SkyLux

Using Light to Improve Health and Wellbeing

Lisa Gabel, MDES 2013

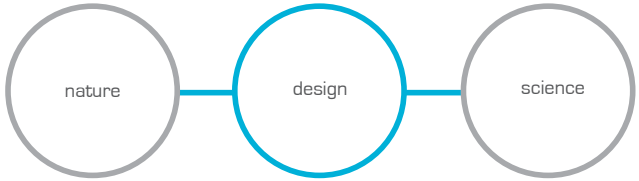
Contents

Abstract

My project aims to explore the conflicting demands between the increasingly indoor-based urban lifestyle and our innate biological connection to nature, with a focus on using light to support physical and mental wellbeing. By intertwining the fields of industrial design, health, and science, the project aims to enhance workplace lighting beyond the scope of visual performance to support our internal biological rhythms.

The project seeks to address our biological need for brighter, dynamically changing light by utilizing a variety of qualitative and quantitative research methods, including a collaborative design group and an ongoing connection with circadian scientists [1]. Alongside providing light that supports our biological needs, the final design aims to reconnect indoor workers with the subtle qualities and cycles of nature, whilst raising awareness around the impact of light on our health and wellbeing through experiential discovery.

By applying scientific knowledge through design, my project aims to improve public health and life quality, whilst also promoting a greater social shift towards enhancing our lifestyles with better awareness around the vital role of natural light for our health and wellbeing. The following project is a s mall step towards addressing a much larger issue that I believe is at the forefront of future lighting design.



1 Circadian Science is a field of study concerned with the circadian rhythm, a daily internal cycle that controls many important biological processes such as sleep, alertness and energy. This rhythm is directly regulated by bright light.

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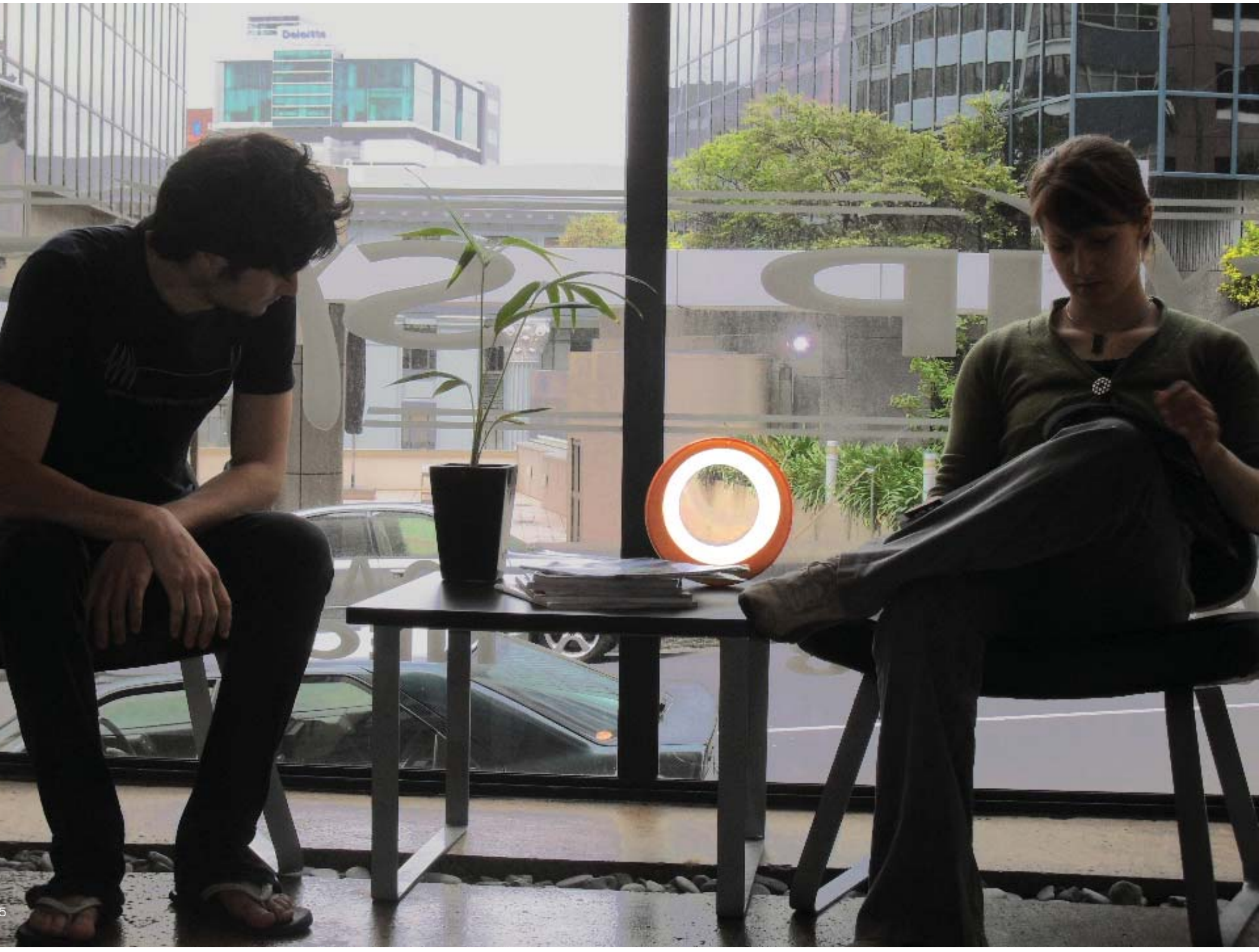
Notes to the Reader

Whilst my project is situated in a design context, my research process has required a balance between both science and design, which has come to define the nature of this project as a cross disciplinary exploration into the impact of light on our health and wellbeing. As Arthur Koestler describes: "The common element in scientific and artistic discovery is seeing something in a new way, or making a new connection... as the bisection of one framework of experience by another... leads to something new and unexpected." (as cited in Hartmann, 1998 p.161-162).

I have used footnotes as a supplement to the APA referencing style to aid in clarity for introducing and detailing key terms and individuals.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Inspiration

Paradoxically, my inspiration for this project has grown largely in the absence of sunlight. Although I have always known how important the sun was for my emotional wellbeing, I didn't realize that is was also vital to my physical health until I moved into the city, where the demands of work and study shifted my lifestyle increasingly indoors. I felt fatigued and uninspired, and struggled to maintain my sense of vitality, especially in winter. My desire for more sunlight led me to examine lighting as my major project of my Bachelor degree, where I came across bright light therapy as a treatment for Seasonal Affective Disorder (SAD). I felt an immediate affiliation to the idea of supplementary 'sunlight', but was disappointed to find that most products are currently limited to clinical SAD, with few options for those with winter blues [2]. I recognized this as an opportunity to develop a product to extend the benefits of bright light therapy to a much wider audience by addressing subclinical winter blues, alongside resolving common issues of the traditional light therapy experience including stigma, isolation and poor integration.

Whilst developing my final design, I became increasingly aware of the vast potential of light therapy beyond its current application for SAD. I realized that the issue of light deprivation (see *Mal-illumination*) is part of a greater picture beyond seasonal fluctuations, which has been described as a "silent epidemic" (Cedar, Mathis, Viar, 2007, p. 1) that affects the majority of the western population. However, as scientific attention has been mainly focused on SAD, most of us remain largely unaware of the impact light deprivation has on our vitality and quality of life. My Master's project presented an ideal opportunity to further explore how a proactive and preventative application of light can improve vitality and life quality for those who are unable to get sufficient natural light throughout the seasons. This decision was affirmed whilst attending a lecture by Anna Wirz-Justice [3], a world renowned circadian scientist, in early 2012. I was deeply inspired by her work and concern about our unmet needs for bright, natural light in indoor environments, as these reflected my own observations and desire to bring the benefits of sunlight inside. Her foresight and vision has affirmed my ambition to translate these ideas into reality,

Left : *Sunlight*, the final design of my BDES.

2 Winter Blues ia is a milder, sub-clinical form of SAD.

3 Dr. Anna Wirz-Justice is a leading circadian scientist, working at the University of Basel as an emeritus Professor and Research Fellow. She has more than 20 years experience in bright light therapy and SAD, and has won several prestigious awards for her exceptional achievements in the field including the Anna-Monika-Prize, and the Scholar's Prize of the City of Basel.