Gender in Science & Technology

a Collection of Theses from the Physics Department at Lund University 2017

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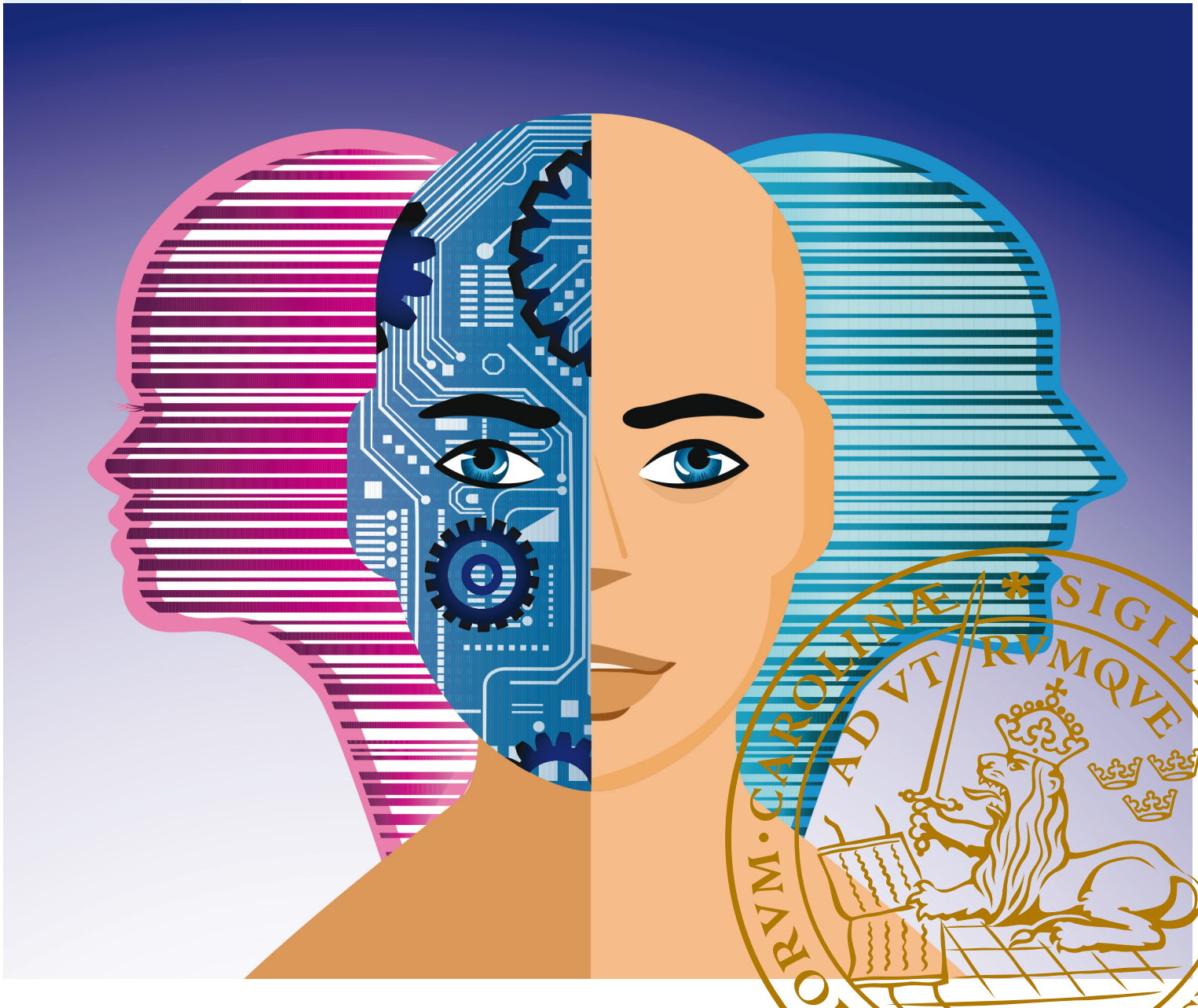

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Gender Studies: Science and Technology
Preface to e-book Fall 2017

How are women and men, and ideas about masculinity and femininity, influencing science and what happens when technology is understood as gendered?

This is the question on which the course "Gender Studies: Science & Technology" is founded. Organised as a cross-faculty collaboration between the Department of Physics and the Department of Gender Studies at Lund University, this course aims to provide students with knowledge about how gender influences, shapes and structures how science is done. It also highlights the how gender plays a role in the development and use of technologies. We discuss issues such as cyborgs, the gender of engineers and reproductive technology, as well as how women and feminism have changed science. During the course we explore how gender issues have been an integral part of the organisation and institutionalization of the natural sciences and engineering, creating distinctive disciplinary cultures that influence women's and men's career paths.

The students on this course work together in small groups to prepare their final projects exploring particular issues relating to gender in science and technology. The students themselves, with support from the course teachers, determine the exact topic for the project. In Fall 2017, the students produced six projects. The range of topics they chose to study highlights not only the breadth of application for such a course, but also that there remains significant work to be done in making science and technology more accessible and gender equal.

Five of the project reports have been gathered together in this e-book. They are presented in their original form, as handed in by the students after their oral presentation and feedback from the teachers.

Overview of the papers

In "Deconstructing neutrality: how gender biases affect diagnosing and treatment of mental illnesses", Daria Popova and Sidsel Ejrnæs explore the effects of gender biases in diagnosing and treating mental health issues. This paper focuses on the example of depression and autism spectrum disorders.

In "Female Preferences in Video Games: A Literature Review", Celestia Joann Koh and Rohit Das highlight the disparity in how men and women are treated in the video gaming community. This paper explores the demographics, and delves deeper into why women are discriminated against and misrepresented in the gaming community.

In "Gender in domestic AI and humanoid robots", Asja Šerić & Chung Yan Fong explore why assistive robots are primarily designed with female features. In this paper, they examine the research that suggests that gendering of robots plays an important part in how accepted and welcomed robots are in home use.

In “How are Gender, Race, and Other Human Rights Issues Exemplified in the Case of Henrietta Lacks?”, Taryn Allen, Alice O’Donnell, Kayla Taft explore the historical and contemporary industry of science and its intersections with social concepts like gender, race, and class. The story of Henrietta Lacks—that of a poor, black mother whose cells were unknowingly taken from her and used for research in medical centres around the world without her consent or compensation—is examined as a case study.

In “Is it For a Boy or a Girl?”, Rebecca Alfaro, Line Boye Danielsen, Ellinor Newall investigate how traditional gender roles and stereotypes affect the presentation of technologically advanced/science themed toys for kids. Using television advertisements from Dexter’s Laboratory, Bob the Builder, and GoldieBlox, this paper analyses observations and field notes noted by each researcher from screen shots taken from each of the three advertisements.

In conclusion…

This collection of papers covers a wide variety of subjects, highlighting how many spheres of contemporary life are touched by the entanglement of gender, science and technology.

For example, the papers touch on issues that are relevant to our everyday lives, from the gendering of robots who will increasingly fulfil caring roles in an aging population, to how the gendering of toys plays an important role in children’s socialisation. They also look critically at how particular technologies can make some spaces more or less comfortable for women, as we see in the video game community. In addition, they show how assumptions about gender, but also about class and ethnicity intersect in key sectors such as healthcare, whether in the treatment of particular disorders or the collection and management of biological samples.

The papers do important work in considering the role played by institutional frameworks in re/producing gender norms, as well as the circulation of gendered images and ideas in popular culture. We hope that this collection can inspire discussion on the important juxtaposition of Gender Studies and STEM (science, technology, engineering, and mathematics).

Katherine Harrison

Daria Popova and Sidsel Ejrnæs
Deconstructing neutrality: How gender biases affect diagnosing and treatment of mental illnesses

Deconstructing neutrality: how gender biases affect diagnosing and treatment of mental illnesses

Daria Popova and Sidsel Ejrnæs

GNVB05, December 14, 2017.

ABSTRACT

The article is concerned with effects of gender biases in diagnosing and treatment of mental health issues in example of depression and autism spectrum disorder. These issues are put in a wider context of power relations and inequalities pointing out that social structure influences not only diagnosing and treatment of mental illnesses, but also the probability of mental health problems for disadvantaged categories. It is also mentioned that gender roles and stereotypes play significant roles in manifestations of mental illnesses and their treatment. The division between biological sex and gender is also analyzed, however, leaving space for a queer perspective.

Keywords: gender and medicine, gender and mental health, situated knowledge, intersectionality, power, capitalism.

AREA OF CONCERN

Medicine is mainly relying on the concept of 'the neutral human being' that responds to medication and can be diagnosed in a certain way. This 'neutral human being' is predominantly male. Researches show that female patients are in risk of being misdiagnosed because research and testing has mainly been carried out on males (Haney 2016).

Moreover, this implies that medicine is regarded as an exact science that can isolate an illness and treat it with suitable medication. Medicine is regarded as an objective science which operates with 'the neutral human being' that should be diagnosed and treated in a universal way. We find such an approach highly problematic as under objectivity notion bias can be hidden and some important issues can be overlooked.

Bias can occur on such important stage as diagnosing. Misdiagnosing can be extremely harmful for patients and can lead not only to absence of improvement, but also to worsening of health condition and psychological trauma (Maloret P & Sumner 2014). (Mis)diagnosing is gendered practice as medical assessment and treatment is oriented on the male phenotype. In this paper, we will be

concerned with depression and autism spectrum disorder (ASD). If depression is considered a "female illness", ASD is considered to be a "male illness" (Haney 2016) (Norman 2004).
Mental health issues are especially complicated and problematic from the "god trick" glance as they include not only biological, but also environmental factors. Environmental factors are connected to life experiences, which according to some researchers are influenced and created by power relations in society. While biological reasons are emphasized, the larger picture of social relations in society and its influence are often overlooked.
In the following chapters we will engage with the relation of gender bias with diagnosing and treatment. We will relate this to the question of how mental illness is embedded in a larger context of masculinities and femininities, science community and different experiences.

RESEARCH QUESTION

Deconstructing the neutrality: how do gender biases affect diagnosing and treatment of mental illnesses in examples of depression and autism? How are these processes embedded in the wider context of power relations?

METHODOLOGY

We will be conducting a literature review mainly using medical studies on depression and autism. These are studies that are all concerned with the area of gender bias in mental health issues. The studies are from between 1999 and 2016. Our theoretical aparatus will mainly consist of theory on objectivity as stated by Haraway and theory on intersectionality as interpreted by Yuval-Davis. With this theory, we will attempt to deconstruct the notion of 'the neutral body' and contextualise the notion of mental illness.

As neither of us have studied medicine or the natural sciences in general we have been very meticulous in the search for literature. In particular, we have searched for feminist reviews so that we are not interpreting the original medical studies. In several cases we discarded meta-studies, because we were not able to judge the statistics and the methods that had been used to come to a conclusion.
Furthermore, our background in social sciences is very likely to have drawn us away from biological explanations and closer to sociological ones.

DATA

Depression

The depression ration for women is almost twice as high as for men. In 2010 its global annual prevalence was 5.5% and 3.2%, respectively, representing a 1.7-fold greater incidence in women. Girls and women are at even greater risk of depression and other mental diseases starting at puberty and are most vulnerable at age of 16-24 years. Before puberty, girls and boys have similar rates of depression with boys having even higher rate (Albert 2015).

In the paper Gender Bias in the Diagnosis and Treatment of Depression Judith Norman mentions that depression may be considered as "intensification of what are traditionally considered as 'normal female characteristics', such as dependency, helplessness, hopelessness, passivity, and lack of confidence" (Norman 2004: 37). The study of depression among Puerto Rican women showed that depressed persons were referred to as stereotypically female and stereotypically males as "normal" ones (Koss-Chioino 1999). Such attitudes lead to biases in diagnosing as women are expected to have depression while men's depressions are more likely to be overlooked. Moreover, depression as a mental illnesses is in general treated differently in the case of male and female patients. Women have higher probability of being prescribed medication. For example, in Canada between 2007 and 2011, antidepressants were prescribed more than twice as often to women than men (Norman 2004) (Albert 2015).

Furthermore, a qualitative study on depression narratives and gender in Sweden from 2011 points to a previous study that shows that there are significant differences between how men and women handle depression. It is a tendency that women internalise the cause of depression while men externalise it (Danielsson et al 2011).

The study itself shows that men and women tend to visualise different images of the depression when asked in an interview situation. Men tend to visualise empowering images that show themselves as acting subjects, while women tend to visualise depowering images of other women assumingly more ill than themselves. Such images harm their self-esteem. Furthermore, the women and girls tend to devalue their ability to talk about and reflect upon their feelings. This devaluation of traditionally perceived feminine trait of being reflective and communicating doesn't only apply to the young women. It affects both men and women, since both genders are demeaned for 'acting feminine' while communicating about feelings is regarded as 'not masculine'. The consequence is that both men and women are less inclined to communicate their emotions. The inclination to ruminate amongst women can be perceived as a vulnerability. The study argues that this could be a

result of young women actually having a lot to ruminate about. The article concludes that the informants have a common goal of normality. Both boys/men and girls/women have a strong focus on being "normal" that is associated with confined gender stereotypes (Danielsson et al 2011).
Judith Norman expresses other interesting view about depression. In her opinion, it is important not to limit treating of depression to the individual level, but to capture the power relations on macro-level. Conditions connected to low social status and effects of traumas (e.g., post traumatic stress disorder) are among underlying conditions of depressions, which is often ignored both in diagnosing and treating the disease. The author compares focusing exclusively on individual level in diagnosing and treating the depression with victim blaming where the oppressive system is ignored while the survivor is treated (Norman 2004).
However, not only gender influences the risk of getting a depression. There is evidence that working class women suffer from depression several times more often, which can be explained by exposure to adverse stress, lower socioeconomic resources, and less efficient coping strategies. So, social positions which are connected to experiences of poverty, prejudice, racism etc. affect the possibility to get a depression. Gender is one of such positions, but not the only one (Norman 2004).

Autism Spectrum Disorder

Autism spectrum disorder (ASD) is defined as a pervasive neurodevelopmental disorder, with expression of symptoms ranging from mild to severe across time and contexts (Weiss et al 2016). It remains unclear to us whether neurodevelopmental disorders can be considered as mental health disorders. We do not claim to come up with a definite categorization as it seems to be not relevant to our work. But we plan to use the example of ASD in terms of gendered nature of it's diagnosing and treating.
Situation with diagnosing autism spectrum disorder seems to be the opposite to the situation with diagnosing depression. As ASD is claimed to be male-dominated, female patients with such condition tend to be overlooked. The reasons for overlooking female patients can be illustrated in one phrase by Thompson et al. (2003) "most of what we believe we know about autism is actually about males with autism" (Haney 2016). According to Jolynn L. Haney, as the literature on autism supports the notion that autism is male-dominated, the alternative female phenotype can be overlooked. As knowledge about ASD is based on male patients, diagnostic criterias and ASD screening tools were developed based on male phenotype (Haney 2016).

As autism is connected to both environmental and biological factors, the differences can occur on both levels. For example, females tend to internalise psychic distress, which causes anxiety, eating problems etc. while males tend to externalise the distress manifesting it in aggression (Haney 2016). In our opinion, it can be caused by norms considering what behaviour is claimed to be appropriate for women and men. In our opinion, it is also important to mention that the causes for autism are unknown leaving more space for different hypothesis (Haney 2016).

Finally, it is hard to distinguish whether some characteristics of female patients' disorder are features of female's type of ASD or the result of late diagnosing. For example, more females than males tend to have intellectual disability co-occurring with autism. It could be a feature of female type of autism spectrum disorder or result of diagnostic criteria being less sensitive to females with non-deviant intellectual functioning (Haney 2016).

Gender Bias and Misdiagnosing: Case of "Sue"

In the article Understanding autism spectrum conditions Maloret and Sumner (2014) refer to the case of "Sue" (the name is changed in the sake of anonymity) in order to raise awareness in medical staff who work with people with ASD. "Sue" has the opportunity to tell her story in the article as the story is written from her direct speech. The girl touches upon ineffective and harmful treatment by the personnel and the unadjusted system for her as a person on the autism spectrum in general. The girl was not diagnosed as a person on autism spectrum, but was diagnosed only with depression and treated accordingly (Maloret & Sumner 2014). Jolynn L. Haney (2016) uses this example in the article as a prove that female patients with autism condition are often misdiagnosed and that it leads to distress for them.

"Sue" contacted the mental health hospital when she was 14 and was misdiagnosed for about 3 years. The autism condition was discovered when she was 17. The girl remembered those 3 years of her life as a distressful time. One of the hardest things for the girl according to her was considering moving to the hospital. For a person with autism condition any changes are difficult, especially ones connected to disconnecting with supporting network of family and friends, "One mistake that sticks out in my mind occurred on the day my therapist told me that they were considering placing me in a hospital for my own safety. I remember crying and repeating 'I don't want to go to hospital' over and over again. I was terrified of being placed in a foreign environment, away from my family and friends" (Maloret & Sumner 2014: 25).

It seems that in this case the girl was diagnosed with depression overlooking any underlying condition and not engaging in wider picture following the logic that women are often suffering from depression. “Sue” also described her experience of being treated with medications as harmful: “For me, taking medication made my feelings of depression and low self‐esteem worse. I found it a struggle to think of the medication as anything other than a failure. I was unable to control my emotions like a ‘normal’ person” (Maloret & Sumner 2014: 24). She added: “This is because mental health services lack understanding of the condition and think it is easier to reduce anxiety using medication rather than working through it to find techniques that work for each person as an individual” (Maloret & Sumner 2014: 24). “Sue” describes it as a gender neutral practice, but is it? As it was mentioned above, women are more often prescribed medication than men.

THEORY

Donna Haraway and Deconstructing Neutrality in Science

According to D. Haraway, there is no need in doctrine of objectivity promising transcendence. Science has always been searching for universality, which is the same as reductionism when one language is enforced as a standard. This “one language” in medicine is body, which is male, white and cisgendered. Researches are conducted regarding men, diagnoses and treatment are aimed at men, while this knowledge is extrapolated on all the population and defined as neutral (Haraway 1988).

According to feminist epistemologies, the neutrality needs to be questioned as well as the “god’s trick”, which means the perception of a scholar’s analysis as a “glance from nowhere” ignoring the positionality of him or more rarely her. However, according to D. Haraway, it is also important not to fall into the radical constructivist rhetoric and not to lose notions of reality and objectivity. She proposes to solve this problem through localization and embodiment (Haraway, 1988, p. 583). In our opinion, it can be done through deconstruction of human body in medicine as universal, appearing “from nowhere” and seen “from nowhere”. Instead it could be seen as particular, localized, assessed and experimented with from the glance of scientists with certain characteristics and positions. Localization of human body in medicine can mean deconstruction of the notion of body as universal and taking into consideration that it is male, white, cis-gender exc. Such approach could be called feminist critical empiricism according to D. Haraway (Haraway 1988).

It is also important to deconstruct the distance between scientists and bodies they experiment on and produce medicine for. According to D. Haraway, object and subject are not splitted. White male

scientists associate themselves with those bodies. So, actually male scientists associating themselves with male bodies and producing medication for those bodies, actually for themselves. Such situation excludes bodies that differ and scientists who could research and treat those bodies, for example women's ones (Haraway 1988).

Intersectionality

Intersectionality is the notion that discrimination and oppression cannot be analysed through a single-issue approach that focuses solely on ex. gender. Moreover, categories such as gender, race and legal status are regarded as intersecting instead of additive. Intersectionality can be utilised to expose positions that have been made invisible, because it has the potential to unravel the ways in which various kinds of discrimination interact. Yuval-Davis writes that the concept stems from the 50s where the position of women of colour was made invisible. The anti-racist movement was mainly focusing on men of colour while the anti-sexist movement was mainly targeting white women. This is an example of how intersectionality can be used in uncovering the ways in which marginalisation intersect and make certain positions invisible (Yuval-Davis 2011).

ANALYSIS

Prevalence and treatment in women with depression

Mental health is an especially complicated theme as it is produced both by biological and environmental conditions. Moreover, underlying mechanisms of mental illnesses are often unknown and, thus, hypothesised by scientists to a large extent. For example, Paul Albert emphasizes sex differences in depression referring to X and Y chromosome in the conclusion of his paper Why is depression more prevalent in women? Though he seems confident that differences in depression ratio are caused by genetic differences, he states that the mechanisms of this process remain unclear (Albert 2015). An example like this shows how science is likely to present the hypothesis that seem to be the most probable to a researcher, while presenting it as an objective truth.

As suggested by Bell Hooks in 'Feminism: Crying for Our Souls' mental health issues are also constructed by the power relations that women engage in. She suggests that many women are not able to truly recover from mental health issues because they are unable to change fundamental circumstances such as poverty or the power relations in the home or in their work space. Furthermore, there are studies which show that depression is more prevalent in working class women (Norman 2004) (Bell Hooks 1995). This is inconsistent with the hypothesis that depression

is merely a biologically prompted phenomenon. Assuming that depression is more prevalent in women only due to biological reasons can lead to medical treatment of women without questioning power relations on a macro-level. Medication tends to temporarily relieve symptoms, but not to deal with the underlying conditions. This, we would argue, is a very effective way of disregarding structural problems. In our opinion, it is important to mention, that society takes part in producing mental illness and influencing their expression. Then the illnesses are diagnosed and treated in accordance with the prevailing gender order in society.

As one of the studies of depression shows, women are more inclined to internalise the cause of depression by blaming their own personality traits. Moreover, doctors are more inclined to prescribe women with medication. This practice seems to be problematic as it only treats the symptoms, but doesn't solve or even mention structural problems. (Norman 2004) (Danielsson et al 2011). In terms of exposing these structural problems we suggest using an intersectional approach.

Gender and Sex: Differences in Case of Mental Illnesses

Sex is usually referred to as biological characteristic of XX and XY chromosome and other differences between males and females. Gender is usually associated with masculinities and femininities and expected behaviour in accordance to biological sex. This approach was criticized by some feminist scholars for its binary characters and exclusion of some categories of people such as intersex, some transgender people exc. Moreover, rigid sex binary was criticised from biological perspective as well as characteristics which define people to one of the "opposite" sexes vary (Richardson 2015).

However, in this case we are using the gender and sex distinction in terms of binary attributing sex differences to biological characteristics of females and gender to expected behaviours from people according to their biological sex. We apply it to the fact that mental health issues are to a large extent co-constituted by biological matters and environmental conditions. Studies show that ASD is both triggered by environmental and biological factors (Haney 2016) while depression seems to be predominantly caused by environmental factors (Norman 2004). The diagnosis are mostly based on the knowledge of symptoms. Following, the mental health issues are strongly associated with the way their symptoms are expressed. However, their expression is highly gendered as people tend to express emotions according to femininity and masculinity standards. As previously stated studies show that depressed youth in Sweden tends to strive to a notion of normality that is strongly connected to gender stereotypes. It affects the way they (don't) communicate about their

depression. For example, women tend to internalise psychic distress, which results in anxiety, eating problems etc. while men tend to externalise the distress manifesting it with aggression (Danielsson et al 2011) (Maloret, P & Sumner 2014). It can be connected to norms of masculinity, in frames of which the aggressive behaviour is not just appropriate, but also demanded from men while according to femininity standards aggression is unacceptable. There are also gender differences in terms of evaluation of social skills by girls and boys on autistic disorder spectrum (Haney 2016). They tend to answer some questions differently, which can be connected to gender roles as well.

According to the youth research in Sweden, talking about feelings and reflecting upon them is considered as features of a "weak" person. (Danielsson et al 2011). It can be connected to devaluation of feminine traits considering them as "other", "weak", "worse". According to the research, women tend to talk and reflect more, but not to value it. Meanwhile men tend to "take it easier" (Danielsson et al 2011). In some cases (over)thinking emotions can pose a vulnerability, but in general communicating feelings and reflecting upon them is helpful in treatment and diagnosis of mental illnesses (Danielsson et al 2011). Following, norms of masculinity which devalue such characteristics can be rather harmful for treatment of mental illnesses. What is more, as masculinity is evaluated higher in society, its norms are also internalized by women and they devalue their feminine traits.

Biological sex differences are also important to consider in diagnosing, researching and treating mental illnesses. For example, in some cases depression is caused by hormonal fluctuations in the female organism. However, medications are mostly tested on male bodies to avoid "distortions" connected to hormonal changes (Albert 2015). It seems especially strange considering that more women suffer from depression than men.

Gender-ratios in life sciences and their consequences

A recent study made in a Canadian context points out the fact that less than 27 percent of researchers in the health departments in Quebec are women. Moreover, In an article Claire Pomeroy states that only a small proportion of the women on the University of California, Berkeley that are awarded with doctorates in life sciences are actually employed as assistant professors or full professors. This relates to what Haraway writes about the distance between object and subject in research. She suggests that the two entities are not splitted, and thereby it's not only important to look at the patients, it is also imperative to keep an eye on the researchers that define diagnosis and

design diagnostic procedures (Haraway 1988) (Beaudry & Larivière 2016) (Pomeroy 2016). As previously shown, in the case of both depression and autism the treatment seems to be targeting a 'neutral human body and mind'. It is concerned with a patient who is not intertwined with complicated oppressing power relations and someone who responds to the diagnostic procedures as anticipated. Theory as put forward by Haraway would suggest that this is among others related to the academics that conduct the research on the subject. Following, there would be a sense in encouraging a more diverse group of researchers to promote diversity in research. The fact that it is predominantly men that are employed as professors could be argued to be counterproductive (Haraway 1988).

DISCUSSION AND CONCLUDING REMARKS

The critique of objectivity does not end up with deconstructing the prevailing system, in this case the system of diagnosing and treating patients with mental health issues. The alternative proposed by Donna Haraway is localisation of knowledge, which in this case can be interpreted as paying more attention to social position and individual experiences of patients. Both gender and sex are crucial aspects that should be considered in diagnosing and treating patients. However, it is not the only characteristics that are important. As mental illnesses and distress are connected to experiences of discrimination and poverty, class, race and other social positions are important to be taken into account. Moreover, these positions and experiences intersect in different ways and create unique identities and personalities, which should be treated individually. Such an application of intersectional theory seems to be more limited in illnesses as ASD where biological reasons are more prevalent and less limited in more "environmental" diagnosis such as depression.

Changing the system in general in terms of intersectional perspective seems to be utopian as it demands a lot of resources for researching, diagnosing and treating different patients. According to such approach, every patient needs a lot of time in comparison with more template- and medication-driven approaches. Such amount of resources seems to be unreachable in frames of capitalist society which is driven by profit. Considering that mental health care as health care in general remains inaccessible to lots of people, it is hard to talk about change of the approach without change of the system in general. It means mostly changing priorities from profit oriented to people oriented.

What is more, a deeper glance into mental health issues uncovers problematic social order, which pushes people into distress and hiding their emotions. Following, the mental health treatment does

not seem to end up in the hospitals, but is relevant to how system of human relationship and resources redistribution is arranged in general.

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Celestia Joann Koh and Rohit Das
Female preferences in video games: a literature review

Female Preferences in Video Games: A Literature Review

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Abstract

There is a disparity in how men and women are treated in the video gaming community. Men's preferences are dealt with more accurately, they generally are more respected by the community, and are rarely oppressed for their gender in the community. Women on the other hand, are discriminated against and their preferences are often not reflected in the games that target them. This paper will explore the demographics, and delve deeper into why women specifically are discriminated against and misrepresented in the gaming community.

Keywords

Female Gender, Sexism, Video Games, Video Game Preferences, Gender Stereotypes, Gender Misrepresentation, Gender Discrimination, Toxic Gamer Culture, Trolling

Introduction

The discourse surrounding video game culture has had significant influence on mainstream social culture due to its widespread popularity and increased accessibility of technology (Bryce & Rutter, 2010) Users of video games are of all race, religions, and genders, with women reportedly making up roughly half of the player base (Entertainment Software Association, 2017; Paaßen, Morgenroth, & Stratemeyer, 2017). Despite this, female identity in gamer culture remains heavily sexist, and is entrenched in long, outdated gender roles and old, archaic values in favour of males (Fink, 2016; Fisher & Jensen, 2017; Vermeulen, Van Bauwel, & Van Looy, 2017). The increasing documentation of testimonials and articles published in "nerd culture" news sites and

blogs, game broadcasting and content creation platforms such as YouTube on sexual harassment in video games indicate that progression on representation and discrimination has been slow to achieve (Consalvo 2012; Fisher & Jensen, 2017; Hayes, 2005; Jenson and de Castell 2013; Robinson, 2014; ; Rogers, 2016; Salter & Blodgett, 2017; Tomkinson & Harper, 2015). Current research indicates females are still misrepresented and discriminated against regardless of whether they are written into the game or part of the player population. In terms of discrimination, females are portrayed as fake gamers, unskilled players, accused of exploiting their gender, and are used as points of insult when expressing toxic behaviour towards other players (Bègue, Sarda, Gentile, Bry, & Roché, 2017; Fox & Tang, 2016; Kaye & Pennington, 2016; Lynch, Tompkins, van Driel, & Fritz, 2016; Paaßen, Morgenroth, & Stratemeyer, 2017; Tang & Fox, 2016;).

It is thus imperative that we understand what literature has said about female gaming preferences in video games, the central themes surrounding them, and determine whether this may help explain how the mismatch in preferences occurred. It may also deliver key insights as to why the games industry have failed to close the gender gap in gaming, in addition to recommendations for game companies to rectify this going forward.

This study's research aims are to conduct a literature review on major themes surrounding female preferences in video games, to reflect on how these themes affect preferences made by females about video games, and recommendations to game publishers going forward.

Gender Misrepresentation

When referring to misrepresentation in video games, female characters are more likely to be depicted as inferior; sexual objects, incapable of self-help as 'damsels in distress', and largely defined by male characters in the game (Fisher & Jensen; Mou & Peng, 2009; Perreault. M, Perreault, P., Jenkins, & Morrison, 2016; Salter & Blodgett, 2017).

With respect to ongoing user research and interest female-friendly game development, misrepresentation, in particular, has caused a mismatch in female gaming

preferences (Fisher & Jensen, 2017). This is owing to the marginalization of females in gamer culture, exclusion from being seen as gamers, as well as the constant shoveling into a stereotype created for them, by males (Fisher & Jensen, 2017; Kaye, Gresty, & Stubbs-Ennis, 2017; Paaßen, Morgenroth, & Stratemeyer, 2017; Tang & Fox, 2016).

Furthermore, game publishers who seek to utilise empirical data to understand gender differences and similarities in gaming behaviours, skills, and preferences, rely on user research for gaming preferences when developing new games. Yet, even the most robust methodology used to determine these preferences will not produce accurate results if female gaming preferences are mismatched to begin with. Studies have generally concerned the type of games females are more likely to play, or what roles females generally prefer to play (Carr, 2007; Kiviranta, 2017; Park & Henley, 2007; Phan, Jardina, Hoyle, & Chaparro, 2012; Terlecki, Brown, Harner-Steciw, Irvin-Hannum, Marchetto-Ryan, Ruhl, & Wiggins, 2011). Yet, inferences made on preferences based on what games they already play do not necessarily progress the games industry or reduce the stereotypes that continue to permeate it. To highlight, research by Park and Henley (2007) indicated that females were likely to prefer social, 'helping', and 'support' classes or roles that did not utilize 'strength' or contribute to the melee damage-per-second (DPS) attribute, such as Bard, Cleric, and Priest. Studies by Ratan, Taylor, Hogan, Kennedy, & Williams (2015) found that females who played with a male partner felt less confident in their skills and focused on supporting their partner, rather than themselves. The natural discourse for this would imply females would therefore, instead, develop skills for certain classes and roles that required less skill or could support better and thus impact female preferences. This ultimately effects the feedback given to publishers about gender differences in skills, preferences, and gaming behaviours alike. This could be an indicator of why previous literature confirm a preference for social, helping, and support classes and roles in females, and why stereotypes about gender seem to indicate that females prefer a support role rather than a damage or DPS class, and perhaps even why gaming companies ultimately seem to continually perpetuate and facilitate the stereotype.

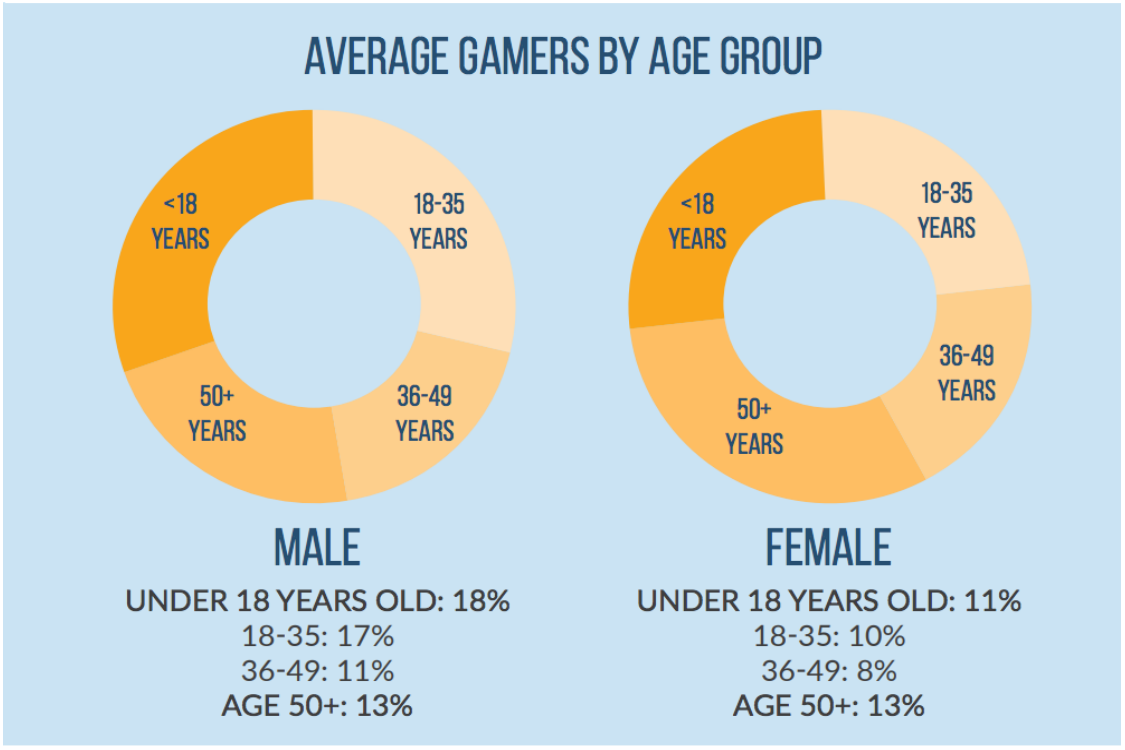
Toxic Gamer Culture, Online Harassment and Gender Discrimination

The experience of online harassment based is not isolated to gender. The purveyors and assailants who maintain these female stereotypes, portray females as inferior, are gamers who subscribe to being members of toxic gamer culture. Toxic gamer culture refers to the often, vitriolic reputation of a vocal minority who identify as hardcore gamers. These attitudes are shared and accepted by those who exhibit unsportsmanlike, aggressive, and antisocial behaviour. Competitive online games, such as League of Legends, Dota2, and Counter-Strike: Global Offensive, are notorious for their toxic communities. The ideas and behaviours portrayed by people who identify with toxic gamer culture accept sexism as a social norm (Fox & Tan, 2014), and are likely to use the female gender as an insult to flame, troll, and aggravate team enemies and even allies (Salter & Blodgett, 2017). The stereotype and general consensus is generally accepted that girls cannot play, are mechanically unskilled, and owe their achievements to a male counterpart who has helped them get there. These opinions discriminating and singling out the female gender are such a social norm that they are often proudly used, displayed, and shared on social networking websites, such as Facebook and are generally visible on Twitch.tv chatrooms and in general view of the public eye of the broadcasting industry- an industry where self-monitoring and public relations is heavily emphasised, and failure maintain proper etiquette and the right imagine can carry severe consequences for the offending individuals. Yet, improper or lax punishment and lack of scrutiny within the community may suggest why gender related experience in online sexual harassment has been so prolific and long drawn out (Fletcher, 2012; Fox & Tang, 2016; Mortensen, 2016).

The online video gaming community is extremely susceptible to incidents of trolling, flaming, and other forms of online harassment (Thacker & Griffiths, 2012). Trolling is the act of posting comments and messages with the intent to upset, insult, or provoke an emotional response in others (Hardaker, 2010). Unfortunately, trolling is still underrepresented in research literature, particularly within the online gaming context, which makes the phenomenon difficult to scrutinise seriously. This is especially owing to the extreme technicality in the usage of the term among other research fields which poses a problematic difficulty in measuring it for empirical research (Seta, 2017). According to Hardaker (2010) the use of deception is one of four characteristics used to help describe

the term ‘Trolling’. Given that trolling implies the intentional desire to create discord through inflammatory, extraneous, unsettling, or false comments and emotes regardless of truth or accuracy, this variable has the potentiality to skew data, further reducing the accuracy and reliability of both qualitative and quantitative methods of data collection.

Demographics



The average female video game player is 37,
and the average male video game player is 33.

This graph, created by Theesa, the trade association of the vide game industry in the United States shows just how similar the demographics breakdown is between males and females. As shown, in each of the age breakdowns, the graph for the male vs female are almost identical.

Advertising Gaming to Males vs Females

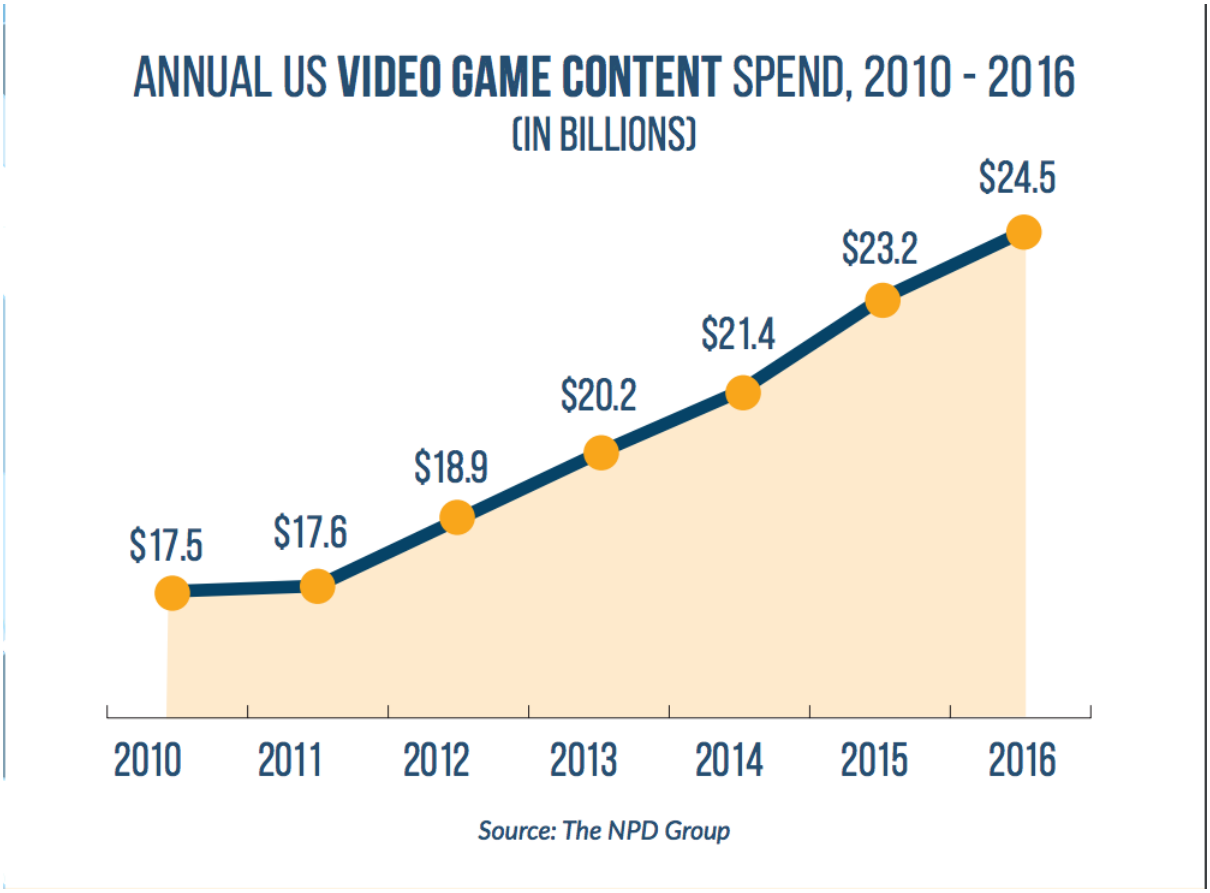
Game developers in the past have tried different techniques to tend to a wider audience when it comes to reaching out to gamers. One of these tactics they took on was categorizing games into three different categories: blue games, pink games and purple games. Blue games were the games that these developers and creators deemed to be "boy" games. These were the shooting games, the games that tended to have more violence and higher adrenaline games. The pink games category was the category of very girly games, these were the games typically presenting fashion and princess themes. Purple games, which may sound like the category intended to target both males and females, was actually categorized to target females, just not as heavily "girly" as the pink games category (Dickey, 2006).

These categories were created solely off stereotypes, but where do these stereotypes come from? One might assume that it's solely data of the preferences of boys and girls that reinforce certain stereotypes, but this is not the case. Parents also help reinforce certain stereotypes. The makers of a communication game named KidCom made specifically for girls aged 7-12 in Netherlands found that girls did not actually like the colour pink. However, the device was designed pink because this appealed to what the parents of the kids thought their kids would like. Parents would assume their kid would like blue if they were a boy and pink if they were a girl even if this wasn't necessarily the case (Sørensen et al., 2011). These kinds of external stereotypes contribute to the misrepresentation of females in gaming, girl's preferences aren't matched to what kinds of games are in the market for them and because of this girls are often funnelled into playing certain types of games even though it may not be what they prefer.

Studies have also shown that in games where you can pick and design your own character (race, gender, style, etc) 54% of males experimented with a female character and 68% of females played with a male character. This reinforces the idea that boys and girls aren't boxed into one type of game, one type of play style or one type of preference (Conrad et al., 2010).

Gaming Industry Statistics

Gaming has started to see more women in recent years. One study conducted by the Entertainment Software Association found that 42% of US gamers were female and females made up 48% of the most frequent game purchasers (ESA, 2011).



Gaming is a huge industry - in total, it's a $30.4 billion/year industry (2017 statistic) and as seen from the graph above, it has only been increasing year over year. The average gamer from the US plays about 3 hours a week (Theesa, 2017). Because of this, and the fact that more females are joining gaming as a hobby, it would make sense that gaming companies would try and target female gamers. However, categorizing games as either girly or non-girly is not the most effective method because it creates gaps within the gaming industry in terms of what girls can and cannot play, reinforces gender

stereotypes, and limits the possibilities of what girls end up playing, further reinforcing toxic gamer culture.

Community Outlook

Toxic gaming culture tries to funnel all these different demographics into one type of girl. A popular streamer by the name of Trainwreck said “the same sluts that rejected us, the same sluts that chose the god damn cool kids over us, the same sluts that are coming into our community, taking the money, taking the subs, the same way they did back in the day” when referring to the community of girl gamers. This idea and picture painted of female gamers is shared by many in the gaming community as there was backlash from fans when it was announced that Trainwreck was to be banned from Twitch, a popular live-streaming gaming site, for 5 days (Grayson, 2016). It is incidents like this, where opinions like this are given respect by many members of a community, that create new stereotypes and reinforce old ones. A male in the community might look at this, see the support someone like Trainwreck gets, and start subscribing to these beliefs. A female gamer might see this, see the support Trainwreck gets and really feel as if they don’t belong in a community or that they really are the specific type of girl someone like Trainwreck outlines. These incidents can happen in many different forms, where someone who is well respected in a community publicly voices their opinion and get support. This can affect both males and females and further reinforce stereotypes.

Girls are often treated as very different when it comes to gaming, they are marketed to differently, they are treated differently by the community and their preferences are handled differently when in reality, the statistics have shown that female and male gamers are quite similar, but the females are just far more misrepresented and discriminated against.

Conclusion

The gaming community has started to see more and more women through recent years, yet the importance developers and the rest of the community has been giving them has not been growing to scale. Women represent almost the same amount of the gaming community as men do yet men are treated with more respect. The change the community

needs to see is in the hands of the rest of the gaming community (both males and females), developers and in content creators/influencers. Once the mentalities of each of these groups individually change, women will start feeling a greater sense of belonging in the gaming community and can one day be treated equally to their male counterparts.

Further research should seek to understand why a gaming preference exists and whether males have impacted this decision. Future studies should also propose to account for the methodological issues arising from data collection methods and be more thoughtful about what the results could also suggest and assist game publishers in extracting valuable data for use in future game development projects to combat gender stereotyping, discrimination and misrepresentation.

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Asja Šerić and Chung Yan Fong
Gender in domestic AI and humanoid robots

“Gender in domestic AI and humanoid robots”

Asja Šerić & Chung Yan Fong
GNVB05, December 14, 2017

ABSTRACT

When it comes to designing a humanoid robot for domestic use, the designers will consider its gender as an important factor. We have noticed during our research that most humanoid robots have female features. Genderless robots would be ideal, however it is difficult to design one, because of some of its traits, such as the voice and tone, which is normally either feminine or masculine. Designers tend to design assistive robots mostly with female features, as research showed that they are more accepted and welcomed in home use. It is also important to consider user expectations and adapt according to them.

Keywords

Gendering of Humanoids, Gendering of Robots, Artificial Intelligence, Gender and Technology

INTRODUCTION

Artificial intelligence and humanoid robots are becoming more and more important in our everyday lives. One of the issues when designing artificial intelligence and humanoid robots for domestic use is the question of which gender it should be and whether that affects how people perceive the robot. Gender should not be neglected, as it makes a difference in likeness and human-robot interaction (Siegel et al., 2009). Even the voice of the robot plays an important role in the way user perceives it (Alesich & Rigby, 2017). With gendering however, comes gender stereotyping as well. When gender stereotyping humans, we associate the role with genders and a similar thing happens to robots as well, even though a robot has no organic gender.

In this essay we will discuss the gendering of humanoid robots used in domestic and work settings, which are made to coexist and interact with humans. As we have found out, most of the humanoid robots nowadays are gendered and the predominantly male designers are leaning towards designing feminine/female robots. We have asked ourselves three research questions as follow:

RESEARCH QUESTIONS

1. Why are most domestic robots perceived as female/have female characteristics?
2. Why do the designers make domestic robots to perform a feminine role?
3. Does robot's gender representation affect users in everyday home use scenarios?

THEORETICAL BACKGROUND

About gender

"In humans, gender is both a concept and a performance embodied by females and males" (Robertson, 2010, p. 3). Gender is something we recognise about a person very quickly and "we arrange our everyday business around the distinction" (Connell, 2009, p. 5). These arrangements seem very natural, because they are so familiar to us, however that is not the case. As Connell (2009, p. 5) says, "being a man or a woman is not a pre-determined state. It is a becoming, a condition actively under construction." People are constantly constructing themselves as masculine or feminine by the way they conduct themselves in everyday life.

Judith Butler talks a lot about gender performativity in her works. She says that gender is performed. This performance is achieved through particular forms and behaviors that are embedded in social and cultural constructs. "Feminist theory has often been critical of naturalistic explanations of sex and sexuality that assume that the meaning of women's social existence can be derived from some fact of their physiology" (Butler, 1988, p. 520). Instead she proposes that the gender is constituted by acts, which are similar to performative acts within theatre (Butler, 1988).

Connell (2009, p. 10) agrees: "Gender must be understood as a social structure. It is not an expression of biology (...). It is a pattern in our social arrangements and in the everyday activities or practices which those arrangements govern." She says that "gender concerns the way human society deals with human bodies and their continuity, and the many consequences of that 'dealing' in our personal lives and our collective fate" (Connell, 2009, 11). She also says that as human practice creates new situations, gender arrangements are always changing. Gender patterns may differ in different cultural contexts but all are still 'gender'. And because gender is a social construct, it is also reproduced socially and not biologically (Connell, 2009).

“To most people being a man or a woman is a matter of personal experience. It is something involved in the way we grow up, the way we conduct family life and sexual relationships, the way we present ourselves in everyday situations and the way we see ourselves.” (Connell, 2009, p. 94).

The sexual division of labour

In many societies and situations, specific tasks are mostly performed by women and others, mostly by men. Connell (2009) says, these kinds of labour divisions are a normal occurrence and may even be universal across different cultures. Labour division happens in most cultures and societies, but there is no one same division for all cultures throughout history.

In all contemporary societies, women are the ones to do domestic and care work. This includes cleaning, cooking, sewing, looking after the children and especially caring for babies (Connell, 2009). “This work is often associated with a cultural definition of women as caring, gentle and self-sacrificing” (Connell, 2009, p. 3). Very often even the emotional connection between parent and child may be strongly gendered. “Most of the time, care and attachment to young children is the business of women, especially mothers, while fathers are expected to be emotionally distant” (Connell, 2009, p. 82). Kang et al (2017) however emphasise that being female and being able to bear children does not necessarily mean that they are always “the best caretakers of those children or that they have “natural instincts” that male-assigned people lack” (Kang et al, 2017, p. 36).

Gendering of technology artefacts

Technical objects can be inscribed with gender. Oudshoorn et al (2002) suggest that technological artefacts are actually ‘‘gendered by design’’ (p. 471) and most “objects embody traits designed with gender in mind” (Oudshoorn et al, 2002, p. 471). Faulkner (2001) distinguishes between gender *of* technology and gender *in* technology, where the first one relates to gendering of artefacts by association and the latter means that “gender relations are both embodied in and constructed or reinforced by artefacts to yield a very material form of the mutual shaping of gender and technology” (Faulkner, 2001, p. 83). What this means is that gender is imprinted in the objects through instructions, advertisements etc. (Oudshoorn et al, 2002).

The designers of the artefacts anticipate the future user's interests, skills, motives and behaviour, which then become materialised into the design of the product (Oudshoorn et al, 2002). They make gendered assumptions that can be "designed in" to the artifact (Faulkner, 2001). Because of this, the designers are important actors in "the social construction of artefacts" (Oudshoorn et al, 2002, p. 481), as they give the objects meaning and function. On the other hand, each user reacts a little bit differently to the object, which is why users are also a part of the social shaping of the artefacts. Users are even the ones who describe whether they perceive an object as gendered or not and if the object is helping them perform their gender (Oudshoorn et al, 2002).

PREVIOUS RESEARCH OVERVIEW

We have studied journals that discussed about the relationship between AI/humanoids and gender, user experience towards the gendered humanoids and design behind the gendered humanoid.

Gender is inevitable

Carpenter et Al. raised the question on whether taking away gender of robots will be beneficial to robot-human communication as it is less distracting (2009). To design a human-like, humanoid robot, gender plays an important role to the existence as human (Robertson, as cited as Alesich and Rigby, 2017). It is also important that gender facilitates relations to one another by marking the identity of oneself (Alesich & Rigby, 2017). Japanese designers have tried to develop genderless humanoid robot 'The Telenoid' but being described as 'something we would see crawling out of the depths of hell.' by the media[1]. However, though the Telenoid is designed as an agendered humanoid, the basic communication method with user - voice, still needs to be selected as female or male[2]. Previous study found that respondents regarded gendered stereotypes to a computer by male or female voice (Nass et al., as cited in Alesich & Rigby, 2017). It seems difficult to create a gender neutral voice to eliminate the user stereotype towards humanoid robots. Research findings of Paetzel et al (2016) found that robot may fall into uncanniness when it showed an incongruent gender cues rather than a specific gender. Gender is

[1] **Hiroshi Ishiguro creates his creepiest robot yet, the Telenoid R1 (video)** Sean Hollister - https://www.engadget.com/2010/08/02/hiroshi-ishiguro-creates-his-creepiest-robot-yet-the-telenoid-r/?utm_source=Feed_Classic_Full&ncid=rss_full&utm_medium=feed&utm_campaign=Engadget

[2] Demonstration of the Telenoid https://www.youtube.com/watch?v=SS6zB-N774A

hardly to be neglected as it is an important factor in likeness, perceived persuasiveness towards robot and alternation of the human-robot interaction (Siegel et al., 2009). User stereotypes towards robots are inevitable as they associate the role of the robot with gender even though the robot has no organic gender (Carpenter et Al., 2009). The stereotype towards humanoid robot may be as same as how users stereotyping human. Eyssel & Hegel (2012) stated that robots will be facing gender stereotype as humans do. In their findings, masculinity was perceived more to the short-haired robot than the long-haired one. The visual factor of gender can affect the social perception to the robot (Eyssel & Hegel, 2012).

Female robots and User experience

Listing out feminine AI/Robots in real life such as Siri, Alexa and Sophia will be easier than masculine robots. Alesich and Rigby (2017) suggested that gendered humanoid robots being developed with human-like appearance are currently mainly female. Robots are created in feminine appeal are said to be perceived as less threatening by users (Weber, as cited in Alesich & Rigby, 2017). Eyssel & Hegel (2012) also indicated that female robot was perceived as a better communicator than male robot. Clifford Nass, professor of communication at Stanford University, stated in an interview with CNN "It's much easier to find a female voice that everyone likes than a male voice that everyone likes; It's a well-established phenomenon that human brain is developed to like female voices."[3] Since male robot was perceived as more dominant and agentic (Eyssel & Hegel, 2012), Eyssel & Hegel suggested that there is a possibility that elderly human users may feel fear towards male-gendered elderly care robot while Carpenter et al. (2009) stated that their research participant were more fond of female robot in home use. These research result may show the advantage in female-gendered robots in domestic robot sector.

Gender stereotyping also happens in robots as above mentioned. User experience differs towards gender representation of the gendered humanoid. Previous study in Singapore showed that respondents were more in favor of a male-gendered security robot and female-gendered chore robot (Tay et al., 2014). The foundings of Eyssel & Hegel (2012) also support the gender stereotyping that male robot was perceived as more suitable for typically male tasks (such as security and repairing technical devices) than female robot and vice versa. In Carpenter et al.'s

[3] https://www.theatlantic.com/technology/archive/2016/03/why-do-so-many-digital-assistants-have-feminine-names/475884/

research (2009), respondents “commented frequently on robot’s perceived gender, race, nationality and social standing within the household.” even when they were not told any gender information by the researchers.

Designers said so

Robot designers play a key role in the development of robots. Their every decision on every detail of the robot affects the perception towards the robot and shapes their attitude towards future robots. If we want to make the future robots more sociable, they have to be able to persuade which can be improved by innovating their appearance (Alesich & Rigby ,2017). Eyssel & Hegel (2012) suggested to build up stereotype-congruent robots if the goal is to minimize error produced by machines, potential risk factors for users and improve human-robot communication. Carpenter et Al. (2009) stated it is a challenge to consider about gender when designing robots for domestic use, as the humanlike indicators like voice and appearance can trigger the gender-related issues. As Judith Butler says, gender is performed. Designers are the directors of the robots on how they should perform. Alesich and Rigby (2017) commented that “in general, robot designers show little awareness of the contingent relationship between gender and human bodies”. The unawareness may create more and more gender bias or interaction on humanoid or even human.

DISCUSSION

In order to make humanoid robot more human and facilitate robot-human communication, studies have stated that gender plays important role in design (Siegel et al., 2009; Alesich and Rigby, 2017). Some people suggested that humanoid robots and AI should be genderless to eliminate potential sexism or bolster gender stereotypes. Companies are trying to develop genderless chatbots like Samsung Bixby and Mastercard Kai. These genderless robot may prevent gender bias in user experience and seems this can be the future trend of robots. However, when it comes to communicative domestic robots, it is a challenge to be genderless because of the traits like voice and tone that affects user perception. Genderless voice is beyond imagination because the gender perception is generated by the audience. Persuasiveness of robot can also be enhanced by the appearance to be more humane. But if designer choose to make a genderless robot, it takes more effort to overcome the uncanny valley that genderless humanoid may stimulate uncanniness (e.g. the Telenoid of Japan) as gender is an important trait of identifying

human being. Designers tend to make domestic robots, especially assistive robots, into feminine role because researches showed that female robots are more accepted to be assistant and welcomed in home-use (Carpenter et al., 2009; Eyssel & Hegel, 2012; Tay et al,, 2014). The direction of feminine domestic robot design seems trying to maximise the user experience by choosing a "right" gender to assist users. While designers may neglected the social issue that may raised in the robot generation - more severe gender stereotyping. Designers may fall into dilemma on gendered robots by risking gender stereotyping and genderless robots but risking user experience. It may be a good method to design user interface for male/female/genderless user interface for user selection. Customizing the best robot that fits the expectations by deciding which gender robot should perform, as the gender-related identifying factors like voice and appearance can be changed easily. The gender concept is important in development of AI since AI can perform self-learning that may develop new gender ideas. The example of Sophia, perceived as a she, is becoming more psychologically woman than it was just looks like woman. She developed the idea of family and having offspring by machine-learning only[4]. It is foreseeable that the idea generated from gendered AI may help us to know more about gender issues.

CONCLUSION

As a conclusion, I would like to answer the research questions that we have asked ourselves in the beginning of the paper. First of all, most domestic robots are perceived as female or have female characteristic because research shows that feminine looking humanoids are perceived as less threatening and as better communicators than the male looking robots. It is also easier to find a pleasant female voice than a male one. Users are in general more fond of female looking robots when it comes to home use, which is why the designers mostly decide to give them feminine features.

Secondly, we have not found out whether feminine humanoid robots are created so that they perform feminine roles (such as cleaning or cooking) in domestic use, we have however found out that gender stereotyping does happen even with robots and most people associate feminine humanoids with jobs that are traditionally female. User stereotypes towards robots are inevitable

[4] Sophia the robot wants a baby - BBC Tech 25/11/2017 http://www.bbc.co.uk/newsbeat/article/42122742/sophia-the-robot-wants-a-baby-and-says-family-is-really-important

as they associate the role of the robot with gender even though the robot has no organic gender (Carpenter et Al., 2009).

Lastly, our final research question is connected to the first one. Gender representation does affect users in everyday home use scenarios, as most users would be more comfortable with a feminine robot in their home use. Some may even not want to use a robot with male features, as they could find it more threatening than a female robot. Robots clearly do not have a natural gender, but looking at it from a theoretical perspective, we know that gender is a social structure and not an expression of biology. What makes a gender are our daily activities and practices and it could be the same with humanoid robots. It is not only appearance that makes a humanoid female or male, we need to take its social arrangements into consideration as well.

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Taryn Allen, Alice O'Donnell and Kayla Taft

How are gender, race, and other human rights issues exemplified in the case of Henrietta Lacks?

"How are Gender, Race, and Other Human Rights Issues Exemplified in the Case of Henrietta Lacks?"

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ABSTRACT

This paper explores the historical and contemporary industry of science and its intersections with social concepts like gender, race, and class. The story of Henrietta Lacks—that of a poor, black mother whose cells were unknowingly taken from her and used for research in medical centers around the world without her consent or compensation—is examined as a case study. Films, books, scientific journals, opinion articles, and theoretical analyses have been consulted in our paper researching Lacks's case. The result is a literature study report that outlines her life and details of her case, an exploration of race and its past and present intersections with science, a study of gender and Lacks's identities as a woman and a mother, a consideration of comparable cases that clarify Lacks's, an insightful reflection on how the case has affected scientific and cultural progresses throughout the years, and a conclusive summation. There is incredible scientific and social relevance to the case of Henrietta Lacks, and we have found that the medical aspects must be discussed with intersectionality and in collaboration with cultural concepts in order to create a more representative, nuanced narrative which benefits both society and science.

Keywords:
Henrietta Lacks, Intersectionality, Scientific Ethics, Race, Gender, Human Rights, Consent, Privacy, Equality, Medical Research, Stem Cells

INTRODUCTION

An impoverished black woman and mother of five, Henrietta Lacks (1920-1951) has gained global recognition from the cells taken during the final surgery of her life—cells that were taken with neither her nor her family's knowledge or consent. As an adult, Lacks was diagnosed with cervical cancer for which she sought treatment at Johns Hopkins hospital in Baltimore, Maryland (Skloot, 2010). It was during her surgery in 1951 that the doctors took cells from Lacks's

tumour, and although she died shortly thereafter, her cells were cultured and discovered to have an irreplaceable quality: “Lacks’s [cells] were the first that ‘took,’ introducing a constantly reproducing line of cells that are literally, to give them their scientific definition, immortal” (Moorhead, 2010). Her cells, “HeLa cells,” also divide unusually quickly: “Gey was amazed to see that within 24 hours of culturing his first HeLa sample, the number of cells had doubled” (Del Carpio, 2014).

Upon uncovering HeLa’s immortal quality, the cell line was sold, spreading quickly across the world, and it would go on to be used in countless treatments and procedures, such as the development of the polio vaccine and crucial AIDS and cancer research (Brown, 2015). It was not until 1975 that the Lacks family, still experiencing health problems and financial struggle, was made aware of Henrietta Lacks’s stolen cells and their significant role in countless medical discoveries (Callaway, 2013). The Henrietta Lacks case brought many questions of ethics and privacy to light within the scientific community; Lacks’s cells certainly helped masses of people, but this act for the “greater good” exploited a woman and her entire family. The family has never received compensation despite their own medical issues that they cannot afford treatment for, and they have had to fight the scientific community for decades in an attempt to reclaim some ownership and control over their own genetic material, with little success (Skloot, 2006, 2010).

Few would argue now that the treatment Lacks faced was a violation of human rights and individual dignity; reviews within popular scientific writing are careful to disparage her treatment as an unfortunate and outdated product of the times (Del Carpio, 2014). However, there is a growing school of thought, spurred on by the work of Rebecca Skloot, if the current discourse goes far enough, questioning if scientific ethics have truly learned the key lessons of the Lacks case, and if more divisive intersectional issues have been effectively swept under the rug in current popular narratives. In response to this problematic framing of the Lacks case in scientific discourse, this paper aims to delve into these intersectional issues: How did race, class and gender influence Lacks’s treatment at Johns Hopkins medical center? Do these intersectional

issues still influence access to ethical, equal medical care in modern day America? Do the ethical changes in scientific research created in response to the Lacks case protect vulnerable patients, as scientific journalism suggests, or do they merely mask deeper issues in the societal value of science over individual human rights?

To this end, this paper will collect discourses on the Lacks case and related topics from a range of sources: books, academic journals, blogs, movies, and popular scientific writings. We have critically compared and analysed these approaches to intersectional issues, human rights concerns, and the role of society's scientific progress to reach broad conclusions on the implications of common narratives of the Lacks case for current scientific and societal interactions, the importance of considering an intersectional perspective, and how popular scientific perceptions of human rights can be improved in relation to our findings.

RACE

Assessment of Lacks's treatment from a historical and intersectional standpoint provides strong evidence challenging the many scientific narratives denying the question of race in Lacks's case. Like all black individuals living in Jim Crow America, Henrietta Lacks faced daily segregation and inequality (Packard, 2003). The attempts to restructure Lacks's narrative in order to discredit the role of race in blacks' dehumanising medical treatment are stated through claims that medical treatment was equal for all patients regardless of race; Lantos (2017) writes, "Another central trope in [Rebecca Skloot's] book is that Henrietta Lacks was treated badly because she was black. But she was treated the way other patients, white and black, were treated at leading medical centres in the 1950s." The fallacy of this statement lies in that Lantos is grouping the treatment of blacks and whites at the time together; while it is true that Lacks was treated no different than others, those others include only other *black* patients. Black patients were not treated the same way white patients were; the segregation in medical hospitals created a barrier between white and black patients, effectively shielding the significantly better treatment provided to white patients that was withheld from black patients. Hunkele (2014) reports upon this discrimination by sharing the experience of a black man: "One man recalled, 'A White

doctor would see all of his White patients first and then he would see his Black patients afterwards. In the meantime some patients did sit up and die; Black patients. White doctors would not give the same type of service to Black patients as they did to the White patients.'" Although some medical centers would treat black patients, it was done in such a way that they were treated as secondary and thus given the least amount of resources and attention. Access to proper medical care was a right often denied to black people, either through outright refusal to treat, or by withholding more effective treatments and equipments for their white patients, or within white-only hospitals. Contradicting Lantos (2017)'s assertion that black and white patients received equal medical treatment, Hunkele (2014) states, "African American males…could be refused by White doctors or would not be able to see certain doctors because of the all-White nursing staffs. There were not enough African American doctors to ensure that the Black population received medical attention at rates equal to Whites." Black patients were only provided treatment by black doctors, and when there were not enough black doctors working, the black patients simply suffered, instead of getting medical treatment from the available surplus of white doctors. The pervasiveness of this discrimination in 1950s American society, which involved a "racist medical science that has historically ensured that white bodies have access to life-enhancing medical interventions/technologies while black bodies are appropriated as either raw biological matter or as labor (Washington)" cannot be overstated (Gill & Erevelles, 2017). This view of black people as almost inhuman and existing in America simply for white people's gain, directly served to create the systematic medical exploitation that Lacks experienced as a black woman.

Examination of case overviews published in leading scientific journals such as Berkeley Science Review (Del Carpio, 2014) and Nature (Callaway, 2013) reveal another equally insidious approach to race: avoidance. The focus of these popular science histories is squarely on the cells. Henrietta "The Woman" receives at least a brief cameo, allowing the writer to express passing remorse for her unfortunate situation and for the effects upon her children. Henrietta "The Black Woman" is barely acknowledged. Although not stated outright, these treatments of

the case implicitly agree with Lantos, reinforcing the idea that there is nothing noteworthy to be found at the intersection of race and science in this case.

By further exploring her medical care with an intersectional perspective, the flawed nature of Lantos's assertion of race as a non-issue becomes even clearer. Existing as a black person in 1950s America cannot be logically extricated from poverty; working black families like Lacks's watched trade and prosperity leave their small southern towns for industrial cities as the loss of black slave labour made farming less profitable. Joining this exodus, black labourers found themselves accepted in only the most dangerous and low-paid professions. This meant that they led lives of both socialising and working in black-majority slums with terrible living conditions, segregated from the white urban elite (Skloot, 2010). These individuals thus had neither the money, the time, nor the social and educational resources necessary to understand and explore their medical options, to request second opinions, or to question the advice of their doctors.

Compounding this racial-poverty problem is that of racial segregation; many medical centres completely refused to treat black patients and the few that did, such as Johns Hopkins, still operated in a manner which oppressed minority patients: "Johns Hopkins was a segregated hospital…racial discrimination was often unacceptably a part of day-to-day interaction," but black patients had no choice but to accept what little care they could get (Role of Johns Hopkins Hospital, 2017). For Lacks, and others like her, Johns Hopkins' heavily subsidised public clinic was the only feasible option for receiving medical care. Therefore, black patients such as Lacks faced a double bind: due to structural racial poverty they could not afford proper care, and racial discrimination robbed them—but not the equally poor white population—of their ability to question their treatment (Del Carpio, 2014). How could Lacks demand more information regarding her care when she knew that to do so would be a risk to receive no treatment at all? An assumption that race did not figure into her care rests on the ignorance of structural societal factors which put black populations at the mercy of the few "benevolent" organisations that would interact with them, thereby denying them a sense of agency that their poor white counterparts retained.

It is clear that the popular scientific narrative surrounding Henrietta Lacks and her immortal cells, intentionally or not, misses a lot when it disregards race. More than that, though, this missing piece allows science to avoid discussing how the relationship between race and science has developed over time, and the resulting effects of racially charged exploitations, such as Lacks's, on scientific progress and the populations who benefit from it. In the modern era, black Americans have lower trust in medical professionals (Kennedy, Mathis & Woods, 2007), are more likely to be inconsistent or noncompliant with treatment, and visit doctors less frequently (Griffith, Ober Allen & Gunter, 2011). This has a range of interwoven causes which are slightly beyond the scope of this paper, but at a basic level, black communities are highly aware of their previous medical exploitation; with cases from J. M. Sims's development of gynaecological tools through forced experimentation on black female slaves (Ojanuga, 1993) to the Tuskegee syphilis trials (Brandt, 1978), the devaluing of black lives within medical contexts has a long and recent history. In addition to this, black Americans are, on average, less wealthy and live in more deprived areas (Jones, 2017), a particular race-class intersection which causes them to have more financial and logistical problems in accessing healthcare when they desire to do so. The causes of this disparity in medical access and benefit across race are less important for this paper than the outcome and the implications this has for the normative scientific narrative around the exploitation of Henrietta Lacks. Black individuals, due to historical and cultural mistrust of medical professions, societal segregation and lack of resources, and general financial disparity, have less access to the very treatments that were developed on the back of their exploitation.

Many apologists argue that society and science have a symbiotic relationship, essentially supporting the notion that all individuals should accept their duty to help advance science, since science produces knowledge that benefits all individuals (Skloot, 2006; Lantos, 2017). Thus, an individual's consent is unimportant, as everyone is obliged to assist in this common good if they can. This idea that anyone could bear the burden, and anyone could benefit from the result, suggests an attractive socialist idea of equality, but examination of Lacks's case and the many

similar cases concerning black patients highlights the fallacies in this narrative. It is the large corporations and wealthy white populations that benefit, while marginalised groups carry the burden. Therefore, it becomes clear that by minimising the importance of the science-race intersection and the clear separation between the burdened and benefitting populations, mainstream scientific conceptions of Lacks's case manage to conveniently ignore the racially oppressive and deeply unequal culture generated by the "greater good for science" argument commonly held by society.

GENDER

Now that the story behind the HeLa cell has held time in the spotlight around the world in many scientific and cultural communities, Henrietta Lacks herself has been nicknamed the "Mother of Modern Medicine," the "Mother of Science," and various similar names. Today, the Berkeley Science Review (Del Carpio, 2014) even extends her to "the mother of virology, cell and tissue culture, and biotechnology." Each title turns Lacks into an embodiment of the intersections between science and gender, as her identity is linked so closely to both. As discussed, Lacks is remembered as a piece of science and as a black person, but she is just as much remembered as a woman and a mother.

However, it has not always been this way. After the initial taking of Lacks's cells, Johns Hopkins and the scientific community stripped her cells of their identity by calling them "Helen Lane" and later just "HeLa." Henrietta Lacks is a woman; Helen Lane is a woman; HeLa is a scientific object. With the name HeLa, Lacks as a mother and as a woman joins the league of women who have been erased and buried in the history of science. Thus, her case begs analysis from a gender and women's studies standpoint, though it is quite complex to consider.

By today's standards of feminism, it feels almost demeaning to focus largely on the motherhood aspect of a woman's identity, but while Henrietta Lacks was undoubtedly an incredible woman independently, her identity as a mother of five was quite prominent. When she went to Johns Hopkins seeking diagnosis and treatment, she was evidently unaware that this would lead to her

sterilization: “Without question, Henrietta would have opted out of treatment had she been informed that it would leave her infertile, a fact that she only discovered once it was too late” (Del Carpio, 2014). It can only be speculated how willing Lacks would have been to taking the treatment had she been informed of its physical effects—this is an entirely different angle from which to examine informed consent. On one hand, Lacks was violated as a person when her cells were stolen from her. On the other hand, Lacks was violated as a woman and a mother when she was unknowingly sterilized at Johns Hopkins. This violation is even more salient given the contextual factors surrounding race and gender in America at this time.

Eugenics and sterilization involve taking away someone’s right to reproduce, especially for the purpose of removing “undesirable” traits or qualities from the population. These racial purity concepts were weaponised against minorities in 20th century America, where ethnic minorities were deliberately targeted with coerced, forced, or unknowing sterilization. The intersection of gender cannot be ignored here; women were targeted more frequently than men, and a governmental enquiry in the 1970s found that “All [sterilizations] were abuses of poor, nonwhite, or mentally retarded women, while no abuses against white or middle-class women were recorded” (Gordon, 2003). Henrietta Lacks fits the profile of the groups most often targeted: “In 1972, United States Senate committee testimony brought to light that at least 2,000 involuntary sterilizations had been performed on poor black women without their consent or knowledge…the surgeries were all performed in the South, and were all performed on black welfare mothers with multiple children” (Ward, 1986). While Lacks was not on welfare, she was certainly a part of this community of poor black mothers, abused as a result of her class, race, and gender. Although there is no evidence that the doctors at Johns Hopkins treated Lacks with the goal of sterilising her, they were certainly aware that this would be the outcome. Their decision to not inform her given this highly salient context highlights the implicit racism experienced by women at the intersection of race and gender at this time; Henrietta’s treatment disregarded her blackness and femaleness, just as much as her humanity.

Of course, the mention of humanity reminds us that this discussion of gender can and must be woven together with the discussion of race and other issues, as many of these concepts affected Lacks's treatment both alive and postmortem. One cannot only inspect one piece of the story if they want a fuller understanding of the situation and its contexts. It also calls for a broader inspection of Lacks's case study in the histories of science, medicine, and the treatment of minorities. Though perhaps no case is as scientifically, socially, and emotionally striking as Lacks's, there are other examples of race, gender, and other human rights issues meeting science at a crossroads.

COMPARABLE CASES

The results of the Moore vs. Regents of the University of California case attempts to provide logic for those defending the Lacks family's lack of compensation—the case involved John Moore, a patient undergoing treatment for hairy cell leukemia at UCLA Medical Center in the 1970s. Moore's cancer cells ended up being used to develop a cell line that was commercialized by his doctor and the UCLA medical team, but Moore received no knowledge of this occurrence or compensation for his cells being used. When he eventually found out his cells were being used and went to trial for the rights to these cell samples years later, the California Supreme Court ruled that hospital patients did not have personal property claims to their discarded blood or cell tissue samples, and therefore can no longer be granted rights to any profit that may be earned from their cells. This court ruling was decided on the grounds that scientific knowledge and medical cures take precedence over personal privacy rights of the patient; there was concern that granting the patient these rights would impede on scientific research if the patient refuses certain uses for their cells, setting restrictions on experiments. Lacks was victim to the same logic and viewpoints that many unfortunately still hold today. No one can deny the extensive benefits that modern science provides, but the cost and methodology must be constantly questioned if we are to avoid making the same detrimental mistakes over and over again.

Another example comes with the case of Ted Slavin, which calls into question our analysis of how race and gender play a crucial role in the case of Henrietta Lacks, for Slavin experienced a

similar injustice to the one experienced by Lacks. Slavin suffered from hemophilia, a disease that in the mid 1950s had only one treatment option: infusion of clotting factors from donor blood. This donated blood, however, was not screened for diseases, leading to Slavin's repeated exposure to the hepatitis B virus. He was not made aware of this exposure until the 1970s, when a recently developed blood test found alarmingly high levels of hepatitis B antibodies in his blood (Skloot, 2006). While Slavin and Lacks both present cases of human rights violations in medicine, the key difference between the two is the fact that Slavin's doctors informed him of the antibodies in his bloodstream, allowing him to then work with researchers to find a cure, orchestrate a patient advocacy group, and earn a hefty profit in the process.

The begging question here is: Why Slavin was given this privilege of knowing what wronged him, of what injustices he faced, so that he could decide for himself how to utilize this scenario? Why were Lacks and her family, on the other hand, not previously informed of her cells being taken for medical use nor compensated when her cells proved invaluable? Our reasoning for this extreme discrepancy in treatment is the heart of our argument: race and gender played the crucial role, for Slavin was a white male and Lacks was a black female. Both people in question had their privacy violated with the defense logic that it was helping the greater good and was done "in the name of science," essentially validating the human rights violation that took place in both cases. The key difference, however, was the respect and humanity granted to Slavin when the doctors informed him that they used his cells. The doctors informing him of this situation then gave him the chance to turn it into something beneficial for himself, which he successfully did. Lacks, on the other hand, died in 1951, and her family is still suffering severe health issues and cannot afford access to proper healthcare. Lantos (2017) argues that the medical discoveries made from experimenting with HeLa cells was simply making use of what the doctors had in front of them: "Seeking new cures from bio-specimens that would otherwise have been incinerated is also a way of showing respect for persons. We are, in the end, for better or worse, all in this together." The fatal flaw in this argument, however, is his failure to address the fact that the "all" he references does not actually include "all" people—it does not even include Lacks's own children. How are we "all in this together" when her own children are still, to this

day, experiencing major health issues and cannot access proper care, and yet their mother's cells were partially responsible for the polio vaccine, AIDS research, and many other groundbreaking medical treatments?

LESSONS LEARNED?

The analysis thus far clearly demonstrates that popular scientific narratives around Lacks's life and death leave many important questions of race, gender, class and intrinsic human rights unaddressed. What is startling, given the prominence and complexity of the case, is that such issues have been given such little weight in the prevailing "greater good" discourses. One illuminating tactic is to view these under-discussed issues as residing with the "black box" of human-based scientific research (Latour, 1987)—with the knowledge that the vast majority of lawmakers, researchers, journalists and scientists are white, western men, the ignorance or plain rejection of the intersectional issues at play is given much-needed context (The Boston Globe, 2017). Viewing these issues through black box theory—which involves the unpacking of an idea or concept that today is often accepted without question—also allows more critical analysis of the changes made to human research ethics in the wake of Lacks's case, and their impact, or relative lack of such, on intersectional human rights in modern day scientific practice.

Much is made of the lessons learned from Lacks's case and the impact on modern scientific practice. The controversy around the mistreatment of the Lacks family is often credited as a catalyst for the creation of the Common Rule (ORI, 1991), a system which requires that researchers acquire informed consent from participants, including the ability to withdraw consent at any time. However, does this protection equalise the balance between scientific need and individual rights, as popular science claims? One major consideration is that informed consent only protects individual agency if presented in a manner which is accessible for potential participants. Rogers et al. (2010)'s research demonstrates that even the Miranda rights, specifically designed to be easily understood and familiar to many through pop culture, is still misinterpreted by around 35% of citizens. Given this knowledge, can it be reasonably expected that patients will have enough understanding about the implications of agreeing to their cells

"use in genomic research in labs worldwide" to be deemed "informed"? Class and racial intersections are also worth noting here; it is those with lower educational opportunity who are least likely to comprehend the ramifications of their agreement (Rogers et. al 2007). Thus, rather than removing exploitation of impoverished, minority individuals like Lacks, the system as it currently stands serves instead to reinforce and recreate this oppression under different terms.

Another important and overlooked issue is that, given the ability to proliferate and store cells almost endlessly, how long does initial consent last? Can consent given at a time when cells were short-lived specimens used mainly for drug testing still be considered valid 20 years later, when entire genomes can be sequenced and published? The Lacks family has faced an issue in this vein; in 2013, Lacks's entire genome was published in a scientific paper, with serious consequences for the privacy and health of her direct relatives (Del Carpio, 2014). After a scramble to rectify the situation the family was forced to accept that the genie was out the bottle—countless labs had the cells and the equipment to code Lacks's DNA—and settle instead for a seat at the table when deciding which NIH-funded studies could use the genome. This was essentially a goodwill gesture from the NIH, bound as they are by no official guidance on the use of proliferated cell lines in privacy-sensitive research (Parry, 2013). This case strongly indicates that the scientific march of progress also demands ethical progression in lockstep, and it therefore calls into question the use of legislation that is now over 25 years old and arguably unfit for participant protection in modern medical research.

Finally, there seems little retribution, both legally and within scientific communities, when patients are misled or otherwise denied their Common Law rights. A highly relevant recent case is that of the patients of Dr. Catalona of the University of Washington (Skloot, 2006). Dr. Catalona collected thousands of prostate cancer cell cultures over decades, researching a cure. After he and the university parted ways, and since the consent forms patients signed allowed him alone to use their cells, he attempted to take them with him to his next hospital. The university responded by claiming the thousands of cell cultures as their property due to academic intellectual property rules and began sharing the cells with numerous other organisations, in

direct violation of the patients' consented activity. When outraged patients demanded their right "to end participation at any time," the university interpreted their obligation as merely to remove identifying information from the samples stored. Within any other field, withdrawn consent equates to complete participant removal from the research, but as Skloot (2006) notes "The problem is, [the Common Rule] was written to govern research on living, breathing humans, not their disembodied tissues…In the end, much of tissue research is not governed by it." In 2006, lower courts ruled that the university owned the samples as donation (Washington University, 2006; 2007). In 2008, the Office for Human Research Protection ruled that the consent forms were worded in an unethical and illegal manner (Catalona, 2011), yet the ruling still stands and the Supreme Court has declined to grant an appeal at a federal level. This case exemplifies how little has really changed in scientific ethos; the rights and dignities of individual patients can be disregarded at will if this is done for the good of purported scientific progress, and just like in the Moore case the legal system has proven itself more than willing to reinforce this power inequality, further bolstering the narrative of science as a higher good outside of ethical concerns.

Far from being the compassionate acceptance and reinforcement of human dignity and self-ownership which science suggests, these myriad problems cast a new light on ethics in relation to the black box of human research. Far from flinging the box wide and rectifying the inequalities and assumptions within, the Common Rule can be seen as a cynical concession designed to re-secure the lid, which investigation and outrage stemming for Lacks's case and others like it had begun to pry open. The gift to society is a set of poorly followed, unclear, unfit for purpose and poorly understood guidelines for their protection, but the gift to science—a supposedly benevolent act which stifles balanced ethical debate about scientific practice—is far greater. It is only recently, with the University of Washington and Lacks genome cases, that the lid has begun to come loose once again. It is interesting, if ultimately frustrating to ask, if science has ever deserved its "greater good" rhetoric. Why was there not more done in response to the ongoing concerns expressed by the Lacks family, and why it has taken the exploitation and

suffering of thousands more sick, desperate patients to potentially trigger the next sea-change in patient rights, something that is clearly sorely needed?

CONCLUSIONS

The case of Henrietta Lacks as seen from an intersectional standpoint raises countless concerns regarding where the line is drawn between promoting medical discoveries for the greater good and harming individual's right to privacy and consent. The many narratives published in support of the use of HeLa cells fail to address at what cost these medical discoveries came; while HeLa cells are a remarkable medical tool and have been responsible for countless treatments and life-saving procedures, the context in which these cells were taken creates an incredibly problematic situation. Lacks's existence as a poor black woman in 1950s America meant she was automatically a part of a vulnerable group denied basic human rights in nearly every aspect of society, medical treatment being one of them. Comparable cases bolster our argument that Lacks was mistreated as a result of her black race and female gender; white and/or male patients who experienced similar situations to Lacks did not experience the same stripping of rights. Lacks's family still, to this day, has not received even a penny of compensation for her cells, and it is likely that they never will. Lacks's case must not fade from history, and just as we should honor her for her contributions to science, we also must honor her for her black, female, and other identities as well. The story of Henrietta Lacks brought to light by Rebecca Skloot and others should be a constant reminder of the price of progress, as it highlights the complexities and intersectionalities of science with race, gender, and other issues of human rights. The hypocrisy of the fact that Lacks's cells have been responsible for treatments that are still not accessible by poor black people (i.e. Lacks's own children), even today, is baffling. Sometimes it seems easy to look beyond the life of this one woman and her family to appreciate the broader picture, the greater good, and focus solely on the significant scientific progress that has been achieved. There is no doubt of the advancements that HeLa cells have given to humanity, but it perpetuates an ignorant and dangerous narrative to ignore at what costs these advancements came—consideration of intersectional rights does not have to come at the expense of scientific advancement. We must move away from the narrative that science is the only priority, the

undeniable key, and learn how to incorporate the importance of scientific discovery with individual human rights.

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Rebecca Alfaro, Line Boye Danielsen and Ellinor Newall
Is it for a boy or a girl?

“Is it For a Boy or a Girl?”

Rebecca Alfaro, Line Boye Danielsen, Ellinor Newall
GNVB05, December 14, 2017.

ABSTRACT

Using television advertisements from Dexter’s Laboratory, Bob the Builder, and GoldieBlox, we investigate how traditional gender roles and stereotypes affect the presentation of technologically advanced/science themed toys for kids. We analyze initial observations and field notes noted by each researcher from subjective screen shots taken from each of the three advertisements. Within the past three decades, gender norms and stereotypes are still highly relied upon in how toys are presented to children through advertisements of toys. It still boils down to two options: girl toys or boys toys.

Keywords: gender, science, technology, toys, advertisements, gender performativity, gender stereotypes, color.

INTRODUCTION

“Is it for a boy or a girl?”. This sentence is often spoken in toy stores whenever adults are looking for toys for children. IF they answer “It’s for a girl” the toys proposed would most likely be pink or pastel colors, and following a domestic, or physical appearance theme. Whereas if it is for a ‘boy’, it would involve action-packed adventures or building something new. That is what many might have experienced in the past or even currently. There is more to be uncovered when it comes to toys and gender. We are focusing on gender, toys and science and how different stereotypes affect the way toys are presented.

Toys, and the gendered aspect of toys are an important topic to discuss in the science and technology field. According to GoldieBlox (2017), women represent 14% of engineers worldwide, and men 86%. The future impacts of toys can reveal possible aspects as to why a portion of the science and technology state is as such today.

Regarding this topic, there are a multitude of academic standpoints and perspectives that have been taken. Connell & Pearse (2015), argues about how girl toys are usually pink while toys for boys are blue. The blue babies were more into football games and had a “rough” attitude while the pink babies

were prettier, calmer, and given dolls and makeup (Connell and Pearse, 2015). This refers to the socialization model, a part of socialized learning when it comes to how sex roles and norms are instilled within individuals (Connell & Pearse 2015, pp. 96- 99).

Colatrella (2011), discusses how pink has been typically associated to inferior female qualities. Also, how toys for boys and toys for girls are different from each other reflecting how the toy industry depends on stereotypes (Colatrella, 2011). Toys for boys are characterized by loudness and action. In comparison to more friendly toys created for girls, which are dominated by pink, purple, and sparkly effects (Colatrella, 2011, p 9).

Cassel & Jenkins' book (2000) reflects on the gendered differences in reactions to technologies in various studies. One study revealed children's reactions where boys tended to make a vehicle that could take them wherever they would like to go, while girls fantasized about technological inventions about how to solve real-life problems or domestic helpers (Cassel & Jenkins, 2000, p 75).

Knudsen and Kuever's article (2015) reveals the wide spectrum of debate over whether or not toys should be gendered, along with potential negative impacts. In their study, they argue that "children's toys have reemerged as a moral battlefield", this has forced companies to change their whole viewpoint of the "feminization and sexualization of young girls" and more focusing on toys for both genders (Knudsen & Kuever, 2015, p 171).

Blakemore & Centers (2005) outlines the differences between how toys are gendered and rated. Toys rated as moderately masculine and neutral tend to revolve around scientific skills and construction. This you can see within the different hypotheses for girls' toys and toys for boys. Girls toys are associated with appearance and how attractive they are within materials and how they were produced. In connection to Colatrella (2011), Blakemore and Centers (2005) also found that toys for boys were more associated with aggression and violence, focusing on how a toy is constructed and considered competitive (pp. 624- 626).

Mellström (2004) discusses the prevalence of technology within men's upbringing. Men have had a continuous connection with machines and technologies throughout their childhoods. There is a distinct power and pleasure connection that is created for men and their masculinities. This

connection plays a part in the hegemonic masculinity ideal that centers around technology (Mellström, 2004).

The "Let toys be toys" (2017a) campaign is an example that reveals the progressive nature of the toy industry recently. Their focus is on stopping the gendered focus around girl and boy toys. Toys are an important part of a child's life. There should be freedom for children to play with all toys that interests them, regardless of their gender (Let Toys Be Toys, 2017b).

In this paper, we are going to discuss gender, toys and science within our research question: **"How do traditional gender roles and stereotypes affect the presentation of technologically advanced/science themed toys for kids?**". By "presentation" we mean advertisements, stereotyping, marketing (colors, etc.) through ads from the past few decades. We are investigating how different stereotypes affect the way toys are presented from the early 2000's to today. We have chosen three different ads: "Dexter's laboratory" from 2001, "Bob the Builder from 2007 and GoldieBlox from 2013.

METHODOLOGY

It is important as researchers to take the time to reflect, and acknowledge our backgrounds and potential biases. The importance of this practice stems from understandings and acknowledgements of both Harding (1992) and Haraway (1988). Harding's' (1992) focus on 'strong objectivity' is important to consider. 'Strong objectivity' allows for an increased attention to one's social assumptions and other perspectives. Most relevant to this research is allowing multiple perspectives to be acknowledged, even those who do not fit along initial assumptions (Harding, 1992). Haraway's (1988) situated knowledges and feminist empiricism focus on the importance of minority voices and perspectives. This is a concept to be acknowledged throughout, as well as the understanding that all sciences are contestable and subject to biases. It is through our reflections and acknowledgment of our potential biases we hope to follow along Haraway's (1988) arguments that we cannot detach from all our identities.

For this empirical research, we will subjectively choose two snapshots from each advertisement. The first chosen snapshot is an introductory shot of the toy that conceptualizes the overall atmosphere and theme. The secondary shot will seek to capture the selling point of the advertisement. This is typically when the entire toy is shown through the ad. Two screenshots will be taken from three toy

advertisements connected to the science and technology field. There are three advertisements, starting from the 2000s to the 2010s. The selection of these three toy advertisements - Dexter's Laboratory, Bob the Builder, and Goldie Blox - have been subjectively chosen, and cannot be generalized to represent the entirety of each decade's toy advertisement progression. This will form the basis of our analysis in regard to the topic of toys, gender and science. The field notes and initial observations on each ad can be found in the appendix (app. 1-3).

Researcher Reflections:

Line: I am a Danish, pansexual, cis-gender white woman who grew up in a working-class home with a mom, stepfather and two brothers. In terms of biases on gender performance I mostly have a Western perspective due to my upbringing. Growing up with a mother in a wheelchair has exposed me to a different kind of gender performance together with being LGBTQ myself has helped gain an understanding of marginalization of certain groups. I study communication and media at Aalborg University where the literature is predominantly Western-centered as well. My bias includes a tendency to see the world through Western perspective and thus something I am actively seeking to avoid within own research and private life. by working from an intersectional feminist perspective.

Becca: I am a cis-gender, bisexual, Mexican-American woman. These aspects of my identity may lead to various biases within the research topic. I have two younger siblings who I shared toys with as I grew up. I often found myself playing a variety of toys that ranged from Barbie dolls to Hot Wheels and Nerf Guns. As a child, I understood that there were "boy toys" and "girl toys", but I enjoyed aspects of both too much to stick to the "girl toys" solely. Because of this, my bias can potentially be impacted towards distinguishing toys along gender ideals. I have studied both International Studies and Gender Studies for the past three years. In relation to this topic and course, I have minimal science within my academic background. My bias can therefore be altered to fit along gender studies vocabulary, theories, and overall academia versus science and technology related aspects.

Ellinor: When it comes to toys, something I have been around since I was a little girl from 1994. I remember my parents bought me a couple of toys like Barbie and Bratz, but I also liked to play with other toys for boys like Cars or Beyblades. Basically, I liked everything, not only the typical girly toys with associations to pink, fluffiness and dolls. When it comes to colors, I remember my favorite colors was blue, red, yellow and green since my favorite TV show was the "Teletubbies". Looking at the Dexter Laboratory toy, a toy that I have never played with but watched the Dexter show from

Cartoon Network. When it comes to my major back home in Norway, I study Tourism Management, something really different from Gender. As a white, cis-gender as I am, I have never studied Gender before but something I want to use within the future.

ANALYSIS

After analyzing the three videos (app 1-3) we have identified three themes. The first, *gender performativity.* Second, *science/skills/aspects* covering the learning aspects of the toy in regard to science and education. Lastly is *color* where different color schemes were identified. The themes will be connected to the three videos simultaneously. The videos will be named as follows: Dexter's Laboratory as DL (app 1), Bob the Builder (app 2) as BB, and GoldieBlox (app 3) as GB.

In the ads chosen there is a minimum of two children interacting with the toys. Within these interactions we can see examples of *gender performances*. In DL, (app 1) two fairly skinned boy-performing children are standing close together around a laboratory-like toy. Their physical appearance includes identical brown short hair and grey turtlenecks combined with burping, and a playful goofy behavior. In interacting with the toys, they imitate the cartoon character, Dexter, while at the same time imitating "real scientists" by using scientific-looking tools. At no point in the ad do we see any girl-performance. In BB, (app 2) there are two children. An Asian boy-performing child and a Caucasian white girl-performing child standing far from each other with a construction-site looking toy in front of them in the middle, and a dirt pile in front of the girl-performing child. Their physical appearances and behavior include wearing a checkered red/white/black shirt, short hair combined with an attributed active leading role for the boy-performing child. The girl-performing child is wearing a blue dress with puffy sleeves, long hair combined with an attributed passive, assisting role. These two ads with the *masculine* role as active and the *feminine* role as more passive can be seen as a reinforcement of traditional gender *stereotypes* and norms. This follows along the former mentioned socialization model, and sex role theory based around femininity and masculinity (Connell & Pearse, 2015 pp. 96-103).

Regarding *science skills/aspects* the toys displayed in DL imitates an autopsy (it was called 'Alien Autopsy') and a laboratory ("Drink Lab") and includes different tools such as a plastic spoon and plate, small laboratory glasses, test tubes and pipettes to measure with. The background is black and the setting could remind of a secret laboratory as shown in the TV-cartoon Dexter's Laboratory. The *colors* of the toy are mostly primary colors (e.g. red, green, blue, yellow)

The toy from BB is displayed on dirt-like ground. It resembles a construction site with talking vehicles/machines and barriers that can be raised and lowered to control them. It furthermore includes a crane, cement mixer and Bob the character. It is an interactive toy that provides audio feedback when played with. The *colors* of the toy are yellow, red, blue, gray, black and light blue. A metropolitan scenery with skyscrapers is shown the background

The last video GB (app 3) is the most comprehensive one with more details and actual storytelling. There is three, young-aged (from appearance) girl-performing children of multiple racial backgrounds and physical appearances. Behaviorally, includes one wearing a tool belt around the waist, one with scientific goggles on top of head and the last one wearing a yellow helmet with flashlight strapped on head. Each has bright colored shirts: yellow, pink and turquoise. Two are wearing pants and the third is wearing a skirt and pants/leggings and each of the three are wearing sneakers-converse. Their behavior includes firstly being bored by princess-like girls shown in a TV-ad then jumping around excited and following their presumably self-built construction around in the house and out in the garden. This ad provides a different version of how to be feminine and is the only of the three ads where the children wear 'work clothes'**.** Various pink hues are the primary colors. Made of light blue, pink, yellow, and purple colors. Within the GB toy advertisement lighter hues of pink and pastel colors dominate both the backgrounds, and the coloring of the toy itself.

The color themes within the ad relies upon the dichotomy that is created between primary for 'boys' and lighter/pastel colors for 'girls'. The toy itself is a 'Spinning Machine' that can be built from scratch in numerous ways. It includes e.g. axles, wheels, ribbon and animal figurines.

Minor conclusion: In DL and BB, gender performances are traditionally feminine/masculine with a more active role for the boy performing child in BB and a passive, princess role for the girl performing child. In DL, their clothing assemble that of stereotypical academics/nerds with turtlenecks. In both DL and BB, the toy is imitating real professions with a realistic setting for the ad. There is a dominance of primary colors. In GB, girl performing children shows another kind of femininity by adapting traditionally masculine traits in clothing and behavior. Furthermore, there is an excessive use of pink and pastel colors.

DISCUSSION

Gender Performativity

Gender performativity is an important theme as revealed through our analysis. Butler (1998) defines it as the way we "perform" gender (p 519). The way genders "act it out" by producing and reproducing gender norms and stereotypes. We can see this with how men and women talk, speak, act, and dress (Butler, 1988, pp 519- 521). This is reflected in all ads analyzed where each child is primarily performing gender along gender norms and stereotypes typically associated to 'boys' and 'girls'.

It is important to include performativity because of the way we act within our "traditional gender roles" and how this is seen throughout the ads. Mellström (2004) links to both DL and BB toys ads, the way the author discuss the performance of men and how they interact with their technologies throughout their childhoods. We can see that in the advertisement of DL, where the boys are completely focused on the science toy a male stereotype appears from their hyper-focused attitudes and appearance. In the DL ad, the two boy-performing children with similar short hair typically associates with boy-performing actions according to Butler's performativity ideals (1988). The two boy-performing children also dress similarly in turtleneck shirts. Scientific-related toys have been related more directly to boy toys as seen with LEGO toys (Knudsen and Kuever, 2015). This can be seen within the BB and DL ads that are surrounded by primarily boy-performing children.

In the BB ad, a boy-performing and a girl-performing child both take active roles throughout the ad. However, they each play out distinct gender roles by the boy being dressed in a plain shirt with short hair. The girl-performing child is dressed in a blue 'princess' dress and has long hair. Furthermore, is a dirt pile in front of them resembling a molehill. This can be seen as having further implications by presenting the girl-performer as a mole appearing from a dirt pile. Symbolically it could be the mole with bad eyesight, looking to a person for guidance and thus affirming the girl being in a passive role compared to the boy. Faulkner (2011) speaks to this in relation to how "hard" technology is typically associated to masculinity compared to femininity. Technology is a crucial aspect within hegemonic masculinity that is indicative of all boy and male traits (p 90). The boy-performing character is in an active role due to a direct association between masculinity and technology in comparison to the limited, passive role of the girl-performing character.

There is an alternative form of femininity being acted out within GB. The ad is set as one for girls specifically, but differs in it use of a science-engineering toy as the primary focus. This ad differs in its performance of gender where the characters are not directly performing stereotypical female norms. This stands as a contrast to our initial argument. The characters perform along ideals surrounding 'tomboys' (Merriam-Webster, 2017), more so than the girl-performing character in BB. GB is furthermore exemplifying nonconforming gender behaviors in their tomboyish traits playing with tools, goggles etc. things that are usually considered things for 'boys'. By furthermore showing the princess-like children on the TV, GB follows along the critique of the socialization model as presented by Connell & Pearse (2015, p 103) in that not all children will perform along the societal gender binary.

Minor conclusion: Two of the ads, BB and DL follows along traditional gender roles as our research question is based upon. The GB ad does so similarly, but differs in its creation of a varied form of femininity that can be considered 'tomboyish', and further breaking from gender norms.

Science Learning/Skills

All three toys are educational and somewhat represents, or imitates scientific fields. Children can manipulate with the toys and build or create tangible objects themselves. Where we identify an issue is through the misrepresentation of that purpose in the way gender is portrayed in relation to science learning. The boy-performers within each ad are primarily linked to the use of all scientific technologies, whereas the girl-performers still performs in a domestic or princess-like way.

In the analysis of BB (app 2) we described how the girl performing child looked at the boy performing child while they were looking at the toy itself. Drawing on the highly gendered dichotomies within masculinity and technology Faulkner (2001, p 85) describes how there is a distinction between being people-focused, applied to femininity, or machine-focused - applied to masculinity. Furthermore, the way the girl performing child is portrayed within the BB ad raise some questions. *What does it mean for girl-identifying children to see themselves as a 'princess' in this context?* The role that GB seems to criticize? Of course, it could also create the connotations that women can be both princesses *and* construction workers or engineers but in this context why is the dichotomy between boys = shirts and pants and girls = dresses being reinforced? Why is that relevant for a construction site toy? Looking at how the toy in BB performs as a nonhuman actor (Barad, 2003) it possesses the ability of audible feedback and can be manipulated. It furthermore possesses masculine traits by having "Bob" as a

main character who calls out instructions (boss), while the other vehicles and machines being assigned as “males” as well. In its performance, it is rather static whenever it is not manually moved or used. Even though one should think that a construction site toy does not need to be gendered, this is the case and by being so also changes the perception of the toy. With ‘male’ performing voices coming from the toy it may create assumptions and stereotypes about construction work. The GB and BB toys are also imitations of two different kinds of labor; the construction worker who might or might not have an engineering background (craft or building) and technician engineer who works in a workshop or at an office (as categorized by Faulkner 2001, p 86). They are thus performing in a realistic way, besides the cartoonist characters since the names of the components match the ones used within the actual work fields.

In matters of toys’ educating and scientific abilities combined with gender aspects, a study was conducted in 2005 (Blakemore & Centers), illustrating a pattern showing how neutral or moderately masculine - compared to those rated as moderately or strongly feminine - toys would be rated highest in stimulating intellectual and scientific skills (Ibid, p 629). It is worth acknowledging that the study was conducted with predominantly white and educated women as participants who rated the toys and thus not representative at all. (Blakemore & Centers 2005, p 625). However not representative, their findings still indicate how - within Western culture - stereotypes around specific educational or scientific skills could exist. As previously mentioned Colatrella (2011) also made a similar distinction between the toys (p 9).

GB as a toy brand seems to try to break with the assumption that engineering is only requiring objectivist rationality and mathematics which are typically, and wrongly we would argue, associated by only being masculine traits or for ‘men’ and feminity is associated with subjectivity and emotional connectedness (Faulkner 2001, p 85). Faulkner (ibid) argues, that these assumptions must be one of the reasons why girls and women hardly consider becoming engineers. Is the solution to follow along stereotypes and use pink, pastel and cute little animal figurines in order to get ‘girls’ to develop an interest in engineering? Or would a more gender-neutral presentation automatically make scientific themed toys more accessible for all children? Is GB really successful in changing the gender associations by presenting the toy in a domestic setting? The function of the toy is also to ‘help the animals spin around’ (GoldieBlox, 2017) and while being able to help others surely are good human traits it still falls under the pattern of “girls’ toys” being more nurturing while “boy’s toys” being

more action-packed and adventurous as described by Blakemore & Centers (2005). Another aspect of domestic setting being associated with women in regard to technology is in matters of power and hard versus soft science/technology (Faulkner, 2001). Hard technology is associated with various powerful institutions; space technology, weapons and industry and soft technology is the small-scale products typically seen in a household and by most people, Faulkner (2001) argues, not seen as 'real' technology (Faulkner 2001, p 85).

Minor Conclusions: All three toys are educational and somewhat represents, or imitates scientific fields. Where we identify an issue is through the misrepresentation in the way gender is portrayed in relation to science learning. Even though one should think that a science-related toy does not need to be gendered, this is the case. Doing so also changes the perception of the toy to one that favors the use of the toy more so by boys than girls.

Color

Another salient theme throughout our project is the prominence of color visuals throughout each toy ad. Color plays an important aspect when analyzing toys, because of its visually appealing affects through toy ads where the visual plays a crucial selling point. Colors have continually been connected to gender norms and stereotypes, creating dominant associations to what constitutes as "boy" and "girl". As put by Colatrella (2011), "(...) the toy industry depends on stereotypes (i.e., marketing demographics) distinguishing gender differences in consumers…" (9). However, the dependence on gender stereotypes has problematized the toy industry where "children's toys have reemerged as a moral battlefield" (Knudsen and Kuever, 2015, p 171). This moral battlefield is in response to the contemporary feminist discourse where toys are being critiqued based on their ability to progress the feminist agenda, rather than continuingly following along gender stereotypes.

The "moral battlefield" and dilemma in which the toy industry has been subjected to stems from a focus on the potential impact on childhood development (Knudsen and Kuever, 2015). To put it more specifically, toys such as LEGO's "(...) and other construction-build kits are often cited as instilling familiarity with physical concepts important for scientists and engineers" (Colatrella, 2011, p 9). The potential future impacts of the toys children play with has created the intensified discussion around colors, and the continual gender stereotyping of toys. According to Colatrella (2011), "Playing with toys is often connected with tinkering (taking apart and constructing) behaviors connected to

developing interest in technology. Many women and men who succeed in science, math, and engineering report that Legos and similar tinkering toys were foundational for them" (p 10).

GoldieBlox as a toy has done well for itself. It has become a nationally known toy; winning several awards such as "Best Toy of the Year" (GoldieBlox, 2017). However, a common critique of GB is its reliance on pink hues and pastel colors as a way to attract girls to the toy. This is similar to the critique on LEGO Friends who created a blatant change in color scheme from primary colors to feminized colors of pink and pastels (Knudsen and Kuever, 2015). It brought LEGO's down to the "pink ghetto" and "pink aisle" that has received increased negative attention (Knudsen and Kuever, 2015, p 178). The negative reactions have stemmed from beliefs that "females and feminine versions of science and technology appear always marginal, sometimes deviant, and often quirky," especially when associated to lighter colors, specifically pink hues (Colatrella, 2011, p 8). *Is GoldieBlox continuing gender stereotypes along negative lines with its dominant use of pink and pastel colors?*

This question, however, has another perspective that must be delved into. According to Knudsen and Kuever's (2015) study, LEGO toys evolved from a gender-neutral toy to that of being associated to girls only through the use of pink hues and pastel colors. LEGO Friends' toy development can be seen negatively in this way by posing that LEGO's are only interesting to girls if they are pink and pastel colored with girl characters (Knudsen and Kuever, 2015, p 178). This can be connected to GB as well. As mentioned above, the use of pink and pastel colors may be a form of connecting to girls by following along gender stereotypes and norms. However, it may also be a form of pink reclamation where girls are taking pride in their love for pink by also linking pink to the sciences, specifically engineering as the GB toy ad does throughout. Even with critiques, GB stands as the 'progressive' example between all three toy examples selected. There is a positive aspect to the claim that toys are continuously being based along gender norms and stereotypes, as seen in the three examples. A disruption of gender norms and stereotypes is being conducted through the GB reclamation of the color pink.

Minor Conclusion: The color theme relies upon the dichotomy that is created between primary and lighter/pastel colors, connecting the latter to describe female aspects, and the former to describe male aspects. The high use of pink and pastel colors within GB may be an attempt to connect to 'girls' or it could be seen as a reclamation of the color pink. However, it is uncertain if this would be perceived as such by the customers themselves.

CONCLUSION

While we cannot determine how traditional gender roles and stereotypes affect the presentation of science themed toys in general, our analysis reveals that gender norms and stereotypes are still highly relied upon in how toys are presented to children through advertisements and design of toys. The analysis reveals three distinct themes: gender performance, science aspects and color. Each can speak to various gendered aspects that supports our initial argument.

Two of the ads, BB and DL follows along traditional gender roles as our research question is based upon. The GB ad does so similarly, but differs in its creation of a varied form of femininity that can be considered 'tomboyish', and further breaking from gender norms.

All three toys are educational and somewhat represents, or imitates scientific fields. Where we identify an issue is through the misrepresentation in the way gender is portrayed in relation to science learning. The color theme relies upon the dichotomy that is created between primary and lighter/pastel colors, connecting the latter to describe female aspects, and the former to describe male aspects. The high use of pink and pastel colors within GB may be an attempt to connect to 'girls' or it could be seen as a reclamation of the color pink.

Further research could potentially include a diverse intersectional analysis, and investigating the possible impact binary gendered toys could have on gender nonconforming children. There is more to be analyzed and discovered in finding ways to break with toys, gender normativity and childhood development to create an equal scientific labor division.

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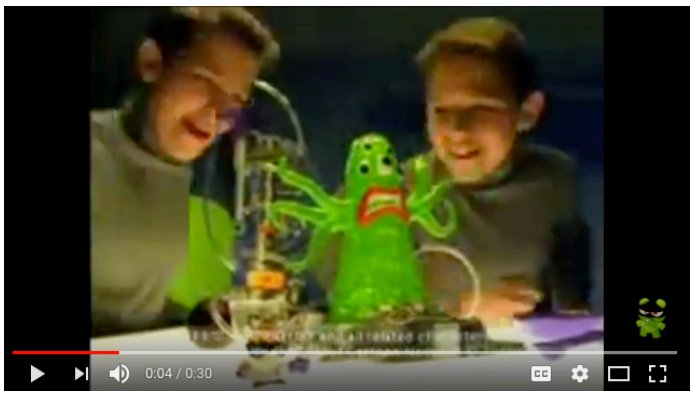
APPENDIX

1. Dexter's Laboratory 2001 (DL)

Dexter's Laboratory TV commercial for kids was made in the beginning of 2001. This commercial shows a toy for kids and the "learning" of science within making gummy brains and small drinking portions with sweats that is supposed to look like science liquid.

Link: https://www.youtube.com/watch?v=vaP6SFmugZ4



- Youngsters
- Two kids interacting with each other → Associating them as boys
- The boys have short hair - Brown hair
- Smiling and laughing together, making funny science-y sweets
- One boy standing on the left and the other on the right, association with friendship
- Having fun and playing with the toy
- Joyful
- There is an alien in the middle of the table surrounded by other small bits and bobs
- "Toys for boys"
- Masculinity → Boys
- Science machine
- Dark room
- Colors like: Red, green, blue, black, white, yellow, orange, brown
- White Table
- Communication with each other
- Performativity within interactions with the toy, between the two boys, communication?
- The same music throughout the whole commercial, Dexter laboratory themed music from Cartoon Network. The music is up tempo and very science-y.

- Toy in two large pieces in the middle of the table - Followed by small bits and pieces
- Skilled material, small pieces to handle with
- Colors like: Red, green, blue, black, white, yellow, orange, in contrast with each other
- Technology within the toys, science machine
- Funny and scary alien in a very specific green color associated with a toy for boys
- Two colored background, fading into each other: black and blue
- Tools with plastic spoon and plate, small, laboratory glasses, test tubes, pipettes to measure with
- The "Dexter's Laboratory" text in the end is designed in a fat font, very rough in black and green. Can associate with the words funny, scary and boyish
- All in all the commercial is very 90s with a lot of up close pictures of the boys, focus on the toy and not a "story" behind it.

Major themes found from the commercial: Masculinity, gender, science, technology, color, skills, performativity, communication

Masculinity

- Boys and men, how they interact with their machines and technologies

Gender

- I associate the gender as two boys playing with the toys. Can the toy also be for girls even if the colors are dark. Different color associations, "blue is for male, pink is for female"

Performativity

- How do the genders, boys communicate within language within technology, and what is there «matter» in this commercial?
- Expressing other types of feelings
- More action, funniness compared to girly commercial → More "clean", pink and no action

2. Bob The Builder 2007 (BB)

	• Two children in each side of the picture with the toy in the middle. The toy takes up most space. • Short haired kid (presumably a boy, masculine coding) to the left with checkered shirt in red/white/black colors. Asian. 4-6 years old. • Long haired kid (presumably a girl, feminine coding), apparently wearing a turquoise/white dress with puffed short sleeves. Caucasian white. 4-6 years old. • There is a dirt pile in front of the girl. Girl+dirt pile associations: a mole appearing from a molehill. Mole: often seen as pest animal, bad eyesight, aggressive, isolates themselves, good diggers. • Eye direction: girl -> boy -> toy. • **Mole + eye direction + gender roles association**: girl is a mole, who looks at the boy for guidance 'what to do next'. **Stereotyping**: girl needs boy to tell her what to do. Boy = 'leader' and more skilled. • **Stereotyping (other interpretation)**: girl in princess-like clothes (Disney's Cinderella) looks at her prince to save her. • femininity = passive, masculinity = active. • Asian stereotype: tech skilled, smart, geek, • Heterosexuality • Toy: see picture below. *Themes:* **masculinity/femininity (Pearse and Connell), gender roles, (performativity) stereotypes, race, colors, skills, construction**
	• Toy is displayed on some dirt-like ground. It appears to resemble a construction site with vehicles/machines etc. Colors of the toy is yellow, red, blue, gray, black. • Short haired kid on package, around 4 years old. Smiling. • Background on picture: metropolitan area, skyscrapers. Dirt. • Engineering

	• Working class

Themes and concepts from course:

Gender (Connell & Pearse, pp 96-103):

c&p provides critization of this notion; Sex roles: blue (demanding, rough) vs. pink (passive, compliant) babies.

- conveyed social norms or expectation. rewards when expectations/norms are met. (97) learning gender-appropriate behavior.

instead:

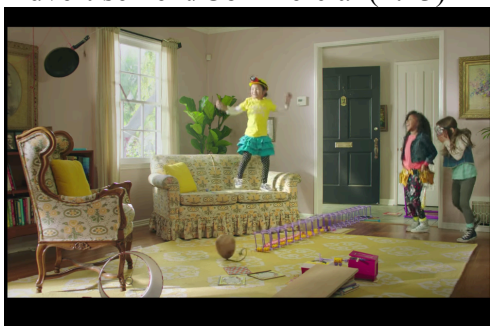
Gender: "A good account of how we acquire gender must recognize both the contradictions of development, and the fact that learners are active, not passive." (Connell & Pearse p.99) bodily pleasure, appearance and performance.

"(...) 'canonical narratives' of masculinity, i.e. a hegemonic pattern (an admired physical toughness, sport skills, heterosexuality). All boys acknowledge the hegemonic masculinity but most do not fully inhabit it. " (p 100)

Masculinity

- *Mellstrøm, U. (2004). Machines and Masculinities Subjectivity. Men and Masculinities, 6(4), pp.368- 382.*
- diversity between societies in construction of gender for men. multiple mascs within institution, peer group or workplace.(Connell Pearse 104)

3. GoldieBlox 2013 (GB)

Snapshot 1: Intro of Advertisement/Commercial (1:43)
 
	• Pink everywhere--pink tools, objects being used
	  ○ Blue and lilac are the secondary colors to pink being used
	• Domino effect--how objects are moving
	• Three, young-aged (from appearance) female-performing individuals of multiple racial backgrounds--what audience seems to have to assume
	• Performing behavior and movement as if they are happy and excited
	  ○ Jumping on couch; arms in the air
	  ○ Two girl-performing dancing beside the falling stick building
	  ○ All three smiling
	  ○ One wearing a tool belt around waist with tools in it
	  ○ One with scientific goggles on top of head
	  ○ Girl-performing individual on couch has yellow helmet with flashlight strapped on head
	  ○ Each has bright colored shirts--yellow, pink and turquoise

	○ Two female-performing characters are wearing pants and the third is wearing a skirt and pants/leggings ○ Each of the three are wearing sneakers-converse • Entire introduction is an ongoing science project, unraveling throughout and outside the house • Neutral colored room--beige walls, pale yellow couch, carpet, pillows • Upbeat music being played of what sounds like a xylophone • Didn't realize until watching entire commercial to the end, that the tumbled wall structure on floor is the toy itself being used ○ Toys is multiple building parts of lilac and yellow • Cooking pan being held by pink string along wall
Snapshot 2: Selling point of Ad/Commercial (1:57)  	• "Toys for future engineers" is the slogan, and assumed catchphrase • Main character is female-performing individual with blonde hair and fair-colored skin ○ smiling ○ Assumed dog character is the secondary character • Various pink hues are the primary colors • "Ages 4-9" written on front of box • "Engineering concept" written on front of box • Assumed toy is laid out in front of toy box ○ Made of light blue, pink, yellow, and purple colors ○ Multiple toy characters are included--assumed to be: dog, bear, koala, cat, dolphin dressed as ballerina ▪ Some are wearing clothing • Word "engineer" used twice in this image • Assumed book placed next to assumed toy box and the toy itself

About GoldieBlox: (from YouTube video description, 2013): "We're GoldieBlox, a toy company out to show the world that girls deserve more choices than dolls and princesses. We believe that femininity is strong and girls will build the future — literally"

Themes:

- Gender nonconforming behavior (gender performativity)-- the three girls in commercial seem to be displaying behaviors that could be considered 'tomboyish'--playing with tools, goggles, etc. things that are usually considered things for 'boys'.

    - Femininity- by being gender nonconforming, what does femininity turn into? How are societal ideals of femininity being upheld and/or confronted?
- Color--everything was so brightly colored throughout ad. Pink was used a lot--almost too much. Is there a hidden message there? Reclamation of color pink?
- building/construction (science)--everything either directly related or somewhat related to the idea of construction building. Girls have tools typically found from construction sites. The entire commercial was also centered around the construction that was assumed to be the 3 girl's creation.

Ideas after Observations:

- Reclaiming pink?--literature links pink as the color that is most associated to "girl" and "female-esque" toys, but this commercial seems to be over-using pink hues, and other girl-associated colors as a form of reclamation.
- If could use a third snapshot, the opening scene would be a great choice. The three 'girls' seem to be bored of the usual girl-toys shown on the TV, and jump with excitement when the GoldieBlox toy shows up, sparking the domino-effect construction.
- Important that the toy box itself claims itself as part of the engineering field with "engineering concept" written, as well as part of the slogan/catchphrase "toys for future engineers". *How important is this detail?*

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