WHY SHOULD JEWELLLERS CARE ABOUT THE DIGITAL?

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ABSTRACT

The widespread development of technological components that could be miniaturised and worn on the body has opened new possibilities for jewellers to explore the intersection of jewellery practices and the capabilities of digital technologies. Increasingly jewellery can play a role in valuing the body, understanding, amplifying and highlighting the body. However, this area remains under-explored within the contemporary jewellery practice.

This paper provides a critical review of digital jewellery practice from a jeweller's perspective and offers the grounding for a framework for understanding digital jewellery that reveals its potential within people's lives. The research seeks to explore the more poetic qualities of interaction with digital technologies that can enrich intimacy with other people, places and ultimately the self.

For clarity, digital jewellery refers to jewellery objects which contain electronic components. Similar terms are in use by practitioners across disciplines, such as smart jewellery, computational jewellery, tech jewellery and the interpretation of the terms may vary from one discipline to the other. I have chosen the term digital jewellery, not as a limitation, but as a starting point of the discussion around the potential role of digital worn objects in our lives.

INTRODUCTION

The potential of synthesising digital technologies into jewellery practices has been presented widely by big corporates and to a lesser extent by jewellers. Additionally, research that focuses on the personal meaningful digital objects is limited and not often not within the jewellery practice. More specific, jewellers seem to lack an understanding of the potential of digital as a material in their existing practices and technologists seem to lack the knowledge on the history and role of jewellery in peoples' lives. The functions of jewellery pieces are often rooted in rituals and ceremonial activities, in personal values and adornment, the supernatural power of jewellery to connect people with others in different spaces and time and the close relationship between jewellery and body (Besten, 2011; Cheung, 2006; Dormer, 1994). These aspects have often been neglected by big corporates. Either for sports, medical purposes or high-tech special effects in the catwalk, the body is often understood as data that can be tracked and manipulated and jewellery as a convenient place to host electronics.

Busch (2015) highlights that ***"it is hard to argue against the efficiency of all this self- improvement, but it is equally hard not to wonder at what point self - awareness evolves into narcissism".*** How much do we want to monitor ourselves? How much information is too much?" Jewellers

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can contribute more to the conversation of what it means for humans to be wearing these devices raising their concerns, issues of privacy and intimacy. Such concerns are more fundamental to the practice of making jewellery rather

than the practice of fashion or product design (Busch, 2015). Gaspar (2013) highlights that jewellers have a deep understanding of how personal objects "vehiculate" and materialise identity and [jewellers have the expertise] in creating and transmitting value, an aware of the political, societal and cultural implications of their designs. Therefore, if we are to assert the relevance of our discipline within our current culture and the future of our field, we need to engage with the challenges of these questions:

> *How can the digital help us understand the self? What is the value of a new way of imaging the body through the digital? Can we as jewellers add value to this process?*

Digital jewellery as part of Wearable Technology

Today an increasing number of devices are considered intimately linked to the body. Many such devices are used to track body fitness, manage phone calls and messages or notifications from social-media. As communication devices, they have some of the functionalities of a mobile phone; receive calls, send reminders and notifications. As objects worn on the human body, they are small in size and typically have limited functionality, with minimal interfaces - compact displays and lower computing power. A characteristic of these devices is that they are connected to faster computing devices. They are often supported by an application that can be accessed via an Android or iOS phone, while the device works in the background.

In the digital age jewellery gained interest as objects already worn on the body. The digital information conveyed in rings, bracelets, necklaces, and wristbands is a generation of devices worn on the body, widely known as wearable technology (Ryan, 2014). Even though wearable technology has been around for decades, it had gained acceptance when it was introduced as aesthetic, appealing jewellery objects and then as functional devices (Miner et al., 2001). The term "digital jewellery" was first introduced as wearable technology for every day, when traditional forms of adornment are involved with wearable and digital technologies (ibid).

One of the early examples of digital jewellery is the IBM set, a digital jewellery prototype of a cell phone that consists of several jewellery pieces that work together wirelessly. Speakers embedded into these earrings will be the phone's receiver, a necklace with an embedded microphone, a "magic decoder ring" equipped with LED to indicate an incoming call and a bracelet equipped with a video graphics array (VGA) display which could be used as a caller identifier that flashed the name and the phone number of the caller. The main intention of IBM's Almaden designLab was to make technology part of our daily life with the help of jewellery pieces connected with wireless networking system.

> "*Worn throughout the day, digital jewellery could connect the user anytime, anywhere to information, business, and communication services. Within its known placement on the body, jewellery forms can be used as an intuitive interface" Cameron Miner, 2001*

In the more recent Human-Computer Interaction (HCI) literature, Jain (2015) defines digital jewellery as " fashion jewellery that allow you to communicate by ways of e-mail, voicemail, and voice communication or "wearable ID devices that contain personal information like passwords, identification, and account information" . Activity monitors for fitness purposes provide the wearers with detailed information on their everyday practices; count steps, measure heartbeat and record biosensory data in real time. Since the first digital jewellery to embed functions of digital devices in existing worn objects, jewellery continues to gain interest

Figure 1. (left) Flex 2 Fitbit accessories (to encase Fitbit Flex tracker) (right) A picture of an iOS phone with the Fitbit application.

Silver, gold, electronic components.

Source: Press Kit. Image courtesy of Fitbit

Figure 2. The Smart Heart cardiac monitor necklace by Leah Heiss, 2016 in collaboration with St. Vincent's Hospital Melbourne, RMIT University, and the Nossal Institute for Global Health;

3d printed parts, conductive threads, sensors

Source: Leah Heiss © 2016 all rights reserved. Image courtesy of the artist.

with more recent examples presented as luxurious smart accessories. Companies such as Nike, Fitbit or Jawbone collaborated with jewellery designers, for example, Tory Bunch for Fitbit and Yves Behar for Jawbone UP3 Wristbands to produce luxurious cases for the fitness trackers (see Figure 1).

The functions of the human body, within the wearable technology era, are observed analytically with a view of curing, correcting and enhancing performance. Arguably, wearable technology often relies on technological solutions that focus on functionality and efficiency. It often takes a diagnostic approach such as sensing and displaying the wearers' emotions and assumes a view of the body as data (Ryan, 2014) as something that can be controlled (Höök, 2013). I agree with Wallace (2007) that most of the existing examples of wearable technology offer a limited interpretation of what digital jewellery could be, limiting the integration of digital technologies and jewellery to the aesthetics of the archetypes of jewellery and its use as a case for digital components.

Digital jewellery as part of wearable health devices

There is a long history of medical devices being worn on the body, but were scarcely considered as pieces of jewellery rather the opposite; as devices that stigmatize the wearer and affect their sense of self in a negative way. With the miniaturisation of the electronic components and the advances in digital technology sensors become tiny and affordable and new ways of fabrication has started the conversation on how these devices can be made as beautiful objects. In the recent years some examples of medical devices are presented as pieces of digital jewellery that people would like to wear and cherish. Examples from the research field the *Diabetes Necklace* (Heiss, 2008), *Smart Heart* (Heiss et al., 2016) (see Figure 2) or the pre-order product *Olive Next-Gen*

Figure 3 Skin-Bone by Sesil Ugur, 2011. Soft material, sensors, electrical motor wireless network

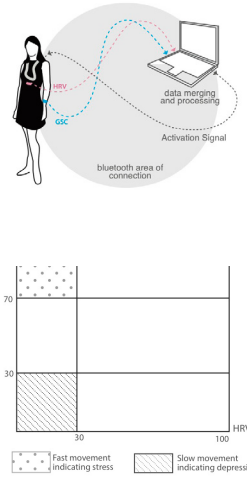

Figure 4 Detail on how the Skin&Bone prototype works. Code patterns for stress levels.

(2017) present a range of discreet and beautifully designed housings for therapeutics. These examples of wearable health devices start with the intended function. From a social perspective, such objects have the potential to make people feel better about themselves and their condition, and this is really valuable. However, the synthesis of jewellery and digital technologies is often limited to the requirements imposed by the health condition and often jewellery, in this context, serves as "a nice box" to host the technological equipment. Moreover, the functionality of a wearable health device limits the form of the piece and its relationship with the body.

Digital jewellery: Visualising Emotions The expressions of the body are at the core of many research projects in the field of fashion. Computationally controlled garments and accessories detect changes of temperatures, moisture and transmit messages in the form of light, visual graphics and movement making visible bodily states. Vein 2 (Fusakul, 2002) and Skin-Bone (Ugur et al., 2011) (see Figure 3,4) are examples of digital jewellery that detect changes on emotional status of the wearer and respond with movement (Skin-Bone) and light (Vein2). Vein2 changes colour as the wearer's heartbeat increased and Skin-Bone interprets the wearer's inner state through the movement of the prototype. When the wearer reaches a stress level, the necklace starts moving up to the neck. By pulling the necklace down the wearer can be aware of her/his emotional state. Both Fusakul and Ugur, have created objects that display emotional changes in the wearer. However, Ugur's object also displayed emotions in a social and discursive way in order to better understand the limitations of this type of interactive object. But to what extend and in which setting do we want to visualise our emotions?

DIGITAL JEWELLERY AND SENSE OF SELF

Over the last two decades, the discussion around the significant role of digital worn objects and the experiential qualities of wearable technology has been opened up and new perspectives and methods from researchers suggested new ways of integrating digital worn objects in peoples' lives. Artists and designers fascinated with technology explored not just ***"what it is that we can do with technology, but what technology tells us about ourselves"*** (Ryan, 2014:7).

This is an era in which jewellers can contribute with an understanding of what it means for humans to be wearing these devices (White and Steel, 2007, Busch, 2015). This discussion is about where digital jewellery finds its role and significance.

Researchers with a contemporary jewellery background, such as Jayne Wallace (2008, 2010, 2017), Leah Heiss (2016) and Hazel White (2008) and more recently Maarten Versteeg (2017) show a great interest to explore how

"We associate jewellery objects easily to a person, real or imagined. Jewellery is not for something; it is for and of someone" Lin Cheung, 2013

"Jewellery becomes more than objects; They are connectors" Petra Ahde-Deal, 2013

"Jewellery often functions as a symbol of self, as a signifier of aspects of identity, as a conduit to transport us to other times, places and people, and as a receptacle for our feelings of that associated other" Jayne Wallace, 2007

Figure 5. Lens by Hazel White 2008, a) The piece b) Detail on the pendant's reflection in the mirror.

glass, electronic components.

the combination of jewellery and technology could engender interactions with emotional significance for the wearer. In their explorations "the digital" becomes another material to incorporate into their practice and not the ultimate goal. By revisiting the role jewellery could play in peoples' lives, they explored how digital jewellery could expand its social role to act as a symbol of self and become a mediator to connect with others through the integration of digital technologies.

Digital Jewellery and Personal Memories

Pieces of digital jewellery can act as enablers to access visual and audio data, helping the wearer to connect with their own narratives. In addition, the materials support this connection between the wearer and the piece.

An example of this exploration is the piece *Lens* (2007) by Hazel White (see Figure 5). The piece is a pendant which looks and feels like a smooth piece of glass that has

Figure 6. A digital locket, Purple by Purple Technologies, LLC 2014. Concept prototype

Purple Technologies, LLC © 2014 all rights reserved. Image courtesy of Purple Technologies, LLC

been washed up by the sea, and serves as a memento of the wearer's family holiday on the Isle of Skye. When the viewer holds the piece up to a mirror in his/her house, an image of skimming stones across the water appears against the landscape of Skye (White and Steel, 2007). *Lens* invites the wearer for an intriguing and site-specific interaction. It is intriguing because only a part of the picture is revealed from the pendant's reflection on the mirror, inviting the wearer to move the pendant and explore the landscape of the Isle of Skye only in glimpses. The interaction is site-specific because it can happen in a specific location.

Another example is the piece *Purple Locket* (2015) (see Figure 6) by Purple Technologies, LLC. The piece is a concept prototype of a digital locket that stores digital pictures, which takes into consideration the long history of lockets to commemorate the memory of a beloved one or become a token for affection (Luthi, 2001). Similarly, digital pictures are hidden inside the digital locket. The piece does not have a USB charger; rather it charges when it is placed in the accompanying box and the symbolic shape of the locket indicates its sentimental value and its intimate connection. However, the interaction with the piece relies heavily on familiar interaction with mobile phones. In comparison, the digital lockets *Remember, Forget, Daguerre and Orpheus* (2010) by Jayne Wallace (see Figure 7) explores "different framings of what a digital locket implies by unpicking assumed qualities of digital technologies and considering alternatives" (Olivier and Wallace, 2009), staying faithful to the historical use of the lockets. What if we could take only one digital picture? And what if that picture slowly fades out? The pieces suggest interactions with digital technology that are unique and intriguing, staying faithful to the historical use of the lockets.

Figure 7. Digital lockets Remember, Forget, Daguerre and Orpheus by Jayne Wallace 2010 The prototype was made in collaboration with James Thomas and Derek Anderson.

Silver, electronic components

Jayne Wallace © 2010 all rights reserved. Image courtesy of the artist

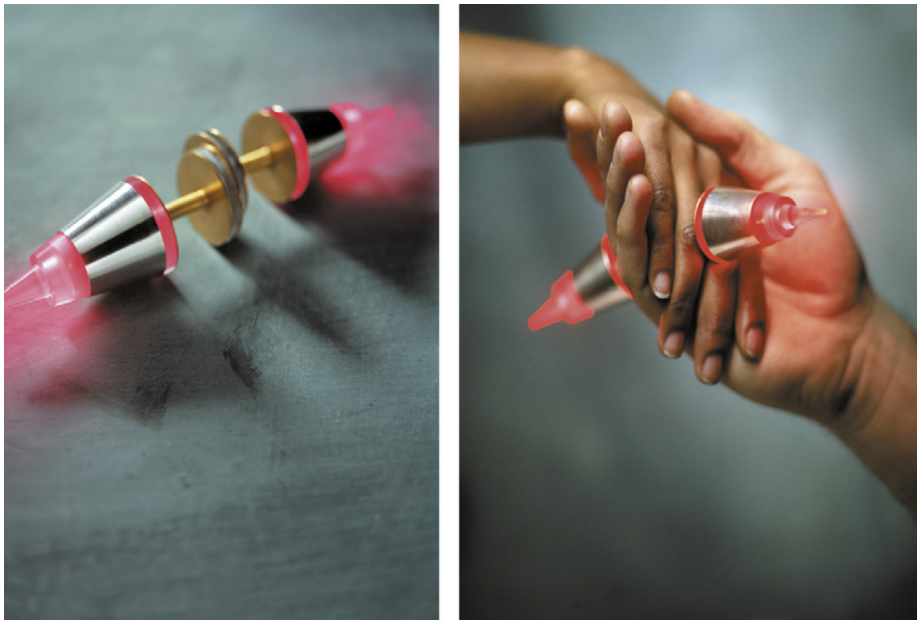

Figure 8. For two rings by Nicole Gratiot Stöber 1994

magnets, stainless steel, perspex, LEDs with electronic components

Digital Jewellery and Intimate Connections in Real Time

A small number of jewellers explored ways of using digital technology to connect individuals over distances or in close proximity in an intimate and personal way. *For two rings* (1994) (see Figure 8) by Gratiot Stöber (reference in Wallace and Dearden, 2005) are two rings which can be physically activated in response to the physical interaction between people. Sensors detect when the two pieces are connected and light sources illuminate when the shapes are touched. The gesture of holding hands is amplified by the illumination of the pieces and the light fades gradually when the contact is broken. This project is an example of digital jewellery focused on the experiential qualities of human touch where the body responds to the jewellery and the jewellery responds to the body. The piece has been criticised for its limited digital functionality (Silina and Haddadi, 2015).

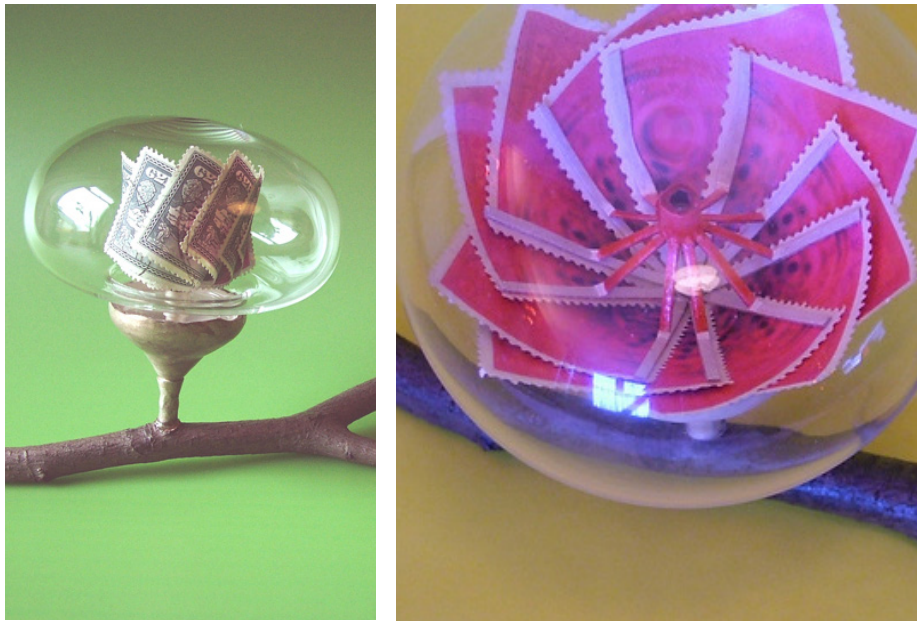

Figure 9. Blossom by Jayne Wallace 2004

Wood, glass, silver, vintage postage stamps, printed images.

However, if makers understand digital technology as another material for design with its qualities and limitations such as those limitations associated with wood or silver, then they have the freedom to choose the digital functionality they find relevant to their concept.

Blossom (2007) by Jayne Wallace (see Figure 9) is a digital jewellery visual prototype that explores new ways of communication over distance between a grandmother and her grandchild. *"The piece is connected to a rain sensor, planted on the participant's family land in Cyprus. Inside the dome the old Cypriot postage stamps are closed like a flower, attached to a mechanism, waiting to receive a signal sent from the rain sensor. Once the rain sensor has registered a predetermined quantity of rain in Cyprus, which may take months or even years, a signal is sent to the jewellery object and the mechanism is activated, slowly opening the petals like a flower blossoming." (Olivier & Wallace 2009 :212)*

In addition to the emotional connection with a family member, the piece connects the wearer with an intimate place. The piece acted as a memory trigger for a particular place and connection with another person at a particular time. The piece will be activated only once introducing a unique and anticipated interaction.

In comparison with IBM's set of digital jewellery prototypes, the piece ***For two rings*** and ***Blossom*** are examples of digital jewellery that suggest interactions with significant others beyond the verbal and direct forms of communication and question our expectation of the "digital" as that of being instant and repetitive.

Address (2007) (see Figure 10) by Mouna Andraos & Sonali Sridhar and ***Vanity Ring*** (2007) (see Figure 11) by Markus Kison are pieces of digital jewellery that connects the wearer with geographical and personal data. ***Vanity Ring*** does not have a jewel. Instead, it shows the number of "hits" one gets when one searches Google for the name of the person who wears it and displays it. The ring is personalised and updated overnight. In its essence, the piece is provocative and raises issues of identity. What is the value we attribute to our online identity?

Address is an electronic necklace with an embedded GPS which calculates the distance between the wearer's place and an intimate place, chosen by the wearer. The use of data in the piece ***Address*** differs from ***Vanity Ring*** as it updates constantly. A little display on the necklace measures the distance in kilometers. The piece is not indicating how to reach a place, as normal GPS technologies would do, rather it communicates a bond with a space. The piece has a poetic quality to connect with a place in an experiential way, suggesting an interaction that is imaginative and intriguing.

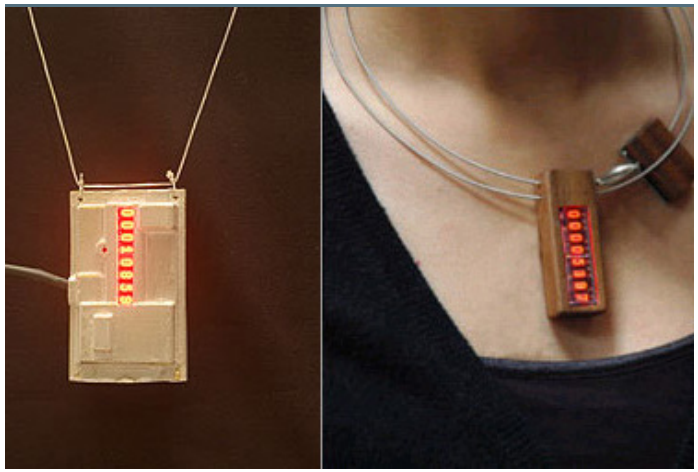

Figure 10. Address by Mouna Andraos and Sonali Sridhar 2007

Electronic components, wood

Mouna Andraos and Sonali Sridhar © 2007 all rights reserved. Image courtesy of Sonali Sridhar

Figure 11. Vanity Ring by Markus Kison 2007

Electronic components, plexiglass.

Markus Kison © 2007 all rights reserved.Image courtesy of the artist

Figure 12. Inner by Leah Heiss 2007

Silver, electronic components.

Digital Jewellery and Bodily Awareness

Pieces of digital jewellery have the ability to make people be more aware of their body and what is happening to them in moments of tension, joy, frustration or stress. *Inner* (2007) (see Figure 12) by Leah Heiss is a piece of digital jewellery prototype that deals with issues of intrapersonal understanding and allows for an awareness of our non-conscious behaviours. It focuses on foibles, oddities, idiosyncrasies and eccentricities that may allude to emotional state. The brooch at the neck of the jewellery senses a nervous habit, in this case touching the sternum. This information is transmuted into an internal output, softly activating solenoids which tap against the ribcage and an external output; a subtle pulsating optic fibre along the stomach. The focus is on one's idiosyncrasies and the embodied reaction to it (here touching the stern) and not on patterns generated from biometric data. In comparison with examples of wearable technology that detect changes of temperatures, moisture and transmit messages (see Vein2 or Skin-Bone), the piece *Inner* offers the space for self-awareness in personal and intimate way.

Figure 13. Prototype modular jewellery by Hazel White & Ewan Steel 2005. Details from the screen based visual element of the work.

Silver chain, animation

Digital Jewellery and Digital Sensation

The piece *Swarms* (2008) (see Figure 13) by Hazel White and *Light Jewellery* (see Figure 14) (2014) by panGenerator invite people to experience a piece of digital jewellery as a sensation by creating a sensorial and imaginative experience for the wearer through on-screen animations or light projections. *Swarm* is made of a silver chain and has an extended digital life. As the wearer moves the chain, the computer code reacts to the movement of the chain by the wearer and creates animations of swarms to fly away. Although participants of the user study could not relate to the necklace they were wearing, they documented that the

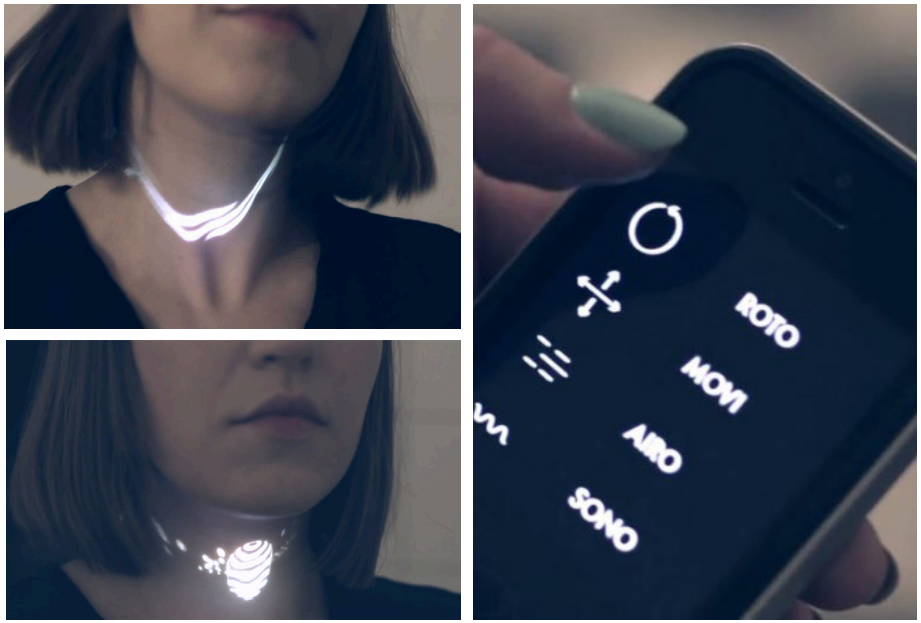

Figure 14. NECLUMI - a probable future of jewellery? By Collective panGenerator 2014 left: Light projections right: Control the projections via the phone application (Still from the panGenerator's Video https://vimeo.com/110207736)

Light, mobile phone, gyroscope

extended life of the piece on the screen as a playful and intriguing interaction (White and Steel, 2007). Similar to *Light Projections* (1994) by Susan Heron, *Light Jewellery* triggers sensational experiences for the wearer. More specifically, the light is produced by a projection controlled by a phone application and four dynamic options respond to different inputs measured by the phone's built-in features and gyroscope projection-based jewellery pieces.

These pieces expand our understanding of what digital jewellery can be through "digital sensations" by suggesting interactions that highlight the sensorial and the imaginative aspects of digital jewellery.

A FRAMEWORK FOR DIGITAL JEWELLERY

Previously, I presented examples of digital jewellery that focus on the personal and emotional significance for the wearer and examples that open ways of discussing issues of personal values and identity. I also referred to examples that suggested alternative ways of connecting with one's bodily state and idiosyncrasies and I introduced the term digital sensation to refer to examples that create sensorial and imaginative experiences for the wearer. This review of existing examples of digital jewellery provides the grounding for a framework for understanding digital jewellery.

Figure 15 illustrates the layers of the framework for digital jewellery. The outside layer represents an easily identifiable part of the piece, its materiality and its form. This layer highlights the maker's sensitivity in working with materials and it raises the question of the narrative in the form of the digital jewellery piece. The second layer represents the poetic qualities of the interaction with digital jewellery. This refers primarily to the function of the piece and the wearers interaction with the object. The third layer represents the personal and intimate engagement which differentiates digital jewellery from other wearable technologies. This supports meaningful connections between the wearer and the object that can ground and support one's sense of self. I will now describe each of these layers in more detail.

1.Materials and forms. The narrative of the piece

It is widely acknowledged that jewellery pieces tell stories (Ahde 2013, 2017; Rana, 2014; Potter, 2007). Among the social, cultural and political stories, jewellery pieces often carry a personal story and a connection with the wearer. Contemporary art jewellery makes people position themselves in a personal, societal and cultural context (Besten, 2011; Urger, 2013). Significantly, this jewellery leaves space for the wearers to reflect on who they are, what they stand for or what they want to be (Broadhead, 2005; Veiteberg, 2013). From this perspective, the variation of materials and new techniques are tools for jewellers to create

Figure 15. Framework of understanding and designing digital jewellery.

pieces that stimulate and provoke emotional responses. The narratives that accompany the piece add value to it. They are often embedded in the form and can trigger memories that are significant for the wearer and/or the maker.

The narratives relating to the materials in digital jewellery are also an important issue. Reflecting on existing methodologies of designing pieces of digital jewellery, materials and forms that are important for the wearer can inform the design. For example, Wallace gets her inspiration from particular individuals and fragments of the lives and experiences of the people she works with. With sensitivity to the materials (traditional and digital), she designed objects that have a close relationship to the wearer's life and memories. Similarly, White makes pieces that connect the wearer with their own narratives. For example, the form of Lens supports the connection between the wearer and an intimate place. Examples such as Address or Vanity Ring suggest a rich interaction between the piece and a person, but they seem to lack an important characteristic of digital jewellery; they lack a narrative element connected to their form and materiality.

I have presented that wearable technology often relies on technological solutions that focus on functionality and efficiency, offering a limited interpretation of what digital jewellery could be (Wallace 2007, Versteeg, 2017). This limitation extends to the narrative associated with the pieces. In his critique of digital jewellery, Versteeg (2017) argues for poetic interactions between the analogue and digital layer of digital jewellery. I add to this that, in digital jewellery, there is an inseparable connection between the function of the piece and its form and materials. The synthesis of form, material (traditional and digital) and interaction is what differentiates pieces of digital jewellery from other wearable technology.

2. Poetic Qualities of Interaction with Digital Jewellery for Intimate and Personal Engagement

Digital jewellery challenges our expectations of digital connectivity and allows our new expectations and experiences to be realised. Building on Wallace and Olivier's (2011) premise of open and varied design interpretations of the digital, I will summarise the qualities of the "digital" in digital jewellery by focusing on atypical personal interactions with technology. I refer to these qualities as poetic qualities of interaction. They refer primarily to the function of the piece and the wearers interaction with the object.

Digital jewellery challenges our expectations of digital connectivity and allows our new expectations to be realised.

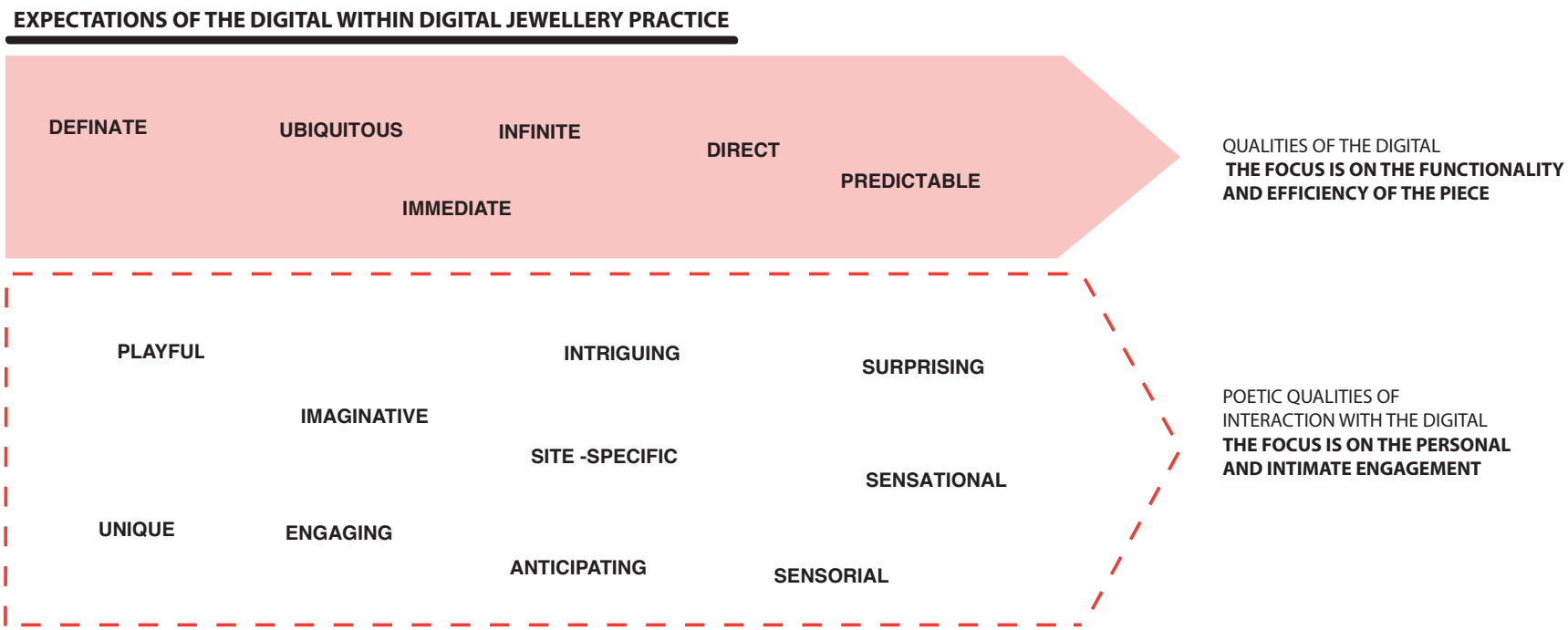

Figure 16. Poetic qualities of interaction with the digital as a material within digital jewellery practice.

Unique: a quality that suggests that a part of the process occurs only once, the process is not reversible or repeatable. This quality can add personal value to the interaction with a piece, as described in *Blossom and Lockets.*

Anticipation: a quality that questions the pace of an interaction with the digital. The wearer anticipates the interaction and thus can reflect on the significance of the piece, as described in *Blossom*.

Site-specific: a quality that addresses the location in which the interaction occurs. By having a unique location to connect with the piece and its content, a wearer can connect with a place or/and the piece in an intimate way, as described in the piece *Lens.*

Intriguing: a quality that arouses the curiosity of the wearer to explore the interaction with the piece in short turns. In *Lens*, the picture is revealed through the interaction only in glimpses and in Swarms, the on-screen interaction is different each time.

Sensorial: a quality that relates to the senses or the power of the digital sensation. *Two Rings, Light Jewellery, Swarms and Inner* offer ways of connecting with one's body, focusing on the experiential qualities of the interaction between the piece and the body.

Imaginative: a quality that leave the space for open interpretation or creative response to the digital, as described in the pieces *Address and Swarms.*

Provocative: a quality that raises social, cultural or political issues in our digital culture, such as identity as described in the piece *Vanity Ring.*

Digital jewellery creates emotional triggers by enabling interactions with a piece based on seven qualities. Some of these qualities have been presented in HCI (Olivier and Wallace, 2009), but not within the jewellery field. These qualities are important because they can open new possibilities for designing for personal and intimate engagement, acting as propositions for research on how digital experiences can present more poetic interactions and not definite answers.

3. Personal Anchor Points

Digital jewellery is objects concerned with one's sense of self and emotional significance and is situated principally in the field of contemporary art jewellery (Dormer, 1994; Besten, 2011). It is objects that take advantage of existing advances in wearable and digital technology, but stays faithful to the values behind the piece and the social role of jewellery in peoples' lives. Its main function is to offer the space for personal significance and the link to one's anchor points is fundamental. With anchor points, I refer to a person's meaningful connections that can ground and support one's sense of self. In this space, digital technology is a material that offers the possibility to explore new ways of connectedness with the self, significant others and intimate places.

Within digital jewellery practice, the relationship between the piece and the body is important. Similar to jewellery, digital jewellery gains intimacy as objects relate to our personal narratives and as objects are placed within the personal space of the wearer. When designing digital jewellery for rich and meaningful experiences, makers need to understand what is important for the people they are designing for, not just monitoring and tracking the wearer's body. The makers should acknowledge the tight relationship between what people do and how they feel about, give value to, and to give meaning to what they do and what happened to them (Wright at el. 2008, Wright and McCarthy, 2010). When the body is explored as data limits the design possibilities of digital jewellery. Emotions, feelings, fears, dreams or desires cannot be measured in numbers; rather they must be shared through a dialogue between the designer and the wearer. The emphasis should be placed on the lived experience (ibid), where the body is explored from a range of perspectives. Rather than figures and graphs, resulting for example from a Fitbit, the body should be explored from an experiential perspective, as well as its physical dimensions, such as body temperature and heart rate.

CONCLUSION

Most of the digital devices that we live with come with a set of expectations such as: What does it do? How long does the battery last? How cutting edge is the technology? By contrast, this paper explores how we can open up our expectations of the digital by focusing on atypical personal interactions with technology.

In this paper, I explored the context and implications of digital jewellery within contemporary art jewellery practice through selected pieces of jewellery, considering the object's materiality and the poetic qualities of the interaction revealing a rich conceptual design space. I presented examples that open alternative ways of connecting with one's personal memories, significant others and intimate places and creating the space for bodily awareness. This critical review of digital jewellery defines a need for a better understanding of the digital experiences with contemporary art jewellery. To this end, a framework for understanding digital jewellery is presented that aims to open up the discussion around how craft practices and digital technologies can create poetic and emotionally rich interactions.

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