UNEQUAL
STORIES

Brief & toolkit.

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A note to educators and facilitators

This brief and toolkit has been designed to be as open and flexible as possible. It can be run as a design sprint across 4-days or as a longer brief over 4-weeks (or any variation thereof). It seeks to allow for a range of responses and approaches, suited to the varying needs and schedules of each institution, department or module. It also allows for educators and students to pursue cross and transdisciplinary work, as well as group or individual projects.

While the lecture series introduces two kinds of critical design practice, students are equally encouraged to draw on alternative methods and approaches (including discursive design, adversarial design, interrogative design etc.).

Ultimately, it is hoped, students and educators will be able to share their findings, insights and responses as a way of enabling discussion around gender inequality in the design disciplines from a cross-national and cross-disciplinary perspective towards addressing Industry bias.

In 2018 the UK's design workforce comprised a 78:22 gender split (male to female), with Industrial Design showing the greatest disparity with a 95:5 gender split. This in comparison to a 53:47 gender split of the wider UK workforce.

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Background to the project

Unequal Stories is a collaborative, GCRF funded research project between Falmouth University, United Kingdom (UK), and the University of Johannesburg, South Africa (RSA).

Guided by Sustainable Development Goal #5 (gender equality), this cross-national (RSA & UK) comparative research project aims to explore gender diversity, equality and representation across various design disciplines (industrial design, fashion design, graphic design, etc.) within Higher Education (HE) and Industry.[1]

The objectives of the project are as follows:

1. Assess gender diversity, equality and representation across different creative disciplines in HE and Industry in the UK and RSA.

2. Explore attitudes and perceptions towards gender across different creative disciplines in HE and Industry in the UK and RSA.

3. Identify themes and insights pointing to potential problems or opportunities.

4. Compare and contrast the findings cross-culturally.

5. Respond to the findings through a pedagogic and/or Industry intervention/s.

The project was prompted by an analysis of statistical data around gender and diversity in design disciplines. For example, a recent study by the British Design Council (2018) identified that while 63% of all UK Art and Design graduates are female, the UK's design workforce comprises of a 78:22 gender split (male to female), in comparison to the 53:47 gender split of the wider UK workforce. These statistics were influenced by the extreme gender imbalances in the disciplines of Architecture, multimedia and Industrial design. Similar statistics have been identified in other countries including Australia and the United States. While some quantitative data of this nature from South Africa is available, it is significantly outdated (2008).

While the data indicate that there are systemic issues impacting gender equality in design industries, it does little to shed light on *why* this is the case. By conducting a **narrative inquiry** around attitudes and perceptions of gender by participants currently studying towards a qualification in a design discipline, and participants with design industry experience, it is hoped that the stories will reveal some of the core issues impacting equality and in the design industries.

This narrative data will be gathered and shared via two methods on the Unequal Stories platform:

1. The website will be shared with designers in both Industry and HE. Participants will be asked to share their stories anonymously. This data will then be mapped on the website through data visualisation which will allow users to compare and contrast the stories according to tag, location and discipline.

2. Students from design departments in RSA and the UK will uncover and share further insights cross-nationally using the Unequal Stories brief and toolkit. They will be asked to respond to the data using a critical design approach, the outcomes of which will be shared and showcased in an online gallery.

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[1] Critically, Unequal Stories is intended as a prototype for a larger study which will seek to investigate the broader spectrum of intersectional issues at play in the creative industries including race, class, gender identity, sexual orientation, and religion.

03

Project Framework

Ethnographic research

As research that is qualitative in nature, ethnographic research is a method of inquiry that seeks to investigate society through an examination of human, interpersonal, social and cultural aspects. A fundamental criterion of ethnographic research is how the **researcher interacts or observes the study's participants** within their real-life environment. In relation to design, an ethnographic method of inquiry is often employed within the field of Human-Centred Design (HCD). Therefore, this approach requires the researcher to play an active role as a participating observer in the research as opposed to being a non-participating observer.

Critical Design

Broadly speaking critical design refers to a kind of design practice that seeks to use critical and/ or fictive design to **increase awareness of social, cultural, philosophical or ethical issues and bring these into an everyday context in a novel yet accessible way**.

Two kinds of critical design practice will be introduced through the Unequal Stories lecture series. These are

1. **Speculative Design**
2. **Afrofuturism**

1. Speculative Design

Speculative design borrows practical methods from industrial design, graphic design, fashion design to propose and materialize alternative futures. By doing so, it allows us to speculate *'What if?"* Rather than engaging only with a future that we desire, the approach also deals with the future we fear might come true if we fail to critically consider our current social, political and ecological situations. By doing so speculative design opens up space to raise awareness, question, provoke action, open discussions, and offer alternatives.

Critically, speculative design:

1. Moves away from the constraints of commercial practice (as directed by the market);

2. Speculates on future products, services, systems and worlds, thus reflectively examining the role and impact of new technologies on everyday life;

3. Seeks to initiate dialogue between separate arenas (in this case HE and Industry)

4. Refuses to legitimize the status quo, rather envisaging, anticipating and reimagining the future [2]

The following table[3] highlights the difference between traditional design and speculative design:

[2] Auger, J. 2013. Speculative Design: Crafting the Speculation. Digital Creativity. 24. DOI: https://doi.org/10.1080/14626268.2013.767276
Woodrow W. W. 2018. Afrofuturism, inclusion, and the design imagination. Interactions 25, 2 (March-April 2018), 41–45. DOI:https://doi.org/10.1145/3182655
[3] Dunne, A & Raby, F. 2014. Speculative everything: design, fiction, and social dreaming. London: MIT.

2. Afrofuturism

Although the term was first coined by the critic Mark Dery to describe 'Speculative fiction that treats African-American themes and addresses concerns in the context of twentieth century technoculture',

Afrofuturism has been used, if only as a reference point, to describe a range of media, genres, aesthetics and philosophies. Regardless of application, at its core is an intentional imagining of new types of futures which not only centre Black people but tend to incorporate Africanist philosophies, modes of production and aesthetics from before European colonisation.

The term is not without its limitations nor has it gone without criticism, particularly for usage with regards to any speculative Black practice regardless of origin or nationality. Nonetheless in many ways has shown itself to be as malleable and resilient framing which remains crucial for understanding not only contemporary Black futurism but also a 'Black artistic matrix and practice [that]... can be traced back over 100 years', to paraphrase Reynaldo Anderson in his introduction to 'Afrofuturism 2.0 - the rise of Astro-Blackness'.

The following table[3] highlights the difference between traditional design and speculative design:

Traditional Design	Speculative Design
1. Affirmative	1. Critical
2. Problem solving	2. Problem finding
3. Provides answers	3. Asks questions
4. Design for production	4. Design for debate
5. Design as solution	5. Design as medium
6. In the service of industry	6. In the service of society
7. Fictional functions	7. Functional fictions
8. For how the world is	8. For how the world could be
9. Change the world to suit us	9. Change us to suit the world
10. Science fiction	10. Social fiction
11. Futures	11. Parallel worlds
12. The "real" real	12. The "unreal" real
13. Narratives of production	13. Narratives of consumption
14. Applications	14. Implications
15. Fun	15. Humour
16. Innovation	16. Provocation
17. Concept design	17. Conceptual design
18. Consumer	18. Citizen
19. Makes us buy	19. Makes us think
20. Ergonomics	20. Rhetoric
21. User-friendliness	21. Ethics
22. Process	22. Authorship

" As a female it is very hard to express yourself in the architecture department. You feel undermined and looked down on. This damages one's confidence so much because you start questioning your abilities. "

Female, Johannesburg. 23

04

Project
Framework

Following the lecture series and a close reading of the literature in the reading pack, students from design departments in the UK and South Africa are invited to:

1. Use **ethnographic methodologies** to deepen their understanding of gender equality within their design disciplines through interviews and conversations with peers and those working in Industry.

2. **Analyse and compare** the data cross-nationally

3. Use a critical design approach to **respond** to the data

4. **Share** and showcase these outcomes via an online gallery on the Unequal Stories website.

Critically, as potentially sensitive stories are involved, the work needs to be done with significance, thought and dignity.
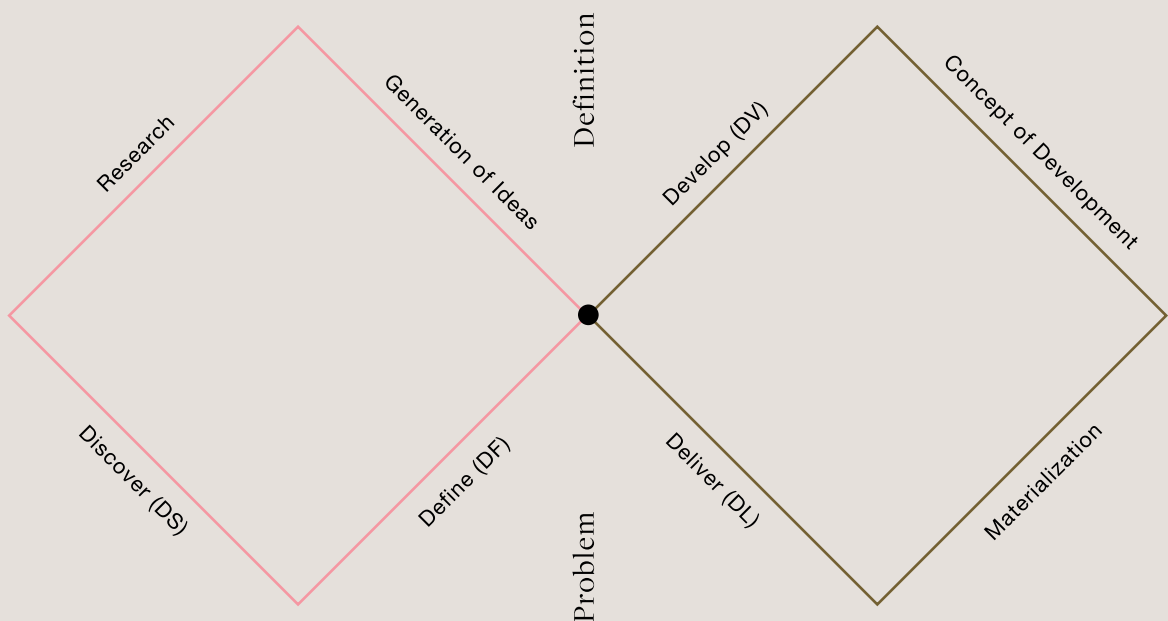
05

Design process & project schedule

Every design discipline has unique approaches and ways of working, however, there are some activities common to all designers. The Design Council has developed the '**Double Diamond**' model to represent this.[4] Divided into four distinct phases: **Discover, Define, Develop and Deliver**, it maps how the design process passes from points where thinking and possibilities are as broad as possible to situations where they are deliberately narrowed down and focused on distinct objectives.

This project is structured according to these four phases:

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[4] What is the framework for innovation? Design Council's evolved Double Diamond. 2019. Retrieved August 19 2020 from https://www.designcouncil.org.uk/news-opinion/what-framework-innovation-design-councils-evolved-double-diamond

Phase 1: Discover

The first quarter represents the start of the project and a period of discovery. Following an **ethnographic approach**, students are expected to gather insights via interviews with peers and designers in Industry and develop an opinion about what they discover, deciding what the critical insights are, and what will inspire change.

Specific methods include:

1. Exploring the Unequal Stories website.

2. Studying the reading pack

3. Watching the asynchronous lectures

4. Conducting further desk research

5. Reaching out to peers and Industry in their specific field to gather further insights

Phase 2: Define

The second quarter represents the Definition phase, where students will try to make sense of all the possibilities identified in the Discover phase. By analysing and comparing the data, students should answer the questions: *What matters most? What should we act on first?* The goal is to develop a clear critical design brief that frames these fundamental issues via a *'What if…?'* approach. A **brief template** is included in the reading pack to assist students in writing this up.

Phase 3: Develop

The third quarter marks a period of development where critical design responses are **imagined, conceptualised, prototyped, tested and iterated**. Key activities and objectives during the Develop phase are brainstorming, prototyping, experimenting, multi-disciplinary working, visual design, testing.

Phase 4: Deliver

The final quarter of the Double Diamond model is the Deliver phase where the resulting design idea is realised. As a transdisciplinary project, this could include any number of design outcomes such as photographs, 3D objects, publications, concept drawings, and/or videos.

Deliverables:

Once complete each team/student should **upload** their images or videos to the Unequal Stories gallery along with a description of their response.

"In jewellery, it's all about the skill and the effort you put in. Gender takes a back seat."

Female, Johannesburg. 23
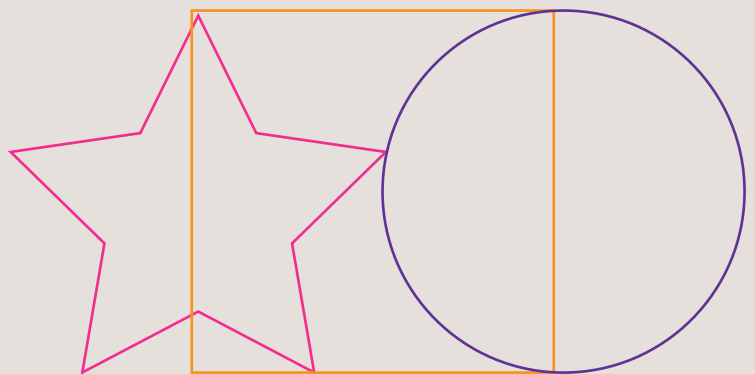
06

Links to asynchronous lectures

- º Lecture 1: Context and background (10 mins)

- º Lecture 2: Gender in design (20 mins)

- º Lecture 3: Critical design, speculative futures (30 mins)

- º Lecture 4: Afrofuturism as a philosophy of critical design (30 mins)

07

Reading pack:

Reading 1

'THE PRETTY STUFF'

Gender bias and the future of design knowledge in the South African industrial design context

Ashton Moseley & Angus Donald Campbell

Reading 2

'IT'S JUST A VERY MALE INDUSTRY':

Gender and work in UK design agencies

Suzanne Reimer

Reading 3

JOURNEY TO ETHNOGRAPHIC RESEARCH

Leah Shagrir

Reading 4

AFROFUTURISM, INCLUSION, AND THE DESIGN IMAGINATION

Woodrow W. Winchester III
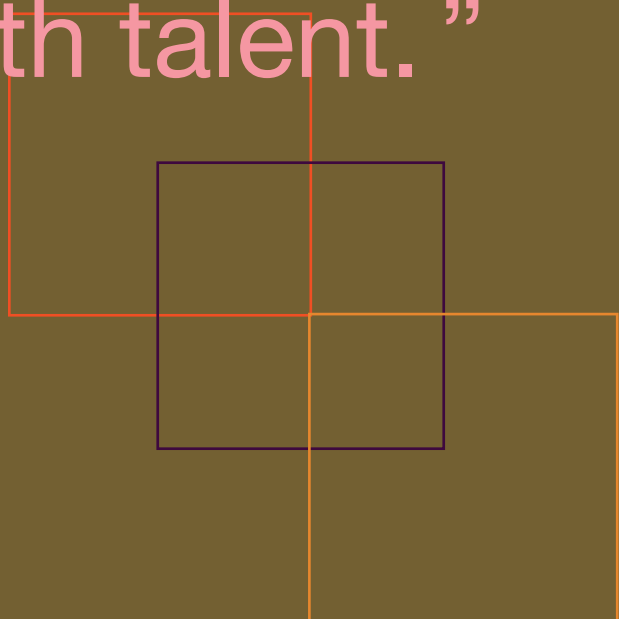
Reading 5

INTRODUCTION TO SPECULATIVE DESIGN PRACTICE

Ivica Mitrović

" I believe in meritocracy. If people want to be sexist it's bad for business because they are restricting themselves from working with talent. "

Female, Falmouth. 26

o8

Further resources

Gender in Design:

Journal articles(s)

THE CREATIVE OTHER:

Marginalization of and from the Creative Industries

Linda Leung

GENDERED BY DESIGN:

How women's place in design is still defined by gender

Sue Clegg and Wendy Mayfield

GENDER INEQUALITY?

Are the roles of women and men the same in graphic design?

Lea Dieterle

SISTERS ARE DOING IT FOR THEMSELVES?

Exploring gender in Irish product design

Muireann McMahon and Louise Kiernan

WOMEN'S EXPERIENCE OF INDUSTRIAL DESIGN EDUCATION

What worked, what didn't and where to in the future

Cathy Lockhart and Evonne Miller

Book(s) / Chapter(s)

INVISIBLE WOMEN

Caroline Criado-Perez

Report(s)

Design Economy 2018

Gender gaps in the Cultural and Creative Sectors

IDA World Design Survey Pilot Project South African findings

Other

IF WE WANT DESIGN TO BE A TOOL FOR LIBERATION, WE'LL NEED MORE THAN GOOD INTENTIONS

Design Justice Network

WOMEN MAKE UP OVER HALF THE DESIGN INDUSTRY —SO WHY ARE THERE SO FEW AT THE TOP?

Laura Bolt

WE SURVEYED GENDER REPRESENTATION AT DESIGN CONFERENCES AGAIN—AND NOT MUCH HAS CHANGED

Eye

Ethnographic Research

Book(s) / Chapter(s)

JOURNEY TO ETHNOGRAPHIC
RESEARCH

L. Shagrir

Other

WHEN AND HOW TO USE
ETHNOGRAPHIC RESEARCH

Speculative Design (SD)

Journal articles(s)

FCJ-142 Spectacles and Tropes

Carl di Salvo

PRIVILEGE AND OPPRESSION

Towards a Feminist Speculative Design

Luiza Prado de O. Martins

SPECULATIVE DESIGN

Crafting the speculation

James Auger

Book(s) / Chapter(s)

SPECULATIVE EVERYTHING

Anthony Dunne and Fiona Raby

Other

ON SPECULATIVE DESIGN

Benjamin H. Bratton

SPECULATIVE EDU

SPECULATIVE

THE RADICAL DESIGN MOVEMENT

Michael Smith

Designers / Practitioner(s)

Dunne & Raby
Agi Haines
Auger Loizeau
Daisy Ginsberg
Marguerite Humeau

Afrofuturism

Journal articles(s)

AFROFUTURISM AS CRITICAL
CONSTRUCTIONIST DESIGN

Building futures from the past and present

Nathan Holbert

WHAT IS AT STAKE WITH
DECOLONIZING DESIGN?

A Roundtable

Tristan Schultz (et al)

Book(s) / Chapter(s)

BLACK TO THE FUTURE

Mark Dery (ed)

AFROFUTURISM 2.0 & THE BLACK
SPECULATIVE ART MOVEMENT

Reynaldo Anderson

Other

AFROFUTURISM IS "CREATING A DIFFERENT
NARRATIVE FOR AFRICA" SAY CREATIVES

Amy Freaeson

AFROFUTURISM

Sunu Gonera

SPECULATIVE DESIGN

Afrofuturist and indigenous projections

Designers / Practitioner(s)

Mass Design Group
Cyrus Kabiru
Osborne Macharia
Afro Futures UK
Nano Supermarket (Various)

Brief Name

It's important to note this is only meant as a guide; feel free to delete/edit as necessary.

Background

This section provides an overview of the Unequal Stories project, and then contextualise your response to it. This should include an analysis of your specific region (UK/RSA and City), field of design (Graphic Design, Architecture, Industrial Design etc.), its past and current relationship to (gender) equality, and key research you have conducted in the area.

Consider: **Who**, **What**, **When**, **Where**, and **Why?**

Key Insights

This section summarises key findings from your research and data gathering.

_____

_____

_____

_____

What if...? Or How might we...

Based on your background and key insights, this section asks that you propose a **critical design question** that will frame your project.

This could be written as a 'What if….?' **or** 'How might we…?' question. For example:

'Given the gender data gap in Industrial Design, **what if** products (such as Crash Test Dummies) continue to be designed for male bodies?'

Or

'**How might we** challenge (celebrate/provoke/highlight/refuse/refute…) current gender stereotypes around 'The Creative Director' in popular culture?

Try and keep your question as narrow and focused as possible: "How might we challenge gender bias?" is too broad while "How might we create more women-centric shop floor for the product design agency DesignIt" is a more appropriately-scoped question.

_____

_____

_____

_____

Aims and objectives

Use this section to detail the objectives you want to achieve by the end of your project. What do you hope to change or want to challenge?

1. _____
2. _____
3. _____
4. _____

Target Audience

This section defines who your project is aimed at. Again, specificity is important – don't try to reach everyone. Your target market could include, for example your department, Or your peers, Or specific industry leaders, Or oversight organisations, Or particular agencies/firms etc.

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_____

_____

_____

Single Message

Use this section to define your single message. What is single thing you want to convey through your design? Keep coming back to this.

_____

_____

_____

_____

Timeline

Use this section to work out your timeline according to the 4 phases to ensure you stay on track.

Discover	00/00/0000 to 00/00/0000.
Define	00/00/0000 - 00/00/0000
Develop	00/00/0000 - 00/00/0000
Deliver	00/00/0000 - 00/00/0000.

Budget

Use this section to work out a budget. This is particularly helpful if you are working on this project as a group. Remember, sometimes a small budget (or no budget!) can lead to exciting results.
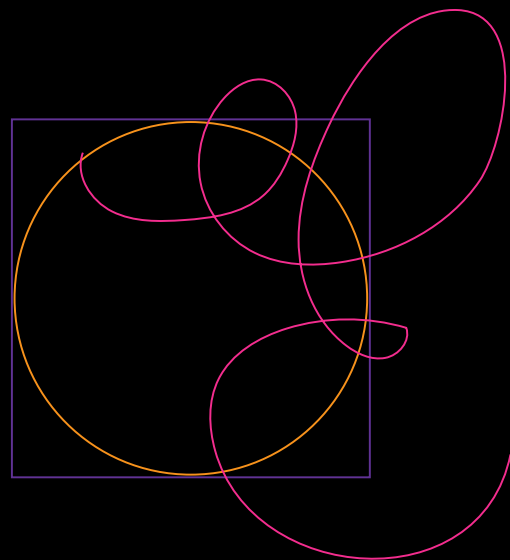
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_____

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_____

Brief Name

_____

_____

_____

_____

Deliverables

At the end of the **Develop phase**, you will be able to detail your deliverables here:

_____

_____

_____

_____

" I felt very much obliged just to put up with it for the sake of gaining experience - but really I was excluded from most learning opportunities."

Female, Brighton. 24

Designed Futures

Design educators interrogating the future of design knowledge, research and education.

'The Pretty Stuff': Gender bias and the future of design knowledge in the South African industrial design context

Ashton Margarete Moseley & Angus Donald Campbell

'It's just a very male industry': gender and work in UK design agencies

Suzanne Reimer

Routledge
Taylor & Francis Group

OPEN ACCESS

'It's just a very male industry': gender and work in UK design agencies*

Suzanne Reimer

Geography and Environment, University of Southampton, Southampton, UK

ABSTRACT

The article focuses upon gender divisions of labour in the UK design sector as a means of highlighting a relatively understudied segment of the creative industries. Drawing upon a wider study of design consultancy firms across London, Birmingham, Manchester and Newcastle, it considers how configurations of gender division are bound up with everyday representations of design labour. The article reveals how associations between craft, skill and masculinity appear, and are reinforced in design practice. It also points to the ways in which design work is valorised within and through constructed geographies of difference between London and the regions, emphasising that hegemonic masculinities are reinforced and reproduced in reference to understandings of activities in place.

'Es que es una industria muy de hombres': género y trabajo en las agencias de diseño en el Reino Unido'

RESUMEN

El artículo se centra en las divisiones de género laborales en el sector de diseño del Reino Unido como medio para destacar un segmento relativamente poco estudiado de las industrias creativas. Basándose en un estudio más amplio de las firmas consultoras en Londres, Birmingham, Manchester y Newcastle, considera cómo las configuraciones de la división de género están estrechamente relacionadas con las representaciones cotidianas del trabajo del diseño. El artículo revela cómo las asociaciones entre el arte, la habilidad y la masculinidad surgen y se refuerzan en la práctica del diseño. También señala las formas en que el trabajo de diseño es valorado dentro y a través de las geografías construidas de las diferencias entre Londres y las regiones, enfatizando que las masculinidades hegemónicas son reforzadas y reproducidas en referencia a las formas de entender las actividades en el lugar.

这是一个非常男性的产业': 英国设计公司中的性别与工作

摘要

本文聚焦英国设计部门的劳动性别分工，作为凸显创意产业中相对较少受到研究的部分之方法。本文运用针对伦敦、伯明翰、曼彻斯特与纽卡斯尔的设计咨询公司所进行之广泛研究，考量性别分工的结构，如何与设计劳动的每日再现密切相关。本文揭露工艺、技术与男子气概之间的联结，如何在设计实践中展现并强化。本文同时指出，设计工作如何透过建构伦敦和其他区域之间的差异地理，从而获得稳定，并强调关乎理解适切活动的霸权男子气概之强化与再生产。

CONTACT Suzanne Reimer ✉ s.reimer@soton.ac.uk

*Please note that whilst the research on which the paper was based was conducted as a team, this paper was individually authored; and the co-researchers have agreed to this sole authorship.

Introduction

Design as an industry and as a profession remains a relatively understudied segment of the creative and cultural industries. Through design, the creative process is registered via the production of objects, images, packaging or interiors: design 'bridges the concerns of aesthetics, manufacturing, purchasing and use … in complex ways' (Sparke 2009, 10). This cross-cutting of art, aesthetics and commerce places distinctive demands upon designers, requiring that workers display and develop an array of skills associated with artistry, creativity and craft as well as managing relationships with those who procure design expertise, either within the context of an 'in-house' design team or by clients contracting for design services. It should be obvious that acknowledging sociocultural constructions of skill, craft and creativity is fundamental to understanding the working lives of designers, and that it is vital to attend to the power relations which create sharp patterns of labour market exclusion and division in the design sector. Marginalisation is constructed through cross-cutting dynamics of sexism, racism and discrimination by age and sexuality: the UK design profession remains distinctively white and male-dominated (Design Council 2005, 2010; Allen 2013). At the same time, gendered norms in the design industry appear almost taken for granted, not least by those who work within it. A female interviewee working for a London design consultancy firm, for example, shrugged her shoulders as she reflected: 'it's just a very male industry'.

The aim of this article is to understand the specific ways in which naturalised gender inequalities in design emerge and are reinforced, drawing upon a broader UK-based study of design agencies, or design consultancy firms, within London and three regional cities, Birmingham, Manchester and Newcastle. The study sought to capture the diversity of the sector, encompassing graphic design and branding as well as exhibition, interior and product design.[1] I begin by drawing together important points of feminist critique in order to challenge continued silences about gendered power relations in design and the creative industries; and to contest accounts that assume gender-neutral, generic subjects, practices and social relations. Following an overview of the wider project on UK consultancy firms, my discussion explores everyday understandings of design labour. The article then investigates distinctive constructions of design as a form of craft, requiring specifically valued skills; and finally reflects upon the ways in which hegemonic masculinity – that is, a form of masculinity which is 'most highly valued, legitimated, and respected in society' and which works to 'disempower women and to subordinate other men' (Bain 2009, 486) – is reproduced within and through the spaces and places of the UK design sector.

Understanding gender divisions in design

Given the distinctive nature of design, foregrounding the ways in which division and exclusion operate demands a careful assemblage of critique across an array of disciplinary and sub-disciplinary areas. Three key points of engagement are necessary for a developed feminist perspective on design. First, critical accounts of *creative work and creative labour* emerging from feminist sociology and cultural economy draw attention to workers themselves, rather than a potentially disembodied 'creative class' that has been the focus of much discussion. Such foregrounding not only of labour market insecurity, low levels of pay, a lack of career progression and pay (Gill 2002, 2009, 2010; McRobbie 2002, 2009; Oakley 2004, 2006, 2009; Ross 2008) but also clear patterns of gendered, racialised and classed inequality (Parker 2008; Negrey and Rausch 2009; Comunian, Faggian, and Li 2010; Leslie and Catungal 2012) stands in sharp contrast to a dominant geographical literature which has conceptually disregarded labour market exclusions. Despite the fact that advertising, design and architecture (for example) remain highly male-dominated sectors, they often continue to be evaluated using theoretical frameworks that rest upon gender-neutral understandings of learning, knowledge creation/exchange and indeed social interaction.[2]

Second, feminist challenges to a prevailing body of work within economic geography on *innovation, entrepreneurship and networks* are crucial to illuminate gendered power relations in design. Design often has been viewed as a key source of innovation (Vinodrai, Gertler, and Lambert 2007; Vinodrai 2013; Leavy 2010), potentially promoting the competitive advantage of nations, cities or regions

(Bell and Jayne 2003; Bakhshi, McVittie, and Simmie 2008). Design also can be cast as entrepreneurial, in the sense that a large share of activity takes place within relatively small design consultancy firms operating across competitive environments of relatively rapid growth, dissolution and re-formation.

Analysts of innovation have emphasised its assemblage across a range of sites and spatial scales rather than being located solely within firms or individuals; and have foregrounded the importance of relational networks (Bunnell and Coe 2001; Amin and Cohendet 2004; Grabher and Ibert 2006). However despite the potential for attention to the socio-economic context of knowledge flows and exchange, dominant accounts have paid scant attention to gendered power relations within and across networks. As James (2014, 2) has emphasised, assessments of knowledge transfer amongst highly qualified workers, for example, commonly assume a genderless employee: 'workers' either have been viewed as generic and/or more general claims have been made on the basis of studies of male workers alone. Similarly, the subjects of entrepreneurship and innovation often are presented as largely gender-neutral (Blake and Hanson 2005; Hanson and Blake 2009; Ranga and Etzkowitz 2010). Such (mis)understandings make it difficult to foreground the sharp patterns of labour market exclusion and division (Oakley 2006, 265) that emerge as a result of unequal access to the social networks which commonly determine entry into and advancement within design.

Third, feminist work on *creativity, design and craft* assists in unpicking the ways in which design as a practice has been – and often continues to be – imbued with particular social constructions of masculinity (Bruce 1985; Lewis and Bruce 1989; Bruce and Lewis 1990; Allen 2013). Design skills often are naturalised; and in arenas where bodily ability is perceived to form a central part of skill, the potential aptitude of different bodies can be evaluated unequally. For example, in product design, the capacity to construct a physical prototype, to manipulate materials or even to use a hammer is often coded as essentially masculine, and a stereotyped separation of gender boundaries emerges (Clegg and Mayfield 1999). Further, as Parker (2008, 218) has emphasised, 'qualities such as creativity and talent are socially constructed characteristics often associated with privileged masculinity'. Attention to gender divisions is vital in order to understand the valorisation of certain types of knowledge and skill. It is highly ironic, for example, that conceptualisation of a mechanism such as tacit knowledge – which implicitly involves *doing* or *being there* (Gertler 2003) – is so effectively *dis*embodied when a worker's gender is overlooked (see James 2014, 3). We need to reflect further upon how the idea of tacit knowledge itself – particularly to when it is associated with certain types of manual skill – may be implicitly coded as male.[3]

Design workplaces are distinctive in that they are strongly infused with masculinist assumptions bound up with ideas of 'craft', 'skill' and 'creativity'. The consistent connections between masculinity and craft as yet remain relatively understudied – despite implicitly gendered understandings of 'the craftsman' (Sennett 2009; Frayling 2011).[4] Although artisanal craft skills (see Yanagisako 2002; Herzfeld 2003) might be seen to derive from innate ability or inherent bodily proficiency – and most commonly masculine/feminine dualisms are evoked – the gender coding of technical competences in design also has emerged at different points in history through everyday practices of exclusion (Callen 1980; Bruce 1985; Clegg and Mayfield 1999).

The research: the UK design sector

The wider research on which this article is based was carried out between 2005 and 2008 in London and three regional cities (Birmingham, Manchester and Newcastle), and involved 100 interviewees in 98 firms (two were joint interviews). Design firms were selected for interview in a stratified way to capture processes across a range of agency sizes and design specialisations: ultimately, firm type was prioritised over, for example, the age, gender or ethnicity of respondents.[5] A central focus was to survey the relationship between London and secondary regional centres, including a consideration of the capacities for design firms outside London to attract new clients, to thrive; and to maintain profit margins. The capital retains a significant share of all design businesses (including consultancies, in-house teams and freelancers); and the largest, longest-established and most globally oriented firms are located in London (Design Council 2005).

Because of the broader project's interest in firms and firm architectures, senior managers or directors were targeted for interview. Not surprisingly, this group was predominantly male: of 100 respondents, only 16 were women. Whilst the wider research thus prioritised the voices of a particular segment of the design labour force, a feminist analysis of this material does provide an opportunity to illuminate at least some of the ways in which masculinist power structures feed through to create sharp gender divisions in design.

Secondary data sources reveal considerable evidence of gender divisions in design. The Design Council (2005, 10) reported that 61% of designers and 79% of freelancers were men, whilst a follow-up study recorded that 60% of designers were male (Design Council 2010, 3).[6] Gender imbalances are more substantial when design career trajectories are considered. Labour Force Survey data analysed by the Design Council (2005), for example, excludes design directors and managers – levels at which men predominate. A 2007 survey recorded that across all age groups 56% of designers were male, and that 64% of designers over age 35 were male (Billings 2007). Further, gender inequality can be stark between firms: the Design Council (2005) found that 46% of design consultancies were *all-male*.

Such visible patterns of gender inequality in design has shaped industry debate about 'gender bias' ("Focus on Gender Bias" 2006) and an absence of female design directors ("Women Can Make It" 2008; "It's the 21st Century" 2009; (see also "Parliamentary Group Addresses" 2006; "Voxpop: Women in Design" 2006; Billings 2007). As a function of a broader paucity of national-level data on design (see also Reimer, Pinch, and Sunley 2008), salary statistics are virtually absent, with little information about gender divides. Industry surveys have noted that creative directors' salaries typically are three times that of 'junior' designers and managing directors close to five times (Richardson 2009) which in conjunction with the workplace hierarchy noted above, contributes to a gendered pay gap (see also Harvey and Blackwell 1999).[7]

Moving beyond the broad sectoral contours of gender division, the article now turns to examine some of the ways in which design consultancy interviewees articulated and rehearsed assumptions about gender. I then reflect upon presumptions about the skills and qualities of designers which derive from distinctive constructions of design as a craft. Finally, to the extent that practices of hegemonic masculinity (Connell and Messerschmidt 2005; Bain 2009) are evident within design, I consider how we might understand the operation of exclusionary structures and practices through space and place (Berg and Longhurst 2003; Hopkins and Noble 2009). I follow feminist scholars who have understood hegemonic masculinity as underpinned 'through everyday social interactions' (McDowell 2000, 396 in reference to Mac an Ghaill 1996; see also Sang, Dainty, and Ison 2014).

Everyday representations of design labour

There is an enduring discourse in which the designer is normalised as male. Design 'teams' are referred to as 'the guys' and small firms as (for example) 'three-man' businesses. Typically, agencies are set up by one or two designers – often titled 'directors' or 'partners' – who own the firm and supervise the work of a small team of designers, in an arrangement not dissimilar to an artisanal workshop headed by a master craftsman. The sharp hierarchy of a small firm 'workshop' context, in which an owner/manager holds power and control, directly contributes to gender inequalities. Design jobs are conventionally advertised in the trade press as 'junior','middleweight' and 'senior' – with the gendered inference of the boxing analogy going entirely unremarked.

As a means of opening up discussions about design knowledge, as well as the labour force and recruitment, interviewees were asked 'what makes a good designer?' In response, 'the designer' repeatedly and routinely was gendered as male:

> you can get the brightest guy in the world, but if he isn't really interested or his attitude is not really focussed and he hasn't got any ambition, then you're not going to get out of him what you really need …. (managing director, male, Newcastle, product design)

The discussion implies that a senior manager's role is to encourage the development of personal 'ambition' as well as to extract ('get out') particular forms of labour from employees. The inferred power

relations are resonant with historic forms of workshop organisation reliant on (characteristically male) authority over a younger apprentice.

In a London branding firm, the male chief executive implied that a 'perfect' designer would have developed experience and expertise under tutelage, but yet still remain part of a youthful scene:

> My perfect employee designer would be 32 years old, just young enough that he's still doing the scene, but old enough that he's actually got the wisdom to interpret it, and do something really, really great.

Here age and gender intersect as the interviewee underscores the desirability of a distinctive form of youthful sociability amongst his workforce. The unreflective gendering of the designer, 'he', acts at least in part to characterise 'the scene' as a masculinised space.

Other interviewees explicitly emphasised the importance of (male) relationship in design. Interviewees commonly reported that client relationships were more important than inter-firm sociality, and a good designer was seen to be 'one who thinks about his customer and the audience' (design manager, male, Birmingham, branding). Crucially, however, the client also frequently was gendered as male:

> I think a good designer's one that can answer the brief. Not necessarily design what you personally think is fantastic but what the client thinks he wants … (co-director, male, Birmingham, interior design)

Expressed in this way, 'understanding the client' means understanding a male client and it is unquestioningly assumed that men will best be able to relate to other men. The development of rapport is seen to be important both to gaining new business, as a design firm initially 'pitches' to a new client for a piece of work; and also it is viewed as crucial during the progress of a project, when a designer (and the firm) must work to complete a brief to the satisfaction of the client.

Alongside discursive constructions of the designer as male, gender divisions of labour are reproduced through recruitment. Consultancies needing to meet tight deadlines expressed a desire to maintain a good 'team atmosphere' (operations director, male, London product design). Within conversations about how firms found suitable employees, the following was typical: 'it's a lot about the personality and the fit' (managing director, male, Newcastle, branding and graphics). Ideas about 'fit' were not unconscious of gender, however. A London packaging design agency had a distinctive way of selecting employees, comparable to practices at elite male clubs:

> I've really only had three people that I've had to get rid of and I think that's because I've been meticulous. We have a blackballing arrangement, in other words, somebody's going to join us … and Luke who joined us a while ago, he got white balls all down the line, get that boy in! (managing director, male)[8]

Beyond the clubbable masculinity of the actual practice, the ways in which gender divisions emerge because employers recruit people 'like themselves' is key: 'it is at this stage that the particular characteristics and attributes sought in potential employees are made most clear' (McDowell 1997, 117).

Masculinities at work in design can be manifest in a degree of combativeness, if, for example, individual ideas about the direction of a project differ. The business development manager of a Birmingham graphic design firm commented:

> Because we respect each other on all sorts of levels, we are able to be quite confrontational. I mean … when men argue in business they sort the problem out and move. At the risk of sounding sexist, women will sometimes find it difficult to have that argument at work and not take it personally. And we've had some blazing rows here.

Close working relationships between colleagues have been described as a preponderance of 'strong ties': Sunley, Pinch, and Reimer (2011, 389) note that these 'play a key role … within the agency as designers bounce ideas off one another in an intimate studio environment'. Yet as the interview quotation above emphasises, interactions may be marked by particular forms of masculinity which go largely unrecognised in the generic conceptualisation of 'strong ties'.

Everyday working practices within many creative industries can be seen to reproduce gender divides in the sense that women experiencing a 'double shift' at work and at home (Perrons 2003) face greater pressures and stress at work than do men – or indeed may be excluded from the labour force entirely (Gill 2002; Pratt and Jarvis 2006). A decline in numbers of women in the design workforce with age and an absence of women working in senior design management positions often is attributed to the impact of women's childrearing responsibilities. Beyond a quantitative assessment

of numbers of women leaving the design workforce altogether, or remaining at lower levels in the profession, however, it is important to consider how senior design managers themselves represented this situation. The director of a London graphics and branding agency commented, for example: 'I suppose with all small companies we just have to accept the women within the company will go away and have babies after a while' (founder, male, London, branding and graphics). In discussion about a numerical gender imbalance in design, the male chief executive of a London branding agency suggested: 'design businesses tend to be very small. Because they're small they find it difficult to take on the liability of someone who may go off and have a baby'. Although there is an awkward slippage between a gender-neutral 'someone' followed by a reference to the expected pregnancy of a female employee, the interviewee nonetheless unselfconsciously reproduced assumptions that maternity leave posed a fundamental problem for small firms, which made it entirely understandable to him that fewer women worked in design.[9]

Emphasis on being part of the 'team' classically meant working long hours to make sure that jobs were completed. In response to the question 'what makes a good designer?' one interviewee stated:

> Enthusiasm …. Initiative ermm, it's always the design team that has to work late, it's always them. So a willingness to work you know, it has to be what's required you know and late hours and that kind of stuff. (senior designer, Birmingham, exhibition design)

As Parker (2008, 209) notes, 'cultures of "overwork", "competition" and masculinity' are closely associated within creative fields. In design agencies, intensive working in order to maintain not only firm, but also *individual* competitiveness was cited:

> I have to work very hard at it [design] and I don't think there's some kind of magic formula. […] we work very, very hard at it which sometimes is a bit of a killer … like I said before … there isn't a magic formula about putting a page together. I could spend an hour on it and maybe if I stayed until 2:00 in the morning I could make it 10% better. So it's like a craft, you just have to keep working at it. (creative director, male, London, graphic design)

As Sang, Dainty, and Ison (2014) have emphasised for architecture, long and unpredictable working hours viewed as a professional norm are one of the ways in which hegemonic masculinity is reinforced and reproduced. There are two elements to long-hours cultures in design. First, there is an assumed requirement that creative work is all-encompassing. Workers must be obsessive or perfectionist in order to succeed, as implied in the quotation above (see Massey 1995). A second element within consultancies is an imperative to continually maintain or to develop new client relationships, which requires intensification in the workplace as well as 'extensification' beyond (Pratt and Jarvis 2006).

A small number of interviewees explicitly rejected dominant work cultures, expressing what Sang, Dainty, and Ison (2014) have characterised as forms of non-compliance with practices of hegemonic masculinity:

> We hang on to staff as well because we don't work silly hours. A lot of design agencies have this sort of macho 'My schedule's bigger than yours' sort of attitude to work. And if they haven't done an all-nighter once a week, they don't feel like they're a designer any more. (design director, male, Birmingham, branding and graphics)

This interviewee emphasised the positive effects on turnover achieved by moderating workload levels and employer expectations, whilst the design director of a London branding and graphics firm adopted fixed working hours of 9.30–6:00:

> I mean on average I used to do 70 hours a week, you know, and that's ****ing bonkers, that's just silly and it's probably about 5 years ago we decided to make a change and to insist that people went home earlier and financially it meant that we'd lost the profit, but actually from a company point of view, it's much better. We haven't got people looking like they're half dead every day.

It may be that firms – such as the one above, which are longer-established and have stable client lists – have the resources to manage workflow in ways which do not require irregular and uneven working hours. However, the explicit rejection of a long-hours culture also appears to recognise that the *performance* of overwork – that is, working long hours for the sake of demonstrating stamina and 'competitiveness' – may in fact be counterproductive.

Other interviewees were reflective of how onerous working hours had negative impacts on their own family and personal life. The male interviewee who referred to female employees as presenting 'a

liability' later suggested that long-hours cultures had led to the breakup of his marriage and the loss of close contact with his children:

> I am struggling to hold this business together as it is. Demands. 60–80 hours a week. Every week for the last 18 months, and you know, I lost a marriage because of it, and losing all else to boot. But it's like – what do you do? It's all I can do in my life. […] I am lucky to [have got] to the top, but my options are very limited.

The head of a London-based exhibition design firm had plans in the early 1990s to expand by acquiring a firm in Barcelona and setting up a studio in Singapore:

> but then a range of recessions came along … […] And at the time I'd just had a young daughter born and looking back at it in hindsight, at which, if that had not come along, I am sure we would have achieved our goal, and I would have probably have seen very little of her for the first 5 or 6 years. I am pleased I did – er I am pleased it did fail in that respect.

Such comments may not necessarily challenge working norms at work in design, although they do reflect a level of acknowledgement of dominant practices. Whether or not there is potential for future change in the industry will depend in large part upon the how far new entrants to the design labour force are able to challenge existing patterns of discrimination. Although Nayak and Kehily's (2008, 98) work emphasises that for young school-age men and women, 'ideas about gender learning are dynamically processed, contested and culturally re-imagined,' Allen's (2013) study of work placements is much less optimistic about the experiences of young women seeking careers in design.[10]

Masculinity, craft and design skill

As feminist analyses of gender, technology and skill consistently have demonstrated notions of 'skill' itself frequently are reworked to reward male workers (Cockburn 1983; McDowell 1991). Associations between technology and masculinity have been persistent; and within male-dominated sectors and professions, women's technical expertise frequently is questioned (Ranga and Etzkowitz 2010; Nafus 2012; Sang, Dainty, and Ison 2014). The gender coding of 'skill' is rarely unpacked: skill in waged labour is commonly represented generically, although there is significant evidence of its undervaluing when held by women. As Gill (2002, 82) reports, 'inequalities persisted once women entered the field of new media, even when they had equivalent levels of IT skills to their male contemporaries'.

Banks and Milestone (2011, 81) have expressed this gendered devaluing of skill in new media as the allocation of women to secondary (non-creative) roles:

> by and large women were only seen as being able to counterbalance male innovation and creativity by taking on supporting roles that befitted their 'natural' gender attributes. Male managers repeatedly denied that women possessed legitimate expertise in creative or technological production.

Whilst Jenson's (1989) distinction between natural and innate feminine 'talents' versus acquired 'skills' (coded as masculine) is useful for understanding the undervaluing of women's work, there is also a sense in which *creative skill* in design is itself constructed as male. Although men are able to acquire technical competences via craft working or apprenticeship, they also are seen to possess instinctual capabilities for creativity.

Historically, men and women have been sorted into different types of design employment, with women predominating in interior design, for example, whilst product design – often seen to require 'a particular sort of masculinity rooted in industrial tradition' – is male-dominated (Clegg and Mayfield 1999, 9). A growing number of women have gained qualifications in graphic design, although in this sub-discipline associations between masculine artistry and aesthetic ability have had an exclusionary effect when female graduates seek to move into the design workforce. Allen's (2013) account of women graphic design students on work placements, for example, revealed overwhelming experiences of being a body 'out of place' or as one which was 'infiltrating' or 'contaminating' a dominantly male environment. What Clegg and Mayfield refer to as the 'stereotyped demarcation of gender boundaries' in design relies on fixed associations: a student interviewee, for example, sought to emphasise interest in the structural and architectural knowledges required for interior design and refuted 'feminine' expertise in 'soft furnishings' (1999, 10).

There is a broadly held view that constructs design strongly as a craft. Despite significant technological developments, many interviewees made reference to and indeed celebrated the notion of 'tradition' and 'craft' skill, emphasising the need for designers to be able to draw freehand with a pen or pencil; to have a detailed grasp of typography; or to understand the mechanics of the printing process: 'there's not enough people who understand the basics, really' (studio manager, male, Birmingham, graphic design). Product designers were concerned about new entrants being only being able to 'think' in two dimensions instead of three as a result of computer technologies. The male head of a Newcastle branding and communications company lamented a lack of printing/typesetting knowledge: 'you can put a job to press, coming back, it's bloody awful and the client goes "I ain't paying for that" and you invariably find that students don't understand print properly.' This interviewee's training had involved the physical experience of printing, mixing colours and setting out type: in his view it was important to know 'what printers do, all the guys who are the printers.'

This valorisation of learning 'traditional' – and notably in the case of typesetting and printing strongly masculinised – craft skills potentially acts to reinforce hegemonic masculinity, particularly in combination with the repeated normalisation of 'the designer' as male. However there is also a sense in which forms of intuitive, un-taught creativity are viewed as masculine. The male director of a branding and communications firm in Newcastle delineated what he expected from new graduates:

> I think they don't necessarily have to be able to draw, but what they have to be aware of is, they have to have a … you kind of meet people who have an intuitive eye of things … it's like a painter who puts something down and it looks nice because he has an eye for what looks aesthetic and its balance and its proportions and its colour and its position in the frame, looks nice, and I think designing something is exactly the same thing.

Ostensibly, the new employee is represented as generic 'people', but requisite abilities are associated with the artistic and aesthetic skills of a male painter. The 'he' is not incidental: it reinforces social definitions of masculine creativity (Pollock 1983). Whilst few were as explicit as the interviewee who asserted: 'I might piss you off saying this but I genuinely believe that men are better designers than women.' (chief executive, male, London, branding), the 'embedded gender norms and constructions of the "creative person" as a masculine subject' described by Allen (2013, 233) can be difficult for women to navigate.

Inferred geographies of labour market experience: hegemonic masculinity and regional divides in design

The penultimate section of the article reflects upon perceptions of emergent divisions between geographically different types of design labour market. My emphasis is upon what were seen to be divergent design labour market experiences in different parts of the UK. In conversations about staff turnover and career trajectories, a noteworthy narrative emerged which contrasted working patterns in the fast-paced capital city with what were considered to be less-demanding 'provincial' settings. Sometimes, this was expressed as workers wanting to move away from London for reasons of 'lifestyle' or 'family responsibility'. At other times, provincial settings were openly derided for producing lower calibre design work compared with London firms. This was explained either in the sense that non-London firms were 'less competitive' or was attributed to less exacting and/or less knowledgeable clients in 'the regions'. Narratives registered an interesting disparity between what was coded as a highly masculine, competitive way of working in design in London; and experiences within less 'strenuous' environments. One London interviewee commented: 'you don't need to be quite so good if you're in Newcastle' (male, branding and graphics). As Hanson and Blake (2009, 138) have emphasised, both institutions and individuals (as employers) often conceive of gender difference in 'stark, binary, essentialised terms,' even as individual employees navigate much more fluid experiences of identity. The aim in this section is to foreground how gendered ideologies and norms which buttress ideas about hegemonic masculinity are crafted through reference to regional and spatial difference.[11]

The male director of a large London packaging design firm talked at length about different types of turnover at his agency. He reported that some employees started work in their early twenties and remained with the firm a long time. As employees moved into their thirties, design workers 'start[ed] to shake out into different groups.' The first of these turned out to be women who had left the design profession:

you know, quite a few of them start to think about families and children and particularly the women obviously that can mean you lose some of them, well we lose probably three out of four of the people who have children, so relatively few working mothers here.

Then: 'you get quite a few lifestyle choices for the other lot [i.e. *not mothers*] and some of it is actually an anti-London effect.' A combination of high housing costs, high living expenses and commuting pressures meant that 'we lose some of them to the provincial design firms.'

Repeated references to 'lifestyle' might be seen to refer to what feminists would understand as the impact of life*cycle* changes, including starting a family. However, there are a number of distinctive aspects to designers' comments about 'lifestyle choices'. First, the reference most frequently was to male designers who at a certain stage of their career, had moved both job and family outside of London. Secondly, there were often relatively strong implications – particularly when mention was made of the move to a 'provincial' or 'parochial' setting – that a 'lifestyle' move involved a rejection of the 'high-pressure' world of design in London. 'Lifestyle choices' were effectively a trade-off of the 'exciting' for something slower and by implication easier.

The director of a large London branding agency contrasted design consultancy employment with working for an in-house design team. He suggested that employees who were 'just not quite good enough' for his firm had moved to 'easier' in-house design work for retailers, in which they (reportedly) worked 9–5, took 'a proper hour for lunch […] and the pressure is considerably less, you know they do one project a fortnight whereas here they've got three on the go all the time.' Initially, the interviewee referred to the departure of male staff: 'ultimately you have to be tough enough to say, you know, I'm sorry son you're not good enough to compete at this level in this organisation on this type of work'. However, he later implied that the choice of an 'easier lifestyle' was taken up by women with children.

So it's an easier lifestyle and you'll find quite a lot of people who've got children, women with children will actively therefore accept the less stimulating environment because they are working for one organisation and to an extent they are kind of rolling it out. […] it's a lifestyle choice really and often [retailers'] design studios aren't based in London.

The pattern of 'lifestyle choice' is associated with a departure from (a valorised) hegemonic masculinity, as both male and female designers moving from a consultancy to a regional or 'outside London' in-house team are broadly disparaged for moving to a 'less stimulating' (read by the interviewee as less creative) environment.

In a discussion of the extent to which place might fuel possibilities for creativity, the male director of a large London product design firm commented:

I've got friends who live in Norwich, it's just a different … they're not even on the same planet frankly, how can they be? They read the newspapers and look at the mags and all the rest of it, but they're not going to events and listening to things and they're not going to the theatre, […] if they don't come to London, you quickly become parochial.

At one level, the interviewee suggests that the achieved success of his own (considerably sized) firm is possible only in London – and certainly there is evidence that client relationships may be most easily grown and sustained in London. However, there is also a sense in which design work is seen to suffer from being 'too far' from the capital, in part because designers are not able to infuse themselves with London-based sources of creativity.[12]

One interviewee made a fascinating association between the busy, crowded atmosphere of London and an impetus for creativity:

when I was in Bath I found it unbelievably slow. And actually quite bad for my work ethic, and perhaps it's because I'm a Londoner and I felt often very, very lethargic! […] it's almost like the struggle in London, the difficulties kind of give you an impetus that you need in order to get things done, which is really weird. […] it's a kind of struggle thing that makes you really – by the time you get to work [on crowded public transport] you're like really geared up and you have to fight your way to work, and it has an effect on – and it worries me, it really worries me, because I think it is quite unpleasant need in a way. (partner, female, London, graphic design)

This designer is disconcerted by the idea of seemingly needing a combative environment to sustain a burst of creative working – but at the same time reads the perceived slowness of Bath as a barrier to effective design practice.

At a broad level, the narratives I have highlighted act to essentialise a binary between a hegemonically (even heroically) masculine London in contrast to a regional imaginary connoted as an other-than-masculine space. Although discourses appear fixed and oppositional, it is important to register that interviewees actively produce these imaginations of particular places. Some of the strongest statements about the 'stimulation' provided by a competitive 'London' location in fact were made by interviewees based in suburban locations to the west of the capital, rather than stereotypically 'buzzy' environs of East London such as Hackney or Dalston. What is most significant is the *representation* of geographical difference through an imagined opposition between 'London' and 'the regions'. Attention to these inferred geographies provides a means to open up discussions about the ways in which practices of hegemonic masculinity have the potential to be filtered through space and place.

Conclusions

This article has focused upon a distinctive form of creative labour – design – in order to explore the emergence and reinforcement of configurations of gender division in UK design consultancy firms. I have foregrounded how understandings of creativity, knowledge, innovation and craft may be presented in a gender-neutral guise but in fact often rest on assumptions about a distinctively masculine subject; and I have reflected upon the ways in which understandings of that masculine subject emerged in conversations with designers. Discussions typically resonated with Kelan's study of information technology firms, in which employees struggled to 'make sense of a masculine work environment', displaying frequent hesitation and punctuating statements with 'I don't know why …' or 'it's just …' (2007, 502). Ultimately, a 'natural' gender order is reinforced as respondents spoke about design employees, whether emphasising an anomalous gender-neutrality, or shifting quickly from characterisations of a generic worker to accounts of 'the designer, he …'

The approach in this article also has been to uncover inequalities that as Gill (2014, 6) has argued 'are neither accidental nor incidental but produced by the labouring conditions themselves'. Design masculinities are rehearsed through, for example, the normalisation of long and unpredictable hours; and via relationships developed in the work setting and with clients. The article has sought to reveal how associations between craft, skill and masculinity appear, and are reinforced in design practice. Finally, I have pointed to the ways in which design work is valorised within and through inferred geographies of difference between London and the regions, emphasising that hegemonic masculinities are not established on the head of a pin but are rather reinforced and reproduced in reference to understandings of activities in place.

The synthesis offered in this article – drawing together feminist approaches to creative work and creative labour; perspectives on innovation and networks; and understandings of creativity, craft skill and masculinity – is vital in order to challenge continuing silences about gender and indeed to de-legitimise the exclusions generated in design. Three decades ago, Sayer and Morgan (1985, 167) voiced a sharp critique of understandings of regional development which prioritised the 'relatively bloodless categories of aggregate statistics'. Yet an analogous inattention to bodily corporeality remains within much writing on creativity, innovation, learning and networks. The dangers of overlooking gender division and exclusion are revealed starkly in Nafus' (2012) account of open-source software development. In contrast to the citation of these particular 'knowledge communities' as providing possibilities for 'openness' or reflecting forms of democratic 'co-creation', Nafus (2012) reveals the entrenchment of deeply sexist social relations and practices, including misogynistic 'flaming'.

Gill (2014, 1) has emphasised the subtle inscription of sexism in the creative workplace, including claims that gender inequality has been overcome. Amongst design interviewees, it was recurrently emphasised that gender divisions were 'getting better':

> … of 16 people we've got 3 females in senior positions and 3 females in junior positions so it's a fairly even balance and it's what, 60/40, something like that which I think is quite reasonable. (chief executive, male, London, branding and graphics)

The disavowal of structural power relations (Gill 2014, 3) is highly problematic, not least because of enduring configurations of exclusion in design. Writing close to 25 years ago, Bruce and Lewis (1990, 120) challenged the overrepresentation of 'white males with middle-class values'; and called for more evidence of 'the barriers women face as designers'. Beyond the illumination of barriers, however, this article has called for an explicit recognition of everyday representations of and assumptions about design labour as well as for conceptual attentiveness to gender divisions in creative labour, both of which contribute to making design 'a very male industry.'

Notes

1. Fashion, furniture and jewellery design are not discussed because they did not form part of the research on which the article is based – they rarely take place within a consultancy setting; are more closely entwined with their respective commodity networks; and workforces are often engaged in the relatively different dynamic of designer-making. On jewellery and craft, see Hughes (2012).
2. See, for example, Grabher (2001, 2004), Grabher and Ibert (2006), Faulconbridge (2010), Cohendet et al. (2014).
3. Consider, for example, Strati's (1999) account of roofing workers, which foregrounds specific forms of bodily effort and dexterity without any reflection upon the cultural coding of such skills as masculine – even as he refers repeatedly to 'work*men*'.
4. Sennett superficially registers craft skill as gender-neutral, writing that 'we might think that a good craftsman, be she a cook or a programmer …'; and exhorts the reader to consider parenting as a craft (2009, 26 and 23). The implications of this gender-neutrality, however, means that his analysis ultimately fails to acknowledge any forms of gendered power dynamics. A celebration of the sociability of medieval guilds is entirely without reference to potential gender divisions, even as it depicts the 'face-to-face authority' of a male-dominated craft workshop setting (Sennett 2009, 246).
5. Given the qualitative nature of the research as well as an absence of a comprehensive database of firms from which to select at random, the sample was not representative but rather sought to include types of agencies that might be numerically small but of important conceptual interest, such as product design firms (Sunley, Pinch, Reimer and Macmillen 2008, 678).
6. Only 6% of designers were 'from minority ethnic groups' (Design Council 2005, 10). Whilst the stark whiteness of the industry is not the central focus of this article, there is a need for further analysis of the ways in which spaces of design are naturalised or normalised as both white and male (see especially Puwar 2004).
7. Job titles are often inconsistent across the diversity of design agencies, but in general a creative director manages 'junior', 'middleweight' and 'senior' designers (see discussion in the following section), whilst a managing director oversees accounts, new business departments and artwork/design roles across the whole firm. In the 74% of firms employing fewer than five designers (Design Council 2010, 31), management roles significantly converge leading to sharper disparities between 'designer' and 'manager' salaries.
8. Blackballing is a form of secret ballot in which a white ball signifies support of a candidate and a black ball constitutes rejection. Historically, it has been used to admit members to gentlemen's clubs or secret (male) societies such as the Freemasons. In the quotation, Luke is a pseudonym.
9. A counter-argument was presented by the female director of a London graphic design firm, who reacted strongly to this dominant attitude about maternity leave: 'It's not difficult really! Because it is something you can plan for. It's all about how you deal with it.'
10. A longitudinal investigation of career trajectories for women in design, tracking career moves over time, would provide a fascinating window on possibilities and prospects for change.
11. It is also important to be cognisant of the potential for recurrent characterisations of the 'strenuous' and 'competitive' London working environment to map on to corresponding pay differentials. Whilst data limitations prevent a comprehensive analysis of this point, it seems that London design managers' salaries are disproportionately larger: Richardson (2009) indicates that there is a 20–30% difference between London and 'outside London', whilst junior designers' salaries differ by less than 7%.
12. Whilst there has been considerable work on relationships between place and creativity, I am most interested here in how interviewees' narratives register assumptions about difference between London and 'the regions'. That is, the very city which 'becomes a critical input into the production process' (Rantisi 2004, 92) is constituted at least in part through imaginations and representations of 'London' and not primarily through the direct registering of place-specific sources of 'creativity' (cf. Drake 2003).

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Notes on contributor

Suzanne Reimer is Associate Professor in Geography at the University of Southampton. Previous research projects include a UK Economic and Social Research Council-funded study of British design consultancy firms in London and the regions (with Peter Sunley and Steven Pinch); and an investigation of commodity chains in the household furnishings industry with Deborah Leslie (University of Toronto), funded by the ESRC and the Social Sciences and Humanities Research Council of Canada. Suzanne Reimer is interested in aspects of design, creativity and knowledge, including the gendering of creativity, craft and design labour; and the role of design in commodity networks. She has ongoing interests in the furniture industry, in modernism and design, and in moto-mobilities.

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'It's just a very male industry': gender & work in UK design agencies

Suzanne Reimer

8th International DEFSA Conference 2019

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DESIGNED FUTURES

Design educators interrogating the future of design knowledge, research and education.

'The Pretty Stuff': Gender bias and the future of design knowledge in the South African industrial design context

Ashton Margarete Moseley: University of Johannesburg
Angus Donald Campbell: University of Johannesburg

Abstract

In the era of the fourth industrial revolution that proposes an increasingly automated future, designers need not lose focus on the discipline's important role in social design and innovation. Such an undertaking becomes difficult when the discipline of design itself has inbuilt biases and inequalities. Gender bias is one such prejudice that design educators and researchers need to become more aware of and engage with, not only to prepare our students for the workplace but also to begin to change the patriarchal dominance of the design industry and hence the equity of the discipline itself.

Current issues of gender disparity in design industries and academia have been studied and clearly articulated in the Global North. For example, in a recent study by the British Design Council, the United Kingdom's (UK) design workforce comprised of a 78:22 gender split (male to female), with Industrial Design showing the greatest disparity with a 95:5 gender split (Design Council 2018). In comparison to the 53:47 gender split of the wider UK workforce, this inequity is alarming, especially considering that 63% of all UK Art and Design graduates are female (Design Council 2018). Furthermore, various studies report a significant lack of female role models in leadership positions. This raises the question, 'Where have all the women gone?'.

One of the authors is a young female academic, who, during South Africa's Women's Month in 2018, was inspired by these global statistics to conduct a small-scale study within a South African academic institution to investigate and reflect on the participation and experiences of female graduates in the local Industrial Design industry. Gender-based data of departmental enrolment and throughput over the past 20 years were analysed, and 10 female Industrial Design graduates were interviewed regarding their experiences in industry. Findings indicated significant gender biases and inequity within the local Industrial Design discipline, echoing global statistics.

Female student enrolment has increased from 9% in 1997 to 36% in 2018. The exit-level graduate gender split has evened out from 97:3 in 1997 to 55:45 (male to female) in 2017. This indicates that more and more women are slowly entering industry. However, feedback from

women in industry highlighted sexual harassment, misogyny, condescension and significant pay gaps as some of the many challenges faced when entering the long-established patriarchal Industrial Design industry. Stereotypical expectations of women's role in creating 'the pretty stuff' hinders their ability to access experiential knowledge. This stunts their growth in the field, resulting in many women leaving the 'boy's club' and pursuing opportunities in more female-dominated disciplines; ultimately perpetuating the patriarchy of Industrial Design.

It is therefore important to invest in gender diversity in design academia and to understand, engage with and tackle such issues locally. This includes preparing our students for the current realities of industry and empowering them with the necessary knowledge and skills to implement change by fostering innovation, and ultimately enabling them to break out of the confines of a long-established patriarchal industry.

Keywords: Design knowledge, local vs global, gender bias, 4IR, innovation, diversity

Introduction

Industrial Design is defined as "a strategic problem-solving process that drives innovation, builds business success, and leads to a better quality of life through innovative products, systems, services, and experiences" (World Design Organization 2016). As we enter the fourth industrial revolution amid complex economic, social, political and environmental upheavals, Industrial Design, at the nexus of engineering and the humanities, has an important role to play in bringing about sustainable change (Loy & Novak 2019). "Good design puts people first" (Design Council 2018, p. 4), and as evidenced by many human-centred design methodologies (van der Bijl-Brouwer & Dorst 2017), for change to be appropriate, diverse voices need to be heard. The participation of women, with their own tacit knowledge, in the design process is, therefore, vital to arrive at suitably diverse, appropriate and innovative outcomes (Barnhart & Walters 2018b). There is no better way to do this than for the design discipline itself to be diverse. Race and ethnicity aside, Industrial Design is noted for its absence of practising women designers with "low levels of female participation, retention and long-term success in the profession (Bruce 1985; Lockhart 2016). For decades, other male-dominated disciplines such as Architecture and Engineering have acknowledged, formally documented, discussed and actively attempted to transform the underrepresentation of women in their industries. However, in Industrial Design, even the first step of documentation has not been rigorously undertaken with limited statistical data on women in the profession (Barnhart & Walters 2018a 2018b). While data regarding the participation and retention of women in Industrial Design are 'patchy and difficult to obtain' in the Global North (Lockhart 2016, p. 11), in the Global South and South Africa in particular, this data is non-existent. This paper, therefore, attempts to engage with this gap and focuses on the issues of gender disparity in the discipline of Industrial Design within both the educational and professional contexts in South Africa.

Contextualisation

The fourth industrial revolution presents a global transformation in all aspects of business and production. Higher education has an indispensable role to play in facilitating the educational and societal transitions necessary to adjust to Industry 4.0 (Gleason 2018, p. 5). To participate and compete in the fast-changing industry, leaders of Industry 4.0 will need to be critical thinkers, problem solvers and innovators. South Africa is one of the few countries in a technological recession, facing a significant skills shortage in the areas of technology and innovation (Merrington 2017). Innovation is not reliant on new technology alone, but rather, requires a fusion of technology and creative thinking through design (Land 2013). "With increased shifts away from an economy premised on labour and resource-intensive industries

towards a knowledge economy, the skill sets and capabilities needed [for Industry 4.0] have shifted" (Rodny-Gumede 2019). Therefore, the success of South African higher education in this new era will be dependent on its ability to cultivate innovation through fostering transferable, divergent skills and capabilities, such as critical thinking, collaboration, communication and creativity (Rodny-Gumede 2019). Where traditional Science, Technology, Engineering and Mathematics (STEM) degrees focus on convergent skills/thinking, Art and Design degrees focus on the divergent skills necessary to remain competitive in Industry 4.0 (Land 2013). Therefore, design and design knowledge are at the heart of the fourth industrial revolution as both a resource for and a form of innovation (Design Council 2018).

"Designers have the ability to shape the built environment, the digital world and the products and services we use" (Design Council 2018). Not only will future design professionals need to be trained in emerging technologies, but also, in the human values associated with using such technologies. "For those educating the next generation of designers, the challenge will be to find the balance between teaching traditional foundational design skills and the new, emerging elements and technologies needed to prepare students for the changing world" (Lockhart & Miller 2015a; Lockhart 2016, p. 93). Such a focus will not only be on technology, but also the greater need for the understanding of human interaction (Lockhart & Miller 2015a).

Underpinning all of the considerations of higher education in Industry 4.0 are issues surrounding gender (Gleason 2018). "Economists predict that by closing the gender gap in both representation and pay gap by just 10%, South Africa could achieve higher economic growth" (Chauke 2018). However, Industry 4.0 will impact women and men differently (Gleason 2018). The current underrepresentation of women in STEM fields around the world, suggests that women are less likely to have digital literacy, and will thereby be less likely to take advantage of technological opportunities (Blickenstaff 2005; Gleason 2018). While it is widely understood that women are significantly underrepresented in STEM disciplines, little research exploring the participation, experience and success of women in design exists (Lockhart 2016, p. 2). Do women in design have equal opportunities to participate and succeed in Industry 4.0 as men? Some believe that Industry 4.0 serves as an opportunity to bridge the gender gap (Chauke 2018). In the First Industrial Revolution, workers with physical strength and quick acquisition of skills replaced artisans previously valued for their ingenuity and creativity. Today, those workers are being replaced by machines capable of handling repetitive tasks and heavy lifting in factories. Industry 4.0 will, therefore, put emphasis and value back on the human elements of ingenuity, creativity and innovation, not only traditionally masculine skillsets (Funna 2018).

Historically, men and women have been sorted into different types of design employment through gender socialisation (the social and cultural characteristics traditionally expected from women and men) and stereotypical demarcations of gender boundaries. Women are overrepresented in the 'soft' design areas of Interior, Fashion and Textiles, and Jewellery Design and underrepresented in the 'hard' design areas of Industrial, Digital and Architecture (Clegg & Mayfield 1999; Lockhart & Miller 2015a; Lockhart 2016; Reimer 2016). Academically, "there is a paucity of research explicitly exploring the participation, retention and success of women in design industries" (Lockhart 2016). However, the issue of gender disparity in design is gaining traction in the Global North.

Research indicates that the United Kingdom's (UK) design industry is distinctively white and male-dominated (Design Council 2018; Reimer 2016). A recent study by the British Design Council has provided significant insight into the issue of gender disparity in the UK design industry. *The Design Economy 2018 Report* (Design Council 2018) revealed that the UK design workforce comprised of a 78:22 (male to female) gender split, compared to the 53:47 gender split of the wider UK workforce. This inequity is especially alarming, considering that 63% of

all UK Art and Design students/graduates are female (Design Council 2018). The disciplines of Multimedia, Architecture and Industrial Design showed the most significant gender imbalances (Table 1), with Industrial Design showing the greatest disparity with women comprising of only 5% of the Industrial Design workforce (Design Council 2018). According to McMahon and Kieran (2017), the disciplines of Architecture and Graphic Design appear to be closing the gender gap. However, female industrial designers remain significantly underrepresented in both professional and student realms in the UK.

Table 1. UK Design occupations by gender in 2016 (Design Council 2018, p. 52)

Design subsector	Male (total)	Male (percentage)	Female (total)	Female (percentage)	Total
Architecture and built environment	273,300	80.0%	68,200	20.0%	341,500
Design (multidisciplinary)	31,700	36.3%	55,600	63.7%	87,300
Design (advertising)	22,900	62.7%	13,600	37.3%	36,500
Design (craft)	82,000	77.4%	23,900	22.6%	105,900
Design (digital)	411,900	85.1%	72,400	14.9%	484,300
Design (clothing)	3,800	27.5%	10,000	72.5%	13,800
Design (graphic)	78,100	64.4%	43,200	35.6%	121,300
Design (product and industrial)	148,900	94.7%	8,300	5.3%	157,200
Design economy	1,052,400	78.1%	295,200	21.9%	1,347,700

In 1990, women comprised only 15% of Australian Universities' Industrial Design graduates (Lockhart 2016). By 2010, women made up approximately 50% of the student cohort (Lockhart 2016). Although the gender mix of the student population in Industrial Design courses in Australia has shown a notable increase in female graduates over the past 20 years, according to Lockhart (2016), and concurring with the findings of the UK Design Council's report, the same change does not reflect in the profession, with women remaining 'seriously underrepresented' and even 'invisible' as practising industrial designers in Australia. Similarly, Industrial Design schools In the United States of America (USA) have equal ratios of male to female students, but professional practice is merely 19% female (Barnhart & Walters 2018b).

The 'leaky pipeline' metaphor, commonly used with regards to STEM disciplines, attributes the lack of female representation in industry to the 'leaking' out of women from the pipeline carrying students from school through university and on to industry (Blickenstaff 2005). It is evident that there exists a leaky pipeline in the Design disciplines, especially the field of Industrial Design. As with most STEM disciplines, the absence of women in Industrial Design appears to be progressive, in other words, "the farther along the pipeline, the fewer women you find" (Blickenstaff 2005). According to Blickenstaff (2005), *various* complex factors act as 'layers' in a gender-based filter that removes women from the pipeline as opposed to any single primary cause (Blickenstaff 2005). Examples of these filters include "a lack of mentors, a lack of female role models, gender bias and unequal growth opportunities compared to men" (Gleason 2018). Back in 1990, Bruce and Lewis described three hurdles that women face in design, first, the completion of a Design degree, second, getting a job and third, obtaining success in industry. These hurdles continue to be relevant today and form the bases of our study's exploration.

Methodology

To understand the leaky pipeline phenomenon in Industrial Design, we explored female participation and experiences at each of Bruce and Lewis' hurdles (1990). It was, therefore, important to explore both professional and educational contexts.

In terms of the professional context, during South Africa's Women's Month in 2018, one of the authors conducted a small-scale study within a South African academic institution to investigate and reflect on the experiences of female graduates on their Industrial Design education and their roles and participation in Industrial Design industry. Due to the Industrial Design profession in South Africa is relatively fluid, there was a lack of up-to-date contact details of graduates. Therefore, an open invitation to participate was placed on the institution's Department of Industrial Design Facebook group, which consisted of almost 1000 members, including past alumni, current students and other interested parties. Additionally, LinkedIn was used to approach known female graduates through the networks of academics who had been working at the department for a significant amount of time. Email-based interviews were conducted with 10 women who had graduated from the Industrial Design course within the last 15 years. Participants varied in age, race and work experience. Each participant was asked to provide feedback/insight into their experiences as a practising female industrial designer. All participants were informed that their identities would remain anonymous, this anonymity also enabled open and honest explorations of their experiences. It is interesting to note that the female author that undertook the study has a name that recently is more common for men, this resulted in some of the more critical female graduates immediately highlighting the irony of what they thought to be a male undertaking such research!

In terms of the educational context, we investigated the demographics and culture of the education system that designers (male and female) have come from. There is no published gender-related data on South African design students, we, therefore, used data from the same South African educational institution with particular focus on the design faculty and gender-based enrolment and throughput.

In the findings below, the authors not only unpack the study, but also contextualise and discuss the findings with regards to South African statistics found in other cognate disciplines, as well as within broader global statistics and experiences, as a means of better understanding the local and global extent of gender bias in design, and in particular Industrial Design.

Findings and discussion – Industry

A UK Women in Architecture survey indicated 73% of respondents (from 500) claimed to have experienced or witnessed gendered discrimination during their career, with 10% reporting that they directly suffer from gendered discrimination weekly (Waite & Corvin, cited in Lockhart 2016, p. 28). Findings from our study indicated significant gender biases and inequity within the local Industrial Design discipline, echoing global statistics. Most participants acknowledged sexual harassment, misogyny and condescension from employers and colleagues as some of the many challenges faced when entering the long-established patriarchal South African Industrial Design industry. Such patriarchy is found in many cognate industries in South Africa, with the World Economic Forum, stating that South African women are under-represented at a ratio of 3:10 in Engineering, Manufacturing and Construction (Chauke 2018). This reality played out in many of the first-hand experiences of those that were interviewed:

My first few months, as the only female at this small design consultancy, saw me dealing with misogyny, harassment and a general condescending attitude – especially when it came to the technical aspect of manufacture (P5 2018).

Many participants echoed experiences that it was not only their employers that were problematic in their bias, but that,

[C]lients, suppliers and manufacturers won't look you in the eye or shake your hand. You'll often get asked to make coffee for meetings and have to listen to offensive, sexist jokes (P3 2018).

[C]lients would put far more faith and trust into a male colleague's opinion and skills than [the participant's] own. This lack of trust in me and my skills gave me confidence as a designer and maker quite a knock (P1 2018).

As a result of these stereotypical expectations of women's abilities, some women only receive the types of work that offer little creativity and responsibility, resulting in reduced opportunity for advancement (Lockhart 2016). Examples of this include the following statements:

We are not always trusted with technical projects, and we are often given projects at the end to be prettified (P2 2018).

I was generally confined to drawing pretty concept drawings (P5 2018).

According to the mind-set of our industry, we are women, so we make things look pretty while the men are physical and create things (P7 2018).

This hinders women's ability to access experiential knowledge, and by losing out on learning opportunities, this stunts their growth in the field, and engagement/interest in the discipline, as described by one of the participants:

I felt very much obliged just to put up with it for the sake of gaining experience – but really, I was excluded from most learning opportunities (P5 2018).

A few of the participants had subsequently left the profession in favour of more gender-equitable industries such as Interior Design, Graphic Design and Advertising. Two participants explained that,

[T]he advertising industry is a lot more receptive to a female's opinion, perhaps because there are so many females in that industry (P1 2018).

I possibly feel more comfortable here because most of my colleagues are women, and we can relate to each other more easily (P6 2018).

This may be true in the lower levels of employment, but it is common knowledge in the South African context that there is also a 'glass ceiling' in these industries regarding women getting into senior management positions. According to Lockhart (2016, p. 137), "the glass ceiling is quite low in Industrial Design". In a UK survey of female industrial designers, it was observed that if they did not see other women in the field, particularly in positions of leadership, confidence in females began to erode and opportunities to progress in their career were not exploited (Kieran & McMahon 2017).

Furthermore, several female UK industrial designers interviewed related experiences of inappropriate behaviours towards them and a pervasive 'lads' culture that made for an uncomfortable working atmosphere (Kieran & McMahon 2017). To escape such discomfort, one of the participants in our study, after working in industry for eight years, was currently studying to move out of the field stating, "studying Industrial Design and coming into this field has been my biggest regret!" (P2 2018). Unfortunately, women leaving the 'boys' club' and

pursuing opportunities in more female-dominated disciplines ultimately perpetuates the patriarchy of Industrial Design.

There were, a few positive comments from participants who just "ignor[ed] the nonsense" and let their work speak for itself:

> In my experience, it doesn't matter if you're male or female, your work speaks for itself (P7 2018).

> I don't really acknowledge it, because if you don't treat it as an issue, it generally doesn't become one (P8 2018).

A similar study to the one we undertook was conducted at an Australian university in 2016 (Lockhart 2016) and showed very similar results. Most respondents found the Australian Industrial Design industry to be male-dominated and reported that they "struggled to develop the confidence and courage to actively contribute design ideas" (Lockhart 2016). 52% of female industrial designers interviewed described experiencing gender-based issues and stereotypes in the workplace, including sexism, male gatekeeping and stereotypical perceptions of their skills and abilities (Lockhart 2016, p. 137). According to Lockhart (2016, p. 141), "gender-based patterns appear to be accepted as just something that women must deal with", and to achieve success in the industry women must "adopt male-attributed traits such as toughness and competitiveness".

In response to these realities, coupled with a dissatisfaction with the types of work, levels of creativity, and lacking work-life balance, 42% of the Australian participants had decided to embrace their own abilities by creating their own businesses (Lockhart 2016, p. 161). These women described how mentors were critical in entrepreneurship (Lockhart 2016). One participant from our study also decided to become a design entrepreneur, where she was currently developing children's furniture and other homeware. Similarly to the Australian study, she felt she was able to take this leap since there was an "incredible community of women entrepreneurs who support and uplift each other" (P1 2018). A key benefit to starting your own business as a woman is that instead of having to try to change or conform to the existing industry, you make it your own.

Findings and discussion – Education

The above findings suggest that the two 'hurdles' of entering and succeeding in industry still stand for female industrial designers (and other cognate disciplines) globally. To understand why this gender disparity and culture exists in industry better and why this male dominance is still so prevalent, one must begin by considering the first 'hurdle', obtaining a design qualification (Bruce & Lewis 1990).

The faculty that was studied comprised of eight departments, namely Fashion, Jewellery, Interior, Architecture, Industrial, Graphics, Multimedia/UX and Visual Art (as this study focuses on design disciplines, data related to Visual Art is not included). Over the past 10 years, women account for over 50% of the student cohort. In 2018, women represented 51%. However, there is an uneven distribution of gender within the various disciplines. Table 2 shows an overview of the gender split in the student cohort (across all year groups) in each department over the last 10 years. The Departments of Graphic, Interior and Fashion Design have remained female-dominated, although more recently tending towards an 'evening out'.

Table 2. Overview of departmental gender profiles of total student numbers from 2009 to 2018

Department	Industrial		Graphic		Multimedia		Interior		Jewellery		Architecture		Fashion	
Gender	F	M	F	M	F	M	F	M	F	M	F	M	F	M
2009	19%	81%	66%	34%	34%	66%	84%	16%	69%	31%	33%	67%	89%	11%
2010	23%	77%	64%	36%	36%	64%	78%	22%	67%	33%	35%	65%	90%	10%
2011	19%	81%	65%	35%	34%	66%	75%	25%	65%	35%	35%	65%	90%	10%
2012	23%	77%	65%	35%	36%	64%	76%	24%	69%	31%	33%	67%	92%	8%
2013	28%	72%	65%	35%	38%	62%	77%	23%	65%	35%	31%	69%	89%	11%
2014	38%	62%	70%	30%	36%	64%	75%	25%	65%	35%	34%	66%	88%	12%
2015	40%	60%	68%	32%	33%	67%	71%	29%	59%	41%	35%	65%	88%	12%
2016	36%	64%	66%	34%	30%	70%	72%	28%	42%	58%	39%	61%	87%	13%
2017	37%	63%	62%	38%	31%	69%	74%	26%	42%	58%	37%	63%	85%	15%
2018	39%	61%	61%	39%	34%	66%	75%	25%	33%	67%	38%	62%	85%	15%

Table 2's data aligns with the stereotypical overrepresentation of women in these 'soft' design disciplines. The Departments of Industrial Design, Multimedia and Architecture are clearly male-dominated. However, only Industrial Design has shown a significant shift in gender equality over the past 10 years (from 19:81 in 2009 to 39:61 in 2018). Interestingly, the Department of Jewellery design has shown the most significant change, flipping from a 2:1 female dominance in 2009 to the opposite in 2018. This dramatic change is most likely attributable to the statistical influence of relatively small student cohorts.

Focusing specifically on Industrial Design over a longer 20-year period, female first-year student enrolment has increased from 9% in 1997 to 36% in 2018 (Figure 1). The number of female exit-level graduates has evened out from 3% in 1997 to 45% in 2017. The greater numbers of female graduates indicate that more and more women are slowly entering industry over time. These figures, to some extent, also explain the patriarchy of the industry with a history of far more men than women entering industry. Past graduates worked for men and with men. These men are now well-established in industry.
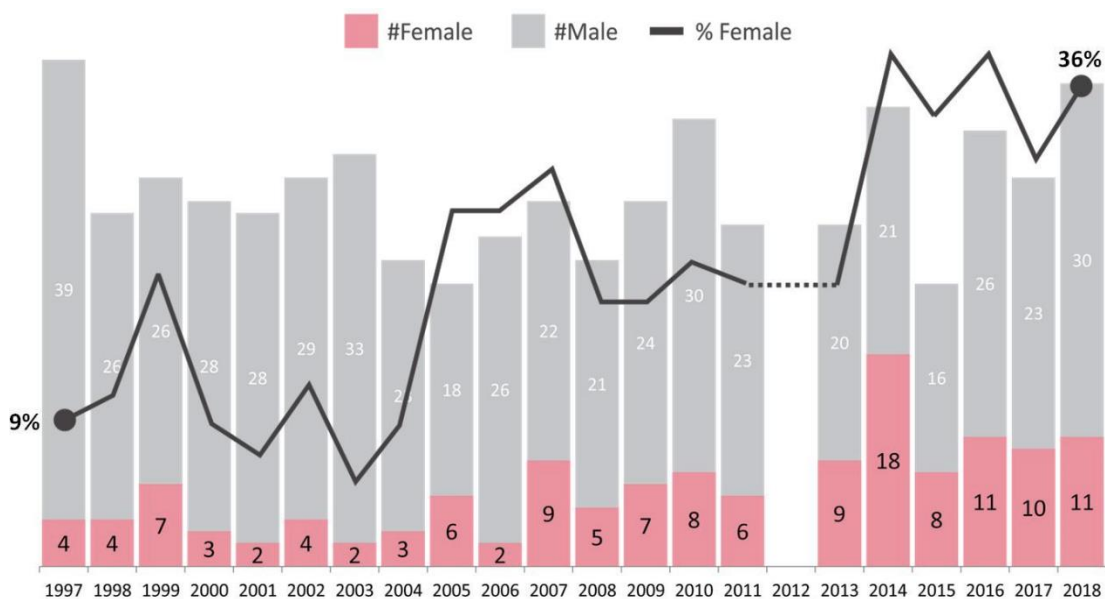
An interesting observation is that women seem to have more staying power in the department. Figure 2 demonstrates that as year groups get smaller as students progress through the three or four-year programme (the BA is a three-year qualification, and the BA honours is a fourth year), the percentage of women increases. This indicates that although fewer women enrol into the programme, more men drop out. Furthermore, for the past five years, the Dean's Award for top achieving students in the department has consistently been awarded to female students. At surface level, these quantitative findings would suggest that women are currently successfully clearing the 'first hurdle' more successfully than men, and that indicates a promising trajectory. However, studies in the Global North investigating the experiences of students, tell a different story.
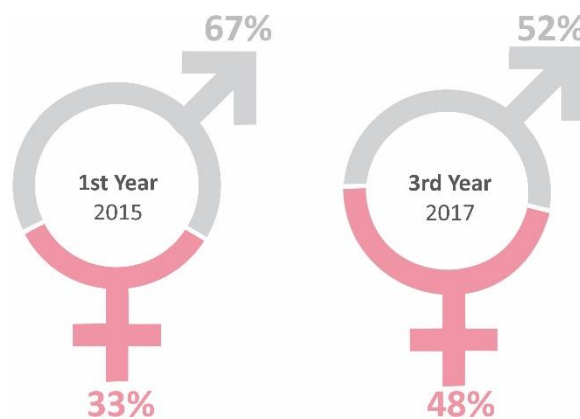

Figure 7: Gender split comparison of the 2015 Industrial Design student cohort in their first and third year of study

USA Industrial Design schools have equal ratios of male to female students (Barnhart & Walters 2018b). In 1993, a study including observations of 112 juries (a group/panel discussion more commonly used in the evaluation of work in the Architecture discipline) and a survey evaluating student experiences in three USA design schools, found that "female students were interrupted significantly more often during presentations than their male counterparts, and thus felt less confident of defending their designs to criticism" (Lockhart & Miller 2015b). A more recent study at Iowa State University unpacked the environment and culture of the design studio and the effect it has on women (Barnhart & Walters 2018a). Findings indicated that women preferred to work from home, away from the judgment of others, with some respondents claiming to be uncomfortable working in their university studios (Barnhart & Walters 2018a). Female students claimed to be afraid to ask questions because they felt that they are "rarely heard or fear sounding stupid" (Barnhart & Walters 2018a).

Echoing the South African data, gender diversity of the student population in Australian Industrial Design courses has also shown a notable increase in female graduates over the past 20 years. Lockhart and Miller (Lockhart & Miller 2015a) investigate the design knowledge development of young women studying industrial design in Australia. They provide insight into how gendered projects and environments can impact the skills development and engagement of women in the education process (Lockhart & Miller 2015a). Lockhart and Miller's investigation onto female student experiences at Australian universities showed that "the vast majority felt that gender was not a major factor in their experience of the course or how they were treated" (Lockhart & Miller 2015a). However, the vast majority felt that the nature of the

assigned projects aligned more with masculine interests, hindering their sustained engagement in the course (Lockhart & Miller 2015a).

Furthermore, the study showed that the experience of the workshop environment was perceived to be gendered with male students feeling more confident and women students having to grow their confidence throughout the course (Lockhart & Miller 2015a). These findings highlight the critical role of the educational experience in developing not only an appropriate skills base but also the confidence of female designers to promote their sustained engagement with the field (Lockhart & Miller 2015a). Barnhart and Walters (2018a) bring this point to home by questioning, "If women are fundamentally uncomfortable in current educational Industrial Design environments, how can we expect them to confidently move into professional practice?"

Many of the issues discussed above are echoed in STEM programmes, with problems such as the absence of female role models, curricula that are irrelevant to many women and pressure for women to conform to traditional cultural gender roles and stereotypes (Blickenstaff 2005). South African academia is dominated by men (Moosa 2017). Although more female students are enrolled at universities at an undergraduate level, there are more men at postgraduate master's and doctoral levels – resulting in fewer female academics (Moosa 2017). There is much value in having appropriate mentors and role models for female students, and to do this, the industry must transform, and the academy must become more gender diverse.

Gender diversity is important in both educational and professional levels. Not drawing on the tacit knowledge of women can lead to homogenous design solutions and single-sided design conversations (Kieran & McMahon 2017). "Homogenous student groups result in a lack of diversity in the tacit knowledge available both to individual students and limits peer learning in the studio environment" (Mayfield 2009). At a professional level, the underrepresentation of women in design creates a gender data gap (Criado-Perez 2019). The consequences of this data gap in the Industrial Design profession are, firstly, the loss of women's tacit knowledge in the design process, and secondly, the underdevelopment of products and markets in relation to the specific needs of women (Bruce 1985, p. 150; Criado-Perez 2019; Design Council 2018; Lockhart 2016, p. 3; Mayfield 2009; Ranga & Etzkowitz 2010). Products that are inappropriate for the needs and concerns of women impact their everyday lives. Such impacts can be relatively minor or irritating, such as struggling to reach a top shelf placed at an average male height or trying to grip an oversized cell phone. However, the consequences of living in a world built around male data can also have serious health/safety implications (Criado-Perez 2019). For example, car safety tests do not account for women's measurements (Criado-Perez 2019). As a result, women are 71% more likely than men to be *moderately* injured, 47% more likely to be *seriously* injured and 17% more likely to be *fatally* injured when involved in comparable car accidents (Criado-Perez 2019). These statistics are a result of how cars are designed and for whom (Criado-Perez 2019). The 'one-size-fits-men' approach to design, such as in hand tools that are often too large for women's hands, also further perpetuates gender stereotypes and "clichéd concepts of masculinity and femininity" (Kieran & McMahon 2017).

Conclusion

It is clear that there are still significant gender biases found in both the professional and educational Industrial Design contexts. As per the definition of Industrial Design presented at the start of this paper, we would like to change this situation. It is a difficult task to change an industry. A more realistic starting point is to build on the transformations that have already taken place in terms of gender equity in higher education in South Africa and at the same time learning from the experiences of women in other countries (Blickenstaff 2005). Such educational change could better prepare female students for the reality of the industry they

may work in, or more radically empower them to challenge the industry itself by beginning alternative enterprises.

Without change, design education will be limited in its ability to make use of the tacit knowledge and life experiences that individual students bring, but even these are hidden without skilled academics teasing them out. It is crucial for personal and professional development (Mayfield 2009), in an increasingly automated future, to come to the important realisation that as a designer, your own experiences are core to your success.

Although this paper has focused on gender disparity in the field of Industrial Design, gender is not the only imbalance evident in this field. Imbalances are seen in factors such as ethnicity, age, disability and social class (Mayfield 2009). The value of nurturing human diversity in design to address issues of inequality needs to be amplified through education (Gleason 2018). This will allow graduating designers to face the complexities of the economic, social, political and environmental upheavals that will become all the more evident in the fourth industrial revolution.

The findings of this small-scale study that are presented in this paper are just the beginning of a more in-depth and cross-disciplinary investigation into educational and industry experiences of women in South Africa. This will be expanded on through a three-year research project in partnership with Falmouth University that will collaboratively compare gender-bias in design in the two locations through the financial support of the UK Global Challenges Research Fund.

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The Ethnographic Research

L. Shagrir

Chapter 2
The Ethnographic Research

Abstract This chapter of the book deals with the nature of ethnographic research and the research tools it employs—ethnographic interviews and participant observation. The chapter focuses on the role of ethnographic researchers, the dimensions that ethnographers must consider in order to get a comprehensive collection of information, and the analysis of findings.

Ethnographic research is a genre of qualitative research, which developed out of anthropological methodology. It investigates societies and cultures by examining human, interpersonal, social and cultural aspects in all their complexity. Ethnography is a research approach that refers both to the process and method according to which research is carried out and its outcomes. This is an approach that combines methodology used for research and data that emerges from it, the analysis of this data and researcher's interpretation thereof (Sabar-Ben Yehoshua 2016; Shlasky and Alpert 2007). A researcher's interpretation will include a summary of the research process, identifying the subjects, carrying out observations and interviews, document analysis, describing research findings and new discoveries learned from the research (Alpert 2016). Ethnography as a product, is predominantly text that presents research to the public and appears as written academic work in the form of a research report, article, monograph, book and the like (Shlasky and Alpert 2007).

Ethnography is used for research in many areas such as medicine, psychology, sociology, information systems, education and more, and it focuses on the natural surroundings of cultural systems such as community, society, groups, systems, organizations and such. This genre enables study of behaviours, norms, beliefs, customs, values, applied human patterns and human phenomena as these are expressed in practice. It enables understanding of life forms and systems of thought and behaviour in different cultures, organizations, and social systems, both cultural and political as reflected in daily conversations and local events. Ethnography provides rich and wide-ranging insights into actual reality, ways of life, social interactions and peoples' perceptions as expressed by the actions and the surroundings in which they live. It enables seeing entire phenomena, understanding

their complexity and significance, and making generalizations on human behaviour in general.

Ethnographic research requires intense and long term investigation in order to collect data and record sequences of events, conversations between people and their relationships. To do this, researchers must be present at events and situations and spend a lot of time in the studied environment in order to learn about what takes place, what is said when and in what circumstances. Once data collection processes are over, an ethnographer undertakes the important work of interpreting and ascribing meaning to all actions, words and events that were examined and data that was collected (Harvey and Myers 1995; Heyl 2001; Karnieli 2008; Mutzafi-Haller 2012; Reeves et al. 2008; Shlasky and Alpert 2007; Van Maanen 2011).

Ethnography in education is a tradition that keeps evolving.

2.1   The Role of the Ethnographic Researchers

In ethnographic research, researchers have a key place. In order to understand the daily life of a studied culture, researchers cannot carry out their research in laboratories or rely on proving assumptions, hypotheses or doctrine. They have to join the natural environment they are investigating, remain there for some time, establish participant observations, interview people who are part of the society, hold formal and informal conversations with them, and document most of that is said and observed (Alpert 2006; Genzuk 2003; Gordon et al. 2001; Shlasky and Alpert 2007).

As a first step, ethnographic researchers must get permission to access a society being studied so as to collect data in the most convenient and appropriate way possible. Researchers who enter the research arena encounter study subjects, their perceptions and understanding of the world, and they must possess social creativity. Researchers who come from a similar world of action and activities, who clearly see what is done and why, in cultures and society different to their own, will have easier access (Trahar 2009). They need to learn in advance about local culture and identify its views, opinions and perceptions in order to enter it smoothly and choose what is appropriate to the purpose of their research. They have to establish close and ongoing relationships with research population and learn from them their thoughts and world views, their place in society and the significance they attribute to their lives and what is going on around them. This task is not likely to be easy, as often research population are afraid of direct and unmediated communication with researchers during a study (Mutzafi-Haller 2012; Reeves et al. 2008).

Studies have shown that research population prefer to establish contacts with researchers who come from similar categories to themselves, and perceive those who resemble them with regard to their social identity as less threatening. Researchers who are perceived as unknown and different are viewed with suspicion by participants. Those who are seen as at least somewhat similar hold similar values and norms and their behaviour is somewhat like their own. As such, researchers'

belonging, their roles and place, are extremely important in ethnographic research (Harrington 2003; Heyl 2001). Researchers' identity, origins and professional background are significant in social processes needed by the research, and researchers who come from similar professions or society are perceived as authoritative and reliable, able to listen, allow expression and better understand the relationships in which they are involved.

During research, researchers must maintain reliable and participatory relationships with research population, and prevent, as much as possible, any opposition or restraint on their part. They must carry out extensive documentation about what occurs and behaviours, a process that sometimes arouses suspicion and makes it more difficult for participants to cooperate. Therefore, their role is to recruit participants who will cooperate with and trust them, and to develop significant dialogue and interpersonal relationships with sensitivity, flexibility and care. Creating a healthy interaction such as this between subjects and researchers is gradual and takes time (Harrington 2003). However, researchers remain on the fence as external observers of events, who do not try to interfere with or influence events or change participants' behaviours. Researchers must choose what they observe and what interests them, according to the aims of their research; to understand phenomena they witness without influencing them at all (Alpert 2006).

As it is difficult to predict events and happenings, researchers must take the unexpected into account, be flexible, patient and consistent in their work, in case data collection is disrupted by local events or social, political or other changes (Reeves et al. 2008).

Ethnographers gather their information using different research tools, such as observations, interviews, structured and informal conversations, document analysis and others (Gordon et al. 2001; Stemler 2001). Data is collected from a number of information sources and in a variety of ways, such as observing processes and interpersonal interactions, listening to what people say and discuss, examining phenomena, texts and customs as they happen, documenting interviews with participants, analysing documents, journal, photographs and certificates and examining objects and accessories (Genzuk 2003; Karnieli 2008; Shlasky and Alpert 2007).

Owing to the vast complexities of natural social life, Reeves et al. (2008) suggested a number of dimensions that ethnographers must consider in order to get a comprehensive collection of information:

Dimension examining where research took place: examination and detailed description of the physical space and place where research was carried out;
Dimension examining participants/subjects: description of the range of people active in the surrounding and involved in the activities under investigation;
Dimension examining activities: description and documentation of the activities that transpired during and at location of research;
Dimension examining objects: detailed descriptions of objects, physical elements found in the research space;
Dimension examining actions: description of individual actions performed by each and every participant;

Dimension examining occurrences: description of events and activities in which some of the participants are involved;

Dimension examining time: measure frequency and duration of happenings;

Dimension examining aims: description and documentation of aims that participants stated they wished to achieve or reached successfully;

Dimension examining emotions: detailed description of emotions felt by participants as expressed by what they say and do (Reeves et al. 2008).

After research is carried out, the work of ethnographers focuses on developing conclusions emerging from the research and putting together reasons and explanations that led to them. To do this, ethnographers arrange findings according to their point of view and invite readers to see things as they analysed them, and their interpretations will refer to their world views and their credo (Sabar-Ben Yehoshua 2016). In the writing process, researchers present their interpretations through descriptions, summaries, quotes, arguments and theories. Simultaneously to summarizing a research process, researchers will describe what they themselves learned from what they saw taking place, heard from conversations with interviewees or others, and their experiences in the research field (Alpert 2016). Alpert (Ibid.) defined writing a research report as follows: writing moves on a continuum between personal discovery and public argument and is realized through narrative forms that consolidate into general arguments and critical theories.

The two principal ethnographic research tools are interviews and observations.

2.2   Ethnographic Interviews

Interviews are a means of collecting rich and detailed information directly from research population, as presented in their words. The purpose of interviews is to establish basic processes for transmitting information, opinions and perceptions, while giving interviewees time and opportunities to express their opinion fluently and openly and giving interviewers time to ask questions and request clarifications in order to get a broad picture of information, opinions, thoughts and emotions. Interviewees have the opportunity to provide completely honest answers, to explain what they mean and how events and place in their lives and environment, to present their relationships with people around them and provide their interpretations to all these (Heyl 2001; Zanting et al. 2003). They are asked to reconstruct and describe in their words events and social experiences, their opinions, beliefs and feelings.

Ethnographers must be skilled in-depth interviewers, enabling their subjects to recount their experiences, describe their thoughts and feelings. For them, this research tool contributes to expanding information they collect and enable them to get a comprehensive picture as well as broad and rich insights about their subjects, their culture and conduct (Reeves et al. 2008). Interpersonal relationships between interviewer and interviewees are very important to the research process and therefore researchers must be punctilious and respectful listeners (Harrington 2003;

Heyl 2001). They must maintain interviewees' dignity during interviews and encourage them to participate and narrate while maintaining interaction with them.

Sometimes only partial information is revealed in interviews and therefore interviewers must encourage interviewees to impart information. Nevertheless, they must take into account unspoken information and silences that testify to interviewees' deliberations and complexities of their answers. Hesitations, contradictions, indecisions, changes in points of view and subjects that are not spoken about in interviews are a significant part of the information gathered for research (Heyl 2001). The way in which interviewees choose to present their words enables one to understand their identity and the significance that they attribute to their words (Clandinin et al. 2007) while giving voice to personal experiences, to the "I" that operates in a cultural context, to advance interpersonal conversation and appreciate social happenings (Holt 2003; Trahar 2009; Wall 2008).

2.3   Participant Observation

Observations are a further means used by ethnographers to collect data for research. In observations, researchers watch personal happenings in specific contexts, by making themselves suitable to the environment, but not part of it. Participant observation enables provision of explanations, contexts, reasons and reinforcement for assumptions, and as such will take place often during research and at different times.

Researchers who use observations to collect information must be intimate partners, as much as possible, in the lives and activities of participants. They must act skilfully, as an internal observer of everything that happens, see and feels things as part of a group without influencing participants' behaviour. This way, researchers can study the culture of a subject group in depth, and accordingly explain participants' behaviour and events (Genzuk 2003).

Observations enable distinction between behaviours and gestures, examination of interactions and lack of interaction between people, listening to formal and random conversations and their tone and seeing people's movements and extent of their presence (Guest et al. 2013). They take place in natural surroundings and researchers report what they saw, heard and felt from their point of view.

2.4   Analysing Findings in Ethnographic Research

As previously mentioned, ethnography is a research approach and the way in which research is carried out as well as its outcomes often appear as an academic essay combining research steps, analysis and interpretations of findings (Sabar-Ben Yehoshua 2016; Shlasky and Alpert 2007).

Ethnography as a means of research enables in-depth observation of human, social and organizational aspects arising from collated findings. It enables detailed analysis not only of these qualities, but processes as well (Genzuk 2003; Harvey and Myers 1995). Once the process of data collection is complete, researchers analyse their findings, making every effort to reach a comprehensive understanding of the world under investigation and provide scientific interpretation to collated findings (Karnieli 2008). Researchers provide elucidation for behaviours and events by detailing their significance as they understand them. In ethnographic research, it is not possible to encode information during the research or decide in advance how to categorize information (Genzuk 2003; Reeves et al. 2008). Structure emerges while analysing data and identifying findings as they emerge from the research.

At the stage of data analysis and reaching conclusions, researchers should pay attention to their experiences, thoughts and emotions and understand that they do affect their interpretations, conclusions and research outcomes (Shlasky and Alpert 2007). They are confronted with a wealth of findings, piles of texts, documents and records and they have to identify connecting strands that will enable them to construct significance and interpretations, a process that demands emotion and intellectual abilities (Harvey and Myers 1995; Reeves et al. 2008).

When analysing data, researchers must consider a great many different components that emerge, distinguish between events in different contexts, and identify the similarities and disparities between them. Using a number of research tools contributes to a broad understanding of studied phenomena and possible contradiction between participants' actions and what they say about or explain these actions. Relating to many findings enables development and identification of significant broad and generic conclusions and insights. Identifying themes and their categories within these findings surface key subjects and enable provision of theoretical explanations, identification of phenomena and arriving at generic conclusions, which are likely to be significant for the studied body of knowledge (Reeves et al. 2008).

This way of analysing findings is based on researchers' perceptions and how they observe matters from the outside and how they interpret them. This approach, known in the world of ethnography as the etic approach, allows researchers to clarify and interpret matters as they understand them from the point of view of a person outside the research field. Researchers' interpretations are based on research, scientific and universal aspects and serve as theoretical models to illustrate, explain and provide insights (Harris 1976; Shkedi 2003; Shlasky and Alpert 2007).

In analysing findings and providing interpretations, researchers emphasize their internal world, their world views, points of view and insights of people who operated within the research field, and present them as part of their research's output. This approach, known in the world of ethnography as the emic approach presents people's subjective points of view and their self-perceptions and as such enables an understanding of matters as they themselves see and understand them. This approach enables exposure of how people interpret and relate to their culture, their beliefs, their behaviours, their lives, events that take place and their relationships with others.

Work on the final product of research, the researcher will connect emic issues arising from subjective perspectives and etic issues arising from external perspectives, so as to consolidate them into one research whole (Harris 1976; Olive 2014; Shkedi 2003).

In summary, the characteristics of ethnographic research enable its presentation as a diagnostic, as a microcosm of knowledge on a subject, and turn this knowledge into generic and recursive knowledge. Collecting information on real situations that took place in complex realities of social, cultural and political cultures as they are, makes it possible to reach conclusions, construct a developing body of knowledge and contribute directly to existing practical knowledge (Harvey and Myers 1995). Ethnography presents an opportunity to conduct meticulous research directed at the relevance of practice, which makes it an appropriate tool to link between scientific and practical knowledge, and to enable them to exist cooperatively:

> This makes the ethnographic approach a worthy contender for bridging the gap between scholarly knowledge and practical knowledge, thus allowing for scholarship and practice to develop in collaborative coexistence (Harvey and Myers 1995, p. 24).

Analysing the unique experiences of a veteran teacher educator was carried out with the intention of deriving important insights from her personal experiences that would benefit her colleagues, both in teacher education and the accumulated body of research knowledge in this profession. Research characterized analysis of experiences produce conclusions that both other teacher educators and the system of teacher education can use, and as such the research, which is a type of socio-cultural academic experience, becomes generic knowledge that everyone can use.

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Afrofuturism, inclusion, and the design imagination

Woodrow W. Winchester III

AFROFUTURISM, INCLUSION, AND THE DESIGN IMAGINATION

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Insights

→ Afrofuturism as a design lens emboldens the HCD engagement and affords the requisite rigor in uncovering the blind spots that often occlude the designer's decision making.

→ Afrofuturism creates opportunities to more fully explore both environment and context, and thus to imagine more empathic, inclusive, and impactful design solutions.

→ Afrofuturism makes a pathway for engaging often underrepresented and disenfranchised groups.

The excitement associated with the recent release (February 2018) of the Marvel film *Black Panther* has been infectious. Provocative and visceral, the trailers and associated imagery and commentary have been inspiring to me both as a black science fiction fan and, in particular, as a human-centered design (HCD) educator and researcher. *Black Panther*'s *Afrofuturistic imagining* of a technologically advanced African nation, Wakanda, free from Western involvement, catalyzes streams of new thoughts about how Afrofuturism connects with HCD, envisioning the inclusive

technological innovation needed to address—more equitably—the grand engineering challenges of the 21st century (http://www.engineeringchallenges.org/).

While HCD holds much promise, the complexity of these grand challenges (e.g., to advance health informatics, provide access to clean water, and restore and improve urban infrastructure) warrant deeper design engagements. These deeper dives challenge the human-centered designer to grapple with not only the technical aspects of an envisioned solution, but also the often more consequential social,

political, and cultural (including race) implications of its design and eventual deployment. New design tools are needed. Afrofuturism as a design lens [1] could embolden HCD's engagement and afford the requisite rigor in uncovering the blind spots (e.g., biases, privilege, and power) that often occlude the designer's ability to more holistically approach a design dilemma (see Bruce Sterling's May+June 2009 *Interactions* article). As such, Afrofuturism offers a framing that allows the human-centered designer to more fully explore both environment and context, thus imagining more empathic, inclusive, and impactful design solutions.

AFROFUTURISM DEFINED
The term *Afrofuturism*, coined by Mark Dery, can be defined as "a literary and cultural aesthetic that uses the tools and tropes of science fiction, as well as references to African and non-Western mythology, as a means to confront and analyze the present-day issues faced by people of color" [2]. Traditionally viewed as an aesthetic, Afrofuturism lies at the intersections of black cultures, imagination, liberation, and technology [3]. Sanford Biggers, in responding to Afrofuturism's relevance outside of a strictly aesthetic context, situates Afrofuturism somewhat as an epistemology, stating that "Afrofuturism is a way of re-contextualizing and assessing history and imagining the future of the peoples of the African Diaspora via science, science fiction, technology, sound, architecture, the visual and culinary arts, and other more nimble and interpretive modes of research and understanding" [4].

SITUATING AFROFUTURISM WITHIN THE HCD DISCOURSE
As the complexity of the aforementioned engineering challenges facing humanity is better recognized and understood, importing more diverse perspectives to inform the design of more inclusive future technological solutions in response is paramount. Afrofuturism offers a means by which to satisfy this imperative.

It is well understood within the HCD world that the stakes are high. Thus, it is important that the human-centered designer, in this milieu, think and act—specifically, by imagining more inclusively— to conceive and deliver solutions of benefit to *all* of humanity. Unfortunately, as a function of the depoliticization of engineering and the homogeneity in perspectives, beliefs, and values of those often privileged to engage in such grand design exercises, a more monolithic view of user and context of use often prevails. This narrow perspective indicative of the status quo not only constrains the design exploration but also fosters future technological solutions that are ignorant of the needs and considerations of often marginalized and disenfranchised groups, such as black/African Americans in the U.S. While this is an unintended consequence of the designer's decision making, the implications can be profound.

Cast primarily in an epistemological sense in connecting with HCD, Afrofuturism represents a means by which diverse solution possibilities can be cultivated and realized, expanding the solution space both in novelty and, equally as important, inclusivity. Inclusivity matters in technology design. Without appropriate processes, countermeasures, and advocacy, we risk constructing technologies that "mirror a narrow and privileged vision of society, with its old, familiar biases and stereotypes" [5]. This challenge vividly and unfortunately reminds me of an essay in the *Atlantic* entitled "Technology Versus African Americans" by Anthony Walton. He states that:

… blacks have participated as equals in the technological world only as consumers, otherwise existing on the margins of the ethos that defines the nation, underrepresented as designers, innovators, and implementers of our systems and machines. As a group, they have suffered from something that can loosely be called technological illiteracy. Though this has not been the point of technological innovation, it has undeniably been its fallout. It is important that we understand and come to terms with this now; there are technological developments in the making that could permanently affect

the destiny of black Americans, as Americans and as global citizens [6].

Afrofuturism offers a potential antidote to this thesis. Complementary to (and often lacking in) speculative and critical design approaches such as science fiction prototyping (which uses science fiction to speculate on technology and the future), Afrofuturism facilitates a more empathic design engagement that explicitly places the often disenfranchised black voice central in the design narrative, with an intent of universal betterment through and by technology.

A CASE STUDY: MORE INCLUSIVE WEARABLE TECHNOLOGY DESIGNS FOR BLACK/AFRICAN-AMERICAN WOMEN
In the context of my current work in exploring the experience-design aspects of connected fitness technologies (e.g., activity-tracking technologies such as Fitbit devices), Afrofuturism has been transformative in motivating design decision making for more inclusive and impactful designs. This is particularly true in the design and engagement of wearable technologies by black/African-American women, for whom considerable health disparities exist.

A recent study confirms earlier anecdotal evidence that suggests the skin color (i.e., skin pigmentation) of participants affects the accuracy of wrist-based devices that use optical heart-rate monitors [7]. This inaccuracy results in higher error rates when extrapolating energy expenditure (i.e., caloric burn). In particular, errors are worse for participants with darker skin [8]. This is truly problematic, especially as the potential of wearable technology in increasing physical activity levels is viewed as promising in mitigating many of the health disparities experienced by black/African-American women.

Algorithmically, these technologies are also seemingly lacking in responding to the physiology of the black body. Countering the assumption that the energy needs of individuals with the same body weight are the same, a recent study offers evidence that indicates that black/
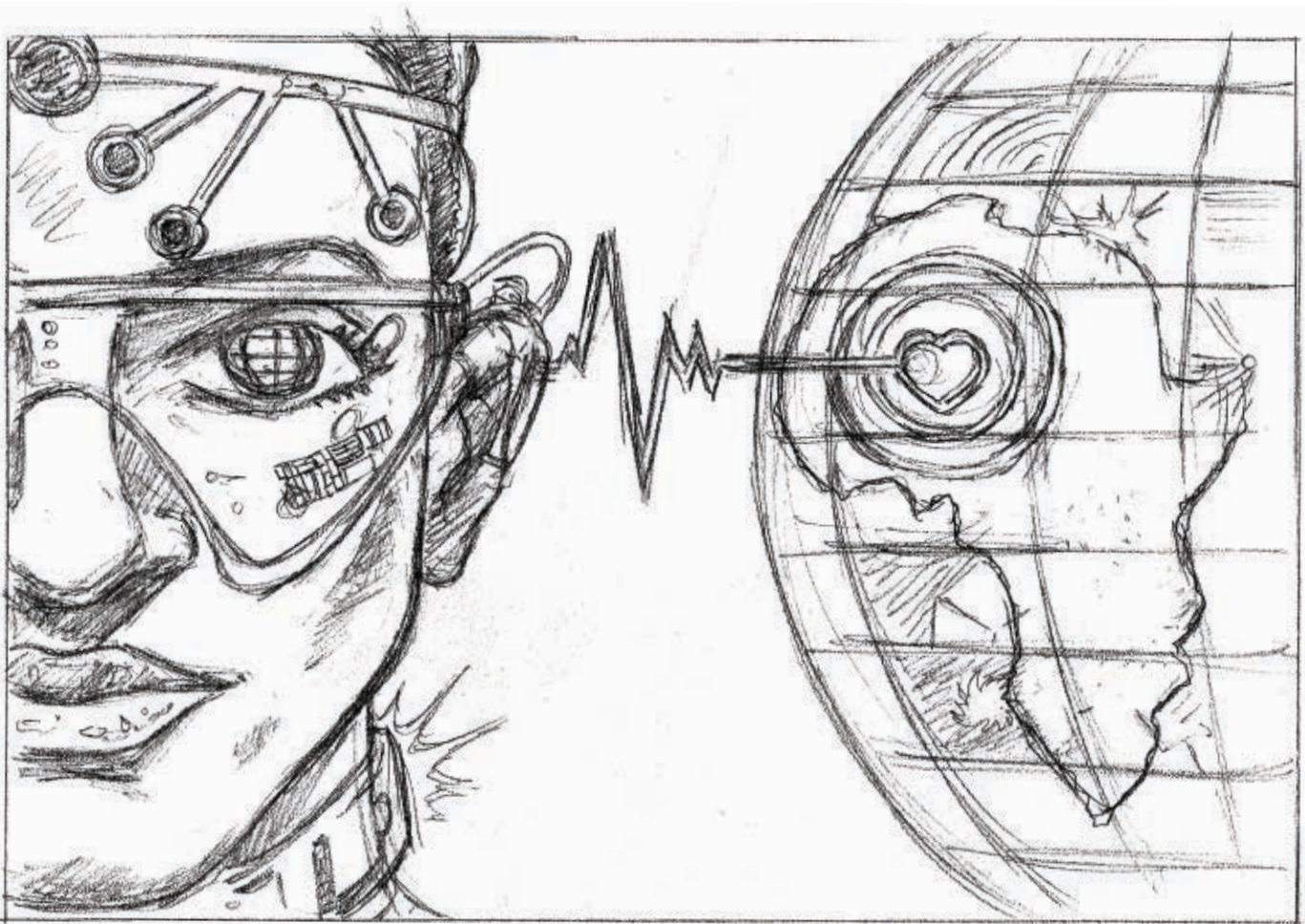
Figure 1. Global pulse concept.

MIND / GLOBAL PULSE

African-American women have lower energy requirements than Caucasian women. This means that black/African-American women must burn more calories to achieve a weight loss similar to that experienced by Caucasian women [9]. This evidence, coupled with the discussed error rates, suggests that the use of wearable technologies by black/African-American women in gauging and tracking caloric burn may actually be leading to behaviors counter to their weight-loss goals and/or objectives. Truly, technology, in this case, is not working for all.

Moreover, the type and nature of insights offered by these technologies to motivate the user in increasing physical activity often differs. Current technologies focus on more quantitative measures (e.g., calories burned or number of steps taken). However, more qualitative representations of collected and analyzed quantitative measures might be more appropriate in engendering behavioral change around physical activity, especially for black/African-American women.

This is illustrated in insights offered by the work and success of GirlTrek, an organization whose aim is to "inspire black women to change their lives and communities by walking." In a recent *New York Times* piece, GirlTrek is described as a success in spurring behavior change through more qualitative approaches:

They don't talk about hypertension or body mass index, but about feeling less anxious and having more energy. They don't talk about looking good, but about looking alive: having the "GirlTrek glow." They inspire women with images of courage and dignity. "They have lots of process motivators around black history—walking as Harriet Tubman did or retracing the steps at Selma" [10].

By placing the voice of the GirlTrek women central in solution-space exploration—in the vein of engaging an Afrofuturism design lens—a *re-imagined narrative* depicting the relationship of user to insights, in motivating physical activity, unfolds, and a

re-contextualized design space emerges. More ecologically and culturally situated design solutions are now enabled and fostered.

Imagine the design possibilities. Figures 1 to 3, realized in collaboration with Marcel L. Walker, an artist from Pittsburgh, offer such a speculative design exploration. Figure 1 reflects an augmented reality concept centered on notions of community in inspiring behavioral change through the couching of physical activity levels within a global collective context. Figure 2 offers an activity-centric concept that highlights the application of material and styling in both depicting and enhancing physical activity performance. Figure 3 depicts a design instantiation that features a chest-positioned form factor that leverages visual elements (e.g., glow) in portraying physical activity levels. While these designs are not meant to be implemented as imagined, these speculative design artifacts are intended to provoke and trigger a more inclusive design exploration

Figure 2. Activity-centric concept.

and debate about both users and the context of use.

So, how did the current state of affairs evolve? How did a class of technologies with such potential for societal benefit come to exist while being limited in both use and relevance to diverse groups? By no means am I suggesting that what is being witnessed is deliberate. Other variables are often at play—evolving technological capabilities (e.g., sensor technologies), market pressures, limited design and evaluation resources, and, as stated earlier, simply the frequent *homogeneity in voice and perspective in technology design* commonly hamper more inclusive efforts. However, these factors, individually or collectively, cannot be given a pass; their consequences—*the potential disenfranchisement of a core user group*—simply dismissed as collateral damage. Frankly, we as an HCD community know and have known better (e.g., "you are not the user").

LEVERAGING AFROFUTURISM IN HCD

Thus, in unpacking Afrofuturism's value and power within the HCD space in "knowing better," three points of leverage become apparent:

• *A lens for more empathic design engagements.* Aligned with the core tenets and emerging concepts of HCD such as systems thinking, value-sensitive design (VSD), culture-centered design, value-oriented and culturally informed approach (VCIA), and post-colonial computing, Afrofuturism as a design lens fosters empathy. Afrofuturism, in supporting a deeper design engagement, offers degrees of design freedom in exposing and countering the "unexamined assumptions" that often constrain and limit the solution space. As such, Afrofuturism helps to make visible how traditional HCD design practices can be, while not necessarily intentionally, both culturally located and power laden.

• *A pathway for inclusion in the engagement of the imagination in HCD.* Echoing Bruce Sterling, Afrofuturism can plug the imagination gap, offering a better and potentially more inclusive imagining of future possibilities in technological design. Afrofuturism in application affords a more structured engagement of the imagination in design decision making, albeit more tailored, supporting speculative design approaches such as science fiction prototyping [11] and inclusive design frameworks such as equityXdesign [12]. Afrofuturism offers a framing for exploring and understanding the potential ramifications of the technology (e.g., step 3 of the science fiction prototyping process and design principle 5—speak to the future—of equityXdesign), specifically on diverse populations.
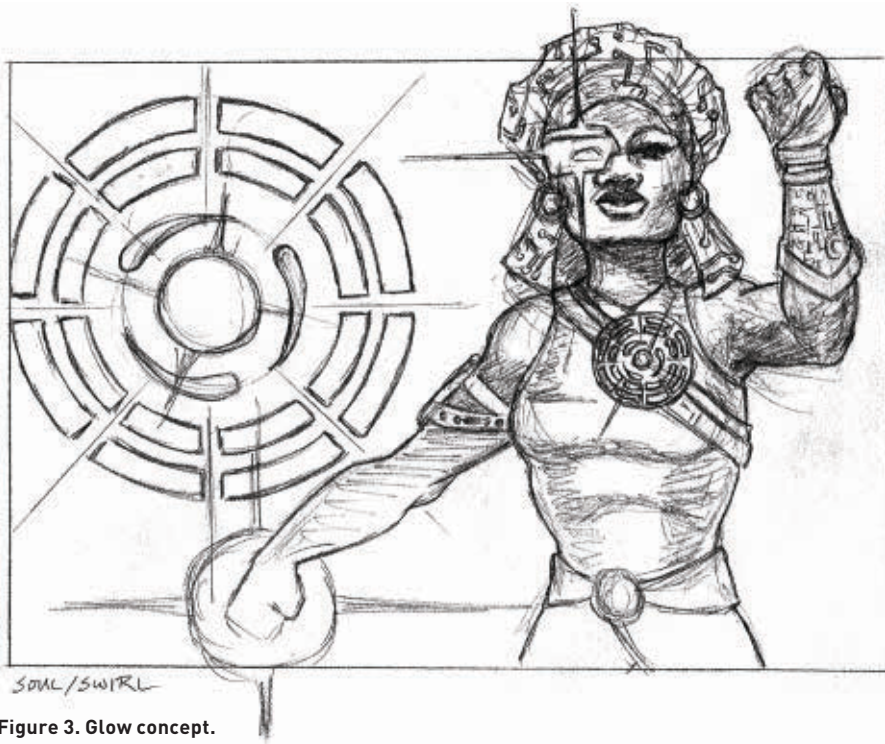
Figure 3. Glow concept.

As such, Afrofuturism lessens, in a proactive sense, the unintended consequences of design decisions.

• *A mechanism for engaging often underrepresented and disenfranchised groups, particularly black/African Americans in STEM.* The value of Afrofuturism extends beyond the considerations of the black "perspective" in the process of designing future technologies, even as it ensures that this group—these voices—are central in the decision making and conversations around future systems. In increasing the needed representation of black voices in technology design, Afrofuturism provides leverage in engendering more active engagement of underrepresented voices in related STEM fields. As an example, the movie *Black Panther,* through its Afrofuturistic imagery, plotline, and premise, could inspire black/African-American young people to explore STEM and STEM careers, mirroring many of the discussions and outcomes of the STEM-engagement efforts spurred by the release of the movie *Hidden Figures.*

The HCI community is at a crucial juncture. HCD and related approaches (e.g., design thinking) are often heralded as the saving grace in technology design and deployment for the betterment of all. However,

as illustrated in the connected fitness space and as is clear in other contexts, design patterns, behaviors, and norms are being ingrained within the HCD culture and practice that, while unintentional, may lead to future technological solutions that do more harm than good.

Afrofuturism, as a countermeasure, affords greater reflection, intentionality, and voice to considerations of inclusion within the design process. While Afrofuturism in particular aids the designer in identifying those salient "cultural retentions that blacks/African Americans bring to the technologies that they use" [13], its use supports decision making that lends a more *complete and inclusive* picture of all people within the technology-design engagement. Afrofuturism, as such, is a design lens through which the needed motivation and actions can be both catalyzed and operationalized in increasing inclusivity and thus equity within the culture and processes of HCD.

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Extension of "Introduction to Speculative Design Practice" text published in the Introduction to Speculative Design Practice – Eutropia, a Case Study booklet

Introduction to Speculative Design Practice

Ivica Mitrović

Introduction to Speculative Design Practice

Ivica Mitrović

Discursive and Critical Design Practice

From the modernist perspective, design has been primarily regarded as a problem-solving practice, usually dealing with problems detected by other professions. In this sense, the mission of design is closely linked to the needs of the industry or, in a broader sense, the creation of a better living standard. From such modernist perspective, design is seen as a service activity that primarily addresses clients' needs. However, as graphic designer and publicist **Dejan Kršić** points out, design has always been a signifying practice that generates, analyses, distributes, mediates and reproduces social meaning, especially nowadays, in the context of the new social, technological, media and economic conditions.[2]

The relation between design and art (and other related disciplines) can be observed in several stages, i.e. from the high modernist synthesis of applied arts, visual arts and design in the 1950s, to the scientification of design throughout the 1960s and the emphasis on its rationality and the postmodernist position in which it is once again positioned at the centre of the interrelations of various disciplines, no longer through a complete synthesis, but, above all, through their interaction. Therefore, it comes as no surprise that an increasing number of designers take upon some new approaches to design. These "new designers" act on the borders of traditionally defined disciplines, removing the borders between them.[3]

In their research, these new designers relate to diverse fields of science, primarily computer sciences and engineering, sociology, psychology, architecture, and, in the recent times, increasingly to biotechnology, all with the goal of critically reflecting on the development and role of technology in society. Designers re-think
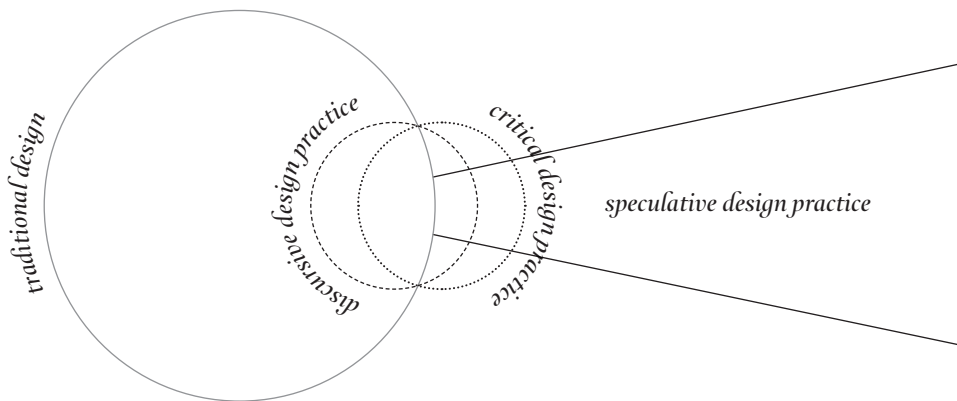
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fig. 1   Traditional design vs Speculative design.

the role of technology in everyday life, without dealing with the applications of technology, but rather by considering its implications. Turning away from the commercial aspects of design with the focus on the demands of the market, they are now engaged with a broader social context. The new designers use design as a medium and focus on concepts and artefacts, and, rather than solving problems, ask questions and open issues to discussion.

The researcher and educator **Ramia Mazé** says there are three different approaches to critical design practice: the first sees designers reflecting on and critically questioning their own design practice; the second approach is based on a macro-perspective, re-thinking the design discipline as such; whereas in the third approach the design discourse is directed towards broader social and political phenomena.[4] Mazé points out that these approaches are not mutually exclusive, as they most often intertwine and supplement each other in practice.

Historical references of critical design practice point to radical architecture of the 196øs, and partially to the critical practice of avant-garde and neo-avant-garde art. They are particularly inspired by the narrative quality and imaginary worlds of literature and film. Design and critical practice create more intense links in the interaction design, a specialized field of design that emerged in the early 199øs as a result of the accelerated development of digital technologies. The classical definition of interaction design describes it as a practice dealing with the ways in which people connect via the products and technologies they use, i.e. with the design of our everyday lives via digital artefacts. Today, it is most commonly associated with the design of digital products, applications or services.

In this context, through his own personal design practice, and later through the establishment of a novel educational approach as the Head of the *Design Interactions Department* at the *Royal College of Art* (the *RCA*) for many years, **Anthony Dunne**, in an approach he termed "critical design", has dealt with the aesthetics of the use of new technologies in the context of electronic products.[5] However, over the years, and in collaboration with **Fiona Raby**, he expanded the focus of his activities to the cultural, social and ethical implications of new technologies, and, most recently, on speculations about broader social, economic and political issues.[6]

Speculating through Design: a question instead of an answer

Speculative design is a critical design practice that comprises or is related to a series of similar practices known under the following names: critical design, design fiction, future design, anti-design, radical design, interrogative design, discursive design, adversarial design, futurescape, design art, transitional design etc. For instance, design fiction is a potential genre of speculative design practice, and "critical design", as defined by Dunne, is a possible approach.
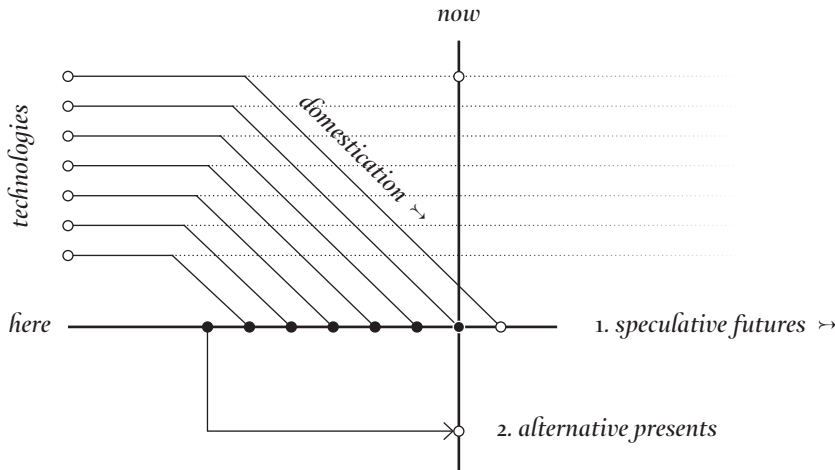
fig. 2 Alternative presents and speculative futures (Auger).

HERE AND NOW: *everyday life and real products available on the market. The higher the line, the more emergent the technology and the longer and less predictable the transit to everyday life. Speculative futures exist as projections of the lineage in future. The alternative reality presents a shift from the lineage at some point in the past to re-imagine our technological present.*

Speculative design is a discursive practice, based on critical thinking and dialogue, which questions the practice of design (and its modernist definition). However, the speculative design approach takes the critical practice one step further, towards imagination and visions of possible scenarios. Speculative design is also one of the most representative examples of the new interaction between various disciplines. It is therefore interesting to see how new designers view their practice: they call themselves trans-disciplinary, post-disciplinary or even post-designers, quite often even simply – designers. Sometimes they do not even declare to be acting from the design perspective at all.

By speculating, designers re-think alternative products, systems and worlds. Designer and teacher at the RCA, **James Auger**, says that this design (i) moves away from the constraints of the commercial practice (steered by the market); (ii) uses fiction and speculates on future products, services, systems and worlds, thus reflectively examining the role and impact of new technologies on everyday life; (iii) and initiates dialogue between experts (scientists, engineers and designers) and users of new technologies (the audience).[7]

Today we can see that capital uses promotion and investments in the technology by programming the technological development to actually colonialize the future.[8] In this technological context, design often acts in the so-called "Western melancholy"[9] discourse where "the problem" of technological alienation, manifested as the extinction of real social interactions, "is resolved" with the production of new technologies or new products as an intention to once again insti-

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gate long gone social interaction. And, whereas traditional design actually legitimizes the status quo, speculative design envisages and anticipates the future, at the same time helping us to understand and re-think the world of today. This approach is most often based on the question "what if?", examining the interrelation between potential changes in the technological development and social relations. Rather than engaging only with a future that we desire, this approach also deals with the future we fear might come true if we fail to critically consider the role of new technologies in the society.

Such an approach to design does not focus on meeting the current and future consumer needs, but rather on re-thinking the technological future that reflects the complexity of today's world. Speculative practice opens space for discussing and considering alternative possibilities and options, and imagining and redefining our relation to reality itself. Through its imagination and radical approach, by using design as a medium, it propels thinking, raises awareness, questions, provokes action, opens discussions, and can offer alternatives that are necessary in the today's world.

Speculative design fictions find their inspiration in science fiction, which has a long history of creating imaginary scenarios, worlds and characters with which audiences become closely identified. Imaginary worlds are an exceptional source of inspiration to designers in their re-thinking of the future. However, such approaches to speculative fiction, as conceptualized, for instance, by the science fiction author and futurist **Bruce Sterling**,[10] are often part of the technological paradigm, and, as such, reaffirm the technological progress instead of questioning or

being critical of it. By the creation of imaginary worlds, and by designing fictions, we actually question the world we live in – its values, functions, its metabolism, as well as the expectations of its inhabitants.

Ramia Mazé underlines that design practices can never be neutral – there are always critical and political issues, as well as alternatives and futures linked to them.[11] Thus, Dunne and Raby emphasize the potential of speculative design for large-scale social and political issues, such as democracy or sustainability or the alternatives to the existing capitalist model.[12] In this context, publicist and activist **Naomi Klein** warns that the present domination of dystopian scenarios in literature and films leads to a view where catastrophic scenarios are unavoidable, which results in making us passive rather than proactive.[13] It should be kept in mind, therefore, that the purpose of speculative design fictions should not be utopian or dystopian science fiction visions of the future, but dialogue on what the future can be.

For instance, with its explicit focus on the future, the speculative design approach offers a stimulative framework for re-thinking visions of networked cities of the future.[14][15] **Liam Young**, a speculative architect who says that his work lies in "a space between design, fiction and future",[16] sees speculative fictional cities of the future as a starting point for debate and discussion, scenarios that we will love or hate, which will "not just anticipate, but actively shape technological futures through their effects on collective imagination".[17] He points out that "cast as a provocateur and storyteller, the speculative architect instigates debate, raises questions and involves the public as active agents in the future of their cities,

and brings us closer to the technologies that are increasingly shaping the urban realm and the scientific research that is radically changing our world".[18] However, speculative design can also function in the so-called "real world", i.e. in companies employing designers to consider scenarios for future trends and research into the adoption of emerging technologies.

Methodology?

Although the speculative approach to design can primarily be seen as an attitude or position rather than a traditionally defined methodology[19], especially since many designers practice the approach without using this term, we can still point out some distinctive characteristic of the approach and determine a basic framework. Since speculative design continuously interacts with other related practices, fields and disciplines, it uses any methodology that is accessible and appropriate at any given moment. For instance, it legitimately uses tools, techniques, instruments, methods, genres and concepts such as fictional narratives, film language, screenplay, storyboard, user testing, interviews / questionnaires, games, but also media and pop culture phenomena, such as hidden camera, elevator pitch, observational comedy, stand-up, etc. Anything considered suitable at a given moment is legitimate.

Design is based on the observation and understanding of the world around us, and by practicing it we endeavour to articulate our needs, desires and expectations. The
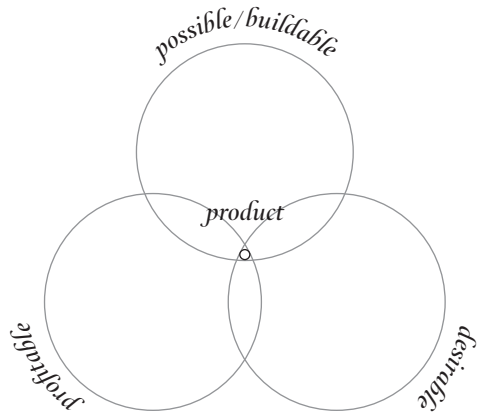

fig. 3 Possible, Profitable, Desirable (defining an idea / concept as a product) (Near Future Laboratory). All products have to be present in the center to be viable on the general market. Speculative products and services (including systems and worlds) can be fictionalized as existing in the center.

problem arises when we want to expand the horizon of our observation in order to identify emergent themes. The question is how to begin with the design of concepts when we do not know what the design space itself will look like, let alone who its users will be. The approach and practice of speculative design is a particularly stimulative strategy for researching the "space" that lies beyond "current" and the "now".

Speculative practice may seem as a top-down approach at first glance, placing the designer at the centre of the process, offering her personal vision, without involving the target audience. However, let's keep in mind that one of the main goals of speculation is the inclusion of the public in the re-thinking and dialogue on new technological realities and new social relations. Also, a successful speculative project is necessarily connected to the research of a so-

cial context, and is fundamentally directed towards the individual needs and desires.

The practice demonstrates that the speculative approach has potential in multidisciplinary teams, where it initiates dialogue and generates a context in which the participants can simultaneously re-examine the boundaries of their disciplines and discover links with other disciplines.[20] The process can be split in a few steps: the first one implies critical design research to define a design space. After this, speculative concepts and ideas are generated and further developed to finally articulate forms which are suitable for communication.

The speculative approach frequently uses methods of contemporary art. However, as opposed to general artistic practice, design uses a language recognizable to a wider audience, and is not confined only to galleries and salons. Publicist and critic

Rick Poynor points out that, contrary to artistic practices, design is not declared an artistic fantasy out of hand, and ignored by companies, institutions and policy-makers.[21] Design is also in close contact with the new technologies and consumer society, popular media and pop culture, which is why today it boasts a significant media and social impact. Pop-culture forms, through novels, films, computer games and so on, often seem to be better platforms for speculative projects than galleries and museums (actually, that is a natural environment for design).[22]

Speculative practice is related to two basic concepts: speculation on possible futures and the design of an alternative present. Speculation on the future generates scenarios of the future that critically question the concept of development, the implementation and use of new technolo-

fig. 4 *The Future Cone (Voros via Dunne and Raby, via Revell).*
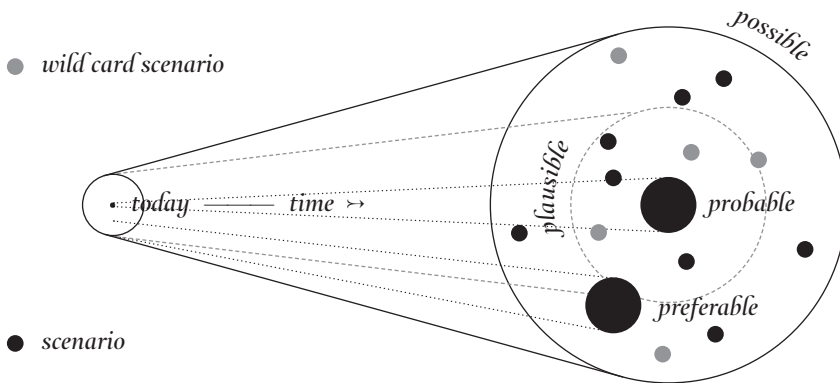
A diagram of potential futures (PPPP). PROBABLE: *traditional design space.* PLAUSIBLE: *alternative futures, linked with the today's world.* POSSIBLE: *includes all extreme scientifically possible scenarios.* PREFERABLE: *using speculative design to debate and discuss what is the preferable future.* BEYOND CONE: *fantasy.* WILD CARD SCENARIOS: *low-probability and high-impact – to think about and discuss a much wider set of possibilities.*

gies and their wider social implications. The concept of an alternative present refers to the creation of parallel urban technological realities. These specific approaches offer a rich narrative potential for the questioning and criticism of technological development, but also of contemporary society as such. The issues dealt with can be exceptionally broad, from big socio-political topics to ordinary everyday activities.

Speculative fictions do not exist solely in a futurist vacuum, because the past (i.e. the present we live in) fundamentally impacts our designed vision of the future. As opposed to the open form of science fiction, in speculative fiction there is a link between the present and the imaginary future.[23] Therefore, when re-thinking the future we must think about technologies and social relations that can emerge from the current world we live in. We must bring into question the assumptions and prejudice we have about the role of products and services in everyday life. The extension of the everyday into the future is what makes speculative design fiction powerful and profoundly intriguing.

Dunne emphasizes that these design processes primarily deal with designing relations, rather than objects themselves.[24] This is why speculative design can, as a result of such processes, offer new speculative products and services, even new social and political systems (worlds). However, the success and impact of a speculative approach, as perceived by the target audience, primarily depends on the believability of the designed artefacts and potential scenarios of the future. The concepts materialize and communicate in the form of narrative or documentary video and film

fictions, fictional products (prototypes), software applications, instructional videos, user manuals, graphs/diagrams, TV news reports, fashion accessories, etc. The so-called "diegetic prototypes" originate in cinematography where they exist as fictional but entirely functional objects whereas in speculative scenarios they serve to create the suspension of disbelief about change.[25]

Speculative practice draws inspiration from the poetics of literature, music, visual arts, film, computer graphics and architecture, especially in their avant-garde forms. Storytelling has considerable power and a deep-running tradition in human history in stimulating discussions and critical thinking. Speculative scenarios are open-ended and offer the audience the possibility of personal interpretation. They frequently include humour, often of the dark variety, close to satire, which activates the audience on an emotional and intellectual level, in a way similar to literature and film. Speculative scenarios are often unusual, curious, occasionally even disturbing, but desirable and attractive to the audience. However, only concepts that successfully communicate with the suspension of disbelief, actually provoke attention, emotions, and stimulate thinking and discussion, which, after all, is the main goal of speculative practice.

Interviews: discourse

1. **What is speculative (critical) design to you?**

2. **What is the role of the speculative (critical) design in the contemporary design practice, and, in the broadest sense, in the world we live in?**

3. **What kind of (design) educational concept would be prudent as a response to the contemporary world challenges?**

James Auger

James Auger is a designer employed as an Associate Professor at the *Madeira Institute of Interactive Technologies* (M-ITI), Portugal. In his research Auger uses design practice to question the role of technology in everyday life. His work has been published and exhibited internationally, including *MoMA*, New York; *21_21*, Tokyo and the *National Museum of China*.

1 My opinion on this changes daily. A few years ago, I wrote my own definition that describes the practice of extrapolating emerging technologies into hypothetical future products but now I find this limiting as it focuses too much on futures. Currently, I view speculative design as a counter to normative design and its role in the world – a form of design that can operate free from the constraints imposed on market-based models – constraints of economics, aesthetics, technology, politics, ethics and history. Relaxing or removing these constraints allows the designer to imagine new and alternative possibilities and to challenge established systems and roles.

At this time there are three basic themes: ① Arrange emerging (not yet available) technological "elements" to hypothesise future products and artefacts, or ② Apply alternative plans, motivations, or ideologies to those currently driving technological development in order to facilitate new arrangements of existing elements, and ③ Develop new perspectives on big systems.

With the purpose of: ① Asking "what is a better future (or present)?" ② Generating a better understanding of the potential implications of a specific (disruptive) technology in various contexts and on multiple scales – with a particular focus on everyday life. ③ Moving design "upstream" – to not simply package technology at the end of the technological journey but to impact and influence that journey from its genesis.

2 Contemporary design is a fundamental part of a postmodern socio-economic system, inextricably linked to entrenched notions of progress, the manipulation of desire and conspicuous consumption. The assumption is that progress leads to a better life, dogma that has been preached by both governments and corporations since the industrial revolution. The notion of better was straightforward when technology solved simple problems but things are becoming increasingly complicated as automation creeps inexorably into the most subtle and sensitive aspects of human life.

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The incessant demand (by politicians and shareholders) for growth has led to a situation where technological development is rarely questioned – and mainstream design exists within this mechanism. Speculative design, by existing outside of the system, can question the role and responsibility of design and act as a counter to these problematic ways of being. It can understand the implications of a particular technology, embrace the complexities of cultural, societal, technological and natural systems and how these interweave, overlap and contradict. Once these systems are better understood they can be challenged or optimised.

The key challenge for speculative design is to find more comprehensive ways of moving beyond the gallery – or changing how the gallery operates. It needs to become more serious.

3 As a young design student in the 9øs I was proud to be practicing in my chosen discipline and happily set about learning how to develop new products that people might want to own. But looking back I realise that my education (and the majority of other designers') desperately lacked any critical or philosophical foundation.

Myths taught at design school: ① Design is good ② Design makes people's lives better ③ Design solves problems.

Of course, design can be and do all of these things but it has become so intrinsically linked to the complex systems of commerce and innovation that it has essentially been reduced to a novelty machine. Optimism is endemic, meaning that it is unnatural for designers to think about the implications of their (technological) products: technology is good; products are good; and the future (through technological products) will therefore also be good!

Once these myths are exposed, a new form of design becomes possible – more responsible, more intellectual and more creative. A design that embraces complexity, understands its history and essentially asks a lot of questions.

Nicolas Nova

Nicolas Nova is a writer, ethnographer and consultant at the *Near Future Laboratory*. He is the curator for *Lift Conference*, a series of international events about digital culture and innovation.

1 The (sort of) canonical definition of speculative design is that it is an approach to design that does not seek solution-oriented projects. Instead, it attempts to probe alternative (technological?) futures. Its purpose, according to the various pioneers of this design genre, such as **Anthony Dunne** and **Fiona Raby**, is to allow critical reflection through future narratives that are often mediated through objects.

   In the *Near Future Laboratory*, we are interested in a variant called "design fiction". This variant **Bruce Sterling** described as: "The deliberate use of diegetic prototypes to suspend disbelief about change". That is the best definition we have come up with. The important word here is "diegetic". It means that you are thinking very seriously about potential objects and services and trying to get people to concentrate on those, rather than entire worlds, political trends or geopolitical strategies. It is not a kind of fiction. It is a kind of design. It tells worlds, rather than stories. In our case, we take an even narrower definition: the depiction of products / services / situations as if they had already existed or had occurred so that we can learn how to innovate and create new opportunities. More specifically, in our work we use standard objects and media conventions (a video showing a person's life, a catalogue of fictional products, a fictional newspaper, a manual of non-existing devices, etc.) to express ideas about future uses of technologies.

   Perhaps the biggest difference in respect of speculative design is its stronger focus on artefacts that belong to popular culture (e.g. catalogues and manuals), as well as the importance of humour / irony that is present in these objects. To some extent, the way we see design fiction at the Laboratory is less oriented to the context of a museum or gallery (although our work may be shown in such places), and aesthetics.

2 The role of speculative design and design fiction projects is to experiment with change (be it technological, social or ecological) and project concepts dealing with potential futures.

   In our practice at the *Near Future Laboratory*, we use design fiction to uncover unexpected challenges, *unknown unknowns* and hidden opportunities of certain changes in everyday life situations. Since we generally use design fiction in the context of design-oriented projects, we feel that this helps us in forming concepts and evaluating their implications. For instance, instead of discussing networked objects and automation in abstract terms, it can foster dialogue within the design team about the necessity (and generally the ethics) of certain product features. This approach works well for abstract concepts because it forces us to work backward and explore the consequences of artefacts or by-products linked to a certain vision (e.g. a user manual, a fictional newspaper) and then reconsider the products that are currently being designed.

In a broader context, for example in the case of a public debate on certain socio-technological changes, the idea is that speculative design aims at initiating discussion. The main problem here is that the objects produced in the context of such projects are not enough; the "debate" needs to be orchestrated by designers. And that is not easy. The debate should indeed be inclusive, with a certain level of diversity (of perspectives and people represented in the design process), and with a dedicated attention given to what will emerge from this debate (otherwise the whole thing becomes pointless).

3 Considering the challenges at stake for our planet, three things preoccupy me the most: ① From a general perspective, I think the work of French anthropologist **Philippe Descola** should be taken to the letter here: we need to understand how other cultures "compose worlds", how different people (from Achuar hunters to physicists working on the Large Hadron Collider in Geneva, to take Descola's examples) "see things in the environment", how they live together and build an understanding of the world around them. To some extent, History (how people lived in the past) and Ethnography (how people live in different cultures) are quite helpful for that matter. Curiosity and interest in those things are mandatory for any designer. Such ways of "composing worlds" can be seen as a source of inspiration for today's and tomorrow's challenges. ② It is wrong to think of the future as a singular word. Tomorrow is not something given, it is not falling from the sky as a meteorite and it is certainly more than a uniform vision produced by the Western science fiction. There are several scenarios for the future, and they have not been written, yet. ③ It is impossible not to consider ecological consequences and implications of any project involving technology and/or social change. The new media type of design should take that into account even if this implies reconsidering the mere existence of the project in the first place.

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Matt Ward

Matt Ward is the Head of the *Design Depart-ment at Goldsmiths, University of London*. His research spans a wide range of interests from speculative design to radical pedagogy. He is a practicing designer, writer and found-ing member of *DWFE*; a post-disciplinary, semi-fictional design syndicate.

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1 Critical and speculative design, to me, is a space of disciplinary ex-perimentation and evolution. It allows us, designers, to map out and explore the boundaries of our practice. Instead of at-tending to market forces, client needs, or historical norms, we get to imagine how the discipline could function under a new regime. This is why I am clear about CSD's pedagogic power, it allows for enfolding interdisciplinary concerns and methods into a broader social, cultural, economic, political, environmental imagining.

2 Speculation is part of every design-ers practice; we continually spec-ulate on the conditions of the world we are designing for. We imagine our work in the world, having agency, making change, from social transformation to economic success. Speculation is fundamental to the practice. However, as with all named "groups" or "isms", the nomenclature de-fines a certain economic / power relation-ship. The three dominant ones I would like to highlight are: speculative design as educational practice, speculative design as technological provocateur (beware of the innovation trap), speculative design as cul-tural production / enquiry.

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So let us start with the first:

CRITICAL AND SPECULATIVE DESIGN AS EDUCATIONAL PRACTICE

Critical and speculative design opens up a "natural" / "safe" space for designers to learn without the economic constraints of commercial practice. Although some argue this does not prepare students for the commercial world, I would argue the opposite – it equips them with tactics to manage their role in a complex, changing, dynamic world (which is the role of education). Through speculation on the possibility of design, thinking through some of the complexities of the context of production and consumption, you can find new social realities, new forms of practice, new economic models. And if you do not, at least you get a trial run where you test and train your imagination, build your conceptual and practical abilities.

THE INNOVATION TRAP

There is so much pressure and hype about the role of technology in the disruption of markets. Companies and investors have become hungry (ravenous) for "visionaries"; people who can predict the future of ‹insert anything›. This makes speculative design an attractive practice - not only do designers become attuned to the change role and function of technology, they also concentrate on what people want and do. Their superpower is the aesthetic articulation of these possibilities; narratives that allow for the colonisation of the future. The big worry for me, is that critical and speculative design become the advertising arm of venture capital. The evangelists of Silicon Valley, in search for the next big disruption, without the humility to understand the fragility and power of their future trajectories.

CULTURAL PRODUCTION / ENQUIRY

In this mode, Critical and speculative design operates at the intersection of art and research, but it is something distinctly different, it is DESIGN. There is an aesthetic enquiry into the way the world could be, highlighting problems, opportunities and ethical complexities. It tries to produce material that resonates with our current cultural and social context. It responds to dynamics of discourse, markets, science and economics in order to reflect and advance our understanding of the human / material condition.

3 I think it is essential for Design education to find and establish a place in "the academy" that is beyond the delivery of skills and "well trained workers" for the industry. The university becomes a place where a community of practitioners advance and expand the horizons of our discipline. This has profound economic and cultural value, but this shouldn't be the central driver and mark of success. Education becomes a space where we can unravel the complexities of the world, whilst trying to think of alternatives.

Ramia Mazé

Ramia Mazé is a researcher, educator and designer specializing in critical and participatory approaches to design for systems and products that alter social practices and public life. She is a Professor of *New Frontiers in Design* at the *Aalto University* in Finland.

1 My perspective on "critical practice" is of a kind of "criticism from within" design – i.e. based on and carried out by design means, by designers and by means of their own practical and operational modes. Of course, there are "critical practices" in literature, art, the sciences, etc., which take different forms. I have traced tendencies in such critical practices historically: "speculative design" and "critical design", as recognized in product, industrial and interaction design today, are just parts of longer and larger tendencies.

I am interested in the forms, effects and uses of the kinds of criticality that take the form of design processes and artefacts. What tangible and material forms may critiques of societal/environmental/technological phenomenon take? Critical practices can take forms that are critical of phenomena within design itself or they may take forms that are critical of phenomena outside of design. An obvious example is hacking – hacking can be understood both as a specific method or skill, engaging a critique of design methods and skills through those very same methods and skills. Hacking can also be understood as an ideological and political stance in relation to issues of ownership

and authorship, for example, as a critique of proprietary systems, industrialized production or media hegemony. Designers may be critical of many things, therefore, the important questions imply: "Critical of what? In what forms?"

I relate to "criticality" as a kind of intellectual and ideological foundation within a discipline (I have written about this in an article together with **Johan Redström** titled "Difficult Forms" and, in fact, **Dunne & Raby**'s book *Design Noir* also argues for this). In this, theory is mobilized for inquiry within the discipline ("outside in", i.e., theories from the social sciences or humanities applied to design) or for design to relate/criticise wider social phenomena ("inside out").

However, the most urgent questions for speculative and critical design today are: "Critical for whom? By whom?", the questions that **Luiza Prado**, among others, asks in order to reveal the biases and politics embedded in design.

2 There is a range of diverse perspectives in contemporary design that counter traditional views on what design is and what it should be about – e.g. "critical", "conceptual", "speculative", "relational", "radical", "(h)activist", etc., design. Perhaps this is not surprising – design today must redefine the premises and purposes of the discipline beyond its Industrial Age inception and logics, e.g. mass-production, market consumption, economies of scale, corporate protectionism, etc. Today, designers are operating within the academia, art world, public realm and developing world claiming a place for design in relation to a range of "other" people, practices, values and futures than those traditionally served by design.

My perspective is oriented towards "criticality" as it is developing across a range of design disciplines, including vivid discussions in graphics, fashion, architecture, etc., design and a long history of related terms and practices. I argue for the term "critical practices" (rather than the niche term/genre of "critical design") to characterize what I understand as a more substantial and growing development of "criticality" across design.

3 Increasing reflexivity is especially at stake for "post-industrial" design. Design today engages in society in unprecedented and powerful ways, yet our traditional education is still based on the Industrial Age concerns about material production and consumption. Engaging "other" people, practices, values and futures demands different foundations – which is the responsibility of design education and research to build. This will open the space for asking "for who", raising questions about who does design, who participates in design, who benefits from design, as well as other issues of power, class, ethnic, global, and gender dimensions involved. Reflexivity in design is not about intellectualizing or navel-gazing, but about an increased engagement in aspects of design practice (including its consequences "outside of" design). Design practices are not neutral – there are always critical-political issues, others, alternatives and futures involved.

Critical practices, design roles in society and educational foundations are at the heart of my current activities as Professor of *New Frontiers* in *Design at the Aalto University* in Finland.

Michael Smyth

Michael Smyth is a researcher and educator working on the development of urban interaction design. He has been active in the fields of human computer interaction and interaction design since 1987. He is the co-editor of the book entitled *Digital Blur: Creative Practice at the Boundaries of Architecture, Design and Art*.

1 Speculative design, for me is all about an attitude of mind. It is driven by the desire to explore and question possible futures while having the self-awareness to consider the human at the centre of design.

I grew up in a generation that can remember men landing on the Moon, we listened to the music of Ziggy and dreamt about a future and things that did not yet exist. Whether it was because I was young, but that future seemed a long way ahead, it was both beguiling but somehow disconnected from everyday life. The futures that stuck with me were the ones about people; they may have been living in futuristic worlds and driving flying cars, but their hopes, motivations and desires were essentially the same as mine. These were the futures that spoke to me then and continue to do so now.

2 The real strength of speculative design lies in its ability to create narratives that challenge our preconceptions about products and services and their role in everyday life. By locating these visions in familiar, while at the same time slightly ambiguous settings, speculative design has the power to make us stop and think, it can present us with narratives that subvert and twist our expectations of the future and subsequently our understanding of the present.

We appear to live in a world where anything is already possible, at least from a technological perspective, so perhaps it is up to speculative design and the visions it creates, to restore our sense of wonder at what just might be possible.

3 One that helps us all to understand that the people we see and read about, who are facing exceptional challenges and hardships, are ordinary people- they have the same hopes and dreams as you and me and that design is just one way of demanding that better world for us all.

Cameron Tonkinwise

Cameron Tonkinwise teaches and researches design philosophy and design for sustainability. He is the Director of *Design Studies* and Doctoral Studies at the *School of Design, Carnegie Mellon University*. Cameron's current work focuses on designing for systems of shared use and "Transition Design".

(The following interprets this question to mean, at the moment, what passes for "Speculative (Critical) Design" [as opposed to what it should be doing].)

1 Speculative (Critical) Design names a particular style of design practice that is obsessed with ambiguity. This style involves a game that negotiates careful contradictions: ① The artefacts must be immediately and recognizably of the highest design quality. They should have a highly refined finish in their materiality that looks expensively crafted. However, this should also be combined with something paranoically visceral. ② The artefacts must be quickly recognizable as very distinct from mainstream commercial design. The artefacts should appear to be highly functional but toward a purpose that seems implausible. What they accomplish should seem to viewers to lie exactly between the silly and the scary. ③ The ultimate aim of the design is to appear to be thought-provoking. To do this, the artifact should indicate that its context is near-future. If it is too futuristic, it will appear to

be mere speculation; if it is too close to the present, viewers will expect it to evidence a researched critical understanding of its topic. More effective Speculative (Critical) Design plays exploit popular current fears. ④ The designer should withdraw behind modernist art claims of the artifact speaking for itself on the one hand, and postmodern art claims about the death of the author on the other. Whatever debates viewers have or do not have about the artifact are in no way the concern of the designer.

(The following interprets this question to mean, at the moment, what should be the role of "Speculative (Critical) Design" [as opposed to what it is currently doing].)

2 Design arose as an agent of modernism. Its project was to materialize into everyday life strong visions of radically different futures. The role of Speculative (Critical) Design is to respond to the lapse of this project. ① Speculative: As global consumer lifestyles have spread across the world, they seem to degrade the capacity of communities and organizations to create compelling visions of alternative ways of living. Designers need to revive a capacity to imagine and share very different future lifestyles that expand our sense of what is preferable beyond what is currently considered probable and even plausible. Speculative (Critical) Design should be a regular source for rich pictures of diverse "social fictions" (as opposed to techno-fetishizing "science fiction"). ② Critical: Design is a process for evaluating possible futures before they are materialized. Designers must creatively foresee a wide

range of socio-material consequences as possibly arising from different design options. Speculative (Critical) Design should be constantly struggling to stay ahead of current sociotechnical developments with affectively persuasive warnings about the futures being afforded by the release of those products and services. ③ Design: The profession of design appears to be primarily about the creation of artefacts, whether communications, products or environments. But the practice of design is actually about persuading a wide range of actors – fellow designers, suppliers, investors, logistics managers, users, etc. – to work together on materializing a future in which such an artifact exists. Speculative (Critical) Design should name the process orchestrating the debates through which groups of people come to decide to work together on realizing a particular future.

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3 There is a danger entailed by all that I have said in previous answers. An obsession with the future, as compellingly desirable despite being risk-laden, tends to downplay the diversity of the present. Speculative (Critical) Design has to date been irresponsibly lacking in diversity. This is not just a political correctness problem, though it is clearly part of ongoing normalizations of North Atlantic late capitalism that marginalize the different lifestyles and values of peoples in the Global South and East Asia. It is an epistemological error when Speculative (Critical) Designers at the *Royal College of Art*, for instance, imagine what they believe to be dystopian scenarios in a distant future, when in fact people in other parts of the world are already living versions of those lifestyles.

The Eurocentrism of Speculative (Critical) Design is not particular to Speculative (Critical) Design but a pernicious failing of all design, design education and especially design history.

A priority for all design education should therefore be to learn about as many diverse cultural lifestyles as possible. The presumption should be that every culture outside the hegemonic uniformity of the global consumer society has ① visions of futures ② consequent risk evaluations ③ technologies ④ commitments to values manifest in ①, ② and ③ other than convenience, comfort, efficiency, and productivity

Designers should, as a matter of first priority in relation to any design situation, approach other cultures, not as examples of the past, but as plausible models for the future.

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Francisco Laranjo

Francisco Laranjo is a graphic designer based in London (UK) and Porto (Portugal). His writings have been published in Design Observer, Eye, Grafik, among others. He is the editor of the design criticism journal *Modes of Criticism* (www.modesofcriticism.org).

1 Critical design was popularised by the interaction design duo **Anthony Dunne** and **Fiona Raby**, following Dunne's PhD at the *Royal College of Art* and the subsequent book *Hertzian Tales* (1999). Rebelling against an established view of design as a tool of seduction and to fuel economic interests, they argue for a more critical role of design. By this they mean the need to develop a disciplinary ethos, which aims to question culture and social habits, rather than affirming market and consumer trends. But this approach to design, which gained momentum from the mid-2000s onwards, revealed several flaws.

First of all, while design as criticism is relatively new to product and interaction design, it has a rich history not only within architecture but also graphic design. This is often overlooked and this mode of approaching design is recurrently presented as novelty. Secondly, "critical design" became synonymous of a vague "what if" mode of design predominantly practiced by white, middle-class Europeans, generating predictable dystopian visions of the world dressed as visionary that were—and are—already a reality in the Global South. It was not interested in producing critical arguments towards preferred futures, but indulging in technology-infused, portfolio building in rarefied environments as art museums. Finally, with the publication of Dunne and Raby's *Speculative Everything* (2013), "critical design" fully embraced a convenient interchangeability with "speculative design" to form an ambiguous, unaccountable umbrella under which designers can produce work that is of limited value and inaccessible to society at large.

The emergence of these terms happened in a particularly uncritical period of the design discipline, and they can and should be used to contest and problematize its methods and the discipline itself. In this sense, they are a contribution to design discourse and practice. As researcher **Cameron Tonkinwise** appropriately notes in *Just Design* (2015), "designing that does not already Future, Fiction, Speculate, Criticize, Provoke, Discourse, Interrogate, Probe, Play, is inadequate designing."

2 Design as a unique discipline capable of contributing to—and generating—new knowledge, needs urgent, rigorous and critical investment. Within graphic design, for example, the (still slow) transition from authorship to the designer as researcher in the pursuit of autonomy, points in this direction. However, there is a difference between the use of design as an investigative and emancipatory tool, and the production of objects for exhibition. In other words, there is a recurrent gap between producing design for self-directed learning and for public display. It presupposes different criteria and concerns by the designers. On the one hand, debates around these terms and issues they deal with are important to happen within the closed circles of design (or the

club, if one focuses on graphic design). They contribute to the re-politicisation of the discipline. On the other hand, they also indicate often-limited interaction outside the forums that have already accepted such a capacity and legitimacy by designers.

Speculative design's predominant role is establishing and reverberating signature-style artefacts, generating an unaccountable, looping debate that is very rarely capable of being inclusive or addressing issues at an infrastructural level. That is to say, political. Speculative design that is not contextual, does not consider race, class or gender and proposes only generic universal formulas can only be myopic and cannot contribute with substance to what other disciplines are producing in response to the struggles of our time.

3 A meaningful educational model has to be politicised and promote an awareness of power structures, developing methods, theories and strategies that challenge the world's most pressing issues. Students should be able to design knowing that their options prevent or impede other people's options. In this sense, a decolonial approach to design can be fundamental in constructing an educational model that breaks free from the North Atlantic axis that controls and monopolises design practice, but especially discourse. At the time when the neoliberalisation of design education is expanding fast, models that respond to pressing world challenges should seek decentralisation of education, flexibility of curricula, understanding of ideology and politics, and increased responsibility for students so they can collaboratively shape their education.

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