THE ROLE OF DESIGN FICTION IN SOCIO-ECOLOGICAL DISCOURSES

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ABSTRACT

Design fiction is a form of speculative design that uses storytelling and design to create fictional worlds and design scenarios, exploring future outcomes of, for instance, technology and societal trends. It often involves creating prototypes and designed artifacts that visually represent imagined futures. The practices aim to challenge ideological constraints that limit designers and society. The research begins with a brief review of design fiction, followed by descriptions and analysis of two workshops and of activities that involved the exploration of a variety of design tools and techniques, such as design fiction. The workshops were conducted as part of a multiple case study in a PhD project, where the overall aim was to develop a methodological toolbox for play and playful methods for speculative design for sustainability in urban space. In these workshops, design students co-created ideas and concepts that reframed key issues and imagined alternative social and ecological urban futures using techniques of critical design, design fiction, estrangement, and narratives of the unfamiliar. In the workshops with product design students, prototypes of new tools for critical engagement and communication were co-created. The findings were documented and analysed through visual research and photography of the artefacts from the final exhibition in the urban site. The paper concludes by reflecting on the use of a variety of tools and techniques, and the role of design fiction and estrangement in envisioning social and ecological discourses about design for urban space.

Keywords: Design fiction, estrangement, ecological discourses, co-creation, urban futures

1 INTRODUCTION: DESIGN FICTION AS A SPECULATIVE DESIGN PRACTICE

The introduction provides an overview of design fiction [1] as a speculative design practice and explores how the use of storytelling, fictional scenarios, role-play, prototypes, and design artifacts can create debates about alternative social and ecological urban futures. The author discusses how critical design [2] and design fiction can challenge societal norms and provoke new ways of thinking about urban space, introducing design fiction as a method to articulate possible near futures [1]. Two participatory design workshops [3], exploring design fiction and democratic working methods in public space, are described. Design fiction creates imaginative artifacts and roleplay to generate discussions, reactions and responses in public space, enhancing understanding of the conceptual and physical design space.

1.1 Background: The concept of design fiction

Design fiction involves creating narratives that unfold within fictional worlds or speculative environments. For example, in a speculative future, one could imagine possible futures of urban living, sustainability, and technology by imagining how everyday objects, materials, artifacts, and spaces could unfold to solve wicked problems such as pollution, overpopulation, and food security. In the context of ecology, design fiction may be utilised to imagine, engage with, and address future ecological challenges by pushing us to rethink possible and desirable futures [4], such as showcasing a future city living symbiotically with nature.

1.2 Ecological discourses about urban spaces

Sustainability science focuses on the dynamics of complex systems, interdisciplinarity, inclusivity, and transformation toward decision- and policy-making processes, by studying and transforming the ways in which human societies interact with and depend upon the natural environment, addressing complex, democratic, social, and ethical landscapes. There is a need for inclusive, democratic, and participatory

methods and processes to create socio-ecological transformation in public spaces. As consumer power grows, it becomes necessary to rethink how the forms of design might be redirected to critical practices of design and research about sustainability [5,6]. Ecology is another pillar of sustainability, which is often linked to recyclability but is also connected to intangible values and cultural variations [7].

1.3 Research aim and research question
The research in the PhD study explores design fiction through co-creative idea and concept development in case studies [8] with product design students and stakeholders. The author aims to analyse the role of design fiction in social and ecological discourses, focusing on estrangement [9] and theories of the unfamiliar [9] to create possible and alternative urban futures. Cases involving students in co-creative workshops are significant to exploring how these tools and methods can create playful approaches and methods for more sustainable urban futures. The research question formulated is: *How can design fiction address urban sustainability and socio-ecological challenges?*

1.4 Structure of the study
The article presents a short review of design fiction and introduces key concepts from works by Dunne and Raby, such as *Hertzian Tales*, *Design Noir*, and *Speculating Everything* [2, 4, 9], in addition to other related works on critical and speculative design. The methodology involves critical and speculative design workshops with product design students in the city of Oslo, followed by analysis of students' works, discussion of the principles of design fiction, and proposals for new design approaches as contributions to critical and speculative design tools and research methodologies.

2   SPECULATIVE DESIGNS THROUGH CONVERSATION PIECES
2.1 Design fiction and speculative design
Design fiction is a tool within speculative design that can provide a framework to explore future possibilities through storytelling and artefacts. In his essay *Design Fiction: A Short Essay on Design, Science, Fact, and Fiction*, Julian Bleeker argues that:

> *A design fiction practice creates conversation pieces, with the conversations being stories about the kinds of experiences and social rituals that might surround the designed object. Design fiction objects are totems through which a larger story can be told, imagined or expressed. They are like artifacts from someplace else, telling stories about other worlds* [1].

Design fiction can create dialogue and reflection, allowing designers and audiences to imagine alternative realities. Drawing on the works of Anthony Dunne and Fiona Raby [4], this article explores key concepts of critical and speculative design. In *Hertzian Tales*, Dunne criticises industrial design for fostering a society of passive consumers and argues for design research to highlight how products limit our experiences and provoke discussions about their hidden social and psychological mechanisms [4]. In *Design Noir*, Anthony Dunne and Fiona Raby explore alternatives to conventional thinking about appearance, user-friendliness, and corporate identity [2].

2.2 The concept of estrangement
Various tools and strategies can be used to create design fictions, such as creating a sense of unfamiliarity by creating estrangement – a technique that disrupts conventional perspectives and views of cities and urban spaces, making the ordinary seem strange and causing a deeper reflection on the structures, relationships, and systems that define urban life and urban space [10]. Dunne and Raby [9] have explored the role of estrangement as a tool in critical design by questioning the status quo and making the users reflect on societal, technological, and ethical issues. In their book *Speculative Everything: Design, Fiction, and Social Dreaming* [9], they describe how design can estrange familiar concepts and offer alternative futures that challenge norms, technology, culture, and society. The concept and techniques of estrangement have earlier been explored, and will be explored in the creation of critical, speculative and design fiction artefacts and as conversation pieces in further studies [11].

3   CO-CREATIVE WORKSHOPS WITH PRODUCT DESIGN STUDENTS
In the overall PhD study, urban transformation is explored through a *multiple method* [12] approach combining qualitative, participatory, and experimental methods. Methodological pluralism is the acceptance and use of a variety of theoretical frameworks, methods, and approaches to achieve a systemic approach to research and practice. According to Abercrombie, Hill, and Turner: '*a case study*

cannot provide reliable information about the broader class, but it may be useful in the preliminary stages of an investigation since it provides hypotheses, which may be tested systematically with a larger number of cases [13]. By using play and playful methods in speculative design for sustainability [14], a series of case studies with participatory design workshops have been conducted in Oslo. The analysis has been conducted through visual research [15].

3.1 Workshop 1: Critical Design Lab

The workshop activities were conducted with product design students as a part of the master's degree course *Design and Culture*. The overall workshop for the course was initiated and planned by the course leader, who worked on introducing different methodological approaches through lectures, introductory assignments, and workshops. The author and one other teacher joined the team. The emphasis of the main course was on aesthetic awareness and site-specific design. One teacher introduced and worked with students on place-specific design, and the author of this article held a critical design workshop on design fiction and estrangement and contributed with photo documentation of the artefacts and the final exhibition in Økern and contributed to the discussions related to the student works and presentations. The Critical Design Lab workshop was introduced with a lecture on critical, speculative design and design fiction, followed by practical exercises that allowed students to test methodologies and tools based on their initial ideas for the main workshop in the course entitled *Cultural Traces, Structures, and Interactions*. The 20 students were divided into groups of four. They developed their ideas further, based on design fiction tools, by creating physical and digital works for the site at Økernsenteret. Økernsenteret is in Hovinbyen, which is one of the biggest city development areas in Oslo, hosting 30,000-40,000 families. The location for creating site-specific design was an empty space behind Økernsenteret. The spaces and sites were selected because of their shared characteristics as 'empty spaces,' 'in-between spaces,' or 'temporary spaces,' and these spaces often exist in transitional states, meaning that they are either awaiting future development, are physically underdeveloped, or are repurposed for temporary functions. The workshop, entitled *Critical Design Lab: An Experimental Workshop*, was a one-day workshop where each student group received a design probe [16], a 'toolkit' consisting of word cards such as 'fiction,' 'provocation,' 'poetics,' and 'estrangement.' They then brainstormed in groups to co-create 'What if's' and fictional scenarios [1, 9] based on initial ideas and the chosen site at Økernsenteret, connecting and transforming their initial ideas and topics to the theme and tools from the Critical Design Lab lecture and workshop.

3.2 Storytelling, prototypes and artifacts

During the critical design workshop, the students co-created various concepts and prototypes. These addressed a range of topics, including surveillance, social interaction, play, and privacy in public space. One group developed an interactive space – a room for privacy and security in a public space [Fig.1, 2]. After noticing a monitor on the building wall at the site, they discussed and explored the concepts of surveillance, security, and privacy. By using ready-made objects and materials collected from the site around the building, they created stories, experiences, prototypes, artifacts, and speculative spaces and scenarios that addressed different public space issues. They collected blinds and other materials that had fallen from the old building and windows and then created artifacts and objects that were exhibited at the site. The critical design objects and design fiction sparked discussions on ethics, surveillance, technology, and privacy in urban spaces for the students and teachers.

*Figures 1., 2., and 3. Case study 1. Examples of student work at Økern, Oslo*

The next group used existing communicative elements on the site, including a graffiti character [Fig.3]. They 'copied' the graffiti piece from the site and turned it into a 3D-printed creature. They also created an animated film, to make it look like a futuristic figure that had emerged from the wall to create an immersive and playful effect. The group transformed a 2D piece of graffiti that was already existing at the site into a 3D figure that came alive, adding an extra layer of value to the figure and by fictional tools and techniques and speculative worldbuilding [9].

3.3 Workshop 2: Co-creation and fictional role-play

The second participatory design workshop was explored through co-creative idea and concept development processes in a second-year bachelor's degree course in product design, *Aesthetic Sustainability and Critical Reflection*. The course was led by the author. As part of the course, the interdisciplinary design and architect studio, Makershub, was invited by the author to present their work to the product design students and to conduct a workshop on playful, co-creative, and democratic working methods. In the period 2018–2024, Makershub worked with democratic and inclusive processes in urban spaces, with a strong focus on co-creation and human-centred design by focusing on vulnerable groups of people in society, placing the human at the center of every step in the process, and being at the forefront of research regarding participation and empowerment.

3.4 Participation, empowerment, and inclusion through design fiction

As part of the second workshop with Makershub, this stage involved exploring democratic working methods and fictional role-play in the design for urban space. Prior to the workshop, the students had been introduced to methods of using speculative design and design fiction through objects, narratives, and scenarios to explore possible futures [4]. The workshop was conducted at two sites in Oslo – first, at the neighbourhood house, KI Activity house, in Tøyen, with an introduction to Makershub and the workshop, and the students then walked through the city to the second location at Lohavn in Bjørvika for the workshop on democratic working methods for inclusion. The students chose a persona/label for a fictional character – for instance, the concept of a vulnerable user: 'an immigrant,' 'a drug user,' 'a youth,' or 'a single mom,' among others. They were then asked to choose 'an attribute' – for instance, 'religious' – and then developed the fictional user roles and created and acted out the fictional characters at the site at Lohavn, based on these characters and social attributes. This enabled the students to imagine how the design of public space could be experienced and created based on the future needs of the fictional characters through role-play.
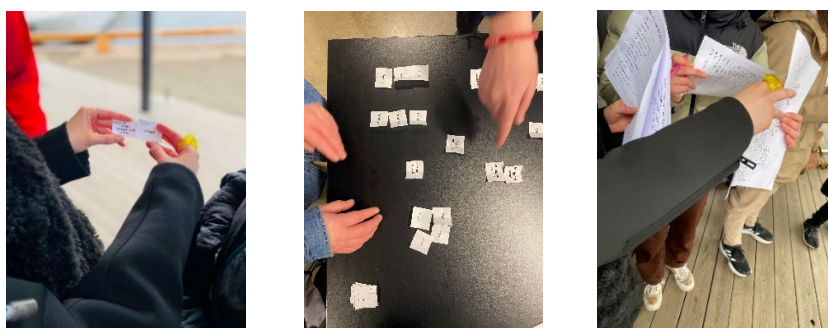
Figures 4., 5., and 6. Case study 2. Role-play workshop with Makershub and students in Lohavn, Oslo

4   DESIGN FICTION TOOLS AND METHODS

The findings in this study were a result of two co-creative design workshops that involved exploring how design fiction and role-play can address urban sustainability challenges in urban areas in Oslo. The result was a series of artifacts and objects that were developed in the main course, but several of the original ideas changed from being more conventional products to become design fictions and speculative objects after using the tools. Two of the student projects where the ideas were clearly developed after using the tools and techniques were chosen for further analysis. The first object is intricately connected to socio-ecological discourses related to surveillance, smart cities, and environments, where data, technology, and urban planning intersect. It communicated issues of surveillance, privacy, and security.

Design fiction can explore the implications of these visible and invisible systems when it comes to privacy, autonomy, and freedom. The second object was a futuristic and hybrid creature – a 3D graffiti figure – that seemed to emerge from the wall, running out from it and interacting with the environment. The work in the graffiti piece relates to design fiction in many ways by enabling solutions through digitalisation, materiality, and materials. Graffiti can serve as a canvas for exploring possible futures. People's willingness and ability to connect with places, both rural and urban, can be connected to how their attachment gives meaning to those places. Functions such as ownership and the right to use the site and to leave an imprint can represent fictional factions, ideologies, or alternative systems of governance. The objects addressed possible and fictional futures related to social, ecological, and legal dialogues about ownership and rights. The graffiti piece can address issues of the right to use a site and can also address issues of visual pollution. It featured a character that represents futuristic archetypes, by mixing sci-fi elements with contemporary urban aesthetics. Creating fictional characters, whether in 2D or 3D, allowed the students to explore design fiction tools and speculative futures, social and ecological commentaries, and possible urban futures [9]. In the second workshop with Makershub, by assuming and imagining specific personas and roles, and acting these fictional personas out through scenarios, situations and contexts, the students could encourage empathy and empowerment. Deeper understanding was fostered by allowing them to experience different perspectives and involve conflicting perspectives – for instance, a future possible city could have conflicting needs regarding sustainability, users, resources, ecology, and economic growth – which is relevant to these site-specific areas.

5 REFLECTIONS

Design fiction can be used in product design education to create fictional objects, systems, or social practices that can exist in these imagined worlds and can be used as a catalyst for imagining alternative socially and ecologically sustainable urban futures. As a tool for rethinking urban futures, the theoretical implications of design fiction enable critical debates and can challenge urban and ecological paradigms – for instance, by questioning and critiquing existing power structures in urban space. By co-creating prototypes of tools, scenarios, fictional personas, and communication, interesting and relevant strategies for creating more ecologically and sustainable urban futures can be created. By incorporating empty urban spaces, and vulnerable and diverse voices, creating fictional probes and artifacts and speculative scenarios, and testing these out in real-world laboratories (RWL), these playful methods and tools can lead to more socially and ecologically responsible cities. A concluding reflection is that there seems to be a role for narrative fiction [1, 9] in ecological discourses, and methods in design fiction can engage students in considering site-specific issues, including ethical, ecological, and socio-ecological themes in the development of product design education for a sustainable development of society. The experiences from this study have given insights into the possible uses of design fiction and the tools and techniques for contexts other than those in which they are usually used – namely, in real-world settings and sites in urban spaces using role-play and artifacts as playful conversation pieces that address sustainability issues. In further case studies and workshops, the PhD project will focus on collecting data through conversation pieces, from feedback and reflections from students, citizens, and stakeholders, which will aid the development of tools and techniques to explore issues about creating socio-ecological public spaces through play and playful methods in critical and speculative design.

6 CONCLUSIONS

Design fiction plays a significant role in shaping socio-ecological discourses through site-specific co-creation for product design students. The examples from the workshops demonstrate the potential of design fiction tools and techniques to foster innovative thinking by engaging students and stakeholders in unconventional concepts and ideas. The use of estrangement as a tool within design fiction encourages participants to think beyond traditional frameworks, challenging societal and ecological norms. By engaging with speculative scenarios, one can embrace unconventional ideas by thinking beyond conventional frameworks within product design. By engaging with design fiction and role-play that challenge social and ecological norms, students and stakeholders can consider different viewpoints, imaginations, and narratives, and explore critical and futures-thinking for socio-ecological objects, spaces, and systems in urban space. Design artifacts and objects can be used as media through which to stimulate discussion and debate among users representing the public, students, stakeholders, designers, and the industry by challenging the boundaries between the real and the fictional, enhancing the possibilities to create socially and ecologically sustainable urban futures.

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