scanning
2. Storing binary information
3. 3d-printing of the binary data
4. Physical representation of binary data

The practical research starts with an original piece of jewelry that is 3d-scanned, and the binary information is then stored on a computer. The stored binary information is transferred to a 3D-printer that creates a physical copy of the binary information. The physical result of this series of action is titled 1_scan. This copy is now the starting point for the second series of action which creates a production based on iteration and feedback.



Fig. 1: Original Victorian brooch.
Photo: Annika Pettersson.

STARTING POINT

The practical research starts with an original piece of jewelry that was chosen based on a set of requirements relating to the digital reproduction techniques and function.

1. The original should be a brooch. A brooch is a piece of jewelry that is the least dependent on the body which gives it a freedom within its physical presence. A brooch allows the physical appearance to possibly change drastically without any loss of wearability for the jewelry piece.
2. The original should be a classical piece of jewelry. Aesthetically the original should represent an iconic piece of jewelry; a unified recognizable original with a clear aesthetic will show possible transformations more clearly.
3. The original should have fine details. The details will give the project a valuation parameter, as it could be seen as a scale to measure the possible changes.
4. The original should have a complex shape in relation to the reproduction methods used within the practical

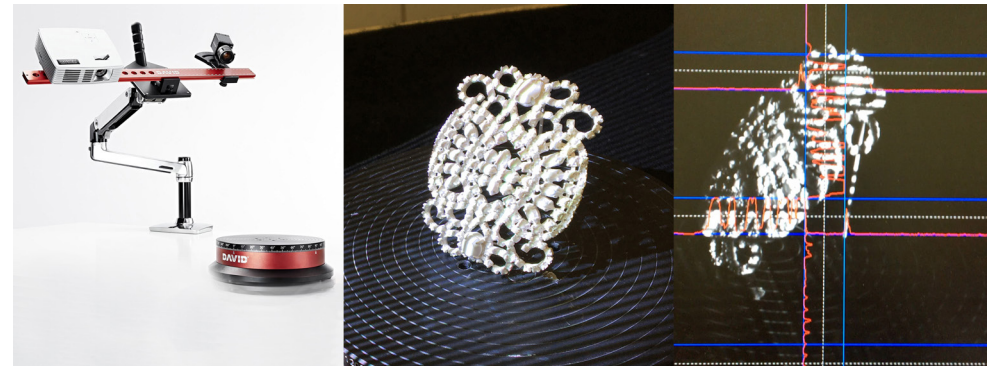


Fig. 2: Left side shows David SLS 3, Middle original jewellery on rotating table, right side scanned jewellery on computer screen.
Photo: Annika Pettersson

research. This means that the original piece of jewelry's form should be challenging to 3d-scan and to 3d-print. This forces the machines to work on a high capacity and show their inherent capacities and aesthetic. The original piece for this research project is a classical Victorian brooch. This piece of jewelry meets all the criteria; it is a brooch, it is a classical piece of jewelry with many fine details, and it has a complex shape.

3D-SCANNING

The 3d-scanner used in this research project is called David SLS-3, it contains three separate parts.

A rotating table, a camera and a projector.

There are a variety of different 3d-scanning techniques available today, for this research project required a 3d-scanner that had high resolution to minimize the distortions created due to inferior technology. In the process of 3d-scanning, a physical object has been transformed from a physical state into digital a state.

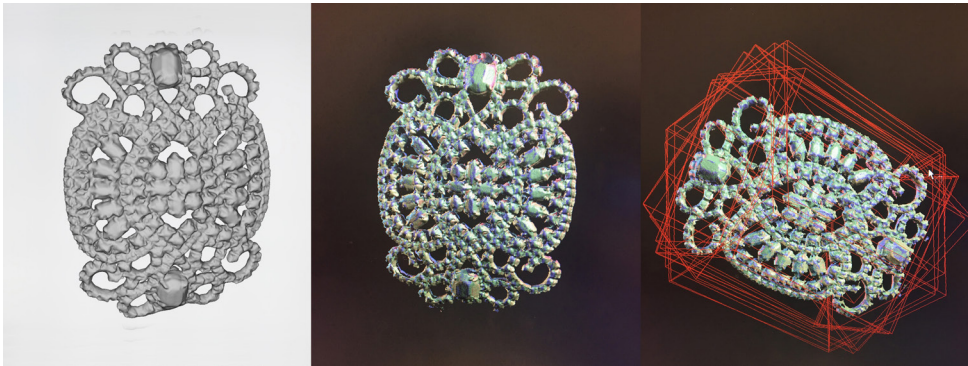


Fig. 3: Left: rendered binary info, Middle: different colour scanned layers, Right: rendered binary information..
Photo: Annika. Pettersson.

3D-PRINTING

In this part of the process, the binary data is rendered in a 3d-program and the information is translated into a file format that the 3d-printer can read. The binary information is transferred to the 3d-printer and the rendered 3d-model is now translated into a physical material again. This project required a high-quality 3D-print and therefore an external 3D-printing company has been used.

This research project focuses on exploring the digital aesthetic and its significant value to make sure that the information is not corrupted by low-quality printing machines. The use of a low-quality machine increases the possibility to create digital noise artefacts that are specific to that unique machine.

PROCESS / FINISHED PIECES

In this project, there is a separation difference between process pieces and the wearable jewelry pieces. In the practical research, the pieces have been printed in a high



Fig. 4: Showing from left to right 1_scan printed in aluminium, 1_scan in the middle and 5_scan to the left.
Photo: Annika Pettersson

definition plastic. The high definition plastic is the most accurate material to 3d-print in, however the material does not function well in a finished piece of wearable jewelry.

The finished wearable jewelry pieces have been 3D-printed in aluminium. The physical qualities of the aluminium do not limit the finished jewellery's size. Instead, it gives the finished jewelry a solid feeling with a substantial, controllable weight.

ANALYSES

Within this research project, the act of 3d-scanning and 3d-printing has been performed 20 times. In this paper, the first scan and the first print will be analysed and after that every 4th scan. This will give a total of six different stages of the practical research:

1_print, 1_scan, 5_scan, 10_scan, 15_scan, and 20_scan. The different stages will be analysed in relation to the four criteria of detail, holes, shape, and expression.

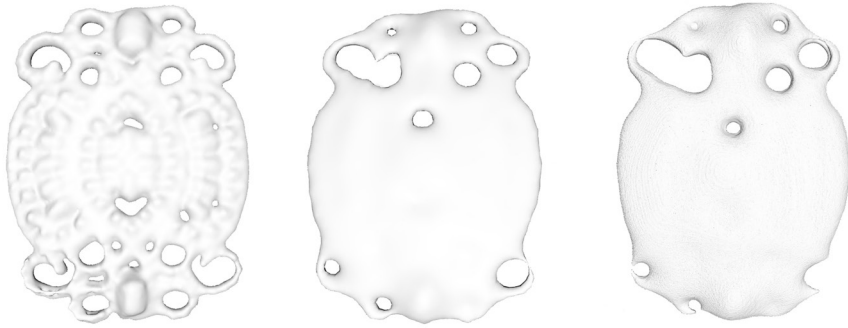


Fig. 5: Showing from left to right 10_scan, 15_scan in the middle and 20_scan to the left.
Photo: Annika Pettersson.

1_SCAN AND 1_PRINT

A comparison between the 1_scan and the 1_print, show that there are some minor formal differences in that translation.

Details: details that are finer than 0,8 mm have been removed.

Holes: No changes have occurred

Shape: The bottom corner has been slightly tilted giving the piece a less symmetrical appearance.

Expression: No changes have occurred

5_SCAN

Details: The smaller details have been blurred, all individual shapes on the surface are still distinguishable but their clear outlines are less sharp, instead, the shapes have merged together with the base construction.

Holes: The holes are getting a slightly smaller, but they still obtain their distinct original shape.

Shape: 5_scans overall shape resembles the original, it still has all the recognizable elements.

Expression: The piece has got softer in its expression is no longer sharp and distinct

10_SCAN

Details: The smaller refined details are gone, one can still trace the bigger details such as the raised part in the upper and lower part.

Holes: The smaller holes located on the sides have almost totally disappeared. The bigger holes have been slightly deformed, and all remaining holes have gotten rounder.

Shape: 10_scan_ has kept its silhouette form. The upper part has gotten denser, the lower part is thicker and bulkier and the middle part surface is smoother.

Expression: It is heavier and smoother due that all its parts have been rounded. Many details have been removed and the shape appears simplified.

15_SCAN.

Details: All the surface details are now gone, and no individual parts are distinguishable. The surface is comparatively smooth.

Holes: All the smaller holes have disappeared. The big holes are still present, but they have lost their original shape and have adapted a circular form.

Shape: The overall general shape of Scan_15 is simplified and has big smooth surfaces without any details. The piece is no longer symmetrical; there are differences between the upper and lower parts, as well as between the right and left parts. The outer contour is now more streamlined and less distinct.

Expression: Scan_15 is thicker both physically and aesthetically, and it has a big levelled surface that gives the piece a solid, sleek feeling. The rounded edges create a simple spherical impression. The lack of details gives Scan_15 a simple and uninformed expression.

20_SCAN

Details: There has been little change in details in the comparison between 15_scan and 20_scan. All of the fine details were gone by Scan_15, the transformation is now less present and no drastic changes have occurred in the last four prints.

Holes: 20_scan is noticeably thinner around the edges which increases the deformation the holes.

Shape: The shape of Scan_20 has minor changes in comparison to Scan_15. The overall shape is now more simple; the shape feels more oval.

Expression: Scan_20 has a minimalistic and fluid expression. Scan_20 feels more light and airy due to the delicate thin material that occurs along the outer contours.

AESTHETIC

The practical research shows that the digital aesthetic tends towards big, smooth surfaces, preferably without any details or surface variations. It shows that it favours minimalism and simple shapes over maximalist, baroque, and complex shapes.

During this research project, a piece of classical jewelry has been translated between a physical state and a digital state, and what the research shows is that the shapes simplify, the details disappear, cavities get filled. The overall shape became rounded, the length and the width decrease and the thickness increased.

Roughly halfway through the practical research 3d-scanning and 3d-printing became easier. One could say that the shapes became digitalized. After twenty scans, the shape had changed to the point where it had become digitalized to fit

the making process and the production techniques.

It was no longer a complex shape with fine details. Instead, the shape had big smooth surfaces with circular holes, a shape that was more conducive to 3d-printing and 3d-scanning. The digital reproduction techniques favoured simple shapes that were easy to reproduce and the aesthetic of the pieces was changed to be designed for reproducibility.

AUTHENTICITY

Traces of the making process can be seen as the fingerprints of the maker, which guarantee some kind of authenticity. The making of an object is a key attribute of studio craft, crafted objects are a record of what went on in the studio between maker and the material. There can be various of layers between the maker and the finished materialized object, in form of tools or machines. All these different tools leave their own personal marks as well as the maker's personal working style. (McCullough,1998)

In this research project, the 3d-scanner and the 3d-printer functioned as co-creators, and the process is a direct reflection of today's craft possibilities. This project investigates the digital reproduction techniques' personality and specific character through a making process.

Within this research project, there has been an illustration of a direct relationship between the maker and the creation process. There have, on the other hand, been illustrations of absences of the hand of the maker in the physical creation process. Ultimately, the prime focus of this research project emphasizes the traces left by the reproduction techniques. These traces signify the aesthetic authenticity of today in a similar manner as the hand of the maker once did.

ORIGINALITY?

This research project builds upon Marczewska's thought of originality and reproduction. The project has a desire for originality, while at the same time, is based on a method of reproduction. In this research project, digital production techniques have been used as a method of finding a new means of expression to create unique and authentic jewelry. The process of reproduction has been viewed as a creative act and as a way of creating new original content. The use of digital production techniques gives place for development and innovation, one can say that the production process has become a means of new expression in itself.

CONCLUSION

This project explores the aesthetic of the digital (re) production techniques 3d-printing and 3d-scanning. The physical practical research shows that details disappear, voids become filled, solid forms are created, and even, average surfaces appear. The expression becomes smooth and minimalistic without any hard edges or sharp elements.

The making process is a key attribute in the craft practice, and this project has explored what unique material markers are left by the digital reproduction machines. This project has researched some potential of a new production process that only could have been explored through a rigorous experimentation and by analysing and adjusting to the tendency production tools.

Using iteration or feedback loops in a making process will enhance a generational loss. The information that is added and subtracted become the aesthetic changes that occur in the final object. The 3d-printer and the 3d-scanner were changing the shape of the jewelry based on their programmed algorithms.

The result, in this specific context and with this set of variables, shows that digital reproduction techniques naturally prefer averaged solid forms with smooth surfaces and a lack of detail. The classical Victorian brooch changed a slightly every time it was 3d-scanned and 3d-printed and it was transformed from a classical piece of jewelry to a contemporary brooch not shaped by a human hand but by a digital reproduction process.

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Journal of Jewellery Research

www.journalofjewelleryresearch.org

ISSN 2516-337X

Loughborough University, Northumbria University, University of Dundee.
First published in February 2019,
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Journal of Jewellery Research is a double blind peer-reviewed research journal supported by an International Editorial Advisory Group.