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ABSTRACT
This paper explores how advances in transplant technologies shape conceptions of self-identity, embodiment and citizenship. Drawing on the posthuman writing of Donna Haraway and from phenomenological interviews, I explore ambivalence towards the commodification of the cyborg-body, suggesting that biotechnology may potentially lead to a dystopian posthuman consumer society.

INTRODUCTION
Recent developments in transplant technologies open up exciting areas of study where the amalgamation of human, animal, and automaton spawn a proliferation of cyborgic couplings and chimeras. According to Haraway (1991: 149), a cyborg is a cybernetic organism, whose hybridity obfuscates Western conception of the body and selfhood. From restorative transplantation (i.e. the rejuvenation of lost bodily functions through organ replacements derived from xenotransplantation and artificial organs) to regenerative medicine (e.g. the engineering of organs through stem cell therapy and cloning), the body are becoming increasingly plastic (Shilling 1993), bionic and engineered (Symnott 1993; Williams 1997). Consequently, we are “thrown into radical doubt” (Shilling 1993: 3) as to what the body is, who owns it, how we should treat it and what it might become (Williams 1997). The cyborg emerges as a socio-political battlefield where boundaries between the self and ‘other’, human and non-human, the automaton and the organism, nature and culture, subject and object are valiantly contested (Haraway 1991). Gray (2002) argues that cyborgs are political bodies, whose corporeal status dictates the extent to which they are granted civil rights, protection, equalities and freedom in a democratic posthuman society.

This paper seeks to explore how perceptions of emerging transplant technology are shaped by conceptions of self-identity, embodiment and citizenship among the British lay public. Specifically, I consider how individuals construct embodied meanings surrounding emerging transplant technologies. In addition, this paper analyses how individuals draw on cultural resources to help them negotiate meanings pertaining to (1) personhood (what it means to be a person), (2) technological embodiment (what it means to have and be cyborg-bodies), (3) posthuman citizenship (how technology mediates social relations between human and non-human) and (4) body commodification (can the cyborg-body be reified as an object for consumption).

In doing so, this paper endeavors to answer the call to theorize posthuman identity and body in consumer research (Venkatesh et al 2002; Giesler and Venkatesh 2005; Buchanan-Oliver 2008; Campbell et al 2005). This paper recognizes the need to embrace consumers as ‘embodied cyborgs’ (Giesler and Venkatesh 2005: 661), whose lifeworld and social existence is intricately woven with the materiality of technology (Giesler 2004). Following Featherstone and Burrow (1995), Venkatesh (2004) envisions posthuman consumer society as ‘new cultures of technological embodiment’ (pp. 400), which is constellation by ‘a hybrid marketplace matrix’. (Giesler and Venkatesh 2005: 1). This paper illustrates how marketplace myths and cultural metaphors are appropriated by individuals to help them make sense of the relationship between nature and technology (Thompson 2004). In doing so, I aim to contribute to previous writings by Johnson and Roberts (1997) and Belk (1990). Most notably, these scholars observe how the marketing of organ transplantation has previously been predicated on the ‘mechanistic’ metaphor of the body (Belk 1990). This metaphor is consistent with the ‘technocratic’ view, which presents technology as progressive and optimistic (Johnson and Roberts 1997). I now review the theoretical underpinning of cyborg embodiment and the slippery slope of its commodification within the context of emerging transplant technology.

Cyborg Embodiment and Commodification in Emerging Transplant Technology

Seale et al (2006) contend that body fragmentation and commodification are prominent themes in biomedicine, as it involves the disintegration of the body into isolated parts, which concurrently renders it susceptible to the process of objectification. Such mechanistic view of the body is grounded in the dualistic philosophy of Cartesianism, which privileges the mind over the body. For Descartes, the mind constitutes the seat of consciousness (res cogitans) that defines one’s personhood (soul). Conversely, the body is a palpable material object that extends into space (res extensa) – and as such, is divisible and subjected to the laws of physics (Sawday 1996). As a machine that houses the conscious mind/soul, the body is deemed to be lacking in intentionality and intellect.

Elsewhere, Sharp (2000) argues that “commodification insists upon objectification in some form, transforming persons and their bodies from a human category into objects of economic desires” (pp. 293). According to Hogle (1995), advances in transplant technologies can potentially erase the cyborg-body of its personal history and cultural trappings; thereby objectifying it as a valuable commodity for exchange (Marx 1867/1976). As such, the medical cyborg is devoid of intentionality as a purposeful being (Heidegger 1927/1962). Instead, biomedicine transforms cyborg into a new category of species that are equipped with a new purpose or what Aristotle calls telos – i.e. “different categories of biological species have its own form of flourishing, of being true to itself” (Browning 2003: 133). For Heidegger, treating a ‘living organism’ in an objectifying manner is tantamount to an act of depersonalization, which withdraws from them, their rights to dignity, mystery and humanity.

Fox and Swazy (1992) argue that the widening gap in the supply and demand of organs has fuelled medical and cultural fervour towards ‘spare part pragmatism’, which is predicated on the vision of the “replaceable body and limitless medical progress, and the escalating ardor about the life-saving goodness of repairing and remaking people in this fashion” (pp. xv). In Human Body Shop: The Cloning, Engineering and Marketing of Life, Kimbrell (1993) documented how the growing market for ‘human products’ (including blood, organs, tissues and reproductive cells) have alienated individuals from their bodies and from others, leading to disputes over ownership, distribution of profits and exploitations of the disenfranchised. As Browning (2003) argues, the body is already a form of commodity in the modern world. Within the context of emerging transplant technology, the commodification of the body takes different forms – namely artificial organs, xenotransplantation and regenerative transplantation – which I will now discuss in turn.

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1 Xenotransplantation involves the incorporation of living organs and tissues from a different species (usually animals such as pigs) to another (human beings).
The Bionic Body – The Manufacturing of Artificial Organs

Langer and Vacanti (1995) advocate the need to close the gap in organ shortages by moving towards the ‘manufacturing’ of organs. Heart valves, pacemakers, artificial hip joints, prosthetic arms and legs, and synthetic lenses are now regularly implanted in human bodies (Sharp 2000: 311). As Haraway (1991) argues, “we are all hybrids of machine and organism, in short we are all already cyborgs” (pp. 150). More recently, the pioneering trial of AbioCor artificial heart in 2001 raises many ethical questions concerning its commodifying potential. Fox and Swazey (2004) witness how an industry has mushroomed around the manufacturing and maintenance of mechanical hearts. Similarly, Gray (2002) contends that due to the mythological and metaphorical resonance of the heart (Manning-Steven 1997), promotion of artificial organ research by companies (usually established by researchers and medical corporations) is likely to generate profit due to its publicity alone.

Dumit and Davis-Floyd (1998) observe the paradoxical nature of cyborgs as an enhancer as well as a mutilator. As cyborgs are potentially ‘better than human’, it holds great promises in enhancing our lives (life-saving) while at the same time harbouring destructive potential that threatens ‘the loss of our identity’ (pp. 13). The cyborg-as-machine invokes images of technological determination (Haraway 1991), in which man is rendered inert, dependent and de-skilled in relation to the powerful and self-regulating machine (Holland 1995). However, Haraway (1991) urges us to recognize the emancipatory potential of such fusion, claiming that how we define our relationship to cyborgs is predicated on an instinct for survival (pp. 153).

Chimera and Organ Pharming – Xenotransplantation

More recently, breakthroughs in genetic engineering have made possible the ‘manufacturing’ of body parts through organ ‘pharming’ – which involves the transfer of human genes into animal DNA to produce medically desirable substances (Bowring 2003). The hybrid genes are then inseminated into surrogate animals that carry the embryo to term, and in doing so, give birth to chimeric offspring known as transgenic animals. Gray (2002) suggests that the cloning of Dolly the Sheep has served as a factory prototype towards subsequent organ pharming. Clark (1999) warns that xenotransplantation can potentially lead to the production of organs on an industrial scale as it has the potential to reduce organ shortages by turning transgenic animals into a ‘bioreactor’ and ‘pharmaceutical factory’ of organs (Bowring 2003). The use of pig heart valves for transplantation has become common practice (Clark 1999). Indeed pigs are often regarded as ideal donors as their organs are of similar size to humans and more importantly, they can be bred on a larger scale and thus, providing an unlimited source of organs (Gallagher 2011). Gallaher postulates that there will be a shift from cadaveric transplantation towards ‘growing your own organs’. The customizing of organs is a promising prospect as ‘replacement’ body parts can be ‘pharmed’ using personalized stem cells from the patient to reduce chances of organ rejection. In 1997, Dr. Jay Vacanti shocked the world by growing a human ear from cartilage cells on the back of a mouse (now famously known as the Vacanti Mouse). This leads scientists to believe that similar techniques can be applied to pave the way towards the tissue engineering of livers and hearts that are tailor-made to work with the patient’s immune system (BBC News 2002).

Xenotransplantation is controversial because it destabilizes our conception of ‘what is natural’ (Williams 1997). According to Haraway (1991) “transgenic border-crossing signifies serious challenges to the ‘sanctity of life’ for many members of Western cultures” (pp. 217). This is not surprising as Douglas (1902/1966) argues, the solidarity of human society is modeled on corporeal solidarity and purity, which is impermeable by ‘others’. Consequently, the violation of body boundaries signifies ‘danger’ since it “transgresses the symbolic boundaries of broader body politic” (Grosz 1994: 194). Haraway (1997) explains that Western culture has historically been preoccupied with racial purity, categories sanctioned by nature and the integrated self. She went on to explain that the distinction between nature and culture is sacred to Western society. The breaching of the human body by non-human species threatens to defile the purity of mankind (Douglas 1902/1966), disrupt the lineage of nature and potentially compromise the integrity of species (Haraway 1997). Following Deitch (1992), Featherstone and Burrows (1995) speculate that as genetic engineering and nanotechnology become routinized, “the next generation could very well be the last ‘pure’ human” (pp. 3). I now review the implications of genetic engineering in transplant technology.

The Engineered Body - Regenerative Transplantation

While the prospect of organ manufacturing and ‘pharming’ are fast becoming a reality, recent developments in genetic engineering, stem cell therapy and cloning push the frontier further towards the engineering, regeneration and propagation of bodies (Williams 1997). Stem cell research has created a possibility for cultivating tissues and organs from embryonic stem cells to be used for organ transplantation. More controversially, the propagation of embryonic stem cells may potentially lead to the cloning of human embryos for medical purposes. Therapeutic cloning has already been clinically trial to treat diabetes, Parkinson’s and Alzheimer’s disease. Therapeutic cloning involves the fusion of a human egg cell with the DNA of the person to be cloned. The fusion then cultivates embryonic stem cells that can then be used to generate transplant-ready tissues that are identical to the recipient’s DNA, while the embryo is destroyed (Bowring 2003). Meanwhile reproductive cloning involves the implantation of a cloned embryo into a woman’s uterus to facilitate the birth of a cloned child. The UK legislation has relaxed its rule concerning therapeutic cloning since 2001 but has maintained its prohibition against reproductive cloning (Human Fertilisation and Embryology Act 2008). However, Bowring doubts that such measures will be sustainable in the longer run as this involves global coalition against human cloning. He believes that therapeutic cloning will eventually lead down the slippery slope of reproductive cloning in countries where cloning for medical research is permitted. Bowring questions whether the eventual legalization of reproductive cloning may erupt in a political dispute over body ownership and create a ‘monstrous caste system, one in which an entire category of persons, while perhaps labeled untouchable, is marginalized as not fully human.” (pp. 203).

In addition, Gray (2002) is concerned that the trend towards human cloning may be perpetuated by reproducitively challenged parents, who are already fervent advocates for in vitro fertilization and surrogacy. Most notably, he observes a worrying trend of parents attempting to conceive children in the hope that their newborn would be a compatible donor for their sick children. In a widely publicised case, the Ayala family made medical history for donating the bone marrow of their child Marissa, who was born to save the life of her sister Anissa. The Times Magazine featured the case in a cover story in June 1991, constructing it as a moral dilemma involving the ‘tyranny of the gift-of-life’ (Fox and Swazey 1992). The Times coverage generated outrage among the public who felt that the Ayala’s case evoked ‘baby farming, cannibalizing for spare parts’ (Morrow 2001). The controversy surrounding the birth of Marissa
centres on concerns over the violation of the sanctity of life, where ‘the baby was ordered up to serve a means, as a biological supply vehicle’ (Morrow 2001). In 2000, a couple from Denver, Lisa and Jack Nash, gave birth to Baby Adam, who is genetically screened and conceived through IVF to ensure his tissues matches with that of his sister (BBC News 2000). Baby Adam is hailed as the world’s first ‘designer baby’, whose story become popularised in Jodi Picoult’s novel, My Sister’s Keeper.

The genetic manipulation and cloning of cyborg-babies inadvertently evokes eugenic discourse among critics (Gray 2002; Bowring 2003). Bowring envisions a posthuman society that upholds the breeding and engineering of superior children (positive eugenics) while eliminating and destroying ‘inferior’ gene lines (negative eugenics). Western history is steeped in the anxiety of negative eugenics, which constitutes the central ideology of Nazism to preserve the purity of the Aryan race. Consequently, race and class prejudices become intensified through high technologies (Schmidt and Moore 1998). However, Kimbrell (1993) argues that the extermination of inferior embryos is likely to be executed through ‘commercial eugenics’. He foresees the growth of a new industry specialising in the marketing of designing and selecting desirable genetic traits of children, thereby preventing the birth of those who do not fit the ‘perfect baby’ mold. Mentor (1998) contends that the marketisation of ‘designer babies’ is likely to emphasise consumer choice as a proponent to humanise the logic for ‘wanting the best for my baby’:

“Contemporary moves to eugenics will look less like Brave New World’s state control and more like niche marketing and consumer choice. Postmodern eugenics will involve boundary-shifting discourses that import breeding logic into medicine, cloaked in the language of technology that mediates and ‘humanizes’ this logic. This will happen partly because current discourses on pregnancy and birth already include elements of eugenics and market language, so that ‘I want what’s best for my baby’ moves easily into a demand for medicalised versions of ‘the best.’” (pp. 83)

In short, breakthroughs in emerging transplant technologies are redefining corporeal boundaries leading to a proliferation of cyborgs, chimeras and hybrids, whose liminality problematizes traditional meanings of personhood, embodiment and citizenship. It is therefore at the border that these meanings are being negotiated. As Haraway (1991) maintains, “the cyborg is a kind of disassembled and reassembled, postmodern collective and personal self” (pp. 163). She calls for the need to create a politicoscientific community as a mean to achieve participatory public action towards the democratization of technoscientific liberty (Haraway 1997). Similarly, Davies and Burgess (2004) argue that the legitimization of medical knowledge and public policy should be achieved through a deliberative dialogue that is inclusive of the citizens. This is important as public trust in medical knowledge relies on individuals actively reflecting on their perception of risks, which is “intimately bound up with cultural beliefs, moral values, personal feelings and the social and material circumstances of their lives” (Williams and Calman 1996: 1614). Through a phenomenological perspective, this paper seeks to explore lay perceptions among the British Public by understanding how conceptions of self-identities, the body and citizenship are implicated in negotiating the paradox between the life-saving promises and commodifying potentials of emerging transplant technologies.

**METHODODOLOGY**

A phenomenological approach (Thompson et al 1997) is adopted to explore how participants construct meanings of posthuman embodiment in the context of emerging transplant technologies. As Bates et al (2005) suggest public understanding and acceptance of scientific knowledge need to be translated into personally meaningful information. As such, a phenomenological approach is useful as it considers the multiplicity of participants’ socio-cultural and historical frame of reference to reveal personal yet ethically complex meanings surrounding these technologies.

14 phenomenological active interviews were conducted with members recruited from the British public. Exploring lay perception is important as consumption of medical knowledge and technology are often legitimised and given credentials through citizen activity (Haraway 1997). This can be achieved using participatory dialogue (Davies and Burgess 2004). This study therefore adopted the active interviewing technique (Holstein and Gubrium 1995), which involves the researcher collaborating with the interviewee to develop a mutually engaging dialogue concerning a particular topic. Here, the interviewer acts as a co-author to facilitate participants’ reflexivity on the socio-historical processes that shape their personal views on emerging transplant technology.

In order to derive a fine-grained analysis of participants’ narratives, interview excerpts from 5 participants are presented in this paper. In particular, I analyse how participants use language to ‘perform’ and ‘construct’ meanings surrounding transplant technology and cyborg embodiment (Holstein and Gubrium 1995). I consider how these meanings are expressed through culturally familiar metaphors, myths, ideologies and common expressions/euphemisms, which reflect common sense beliefs as well as folk knowledge (Thompson 1997). This paper is derived from a broader study, which explores meanings and experiences of embodiment and organ donation among young adults (aged 21-30). As participants would be expected to discuss intimate experience of how they relate to their bodies, it was deemed more appropriate to interview only female participants as the researcher is also female.

**ANALYSIS AND DISCUSSION**

An analysis of participant’s narratives reveals 3 emerging themes. The participants in this study recognize that the cyborg-body conceived through new transplant technologies is at once an enhancer and a mutilator (Dumit and Davis-Floyd 1998). While acknowledging the life-saving potential of emerging transplant technologies, the participants question the extent to which such developments (1) violate the purity of their humanness and self-identity that may in turn leads to the (2) objectification of the cyborg-body as a medical commodity. Consequently, they envisage how these new form of transplant technologies may bring about the (3) inclusion/exclusion of these posthuman cyborgs in posthuman society.

**Theme 1: Violation of Human Purity - Embodying Integrated/Fragmented Identities**

For the participants in this study, emerging transplant technologies challenge their assumption about what it means to be human, which is grounded in having and being a bounded body (Seale et al 2006; Douglas 1902/1966). They are perturbed by the hybridity of the human/machine/animal coupling, fearing that such union may erode their personhood and compromise their sense of humanity (Hallam et al 1999; Douglas 1902/1966; Haraway 1991). For example, young adults (aged 21-30) were interviewed because they are considered as a salient group to the marketing of organ donation. They are more likely to be confronted with the request to join the donor registry when obtaining their driving licence or registering with a GP when attending university (Prottas 1983; Thukral and Cummins 1987). Further research is now being conducted among wider members of the British public to include participants from different demographics.
ample, the cyborg is described as ‘not a real person’, ‘less human’ and ‘degraded’, as Neve explains below:

There is a film. Can’t remember what it is called now. He is a robot...well...it is a set in the future where he is basically a robot but I think that one day he gets a real organ put inside him. And cause he always felt like he is not a real person cause ...he is like ‘I haven’t got a real heart’....So maybe if I have got a mechanical heart I’d feel that I wasn’t a real person. Yeah I think I might feel like that. Yeah I wouldn’t feel like I’m a real person maybe or like a less of a human or something was missing or something wasn’t quite right. (Neve, Interview 1)

Drawing on the popular genre of a cyborg film, Neve envisions how the merging of organism with machine has reinforced her conviction that the body, and specifically the heart, is the seat of one’s humanness (Manning-Steven 1997). For Neve, the film romanticizes the supremacy of human beings over machines (robots), which are built as an inferior replica of the human body. The absence of a ‘real human heart’ renders the robot ‘incomplete’ as ‘he always felt like he is not a real person’. The capacity to ‘feel’ is invoked as a signifier of humanness in cyborg films (Holland 1995: 162). Here, Neve depicts the emotional anguish of the robot as he laments that ‘he hasn’t got a real heart’ and thus euphemizes the monstrosity and callousness of the cyborg-machine. Hence, the transplantation of a human heart into the robotic body is significant as it humanizes the robot as a sentient machine, and concurrently, fetishizes the heart as an indubitable source of emotion (Manning-Steven 1997). This theme has consistently foregrounded cyborg films. Most notable of which is the 2009 movie, Terminator Salvation. In the film, Marcus Wright, the humanoid protagonist solemnly ponders, “What is it that makes us human? It’s not something you can program. You can’t put it into a chip. It’s the strength of the human heart. The difference between us and machines.” Such a narrative privileges the materiality of the body over the immateriality of the mind (programmable consciousness), thus inverting the Cartesian dictum from ‘I think therefore I am’ to ‘I feel therefore I am’. Such a view merely fortifies the boundary that separates the body from the mind instead of dissolving it. Haraway (1991) argues that as technology progressively encroaches on our body, we are recalled to embrace an imagined organic body as a form of resistance. By occupying an embodied perspective, Neve expresses her ambivalence towards the incorporation of a mechanical heart, claiming that this would dehumanize her (like a less of a human) and potentially lead to the mechanization of her body. Neve envisages that the ‘replacement’ of an organic heart with a mechanical device will render her incomplete (something was missing) and artificial (I wouldn’t feel like I’m a real person). The view that the transplantation of a mechanical heart necessarily eradicates one’s capacity for emotion is not shared by all participants, as epitomized by Willa below:

I don’t like the idea of organs being...from somebody else's body. It is a sort of intrusion of somebody else’s body part I suppose. It’s not mine; it’s not natural to my body. The idea of actually receiving somebody’s blood, I don’t like it. If they could sort of manufacture blood, in a laboratory, that would be much better than the idea of having out of some person. Um, you know, if they could sort of build them, you know, like a mechanical heart, I would rather have them, than either the human heart or the pig heart, um, yeah Mechanical organs? Yeah, absolutely no problem. Yes, I mean that would be my happiest option or the option that I would have...the least difficulty with. Although, I don’t know how it would feel if it was a heart, you know, whether one would somehow at some level feel less of a human. I’m just thinking of the Tin Man from.....erm...The Wizard of Oz.... when he said, “If I only had a heart”. I think I’d feel fine about having a mechanical heart cos I know that my heart is not really where my feelings are coming from Erm...there’s much for me there’s much less emotional issue around mechanical organs. With a pig’s heart...it’s just like a very basic level feeling of rejection, you know, that it would be like I was somehow less human. And I think I wouldn’t want anybody to know I had a pig’s heart. I think I might feel ashamed on some level. You’d be the girl with the pig’s heart, you know. Erm.....you’d be part pig. Pigs have always been a symbol of dirtiness and uncleanliness, unclean pigs. You dirty pig. (Willa, Interview 1)

In her narrative, Willa espouses the optimistic promise afforded by the ‘manufacturing’ of body parts (Langer and Vacanti 1995), claiming that this will reduce the emotional resonance of sourcing organs from a ‘living’ being (human and animal/pig). Here, Willa adopts a technocratic viewpoint (Johnson and Roberts 1997) suggesting that the spare-part pragmatism (Fox and Swazey 1992) of ‘manufacturing blood’ and ‘building mechanical heart’ will resolve the need for ‘intruding’ the bodies of ‘others’. For Willa, human and animals are ‘living’ organisms with intentional telos (Heidegger 1945/1962; Bowring 2003) and therefore are entitled to the ownership of their bodies. As such, the thought of incorporating a ‘living’ organ into her body is ‘unnatural’ as this constitutes an infringement of body ownership (it’s not mine) and dissolves the ‘natural’ boundaries between the self and others (somebody else’s body).

Like Neve, the heart occupies a metaphorical space as a signifier of personhood and humanness for Willa. When considering the prospect of receiving a mechanical heart, Willa enacts the cultural representation of the Tin Man (or Tin Woodman in the novel), a character created by Frank Baum, which was later popularized in the film The Wizard of Oz. According to Ritter (1997), the Tin Man is a symbolic allegory of a dehumanized industrial worker, who was transformed from a loving being into a ‘heartless’ machine by the Wicked Witch of the East. Baum depicts how the Tin Man was gradually divested of his body parts, which were then replaced by tin. His mechanical body increases the efficiency and productivity of his work. As such, Ritter suggests that the Tin Man’s life is a cautionary tale depicting the mechanization of the body by technology. The tale warns of the ‘dehumanizing effects of industrialism and the machine age’ (pp. 181). More significantly, The Tin Man is deprived of a heart (If I only had a heart), which symbolizes ‘the loss of soul’ and his capacity to love (Ritter 1997). Drawing on these cultural meanings, Willa briefly entertains the possibility that receiving a mechanical heart may compromise her sense of humanness (feel less of a human). However she later shifts her interpretive standpoint, claiming that the heart is “not really where my feelings are coming from.”

For Willa, the thought of incorporating a pig’s heart into her body is deemed more problematic as this does not only dehumanize her (I was somehow less human) but on symbolic level, it constitutes a degradation of her personhood. She does not only own a pig’s heart (having) rather she is ‘part pig’ (being). The prospect of embodying a ‘pig/human’ self (chimera) therefore evokes in her a feeling of ‘shame’ as she feels ‘rejected’ by a society that has symbolically demean pigs as ‘dirty’ and ‘unclean’. Xenotransplantation therefore defies the purity of her human lineage and reduced her to her animality (Haraway 1991).
Theme 2: Spare Parts Factory - Cyborg-Body as Medical Commodity

As evident in Theme 1, participants fear the dehumanizing aspect of emerging transplant technology. Specifically, they question whether the body will be stripped of its human trappings and thus renders it suitable for mass-production (Sharp 2000). In light of this, participants are concerned with the social benefit and cost of emerging transplant technology, specifically with regards to issues of animal and human/cyborg welfare. Images of ‘transgenic animal and robot factories’, ‘spare parts industry’, ‘stocked cupboard of body parts’ and ‘organ farming’ dominate participants’ imagination, as evident in Michaela’s narrative below:

If you see kind of like….a pyramid, you know, animals being right at the bottom and then humans….Although I’m kind of …..believe in animal’s rights….. like you shouldn’t farm animals just to cut them up and put them in another people. I kind of take an overall belief I suppose. If it can feel pain…then I shouldn’t do it. But you SHOULD if it’s going to save our lives, you know. Obviously humans come as a priority over animals any day. And even though I am vegetarian, I still really appreciate that. When they farm animals especially for organ donation, I suppose, erm…..they are not…..that’s….that’s their purpose…..(it’s) giving them a purpose, they are not….their only purpose in life is to be cut up and put inside us, if you see what I mean. Erm…...I suppose…this isn’t particularly nice. But then again, I won’t ever put the life of say, a pig over the life of a human even if I don’t know them. You know, when it comes to weighing up your priorities, humans are much more important than say pigs or anything else. (Michaela, Interview 1, emphasis by participant)

For Michaela, the relationship between human and animals are organized in a pyramidal hierarchy, whose social position is predicated on their moral status. Singer (1990) calls this ‘moral hierarchy’, where sentient animals (such as human and primate) are accorded higher moral consideration as they are conscious of their existence and demonstrate intentionality for living (Heidegger 1927/1962). Meanwhile, organisms which are not self-aware and lack the intentionality for living occupy a lower status within the hierarchy (Singer 1990). For Michaela, the consciousness and intentionality that define one’s being is founded on one’s ability to ‘feel pain’. For Singer (1990), the pain and suffering of farm animals outweigh the pleasure of meat-eating by human. Such a view is largely grounded in the consequentialist (teleological) paradigm of ethics (Bowring 2003). Michaela is careful when justifying her support for xenotransplantation. On the one hand, she adopts a consequentialist standpoint, explaining that the farming of animals for transplantation is unjustifiable as the indignity and pain inflicted on animals (if it can feel pain) are tantamount to their objectification as commodities (to cut them up and put them in another people). On the other hand, Michaela emphasizes that the life of a human ‘should’ take precedence over the lives of animals (humans come as a priority over animals). For her, the farming of animals for organ transplantation is in itself an ethical act since it ennobles transgenic animals with a new telos (Bowring 2003), whose purpose in life is to save the lives of human beings. Michaela express her view in a ‘matter-of-fact’ manner, acknowledging that though organ farming is ‘not nice’, it is nevertheless fundamental to the preservation of the human species. However, such a view is contested by other participants, as Willa’s narrative shows:

Oh yes, and my concern also is that the animals, that if that become a normal thing to do, you know, the animals would be bred for it. I mean to me that’s similar to animals who are being bred for meat on a large scale….erm…and you know, I have an issues with that, and I would have an issue also really with….I don’t think that humans should be living at the expense of a species like that. I think….to me that is unnatural. I hate the idea of factories of animals being bred to be taken apart. The pig hadn’t chosen to be a donor. Erm…..and…...I don’t know, you know that….I don’t like the idea of animals being bred just to be donors. (Willa, Interview 2)

Willa fears that the routinization of xenotransplantation will lead to the ‘breeding of animals’ on an industrial scale, which she contends is akin to the ‘factory farming of animals’ in meat production. Unlike Michaela, Willa adhered strictly to the consequentialist paradigm of ethics, claiming that ‘human should not live at the expense of animals’ as it disrespects the sanctity of other life forms (Haraway 1991). For Willa, animals (pigs) are living beings who has an inherent right to be free (Bowring 2003). The farming of animals for the purpose of transplantation is ‘unnatural’ as it is a violation of their freedom since ‘the pig hadn’t chosen to be a donor.’ By reassigning their telos as organ donors (just to be donors), xenotransplantation potentially transforms animals into medical by-products or spare parts within the biomedical machine. This sentiment is shared by other participants, as Chloe’s narrative demonstrates:

Well first when you hear cloning, it’s like warning bells going off and you think, “No! That’s all wrong.” Yeah…erm…it does sound scary. I think there’s like a taboo that goes with the word ‘cloning’ and the kind of like meaning that goes with it. Erm…...yeah, it’s tricky business, this cloning. If you can sort it out yourself like you say, can have a clone…erm…then you are probably more guaranteed obviously the match and you don’t have to rely on somebody….somebody else’s lost of life. So it’s almost very BIZZARRE. Like a film where you can see these people kind of like, cloning themselves and fill in like a little stock cupboard of “just-in-case” you know, you need a spare parts (laugh). There was a case about parent wanting to clone one of their child to give life ….just to save the other one. And now that I really couldn’t get my head around. There are a lot of moral questions that underpin it really. You just see people cloning themselves wholly or cloning their children because they want the child in a specific way. I don’t really agree with that because I feel that you know, you are individual and you should be individual. Erm….but if...if there’s a way of. Like when I said earlier, if I couldn’t have children then I am not meant to have children. Sometimes people just aren’t meant to live. And I don’t know. Cloning babies and stuff like that just doesn’t sound right to me. It sounds like we have taken it too far. (Carmen, Interview 2)

Carmen’s narrative can be considered as a cautionary tale against reproductive cloning. For her, the cloning of a human for the purpose of transplantation is a social ‘taboo’ since it crosses the line (taken it too far) of what is ‘natural’ (Haraway 1991) or in Carmen’s words ‘meant to be’. On the one hand, Carmen acknowledges the therapeutic promise of organ cloning, claiming that this will ensure a ‘guaranteed match’ of tissues that will prevent the transplanted organs from being rejected by the patient’s immune system. In addition, the cloning of organs circumvents the need for ‘cannibalizing’ on the death of another. However, Carmen remains perturbed by the absurdity of reproductive cloning as this conjures up ‘bizarre’ images of cloned-body-parts being ‘stocked up’ as ‘spare parts’ ready
for the production line of organ transplantation. Though misguided, Carmen is aghast by stories of parents who opted to ‘clone’ their children to save the life of a sick sibling (Gray 2002). For her, this raises moral questions concerning the inherent value of the cloned child as a living being. More importantly, Carmen is concerned that the cloning of children for transplantation will lead to the creation of ‘designer babies’ (because they want the child in a specific way). For Carmen, such a practice is depersonalizing as it withdraws from the cloned-child, his ‘individuality’ as a unique being (Haraway 1991; Mentor 1998). For Carmen, medical technology (such as reproductive cloning) disturbs the ‘natural order of life’ as ‘sometimes people just aren’t meant to live.’

**Theme 3: Cyborg Citizenship - Inclusion and Exclusion in Human Society**

As demonstrated in Theme 2, most participants are adamant that the rights of posthuman cyborgs (eg. the cloned child and xenospecies/animals) should be respected as they are deemed as living ‘subjects’ with ‘unique personality’ and ‘human qualities’. This leads participants to ponder the social ramification of transplant technologies as it has the potential to alter family dynamics and kinship. At its extreme, participants envisage that such technologies, in particular, organ cloning will inadvertently breed a new class of ‘cloned race’, whose social position is subordinated to the ‘pure human race’. Consequently, they will be marginalized as the ‘underclass’, ‘half-bred’ or ‘underdog’. This is illustrated in Estelle’s narrative below:

> That’s another debatable thing. Like the couple that had…was it a clone…a clone embryo inserted…so they had a baby that had the matching tissue for their son to cure him. Err…and it could be brilliantly…just the fact that it is brilliant the one son get to obviously live longer. And you celebrate…you’d worship the son where it came from cause they save your life and you would almost always think of them really fondly. But that could be really damaging. The fact that they could think, “Oh, I was just produced to help my brother. I wasn’t born out of love…”like when a child was being born out of a one night stand. The whole idea of that is horrible… I think that could cause problems cause they really might be like, “oh what’s the point of me being here if it was just for them.” And then they would always possibly see themselves as the underdog to their siblings or something. That’s a bit scary because erm…the fact with cloning …one always just die early and it is just…the fact that they are being used for organ transplant rather than having just a great life as the person they were cloned from. The chances are that they do die or they have like…a mutation and they are not…they are not quite right (laugh). I think that’s a bit sad because you are producing something when you know the risks are really high that it’s going to have a low quality of life.

*(Estelle, Interview 1)*

In this narrative, Estelle questions the gifting dynamics underpinning a clone-sibling donation, claiming that this will marginalize the cloned child to a secondary status as an ‘underdog to his sick sibling’. Fox and Swazey (1992) call this the ‘tyranny of the gift’. In other words, the cloned child is ‘obligated’ to donate lifesaving tissues for his sibling, whose sickness brought about his conception in the first place. As such, the identity of the cloned child is inextricably bound to his sibling as they become entangled in each other’s lives. Such a bond alters the dynamics of sibling relationships, where the cloned child may be ‘worshipped’ and ‘celebrated’ for his lifesaving sacrifice. However, Estelle argues that such sacrificial ideal also reveals a ‘damaging’ burden for the cloned child, whose purpose in life (telos) centres on being his brother’s keeper *(I was just produced to help my brother).* As such, the inherent value of the cloned child as an individual becomes eclipsed by his sibling, whose well-being takes precedence over his *(oh what’s the point of me being here if it was just for them).* Estelle equates the cyborgic conception of human clones to being ‘born out of a one night stand’, a birth that is bereft of love. Here, the cloned child is depicted as a ‘product’ of science, engineered by medical technology to provide valuable commodities that can be ‘used’ for transplantation (Morrow 2001). Estelle further observes that reproductive cloning may produce new forms of risk, such as genetic mutation, that science has yet to have the capacity to deal with. Giddens (1991) calls this ‘manufactured risks’. Not only will cloning compromise the life expectancy of these cloned children, they will also be deprived of a ‘great quality of life’ enjoyed by the siblings they saved. As such, the cloned child is merely an ‘inferior’ copy of their ‘original’ siblings. The perceived ‘inferior’ status accorded to cloned children raises question as to whether the normalization of reproductive cloning may fuel society towards the practice of eugenics, as Willa’s explains below:

> There’s this book that Kazuo Ishiguro’s just written. It’s called Never Let Me Go. Have you heard about that? There are these teenagers there, and it’s about them and gradually you realise that they’re clones, and that they’ve been bred to give organ transplant. Um, they’ve been reared to be clones, um specifically for organ transplants for humans. Basically um, by the time they’re 40 most of them are dead, and this girl is in her 30’s and she’s looking back on her school days and most of her friends have died now because gradually they’ve had all their organs removed. Bit by bit they have to go and have operations, and give away a bit, and they become ill. But for some reason a state experiment is going on where they decide to give these people a good education, and um, I mean obviously the book is really about you know…dangers of cloning, but it really upset me. Perhaps, you know, I’d end up, in some sort of cloning test laboratory, um, I have a lot of theoretical doubts about…various sorts of genetic screening because throws up issues, um…you can’t help think of the sort of Nazi camp experiments and things, and, the idea that some people you know could be screened out because of perceived irregularities or imperfections that actually make them themselves. I wouldn’t particularly want my body to be used as a testing ground for those sorts of things. I don’t know who is to decide which are the, you know, which is the perfect gene solution, and you know, who is to be preserved and who isn’t…um. It would be impossible to preserve life indefinitely because we would then have to breed a clone, a clone race to take the organs out, because if nobody was going to die, where would we be getting the body parts, and the answer is we’d be breeding some unfortunate underclass of half-people. Um, it would be like the Ishiguro book. *(Willa, Interview 2)*

Drawing on popular and historical discourses surrounding eugenics, Willa is concerned that the cloning of human may pave the way towards the elimination of ‘imperfection’ through genetic screening. Willa foresees how the drive towards ‘preserving’ human lives may necessitate the need to ‘breed a clone race’ to supply body parts for organ transplantation. This reminded her of the dystopian novel by Kazuo Ishiguro, Never Let Me Go (2005), which poignantly depicts the lives of cloned children who are ‘bred’ and ‘reared’ to support the state-run organ donation programme. Willa is upset by...
the powerlessness of these cloned children, who are compelled by the donation system (that has primarily brought them into existence) to gradually ‘give away their organs’ in fulfillment of their moral duty as ‘donor-citizen’. As such, the cloned-bodies are regarded as ‘living vessels’ containing valuable commodities, which effectively transform these children into routine donor-cyborgs (Hogle 1995). Such a gifting system is ‘tyrannical’ (Fox and Swazey 1992) as the well-beings of these clones are grossly disregarded (they become ill), which often leads to their death (most of her friends have died). Indeed, their death is often euphemized in the novel as ‘completion’, effectively masking the unspoken ‘guilt’ of society for capitalising on a ‘living’ source.

Despite being ‘given an education’, these cloned children are disenfranchised as the ‘underclass’. Their hybridity as ‘half-people’ renders them monstrous (Haraway 1991). They are at once promising (life-saving) yet potentially destructive (loss of humanity). In the novel, Ishiguro portrays how the existence of these cloned children is often shrouded in silence, signifying their exclusion from human society. Their exclusion hints at the widespread prejudice of human society to accept the ‘cloned race’ as fully human (Schmidt and Moore 1998). Such a dystopian view of posthuman culture reflects Gray’s (2002) fear of a divided cyborgian society, which is made up of the underprivileged ‘technopeasants’ and the privileged ‘technocrats’. For Willa, the cloned children are the ‘unfortunate underclass of half-people’ whose enfeebled bodies (weakened through organ removal) enslave them as ‘peasants’ within the posthuman workforce. Indeed, Ishiguro seems to suggest that the career options open to these cloned children are limited to being a ‘donor’ or a ‘carer’. In turn, the cloned donor nourishes the body of the human race, who are granted privilege access, control and knowledge to lifesaving technologies. In other words, human’s ability to command medical technologies cement their social position as the powerful ‘technocrats’ (Gray 2002), hence, widening the gap between the ‘have’ and the ‘have not’.

Willa also warns of ‘the danger of cloning’, stating that this may manifest into the practice of eugenics akin to the Nazi’s racial cleansing movement in World War II (Bowring 2003). She is cautious that the quest for the ‘perfect gene solutions’ may culminate into negative eugenics, in which ‘irregularities’ and ‘imperfections’ that make up the uniqueness of individuals (that actually make them themselves) are eliminated (Mentor 1998). Willa is apprehensive that her body may be used as a ‘testing ground’ for genetic experimentations. She is concerned that genetic coding may be used to ‘screen out’ individuals who are socially perceived to be ‘deficient’ while ‘preserving’ individuals that fit into the social mold of the ‘perfect gene’. She raises an interesting question as to who has the power to make decisions concerning genetic screening and eugenics. Considering the cultural significance of eugenics in Western history, Willa implies that the genome project may well lead us towards a dystopian posthuman society, where such genetic screening are governed by the state (Gray 2002). Meanwhile, other participants worry that the cloning of ‘designer babies’ may accentuates consumer ‘choices’ in a posthuman society, where individuals (couples) are free to exercise their decisions concerning the reproduction of ‘desirable’ genes (Mentor 1998).

**CONCLUSION**

The narratives my participants constructed around emerging transplant technologies demonstrate that conceptions of posthuman identity, body and citizenship are complex and their meanings are often contested within the political, historical, cultural and moral framework that contains it. Emerging transplant technologies challenge Western understanding of the ‘integrated self’, which is predicated on the ideal of the ‘bounded body’. For individuals to accept emerging transplant technologies as a legitimate practice in biomedicine, they need to come to terms with their joint kinship with machines, animals and their clones, and be comfortable with embracing the partiality of ‘fraught identities’ (Haraway 1991). Concurrently, individuals must contemplate embodying a permeable body, where boundaries are continuously shifting, collapsing, regenerating and fusing with collective ‘others’. One must therefore envisage a posthuman society where technoscientific liberty is endorsed (Haraway 1997) to include a diversity of cyborgs, chimeras, transgenics, bionics and clones as equal citizens. Gray (2002) argues that this calls for a ‘democratic technological order’ (pp. 198) where cyborg citizens are empowered through freedom in accessing knowledge and technologies. For Gray, citizenship is grounded in our embodiment and ability to exercise constructive power, which enables individuals to control technologies for their own cyborgization.

Haraway (1991) contends that current political climate precludes such democracy so long as grand narratives pertaining to the ‘integrity of the Western selves’, the sanctity of human purity and the ‘sacred division between nature and culture’ continue to dominate socio-cultural discourse. For the participants in this study, the cyborg is an embodiment of paradox, whose technocratic optimism (Johnson and Roberts 1997) is intertwined with the monstrosity of unimaginable and dangerous couplings (Gray 2002; Haraway 1991). Their liminality and transgression destabilize cultural understanding of ‘naturally-sanctioned’ categories. While acknowledging its transcendental value as life-enhancing and life-saving, the participants are concerned that emerging transplant technologies may alienates the organic body from its rootedness in humanity, which subsequently leads to its commodification. Market metaphors pertaining to the ‘mechanization of the body’, ‘factory farming of spare parts’, ‘engineering of customized cyborgs’ are ubiquitous in their narratives.

Popular media (such as films and novels) and historical stories (e.g. Nazism) provide cultural resources for participants to construct dystopian narratives of (1) technological determinism (destruction of humanity by medical technology), (2) technoservitude (the subordination of animals and non-human species) and (3) negative eugenics (elimination of imperfections). These narratives resonate with Thompson’s (2004) observation of the Romantic Myth in the natural health marketplace. The Romantic Mythos is an allegorical tale depicting the alienation of human by modern technology. According to Thompson, such allegory is a critique of scientific progress on modern society, which culminates in the disenchantment and dehumanization of man. The ‘Thin Man’ epitomizes the tragic character of the Romantic Mythos, whose natural body is displaced by the mechanistic forces of industrialization. The ‘heart’ emerges as a potent symbol in romantic myth, signifying the return to the organic body and the articulation of emotion (Venkatesh et al 2002). By enacting the romantic myth of the ‘organic’ and ‘emotive’ body, my participants are able to articulate their ambivalent relationship with emerging transplant technologies. For them, cyborgs are illegitimate offsprings (clones, transgenic animals) born out of transplant technologies (Gray 2002). Their conception is not predicated on metaphors of rebirth but on cyborg regeneration (Haraway 1991).

As such, the cyborg has no origin story (Edenic Myth) in a Western sense, as Haraway poignantly reflects:

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3 In Kazuo Ishiguro’s Never Let Me Go, a carer is a clone who is temporarily relieved from their duty as donor to care and support other cloned-donors as they give up their organs.
“A cyborg is not innocent; it was not born in a garden; it does not seek unitary identity and so generate antagonistic dualisms without end; it takes irony for granted” (pp. 180).

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