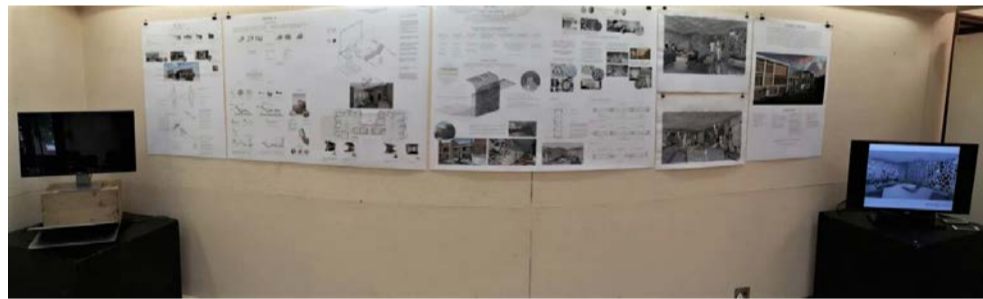




ENVIRONMENTS THAT HEAL

An Oncology Centre at
Mediclinic Midstream
South Africa



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Firstly I need to acknowledge
Jesus Christ my saviour,
the rock and foundation of my life
the one I rely on for EVERYTHING.

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PROJECT SUMMARY

ABSTRACT (ENGLISH)

Full dissertation title:

Submitted by: Eloise Caroline Thompson
(12152847)

Study Leader: Dr Raymund Konigk
Catherine Karusseit

Studio master: Prof. Barbara Jekot

Degree: Master of Interior Architecture
(Professional)

Department: Department of Architecture

Faculty: Faculty of Engineering, Built
Environment and
Information Technology

University: University of Pretoria

Program: Cancer Centre

Site: The future extension of
Mediclinic Midstream

Address: Midstream Dr & Midstream Hill
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1692

Research field: Environmental Potential

This study focuses on creating optimal healing environments. It uses the healthcare sector as the vehicle for design, research and understanding of the negative experiences associated with healthcare environments. There is an untapped potential for these spaces to become not only curative but also spaces of healing. This provides an opportunity to conduct a critical assessment of what optimal healing environments are and the translation thereof to tangible and meaningful design. This is done through the implementation of evidence-based theories made visible through design. This transformation takes form from the concept of skin as a regenerative healing and protective organ - a comparison is drawn to buildings and their ability to perform and protect. Spaces are identified as consisting of interdependent elements and layers, which, in this study, are referred to as "enablers". These enable a designer to create spatial literacy, which is fundamental in transforming information into visible design. Ultimately, spaces can then become catalysts for healing through layers of intervention. The design outcome of the theoretical investigation is a design proposal for an Oncology Centre in the future extension of Mediclinic Midstream. The proposed design aims to reinvigorate the senses of cancer patients burdened by the emotional, biological and physiological typical of appointments at various medical practitioners, chemotherapy sessions and operating rooms. The intention is to be a reflect a movement in the field of interior design, which endeavours to shift the perception of healing in the medical sector. It encapsulates the natural and structural elements of design in an environment that stimulate the senses - imitating the ever-regenerating skin cells of the human body. Proving that that interior design should play an active and critical role the healthcare sector.

UITTREKSEL (AFRIKAANS)

Hierdie studie fokus op die skep van optimale gesondheidsorg omgewings. Dit maak gebruik van die gesondheidssektor as die voertuig vir ontwerp, navorsing en begrip van die negatiewe ervarings wat verband hou met gesondheidsorg omgewings. Daar is 'n onontginde potensiaal vir hierdie ruimtes om nie net fisiese genesing maar ook ruimtes van emosionele genesing te word. Dit bied 'n geleentheid om 'n kritiese evaluering van wat optimale genesing omgewings is en die vertaling daarvan na tasbare en sinvolle ontwerp uit te voer. Dit word gedoen deur middel van die implementering van bewysgebaseerde teorieë, sigbaar gemaak deur ontwerp. Hierdie transformasie neem vorm binne die konsep van die vel as 'n regeneratiewe genesing en beskermende orgaan - 'n vergelyking word gevestig op geboue en hul vermoë van diensbaarheid en beskerming. Spasies word geïdentifiseer as bestaande interafhanklike elemente en lae, wat in hierdie studie, verwys word as 'enablers'. Hierdie stel 'n ontwerper in staat om ruimtelike atmosfeer te ontwerp, wat fundamenteel is in die transformasie van inligting in sigbare ontwerp. Uiteindelik, kan spasies dan katalisators word vir genesing deur lae van ingryping. Die studie neem vorm in die ontwerp van 'n onkologie-sentrum in die toekomstige uitbreiding van Mediclinic Midstream. Dit is ontwerp om die sintuie van pasiënte gebuk onder die emosionele, biologiese en fisiologiese gebondenheid van die hospitaal afsprake, chemoterapie sessies en die operasie kamer te versterk. Die verhandeling is 'n weerspieëling van 'n ontwerp proses wat daarop gemik is vir die verskuiwing van die persepsie van genesing in die mediese sektor. Dit omvat die natuurlike en strukturele elemente van ontwerp in 'n omgewing wat die sintuie stimuleer - boots die immer-groeiende vel selle van die menslike liggaam na. Hierdie ontwerp is in teenstelling met die meer steriele omgewing van die aangrensende hospitaal. Die doel is om uiteindelik 'n ontwerp te skep, wat die rol wat ontwerp kan speel in die gesondheids sector, te bewys.



DECLARATION

In accordance with Regulation 4(e) of the General Regulations (G.57) for dissertations and theses, I declare that this dissertation, which I hereby submit for the degree Master of Interior Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree, diploma or other qualification.

I further declare that this thesis is substantially my own work. Where reference is made to the work of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.

This dissertation is xxxx words long (Chapter 1 - Chapter 11, including appendixes)

Eloise Caroline Thompson



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CHAPTER

1

INTRODUCTION

To highlight the importance and power of interior design (and the subsequent responsibilities of the interior designer) this study focuses on creating optimal healing environments. The healthcare sector is researched from a design perspective and insight is gained into the negative associations with healthcare environments. This brings to light the need for these spaces to be transformed from merely being curative to becoming spaces of healing. The study takes form in the design of a cancer centre for the future extension of Mediclinic Midstream and the theoretical base of the proposal is rooted in a literature review. The body's skin serves as a metaphor for the design concept as it illustrates the interdependent elements of design, which will transform the users' perception of the space. Building regulations and guidelines are critically assessed and in conjunction with a case study support the generation of a holistic design approach. The design created aims to emphasise the role that interior design can play in the process of physical and spiritual healing. (Infographic 1).

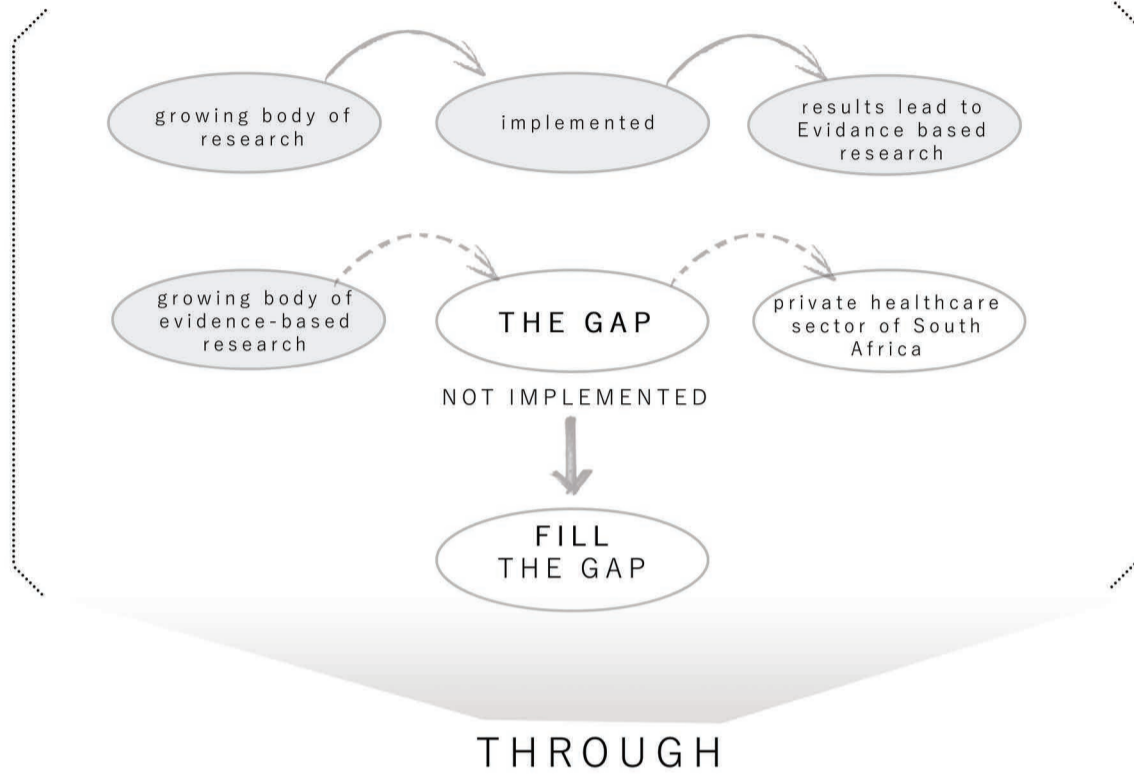
The design of spaces should reflect the interior designer's knowledge and compassion and be valued for and ranked on their impact on and improvement of people's lives.

"Interior designers determine the relationship of people to spaces based on psychological and physical parameters, to improve the quality of life"
 (International Federation of Interior Architects/Designers, 2016).

It is the responsibility of interior designers to advance the profession by highlighting its importance as an advocate of well-being

REAL WORLD PROBLEM

in the Healthcare sector of South Africa



THROUGH

interdependent elements and enablers
- theoretically identified

*Written by Stephen Bayley - one of the world's leading designers and arbiters of taste
 (Bayley & Conran, 2007)*

"design intelligence made visible"

- lighting
- nature
- orientation
- sensory experience
- hearing
- smell

tangible

texture
temperature & ventilation
colour

intangible

tangible

intangible

positive distraction

1.1 THE POWER OF INTERIOR DESIGN

The International Federation of Interior Designers (International Federation of Interior Architects/Designers, 2016,p.1) stated:

“It is the nature of Humankind not only to use spaces, but to fill them with beauty and meaning. Thoughtfully designed spaces help us learn, reflect, imagine, discover and create. Great spaces encourage connections between people, ideas and entire fields of thought.”

As interior designers, our acquired knowledge enables us to create spaces that respond to human needs. Thus the spaces we design reflect our knowledge, competence and passion. According to International Federation of Interior Architects/Designers (2016):

“This is what we do, what we create, what we give. It is how we earn our place at the table. It is why our work is important to our clients, to our societies and to ourselves. It is the difference we make and why we choose this noble profession.”

Therefore our designs should be valued and ranked according to their impact on and improvement of people’s lives, as the International Federation of Interior Architects/Designers (2016) stated:

“Interior designers determine the relationship of people to spaces based on psychological and physical parameters, to improve the quality of life.”

Consequently, it is the responsibility of interior designers to advance the profession by highlighting its importance as an advocate of well-being. It is an undeniable fact that our environments affect us (Ulrich, 1984; Samueli Institute, 2011, Informedesign, 2010). Keeping this in mind is a critical element of interior design. It needs to be coupled with the creation of spaces that influence the individual. This view is shared, amongst others, by Ester M. Sternberg who created a dialogue between Neuroscience and Architecture; proving that spaces have both physiological and psychological effects (Sternberg & Wilson, 2006).

For this reason, the importance of interior design and its impact on people’s lives must be articulated.

1.2 REAL WORLD PROBLEM

There is a growing body of research on healthcare environments and how they are experienced. This increase in evidence-based design can be seen in the following five studies:

-Beauchemin and Hays (1996): With data received from admission forms of depressive patients. The study compared sunny rooms (max. 500lux) to dull rooms (max. 300lux) in patient rooms. It was found that length of stay was positively influenced with shorter hospital stays and less fatal outcomes.

Walch J.M., Rabin B.S., Day R., Williams J.N., Choi K. & Kang J.D.(2005): With controlled clinical trials and self-reported measures. It was found that the bright side (73537lux) and dim side (50410lux) of patient rooms, positively influenced analgesic medication use; pain medication cost; severity of pain, as well as stress, anxiety and depression.

- Hagerman I., Rasmanis G., Blomkvist V., Ulrich R., Eriksen C.A. & Theorell T. (2005): With controlled clinical trials and data retrieved from both automated systems and self-reported measures. They looked at good vs. bad acoustics, where bad acoustics had a negative impact on heart rate; heart rate variability; systolic blood pressure; diastolic blood pressure; pulse amplitude; healthcare in general; quality of staff attitudes; patients waking due to sounds, being able to hear what staff say, hearing sounds from corridors and being disturbed by sounds.

- Keep P., James J. & Inman M. (1980): With natural experiments and retrospective and self-reported measures. Studying the question of windows vs. no windows, they found that the presence of windows had a positive influence, such as, better remembering admissions and discharges as well as clearer orientation as to day of the week and time of day. The absence of windows, however, caused sleep disturbance, hallucinations and delusions.

- Ulrich (1984): With natural experiments, retrospective, and data retrieved from admission forms. This well-known study compared views from sick rooms: a view of trees vs. a view of a brick wall. The views of trees positively influenced length of stay; number and strength of daily analgesics; number and strength of medicinal doses for anxiety; minor complications and; lastly, the quality of nurses’ notes.

However, as yet, this knowledge is not being implemented in the South African healthcare sector. Healthcare environments focuses on the treatment of illness, whilst patient well-being is neglected. This approach can be ascribed to poor design considerations coupled with the absence of theories that support positive psychological benefits as well as physiological benefits. Design that does not take well-being into account results in a numbing of the senses, which has generated negative associations over time. This gap, which lies between the potential of using design to increase patient well-being and its omission from the current system provides the interior designer with a unique opportunity (Samueli Institute, 2011, p.10). This is demonstrated in Infographic 1.

The divergence between research findings and their application highlights the absence of interior design as not only an influencer but also an integral component of healthcare. Healthcare providers, however, are starting to realise that the physical environment of facilities affect a patients’ health. As a reflection of this, articles that link healthcare and well-being are appearing in design journals with increasing frequency (Devlin & Arneill, 2003, p.665).

Non-implementation of the research, which links patient well-being to design, leads to the likelihood that healthcare environments will fail to reach their full potential in terms of providing patients with medical care that leaves a lasting positive impression of a space that is associated with healing.

There is thus a need to conduct a critical assessment of what optimal healing environments means and the translation thereof into tangible and meaningful design.

1.3 THE OPPORTUNITY

Healthcare is a profoundly studied profession and a vast amount of curative research and knowledge has been acquired. There is, however, no equal focus on healthcare environments and patient well-being, which can be seen as having a healing component, rather than being purely curative.

Over the last 16 years, the healthcare industry has started to recognise that the physical environment is a valuable resource that can and does affect all of its users (Fottler, et al., 2000, p.91). Although most service organisations have given some thought to the design of these spaces, there is an opportunity for the service experience to be more thoroughly understood.

An ideal healing environment reinforces excellent clinical quality, whereas an inferior environment can detract from fine clinical care (Fottler, et al., 2000, p.91). The development of evidence-based design focuses on expanding beyond the treatment of illness to include wellness and well-being (Steelcase Health, 2015, p.7). Hence, the opportunity lies in reacquainting ourselves and our healthcare environments with the untapped powers of health, resilience and healing (Samueli Institute, 2011, p.10).

Interior designers face a significant challenge: to successfully accommodate sophisticated clinical interventions and complex medical technology in a humane, therapeutic environment. This must be done while responding to multiple, rapidly-changing levels of technology, care and treatment methods, reimbursement, regulation, and demographic trends in healthcare, among other factors (Devlin & Arneill, 2003, p.666).

The interior designer plays an essential role in bridging this gap and in the implementation of fundamental principles; using and designing elements of space that ultimately enhance well-being.

Within this gap, theory and typology provide the opportunity to solidify the role of the interior designer in significantly influencing what other profession is able to do and achieve within the spaces created.

1.4 IMPLEMENTATION

Mediclinic is the 6th largest private hospital in the world (Mediclinic, 2015) and enjoys a well-established reputation. It therefore sets a benchmark of standards in design for wellness across the sector.

Mediclinic presents a suitable private-sector site for the implementation of current evidence-based theories to improve healthcare environments, this is further elaborated on in Chapter 3.

Cancer and the treatment thereof presents a physical, psychological and emotional journey which could benefit from an optimal healing environment (cf. Chapters 4 Model Inhabitant & 5 Typology). Thus the design of an oncology centre has been identified as a suitable medical environment to investigate the potential of interior design in creating a healing environment.

1.5 RESEARCH QUESTIONS

- What effect does the interior environment have on personal health and wellness?
(Chapter 2: Theoretical Background)
- How can interior design facilitate the multi-faceted process of biological and spiritual healing?
(Chapter 2: Theoretical Background)
- Which elements of interior design have the potential to transform the user's perception of healthcare environments from a place of treatment to a place of healing?
(Chapter 2: Theoretical Background & Chapter 7: Layers of the Skin)
- How should these interdependent elements of design intervention be approached and applied in the identified healthcare environment?
(Chapter 7: Layers of the Skin & Chapter 9: Design Process)

1.6 METHODOLOGY

An extended literature review provided evidence-based theories regarding optimal healing environments. The Centre for Health Design defined evidence-based design as “the process of basing decisions about the built environment on credible research to achieve the best possible outcomes” (Anderson, 2010). From this, specific areas of importance were identified and case studies supplied detailed knowledge of each design element (i.e. lighting, nature, orientation, sensory experience and environmental complexity). The focus was on both physiological and psychological effects on the well-being of individuals.

A comparative analysis determined the ultimate design of different spaces. A critical comparison of regulation; emotional needs of patients within a space; and the different proposals made by leading healthcare organisation Steelcase was completed. Through comprehensive comparison and

consideration of these three factors, objective and informed design decisions could be made.

In some cases, this study also required an interdisciplinary research approach - intermingling neuroscience and architecture; medicine and design; and psychology and design.

Precedent studies were analysed and used for inspiration, especially in the design and technification phases of the study.

1.7 DESIGN METHOD

The acquisition of knowledge
Evidence-based theories were researched and applied (where appropriate) to create an environment that positively stimulates humans/ patients.

Theory made visible

The next step was making these theories visible through design. This transformation took form within the concept of skin as a regenerative healing and protective organ.

Concept of skin

Skin is made up of interdependent parts (cells) that each plays a fundamental role in the functioning of the skin and what it is able to do. A comparison is thus drawn to buildings and their ability to perform and protect. Spaces are identified as consisting of interdependent elements and layers. These are referred to as “enablers” in this study as they enable a designer to create spatial literacy, which is fundamental to transforming information into visible design.

1.8 AIMS

This study aims to:

- Emphasise the integral role of the interior designer in influencing people through the spaces designed.
- Create environments that positively stimulate the human body, both physically and psychologically.
- Create a curing to healing continuum through tangible design in combination with the programs provided.
- Prove that basic clinical places have the potential to come alive and be transformed into optimal healing environments.

1.9 ASSUMPTIONS

The existing plans of Mediclinic Midstream clearly indicate the future development of a “standard ward block” to the north-eastern side of the site. Research emphasises the modern-day seriousness and relevance of cancer. Mediclinic Midstream's absence of such a centre directs strongly to the fact that the further extension is to be dedicated to oncology. Thus, the assumption is made that the future development will be dedicated to an oncology centre. Design decisions in this study were based on evidence-based theories obtained from the researched case studies. It is therefore assumed that the building's design, impact and performance are guaranteed. As such, these are not proven within this study. It is envisioned that this project, once completed, will be used to produce further evidence-based theory to broaden the research field of Interior Design.

1.10 DELIMITATIONS

The identified key design elements and layers were applied as general design strategies throughout the building, however, design development and technification of concept was limited to the ground floor, which is dedicated to spaces for examination, staff, counselling and infusion.



CONCLUSION

This chapter serves to introduce the dissertation by elaborating on the aspects that triggered the investigation into optimal healing environments within healthcare. Further, it highlights the integral role of the interior designer in transforming EBT of “intangible” knowledge into tangible, meaningful design. The aims, assumptions and delimitations provide a clear indication both of what this study is to become and its unavoidable shortcomings.



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