An evaluation of the implementations and outcomes of human-centred design: a case study of Warwick Junction.

by

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As the candidate's supervisor I have approved this short dissertation for submission.

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Abstract

In recent years, the practice of design has moved towards human-centred design, and has been applied to a variety of fields, including development. This research provides an evaluation of the implementations and outcomes of human-centred design, using the case study of Warwick Junction in Durban, South Africa.

Between 1995 and 2008, the Warwick Junction Urban Renewal Project took place, and using human-centred design introduced design interventions that improved the lives of traders in the area through consultation and participation. However, in 2008, despite the success of this initiative, this approach of human-centred design was abandoned in Warwick Junction. Drawing on available research on human-centred design as well as data collected through independent research and interviews with traders, municipal officials and designers, the implementations and outcomes of the Warwick Project are explored.

This study illustrates the factors that are necessary for human-centred design to be implemented in a development context: an environment that encourages change and creative problem-solving; autonomy; observation of the end-users; and a desire to create systemic, sustainable change. With Warwick Junction as a case study, this research identified how human-centred design was used during the Warwick Project through processes such as interdisciplinary teamwork, area-based management, trader consultation and participation, prototyping of design interventions and designers fulfilling the role of facilitators.

The findings suggest that if human-centred design is to be used in a development context, participation of the end-users is necessary, human-centred design must be advocated for by all parties involved, and finally, the practice of human-centred design must be continued and incorporated into common practice and policy changes in order for design interventions to be sustained beyond the implementation phase.

COLLEGE OF HUMANITIES

DECLARATION - PLAGIARISM

I, Micaela de Freitas, declare that

1. The research reported in this thesis, except where otherwise indicated, is my original research.

2. This thesis has not been submitted for any degree or examination at any other university.

3. This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.

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Signed

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Table of Contents

List of Tables and Figures

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Dedicated to the memory of my grandfather, Emidio Ferreira

27 April 1926 - 17 August 2015

Chapter One: Introduction

In 1995, in post-apartheid Durban, the Warwick Junction Urban Renewal Project (hereafter referred to as the Warwick Project) was initiated. Over the next few years, this area, previously known for its 'crime and grime', was transformed through collaboration and consultation between the Durban municipality, designers and the traders who worked in Warwick Junction. A novel approach of human-centred design was adopted with traders participating actively in the development and management of the Warwick Project. In the immediate aftermath, the project was hailed an important example of what could happen when a city suspended conventional management and instead explored creative and sustainable initiatives. However, in 2008, the successful approaches of human-centred design and participatory development were abandoned as the city planned to forcibly remove the market and traders to build a mall in Warwick Junction.

While much research has been done about Warwick Junction and the city's success in including traders in the planning and renewal of the market, no research has been conducted exploring the role that human-centred design played in the process. This dissertation aims to understand how and why human-centred design was implemented in the development of Warwick Junction, the outcomes of human-centred design and why, after such apparent success, the approach was not continued. This dissertation is significant as it provides an empirical example of human-centred design being used in a development context in South Africa, and as such can provide guidance and suggestions for future human-centred design initiatives.

In recent decades, the practice of design has shifted to Design Thinking, defined as "an approach to innovation that is powerful, effective, and broadly accessible, that can be integrated into all aspects of business and society, and that individuals and teams can use to generate breakthrough ideas that are implemented and that therefore have an impact" (Brown, 2009: 41). As a result of this shift, designers have begun to apply creative problem-solving in a variety of contexts, including development. Research into these design practices tends to be dominated by designers and the design industry. However, if human-centred design is being used in a development context, it is imperative to understand how human-centred design can be implemented in this field and what its outcomes are. Warwick Junction provides a highly suitable local case study of how the municipality, designers and traders came together to use human-centred design.

This dissertation involves an in-depth evaluation of the implementations and outcomes of the human-centred design process in Warwick Junction. It does so by analysing current human-centred design research and participation theories, by researching the background and context of Warwick Junction, and by interviewing and questioning designers, municipal officials, and traders about the human-centred design process throughout the Warwick Project.

The study is the result of a desire to apply the theory of human-centred design to a development case study. In doing so, this dissertation seeks to contribute to a greater understanding of how creative problem-solving can be used in a development context by identifying what lessons can be learnt from the Warwick Project that can be applied to future human-centred design endeavours.

1.1 Research Objectives and Questions

The main objectives of this dissertation are four-fold. Firstly, the study seeks to analyse the role of human-centred design in Warwick Junction. Secondly, the study investigates the role that the municipality, designers and traders played in the human-centred design process in Warwick Junction. A third objective is to explain why this process of participatory human-centred design was subsequently discarded and the final objective is to explore the conditions under which human-centred design would be successful in future government development projects using the Warwick Project as a case study.

The specific research questions which are investigated in the study are as follows:

i. What factors led to the use of human-centred design in the Warwick Project?
ii. What were the characteristics of a successful multi-institutional approach? In other words, what made it possible for the municipality, government and the traders to work so well together?
iii. To what extent did human-centred design and designers play a role in the reported success of Warwick Junction?
iv. Why was the approach of participatory human-centred design discarded?
v. What would be needed for a similar approach to work in other policy initiatives?

1.2 Dissertation Structure

The remainder of the dissertation is structured as follows. Chapter Two outlines the theoretical framework used in the study which provides structure and meaning to the research. The research has drawn mainly from Design Thinking research to inform the practice and process of human-centred design with participatory development providing a secondary, supportive framework. Since design theory is made up of several similar practices and approaches, the literature review chapter first provides an explanation of Design Thinking and its relevance, before analysing human-centred design, participatory design and design for social change.

Chapter Three outlines the background and specific context of the case study by explaining Local Economic Development and the informal economy in Durban. In addition, this chapter describes the specifics of the Warwick Project: who was involved, how the project was conducted and the outcomes of the project. Chapter Four then presents the methodology used in this dissertation. In addition to analysing published research on the Warwick Project, interviews were conducted with key informants that represented the municipality, traders and designers. Questionnaires were also administered to a sample of traders in Warwick Junction, to assess the nature of their participation in the design process and how they evaluated the outcomes of the Warwick Project. The chapter also outlines some of the limitations of the research process. The findings from the data collection are then described in Chapter Five. The final chapter discusses these findings, and identifies the key themes that emerged from the research, concerning the implementation and outcomes of human-centred design, and the subsequent discontinuation of this approach in Warwick Junction. The chapter also suggests some of those factors that would facilitate, or be necessary for, the implementation of human-centred design in future development projects.

Chapter Two: Literature Review

2.1 Introduction

Since the 1960s, various designers and architects have sought to explain the methods behind the process of design and creative thinking, by contrasting them to traditional scientific approaches of planning. Traditional planning processes are argued to include a focus on data, a lack of creativity, singular and simple techniques applied to a variety of diverse problems and a preference for efficient administration or production over the substance and design of the task or product at hand (Liedtka, King and Bennett, 2013: 17). Design provides an alternative and "suggests processes that are more widely participative, more dialogue based, issue-driven rather than calendar-driven, and conflict-using, rather than conflict-avoiding, all aimed at invention and learning" (Liedtka, King and Bennett, 2013: 17). Despite the apparent successful characteristics design brings to teams dealing with complex problems, it is far less understood than scientific thinking, which is why several design researchers have analysed and continue to analyse the processes of design in an attempt to be able to apply them to a myriad of other problems and situations (Owen, 2013: 38).

This chapter aims to provide an understanding of Design Thinking and Design Thinking theories. These include practices of Design Thinking, and the different ways in which these practices are used with regards to human-centred design, participatory design and design for social change. While all of these hold similar tenets at their foundation, they are each different and therefore used in varying combinations when solving a range of design problems.

This literature review will also outline the theory of participation in development using Arnstein's (1969) ladder to provide secondary support to the main theory of human-centred design. It is important to note that most Design Thinking books and knowledge remain geared towards businesses and strategy rather than development. Because there is little literature about the specific role of Design Thinking and human-centred design in a development context, and this approach is neither academic nor standardised, primary research for this dissertation is gathered from a variety of sources and theories.

2.2 Design Thinking

'Design' itself is a difficult concept to define, and is used across many industries including graphic design, furniture design, systems design, industrial design, product design and architecture. Within these various contexts, the word and practice of design has different meanings and connotations. Traditionally, design refers to the planning and articulation of a product, building or invention before creation. However, this planning and articulation before creation encompasses various systems, thought processes and products. Buchanan (2001) defined design as

> …the way we create all of the artefacts and communications that serve human beings, striving to meet their needs and desires and facilitating the exchange of information and ideas that is essential for civil and political life. Furthermore, design is the way we plan and create actions, services, and all of the other humanly shaped processes of public and private life (2001: 38).

Using Buchanan's (2001) description, it becomes clear that design itself is everywhere, not only in artefacts but also any process, plan or product that requires creative forethought. The omnipresence of design in all facilities of life can be illustrated by a simple example. When asked to think about the term design in relation to a classroom, one can apply this to the room in which the students learn, as well as the desks at which the students sit; along with these, one can also consider the lesson plan, the curriculum, the school system of rules and protocols, the uniforms etc. as design. This is not to mention the tools ranging from textbooks to pencils to laptops, all of which have gone through a design process. It soon becomes clear that everything is designed in one way or another. One of the reasons why it is difficult to define design is because there are so many creation processes which result in a multitude of various outcomes and outputs.

Another difficulty in defining design is that there are so many activities that are considered to be a part of design. From the more traditionally known aspects of design, such as 'graphic', 'industrial' and 'product', many other types have emerged which, while maintaining certain similarities with their predecessors, function differently and have different goals. These include 'service design', 'interaction design', 'experience design', as well as the more difficult to define: 'systems design', 'organisation design' and 'design for social change' which each engage with "more abstract and animate material than that of the more established design disciplines" (Stewart,

2011: 515). These changes in the design industry have led to the role of the designer being focused on designing organisational structures, solutions for social problems, service design and experience design. Binder et al. (2011) reason that since "many problems involve complex social and political issues…designers have become applied behavioural scientists" (Binder et al. 2011: 5), however, they go on to argue that most designers are ill-equipped to deal with complex social and political issues. This could perhaps explain the shift from 'design' to 'Design Thinking', a more tangible approach which still uses the creative elements of design, but applies them to any situation or problem. Brown (2009) says that "the evolution from design to Design Thinking is the story of the evolution from the creation of products to the analysis of the relationship between people and products, and from there to the relationship between people and people" (Brown, 2009: 41). Therefore Design Thinking is distinguished from design, and is used as a term to describe "a set of principles that can be applied by diverse people to a wide range of problems" (Brown, 2009: 6).

Throughout the 1970s, researchers were focused on identifying universal design methods, rather than the mental processes of the designers involved. By the early 1990s, research shifted and 'Design Thinking' (now a concept referred to in upper case) had been studied and defined by Cross, Dorst and Roozenburg (1992) as "the cognitive process of designers" (Tschimmel, 2012: 2). Their research was aimed at understanding the attributes of what they called 'Design Creativity' by analysing the mental processes and decision-making designers went through while working on a project (Tschimmel, 2012: 2). This research was highly important since it was only in the 1990s and early 2000s that the term 'design' or 'Design Thinking' no longer referred to the design of products, architecture and urban planning, but rather to a process of creative problem-solving. Currently, the terms 'design' and 'Design Thinking' are both popular concepts that are no longer limited by older and out-of-date definitions (Tschimmel, 2012: 2). In the late 2000s, important literature by Tim Brown and Roger Martin emerged that took Design Thinking out of the design industry and presented it as a business strategy that would result in innovative problem-solving and solutions. In this way, we have seen the evolution of Design Thinking from a theory defined and utilised purely in product development, architecture and urban planning to a theory that outlines the primary attributes and systems for creative problem-solving across a multitude of sectors.

One of the main proponents for this change in the definition of Design Thinking is the world's most influential design consultancy company called IDEO, whose CEO, Tim Brown

published *Change by Design: How Design Thinking Transforms and Inspires Design* in 2009. Brown's (2009) work was highly influential in defining what Design Thinking is, and how 'non-designers' could use Design Thinking practices to innovate and solve problems creatively. Around the same time, Design Thinking became a novel business practice and was encouraged by innovative companies. In 2007, the book and exhibition *Design for the other 90%* was exhibited at the Cooper-Hewitt Museum and in 2011, IDEO launched the NGO IDEO.org. Both *Design for the other 90%* and IDEO.org focus on the role that Design Thinking can play in improving the lives of those living below the poverty line.

Today, Design Thinking is understood as "a complex thinking process of conceiving new realities, expressing the introduction of design culture and its methods into fields such as business innovation" (Tschimmel, 2012: 2). The term allows the application of 'design' tools (no longer traditionally associated with design) to any type of 'thinking' problem and thus is widely applicable to any problem-solving context that deals with businesses, services and processes rather than tangible artefacts or graphics (Tschimmel, 2012: 2).

Design Thinking emerged as designers began to investigate and research design. Through this process they identified principles that could be used by non-designers to problem-solve creatively in any field (Brown, 2009: 240). Design Thinking incorporates skills that designers have used and practiced for years, in order to match human needs, while using technology, and being conscious of business constraints to create something of use and benefit to the end-user. Design Thinking offers these tools to those with no design training so that they too may apply these practices to issues that they find in their respective fields (Brown, 2009: 3). Essentially, Design Thinking is "an approach to innovation that is powerful, effective, and broadly accessible, that can be integrated into all aspects of business and society, and that individuals and teams can use to generate breakthrough ideas that are implemented and that therefore have an impact" (Brown, 2009: 3).

2.3 Theories of Design Thinking

There are competing theories, practices, characteristics and processes that have been defined and referred to as Design Thinking. As expressed above, Design Thinking itself is a difficult thing

to define and specify, due to its creative nature and the fact that theories about Design Thinking have been put forward by designers, not academics. These theories, by nature of being design theories, are constantly in flux, and are always adapting and evolving. For the purpose of this dissertation, the characteristics and practices of Design Thinking, as defined by Brown (2009) will be adopted and discussed, along with other design literature. There are many practices in Design Thinking, and this section will include discussions on the '3 I model', prototyping and interdisciplinary teamwork. The next section of this chapter will focus on human-centred design, an important and integral theory of Design Thinking. Although this dissertation focuses on human-centred design, none of the design practices exist independently of each other and it is therefore important to highlight and discuss a range of practices and approaches.

In his book, Brown (2009) outlines the process of Design Thinking. In contrast to the scientific process, the Design Thinking process is not linear. Brown (2009) argues that design thinkers do not follow a linear path to achieve a result, but that rather, the process is a continuum. While there are starting points and stages and phases to go through, the process itself is "best thought of as a system of overlapping spaces rather than a sequence of orderly steps" (Brown, 2009: 15). This can be viewed in comparison to the linear processes of other projects that have a beginning, middle and end and are often thought out and planned long before completion. Traditionally, for example, big projects leave little room for alterations, and do not steer off course. Conversely, Design Thinking advocates for a non-linear approach that weaves backwards and forwards through several spaces, namely inspiration, ideation and implementation.

In 2001, as a result of the company being consistently asked to work in spheres far removed from traditional design, Brown and his team at IDEO identified this type of experience-oriented design as the '3 I model' (Tschimmel, 2012: 7): inspiration, ideation and implementation. Inspiration refers to the problem or potential solution that the design thinkers are trying to solve or improve (Brown, 2009: 15). In the inspiration phase, designers will typically identify the design problem, expand on the design brief with the team, and also observe their target end-users in a natural environment (Tschimmel, 2012: 7). Ideation is the stage during which ideas and solutions are thought up, developed and prototyped (Brown, 2009: 15). Ideation takes place after some observation and design research; it includes an interdisciplinary team who go through their research and observations, and aims to yield insights that will translate into initiatives that will bring about

positive changes. Often during this time, ideas will be presented visually to other members of the team, in order for communication to occur (Tschimmel, 2012: 7). Implementation is the third stage where the solution, service or product is introduced to the market or end-users (Brown, 2009: 15). However, before this can happen, the product or system must be prototyped. Throughout the prototyping stage, the product is tested and may go back through the first two stages of inspiration and ideation to be improved upon. Prototyping is the most important part of the 3 I model because it is at this stage that the product, system or design can be tested in a real world environment with real end-users. During the prototyping of new designs, new materials and new applications can be tested, and ultimately, the version best suited to the needs of the end-user implemented (Tschimmel, 2012: 7).

Since the progression of a project through these stages is not linear, there may be a new discovery at the ideation stage that leads back to the inspiration stage or, more likely, at the implementation stage, during prototyping, designers may discover that there is a flaw or something they never considered and they will return to the ideation stage to improve upon the design. The 3 I model encourages movement between the three stages in order for the final design to be most refined and effective. This process of ideation is an example of how the Design Thinking process is an "exploratory process" and how, if it is successful, it becomes a divergent exploration that allows for unexpected discoveries and unconsidered solutions (Brown, 2009: 15). Brown (2009) gives the example of how, when testing a prototype, end-users may offer insight that could result in a change or improvement to the original design. He argues that such insights should inspire a change of plans, rather than a continuation of the original design. In this way Design Thinking encourages and advocates for the involvement of the end-users in order to develop a product or system that will be successful, useful and sustainable (Brown, 2009: 16).

Tschimmel (2012) argues that the names of the processes themselves lead to incorrect interpretations of what takes place during the design process. She argues that calling the first stage 'inspiration' "leads us to the false impression of easily formed ideas and an artistic approach of the creative process" (Tschimmel, 2012: 7). She also points out that the simplistic name tends to ignore the entire design process and portray it as a simplistic artistic moment of inspiration. While the use of the word 'inspiration' to represent complex processes may be problematic, the theory itself does not neglect the complexity of this stage of the process. Furthermore, Brown (2009) very clearly

explains that design is far from simple, but rather, a complicated to-and-fro approach until a suitable implementation is reached. The 3 I model merely offers an understanding of the very broad stages that Design Thinking goes through, while also allowing for the inclusion of other methods and approaches in both creation and prototyping.

Prototyping is an early way of "visualising and testing new solutions" and is "indispensable to the creative design process" (Tschimmel, 2012: 4). The most important aspect of prototyping is to prototype early. Traditional projects and products will prototype at the end of the design stage, once they believe that they have the best possible outcome or design. Design Thinking, however, advocates that one should rather prototype several ideas throughout the design process. The idea is that through each stage of prototyping, designers will gather more and more information about their project or product and be able to avoid failures as each prototyping session should yield valuable information (Tschimmel, 2012: 4). While traditional business methods may try to avoid failure, Design Thinking encourages early and frequent failure, as it believes that prototyping will lead to invaluable design insights (Tschimmel, 2014: 4). According to Coughlan and Prokopoff (2013),

> …rapid prototyping helps people to experience a possible future in tangible ways. These include rough physical prototypes of products or environments, or enactments of processes and service experiences, as well as the internal infrastructure and business plans that will be required to deliver them (2013: 95).

Essentially, prototypes are quick, low risk explorations into a variety of options without the financial implications of committing to a particular one. Through prototyping, designers can explore how a product, service, project or experience will be received, how it will function, and how the design team can improve on it (Coughlan and Prokopoff, 2013: 95).

Brown (2009) argues that a good prototype should be supported by design thinkers, as a prototype will encourage and validate ideas and will "generate a buzz among members of the design team, who will become enthusiastic advocates as it becomes a candidate for funding and support" (Brown, 2009: 231). However, he is quick to point out that the most important aspect of a prototype is how the prototype is received in the real world by its intended users. This involvement of end-users is integral to human-centred design, and this will be discussed later in this chapter (Brown, 2009: 231).

Design Thinking is an interdisciplinary discipline and as such, teams often include a variety of design thinkers with a range of different backgrounds. Brown (2009) uses the analogy of a 'T' to describe individuals who excel in interdisciplinary teams. This idea of a 'T-shaped' person which refers to a person who has strengths in two dimensions. He argues that design thinkers 'cross' the T. He offers a few examples, saying "they may be architects who have studied psychology, artists with MBAs, or engineers with marketing experience" (Brown, 2009: 27). These are the types of people who will excel within a Design Thinking environment, especially in an interdisciplinary team. An interdisciplinary team is one where there is commonly a collective ownership of ideas, rather than the individual ownership of ideas in a multidisciplinary team   resulting in collaborative work (Brown, 2009: 27). When it comes to Design Thinking, "solving design problems requires interdisciplinary teams with a transdisciplinary focus" (Binder et al., 2011: 3).

In his research and practice, Brown (2009) discovered that there are certain constraints that Design Thinking encounters throughout the design process. These constraints often emerge within the first stage of the design process. It is during this stage that it is determined which constraints will be most influential and what the manner for dealing with them will be (Brown, 2009: 17). Brown (2009) believes that these constraints are best represented as "three overlapping criteria for successful ideas: feasibility (what is functionally possible within the foreseeable future); viability (what is likely to become part of a sustainable business model); and desirability (what makes sense to people and for people)" (Brown, 2009: 17). As teams move through the 3 I model, these constraints will help guide the process and project. However, just as the 3 I model is not linear, neither are these constraints. Teams will be required to consider and continually revisit all three constraints throughout the process. Brown (2009) recognises that while these constraints are not specific to design, what sets Design Thinking apart from traditional idea processes is that while cycling through all of these constraints during a project, Design Thinking maintains an emphasis on human-centred desires and consistently prototypes and considers real human needs, rather than manufactured needs or desires. Brown (2009) believes that designers are able to come up with better solutions by properly designing for, and with, the end-users, while considering these constraints (Brown, 2009: 18).

There are some difficulties faced when it comes to translating these design ideas into practice and Brown (2009) has identified that the issues with Design Thinking often lie within the structures of management and what processes or practices management is willing to allow or adapt to. He says "a culture that believes that it is better to ask forgiveness afterward rather than permission before, that rewards people for success but gives them permission to fail, has removed one of the main obstacles to the formation of new ideas" (Brown, 2009: 32). This is apparent in his 3 I model, where he insists that management must allow for early prototyping and early failure in order to be able to move backwards and forwards through the processes to ultimately result in a well-designed solution. However, he argues that the only way for this to happen is for Design Thinking to be adopted by management and other non-design industries. Design skills must be disseminated throughout organisations, groups and companies, and especially adopted by higher management who are often responsible for decision-making. Essentially, Brown (2009) says that "design is now too important to be left [only] to designers" (Brown, 2009:36).

2.4 Human-centred Design

If one were to consider Design Thinking as the overarching practice of modern day design made up of many other approaches, it could be said that human-centred design is the most critical theory of Design Thinking. This is because when using Design Thinking, all products and processes are designed with the end-user in mind, and for the end-user. However, it could also be said that human-centred design is a different part or type of Design Thinking since it still uses and incorporates the traits and methods of Design Thinking. Human-centred design still uses the 3 I model, prototypes and follows the same processes of Design Thinking. For the purpose of this dissertation human-centred design is considered as a theory of Design Thinking that emphasises end-user involvement throughout the whole design process. In addition, this dissertation understands that human-centred design includes elements of participatory design and service design within it. For this literature review, they will be considered not as separate approaches, but as branches of human-centred design. Brown (2009) argues that:

> Design has the power to enrich our lives by engaging our emotions through image,
> form, texture, colour, sound and smell. The intrinsically human-centred nature of
> Design Thinking points to the next step: we can use our empathy and

understanding of people to design experiences that create opportunities for active
engagement and participation (Brown, 2009: 115).

Brown (2009) states, human-centred design is an expansion of Design Thinking that includes participation as well as the end-user in order to result in a product or process that is better for those whom it is intended for. Brown's company IDEO and his NGO, IDEO.org, identified and articulated the human-centred design process, and in his book *Change by Design*, he speaks about how there are elements of Design Thinking within the human-centred design process and these include field observations, prototyping and the inclusion of the end-user. Since these have previously been discussed, these will not be elaborated on in this section. However it is important to recall, once again, that the success of approaches such as human-centred design, as with Design Thinking, require them to be adopted outside of the design industry by other industries and into other departments (Brown, 2009: 148). By Design Thinking moving away from designers and becoming more commonplace in the service sector, public sector and corporations, Design Thinking and human-centred design can begin to be used to tackle a variety of complex problems (Brown, 2009: 148).

As mentioned above, IDEO.org is the best example of the human-centred design approach and they are responsible for a lot of its dissemination and popularity throughout the design industry. Human-centred design succeeds by focusing on customers or target markets (referred to as end-users); through the action of designing with them, companies and organisations are able to understand their customers and end-users better. By involving these individuals in the design process, companies and organisations are better able to understand their needs and desires, and in turn design better suited and more sustainable solutions for them that they did not even know they needed (Brown, 2009: 40 & 177).

In 2009, there was a shift from designing *for* the end-user to designing *with* the end-user (Tschimmel, 2012: 4). This change is important as it signalled the beginning of what is now referred to as human-centred design, which includes a more collaborative way for designers to interact with the intended users through participatory methods that include co-creation, insight, observation and prototyping (Tschimmel, 2012, 4). In particular, IDEO.org's approach to human-centred design is important since it was designed with the intention to be applied to social innovation processes and solutions. Rather than designers in the developed world designing solutions to be applied in the

developing world, human-centred design insists on the involvement and participation of the communities that it is trying to design for. In the human-centred design approach for social change, it is intended that the communities and potential users participate in the entire design process, which includes explaining and identifying the challenges, coming up with ideas, prototyping and then evaluating and testing out the designs. For this reason, participatory design is also discussed and analysed as a part of human-centred design. Participatory design regards the end-users as partners in the design process (Tschimmel, 2012: 4). This results in a product that has been tested for maximum effectiveness by the end-user, since they are the ones most likely to use and benefit from the designed product and process.

So, how can designers use the human-centred design process effectively? According to Brown (2009):

> …design thinkers observe how people behave, how the context of their experience affects their reaction to products and services. They take into account the emotional meaning of things as well as their functional performance. From this they try to identify people's unstated, or latent, needs and translate them into opportunities (2009: 229).

Brown (2009) identifies three elements as being the most important when it comes to human-centred design, namely: insight, observation and empathy. Once again, these elements do not form a linear process, but rather are intended to be used concurrently by the designer while researching and designing (Brown, 2009: 229).

When working on a design project, insight will emerge as a result of hours of observation (Brown, 2009: 40). When using human-centred design, it is important to observe real-life experiences of the end-users in order to identify moments where design can improve their day-to-day experiences and tasks. Brown (2009) identifies these as "thoughtless acts, the small tasks that humans do in order to counteract bad designs or bad systems" (Brown, 2009: 40). By a designer identifying these acts, they will be able to have insight into how they can create better solutions and interventions through design.

Designers are trained to observe both what people do and say, as well as what they do not express. Brown (2009) offers an example of research where a team not only interviewed many of the informants and made observations, but also arranged to stay overnight with the end-users. As a result, they gleaned many more useful observations and insights, and in addition gained a level "of trust among people who might have been justifiably wary" (Brown, 2009: 47). This level of observation is integral in order for the designers to formulate a clear understanding of the problem and issue at hand. By observing people going about their daily tasks, designers are using observational research methodologies in an attempt to identify latent needs that will translate into design solutions (Coughlan and Prokopoff, 2013: 91). Coughlan and Prokopoff elaborate on this process of observation:

> …designers observe, take pictures, ask questions about the here and now. They discover what people specifically like and dislike about their work or play, what pictures they have in their heads about how a process works, how they have invented ways to work around a particular problem, and what ritualistic behaviour they engage in during a given activity (2013: 91).

By observing an activity, designers are able to avoid using assumptions or stereotypes when they begin the design process, and rather use real life experiences and understandings. This approach allows for new insights to emerge during observations which can result in innovative solutions.

Human-centred design requires empathy. Brown (2009) explains that using empathy when engaging in human-centred design distinguishes the approach from academic or scientific thinking. "We are not trying to generate new knowledge, test a theory, or validate a scientific hypothesis… The mission of Design Thinking is to translate observations into insights and insights into products and services that will improve lives" (Brown, 2009: 48). He argues that using already existing assumptions or rudimentary observations without empathy would lead to already existing designs or poor interventions (Brown, 2009: 48).

Finally, the most important element throughout the design, is a consistent level of collaboration between the designers and end-users which is integral as 'users' become active participants in the design. In this way, human-centred design becomes participatory design and better insights are yielded (Brown, 2009: 59).

2.5 Participatory Design

Participatory design is one of the ways in which Design Thinking has developed. The idea is that instead of an "inflexible, hierarchical process that is designed once and executed many times", designers focus on creating very flexible designs and systems that can be constantly evolving where "each exchange between participants is an opportunity for empathy, insight, innovation and implementation" (Brown, 2009: 188). Participatory design focuses on the idea that most people have something to contribute to a design. Specifically it focuses on the idea of use, which has changed over the years from a focus on actual products, to usability, to involving potential users throughout the design process. Participatory design is an approach that encourages the involvement of users in design, known as "use before use" which is a way "to meet the unattainable design challenge of fully anticipating or envisioning use before actual use takes place in people's life-worlds" (Binder et al., 2011: 176).

Participatory design began in Scandinavia in the 1970s as participation and democratisation became important in the workspace as opposed to solely in the design studio. The basic idea was that those who are affected by a design should be able to have a say in the design process. Binder et al. (2011) argue that the emergence of participatory design "reflects [at the time] the controversial political conviction that we should not expect consensus, but potential controversies, around an emerging object of design" (Binder et al., 2011: 190). Through participatory design, it was encouraged for local Scandinavian trade unions to participate legitimately in the design of things, and in that way "use and users existed before design and designers" (Binder et al., 2011: 190. Bjögvinsson et al., 2012: 103).

Users bring important value by participating in design. Firstly, by incorporating the idea of user democracy and involvement in the design stage, designers are forced to consider use, and consider user participation (Binder et al., 2011: 184). Secondly, user involvement brings with it an untapped resource of knowledge about their lives, how they would use the system or product and what designers could do to improve the design of the system or product. By involving users in these early stages, designers will still continue to adopt the 3 I model, while gaining insight, prototyping and ultimately design a better solution for the end-user (Binder et al., 2011: 184).

Possibly the most important aspect of involving users and participants fully in the design of a system or product is that the project is only one stage of a product or system. Eventually, these products, systems and devices will be sent out into "already existing ecologies" of people's lives, and if these people are not involved in the design process, these projects and products can fail (Binder et al., 2011: 182). Binder et al. (2011) say

> …the beginning and end of a designed device is open and hardly ever constrained to the limits of the project. This is principally interesting because it indicates the importance of understanding how design in a project is related to users' or stakeholders' appreciation and appropriation, whether in the form of adoption or redesign, and how users make these devices into objects of concern and part of their life-worlds and evolving ecologies of devices, of their emerging landscapes (2011: 182).

This is the biggest reason to encourage and insist on participatory design – it is not enough to simply design *for* the end-user, designers must design *with* the end-user.

One of the most important aspects of participatory design is the idea of a greater picture. By advocating for participation throughout the design process, designers are challenged to think of the design having a greater societal purpose. The design suddenly becomes a collaborative effort where various stakeholders are involved, and "ideas have to be envisioned, prototyped, and explored in a hands-on way, tried out early in the design process in ways characterised by human-centeredness, empathy, and optimism" (Bjögvinsson et al., 2012: 101). This approach reinforces how design becomes a way to solve challenges people face in their day-to-day lives and looks at a way of improving situations through design by anticipating use before use (Bjögvinsson et al., 2012: 104).

As previously discussed, design projects move through stages (though not always linearly), with each stage aiding in the refinement and betterment of a project, idea or design before the product reaches the end-user. However, both Binder et al. (2011) and Bjögvinsson et al. (2012) identify issues with this approach calling it 'top-down' and 'hierarchical'. They believe that this approach does not allow for participation, or user involvement and by not involving users throughout the process, the project will not be able to adapt or include user perceptions and opinions in the design process. This is why participatory design is integral to a good design process (Binder et al., 2011: 179. Bjögvinsson et al., 2012: 104).

There are some limitations with participatory design. Binder et al. have found that there can be issues with identifying who the "immediate user" is, and that the immediate users are not the only ones who will use these products and systems. Moreover, while envisioned use is important throughout the design process, it is not actual use, and there could still be issues with the design of the products. However, Binder et al. do not think that this limitation is enough to disregard participatory design completely, but rather that within participatory design, the ideas of 'use' must be flexible enough to not alienate or exclude potential users (Binder et al., 2011: 200).

2.6 Human-centred Design for Social Change

Human-centred design for social change is not an independent form of Design Thinking, but rather is simply Design Thinking, focused on human-centred design. It has also been referred to as socially responsible design (Cooper, 2011: 10). According to Brown (2009), this shift in Design Thinking towards social change mirrors a cultural change amongst the world's thinkers, who now focus on applying their minds and ideas to effect positive change and improve the lives of people (Brown, 2009: 203). Since social issues are, by their very nature, centred on human conditions, it follows that human-centred design would be applied to social change and development (Brown, 2009: 213). This socially responsible design is not limited to what would be considered development work, but finds itself at the core of modern human-centred design practice. For designers at IDEO, design is all about the way products and services affect people on both a micro and macro scale. The aim is to consider social, environmental and economic impacts while finding balance between how a product or service affects an individual, as well as the greater community (IDEO, n.d.: 7). It has also been argued that designers are "professional problem solvers", and, as such, are motivated to champion new methods, designs and approaches that focus on the needs of underserved communities and the social issues they face (Smith, 2007: 8).

Cooper (2011) argues that designers using design for social change is not a novel concept. At the beginning of the 20th century, designers were already beginning to incorporate moral and ethical issues into their approach. However, Cooper (2011) notes that during the 20th century, rampant consumerism began and production increased at a rapid rate, and it was only in the 1960s that designers actively began to consider the implications of their designs (Cooper, 2011: 10). At this time, approaches to design, such as green design, eco-design, ethical design and sustainable

design began to emerge. In 1972, Victor Papanek, a long-time advocate for socially responsible design, began to encourage designers to design no longer for profit and to introduce designed products that would improve the lives of others while considering the environmental, and ethical and moral implications (Cooper, 2011: 10). As the design and consumer markets diversified, designers began to design for the sustainable market, and in recent years, designers have turned their attention to tackling other social issues such as crime, poverty, health and education. This approach in design coincided with a world-wide rise in discussion and support for human rights, education and development in underdeveloped communities. While NGOs had long been endorsers of these issues, businesses began to promote and explore opportunities for corporate social responsibility, as well as creating NGOs that were able to make a profit. However, as Cooper says, if businesses are to turn these ideas into reality, design is an essential ingredient" (Cooper, 2011: 10).

As previously discussed, human-centred design focuses beyond the 'use' of an object or system, and aims to consider the full human experience and interaction with the design. This focus does not change, but rather shifts when the approach is to design for social change. In 2001, Buchanan encouraged design to be connected to human dignity and human rights, and said that these are "the first principles of design, the principles of which our work is ultimately grounded and justified" (Buchanan, 2001: 36). By putting human-centred design in the context of human dignity and human rights, it

> opens up moral and ethical problems that lie at the core of design professions, refers to the central place of human beings in Design Thinking, and proposes a disciplinary reflection on how to support and strengthen the dignity of human beings in their lives (Meroni and Sangiorgi, 2011: 68).

Human-centred design for social change is an approach that is "aimed at enhancing the lives of people [and], can help organisations to better connect with their existing networks of stakeholders, while discovering new opportunities for change" (Meroni and Sangiorgi, 2011: 68). This approach of human-centred design includes an investigation first and foremost of the end-users. This is not surprising since human-centred design advocates for design with, and for, the end-user. Because social change and human rights issues are the focus of this approach, the scope for individuals to be involved widens to include the greater community, government, NGOs, the end-

users, their families, social and cultural conventions and barriers, and anyone that may be inadvertently involved with the design (Meroni and Sangiorgi, 2011: 68). This method involves collecting and sharing the experiences of users in a community in order to better understand and solve issues through design.

Observation through immersion allows designers to identify latent and unexpressed needs within a community, and begin prototyping solutions within the targeted group of end-users. By doing so, designers better understand "the multiple and sometimes conflicting behaviours, needs and desires of people; these stories [are] then used to collaboratively envision and explore possible future solutions" (Meroni and Sangiorgi, 2011: 68). In addition designers are better able to design tools aimed specifically for these experiences as they become the inspiration for the final design, system or service (Meroni and Sangiorgi, 2011: 4525). By using this approach of designing for social change, and by including the greater community in this approach, the design will not simply result in a product, but the focus will shift to designing and coming up with ideas for a service or system that will improve the lives of those in need (Meroni and Sangiorgi, 2011: 68). If design hopes to improve the lives, human rights and dignity of those it considers its end-users, designers must focus on and understand that the behaviour, hopes, dreams and habits of end-users and this must be at the core of any new design (Buchanan in Meroni and Sangiorgi, 2011: 68).

When it comes to designing for social change, it is encouraged that the end-user be involved heavily in the design process to the point of co-design or collaboration in order for the design to be a success. As Meroni and Sangiorgi (2011) state;

> …this can vary from adopting participatory design methods, including users in the redesign of their services, to considering services as co-created solutions where users are not only the co-designers but also conscious participants in the delivery and development of the solutions (2011: 240).

What this means is that designers have to create a space and the capacity for people to participate in these processes and discussions, whether these include forums or test groups, there has to be a space in which people can come forward and discuss how these products, services and designs affect them. This is termed 'user-driven innovation' where the emphasis is to move beyond "simple citizen's consultation" and engage citizens in participatory design (Meroni and Sangiorgi, 2011: 45).

This approach is modelled on the Scandinavian approach of participatory design where users are seen as an important resource and wealth of information and insight. Meroni and Sangiorgi (2011) refer to an approach suggested by Cottam and Leadbeater in 2004, where an open source paradigm is suggested as an approach to social change design. This encourages the use and sharing of open-source tools, insights, and discussions between the designers and the end-users. Cottam and Leadbeater (2004) refer to the designer as a facilitator within a multidisciplinary design process, whose role it is to make connections between people, organisations and products, as well as encouraging participation amongst users by bringing them into the centre of the design process (Cottam and Leadbeater, 2004 cited in Meroni and Sangiorgi, 2011: 45).

The designer's role, however, should not be understood solely as a facilitator, but also as a provoker. It is the responsibility of the designer to facilitate not only discussion and collaboration, but also to put forward novel, ground-breaking, and provocative ideas. In this way, designers are able to provoke better discussions and solutions which ultimately lead to better designs (Manzini, 2011: 28). Britain's Design Council, which works in conjunction with the British government, advocates for Design Thinking for social change as this approach considers the social aspect within a system, and identifies a design solution by designing for the end-users. Furthermore, Design Thinking begins with smaller projects that are prototyped with end-users, rather than attempting a risky, expensive project that has not been prototyped or gone through user consultation or collaboration. Finally, while government projects tend to happen independently of other projects and departments, design thinkers and design methods are able to facilitate discussions across departments and are able to identify what departments and individuals are relevant to the problem at hand, and engage them in co-collaboration (Design Council, 2013: 6).

Fabricant (2013), argues that social change issues would be considered by designers as 'wicked problems', referring to the fact that they are particularly stubborn and complex to resolve (Fabricant, 2013, 140). Fabricant states that "while problems of all shapes and sizes can benefit from creativity, it has become an article of faith that 'wicked problems', in particular, require highly creative solutions that span boundaries and organisations" (Fabricant, 2013, 140). Buchanan (1992) believes that designers are well equipped to attempt these wicked problems because "design has no special subject matter of its own apart from what a designer conceives it to be" (Buchanan, 1992

cited in Meroni and Sangiorgi, 2011: 31). What Buchanan is explaining, is that within design, there is no stable scientific explanation or definition of what design is meant to be (Meroni and Sangiorgi, 2011: 31). It is this quality of design that makes it well suited to approach these 'wicked problems', since problems that are difficult to solve conventionally may benefit from being approached in an unconventional and elastic manner (Fabricant, 2013, 173).

2.7 Participation and Development

The previous discussion in this chapter has highlighted how participation is an integral aspect of the human-centred design and associated approaches. In this section the nature of participation is further unpacked using work developed outside the Design Thinking framework by using Sherry Arnstein's 1969 Ladder of Citizen Participation (henceforth referred to as Arnstein's ladder). Participation is defined as "people taking part in the decision-making processes, or the type and level of people's involvement in development planning, projects, and practices" (Kyamusugulwa, 2013: 1267). Arnstein describes and likens participation to spinach, explaining that no one can be against it, since it's good for you. However, she is quick to note, that even in 1969 when she outlined Arnstein's ladder, participation was not extended to everyone in all forms (1969: 216). Participation ranges from simple consultation, distribution of information to those participating being directly involved in the decision-making process (Kyamusugulwa, 2013: 1267). While democracy is defined by the participation and voices of those being governed, the varying levels of participation illustrate that there is often no active citizen participation that leads to decision-making.

The aim of participation is to include local knowledge in a project's decision-making process, and that, by involving participants in the key-decisions, the process becomes less of a consultation and more of an active participation with "self-initiated actions" (Mansuri and Rao, 2003: 8). By including participation, projects are more likely to be better designed, cost-effective, promptly delivered with less corruption in the process (Mansuri and Rao, 2003: 8). The benefits of participation as an approach is that projects are no longer top-down, initiated by external experts, but rather bottom-up approaches where the knowledge of the people involved is more important than the knowledge of the expert (Kyamusugulwa, 2013: 1276). By using participation, governments are able to better intervene in community issues through methods of transparency and

accountability, while involving local institutions, who, in turn, become more responsible and accountable (Kyamusugulwa, 2013: 1276). Further benefits of using participatory approaches in community-driven projects include "promoting equity and inclusiveness through their ability to tackle issues of inequality/inequity, exclusion and poverty through a process of empowerment" while being efficient because in certain cases, the intended beneficiaries are directly involved in the planning and execution (Kyamusugulwa, 2013: 1276).

Arnstein (1969) draws attention to what participation means in practice. She explains: "There is a critical difference between going through the empty ritual of participation and having the real power needed to affect the outcome of the process" (1969: 216). In order to distinguish between these varying levels of participation, Arnstein (1969) created a typology of participation that consists of eight levels which she arranged as a ladder where the highest rung represents the highest level of participation, and the lowest rung, the lowest level of participation (see figure 1).

8	Citizen control	Degrees of citizen power
7	Delegated power	
6	Partnership	
5	Placation	Types of tokenism
4	Consultation	
3	Informing	
2	Therapy	Non-participation
1	Manipulation	

Figure 1: Arnstein's Ladder of Citizen Participation (1969)

Arnstein (1969) further divides the rungs into three sections. The first section 'non-participation' includes rung one and two. 'Non-participation' is considered an attempt to substitute for real participation, while actually using the ruse of participation for dispensation of information about programs and projects amongst participants. Rungs three, four and five form part of the second section titled 'degrees of tokenism'. During 'informing' and 'consultation', Arnstein (1969) explains that citizens are seen and heard by those in power, but during these stages citizens have no power to ensure that their opinions, thoughts and voices will be considered and included by those in

power. At this level, without any action or follow-through, participation at these stages is restricted. Rung five, 'placation' still forms part of tokenism, because at this stage participants may be allowed to advise, but the power to make decisions still lies in the control of the 'power-holders'. The last grouping 'degrees of citizen power' includes the stages where participants have some level of influence (rung six, seven and eight). 'Partnership' includes the ability for citizens to negotiate and trade with those in power. The top two rungs 'delegated power' and 'citizen control' allow for what Arnstein (1969) terms the 'have-not citizens' (those traditionally with little to no power) to have the majority of the power when it comes to decision-making (Arnstein, 1969: 217). While this typology is a simplification, and has limitations, it is integral to understanding that there is a gradient of participation, and that not all participation is equal.

In the case of human-centred design, the importance of participation is clear in the approach's insistence on the involvement of the end-user in the design process. It could be argued that Design Thinking, when advocating observation and design for the end-user, could refer to the bottom three rungs if it fails to consult any end-users, but merely designs with them in mind. However, as soon as there is consultation with the end-users and designers begin to design with the end-users, these actions could be considered to be within the next bracket of Arnstein's ladder: degrees of tokenism. Arnstein (1969) would agree that at this stage, end-users have no power to ensure that their opinions and insights would be considered by designers in the design process. However, should designers truly co-design with end-users, where users have the majority of control over the design process, this would be considered the highest rung of participation: citizen control. From this comparison it is clear that human-centred design could utilise varying levels of participation when designing, however, it would be most beneficial to the end-user if higher participation forms on Arnstein's ladder are adopted.

2.8 Conclusion

This chapter has provided an understanding of Design Thinking and its theories, specifically human-centred design. The evolution from design to Design Thinking was described along with the historical context at the time. Three Design Thinking practices were presented: firstly, the 3 I model which focuses on the non-linear spaces of inspiration, ideation and implementation; secondly, the importance of prototyping was expressed along with the understanding that designers should

consider the constraints of feasibility, viability and desirability when designing; and thirdly, the interdisciplinary nature of Design Thinking.

Further design theories of human-centred design, participatory design and design for social change provided a theoretical framework for this dissertation and the research it presents. Human-centred design was discussed in depth, and shown to have a great focus on designing for and with the end-user. In addition, the human-centred design processes of insight, observation and empathy were highlighted. Participatory design was illustrated as a form of human-centred design that expressed how design needs to be constantly evolving, advocating for use before use, along with the idea that design interventions should be systemic and consider the greater context. This idea was supported by the theory of human-centred design for social change. While consisting of similar tenets to human-centred design, this approach argues that human rights and human dignity should form part of the design process when considering the end-user. Human-centred design for social change also advocated for the inclusion of government and NGOs in the design process while suggesting that the designer could play a facilitative role. Finally, the theory of participation in development along with Arnstein's ladder was included as a supporting theory to human-centred design. These theories provide a framework for this dissertation and the research it presents.

Chapter Three: Background and Context

3.1 Introduction

This chapter provides a background into the case study of Warwick Junction, the city of Durban, as well as the actors and processes involved in the Warwick Junction Urban Renewal Project (hereafter referred to as the Warwick Project). Warwick Junction is considered a local example of how human-centred design and participation can be used to achieve transformative results. eThekwini (the city of Durban) and the Warwick Project provide one of the few examples of street traders being integrated into city and urban planning. Warwick Junction, as one of Durban's oldest trading areas, has had a complex history and as such, the Warwick Project was not without complications. This chapter focuses specifically on the Warwick Project, and provides some insight into the success and eventual discarding of the project, as well as the human-centred design methods of participation and consultation that were abandoned.

3.2 Local Economic Development in Post-Apartheid South Africa

In order to understand the area of Warwick Junction, how the Warwick Project came to be and how human-centred design came to be used, it is necessary to understand the context of Durban. The renewal process of Warwick Junction took place over 30 years; during that time apartheid ended in Durban and there was a political restructuring of local government. As a result, Durban adopted a forward-thinking approach to dealing with, and incorporating traders into the political and economic discussions surrounding the city.

After apartheid ended in 1994, national and local government underwent changes, with the new democratic government emphasising the need to restructure local government in order to combat apartheid's legacy of racial discrimination in order to create new urban, desegregated spaces (Robbins, 2005: 63). Post-apartheid municipalities were faced with great and widespread poverty and underdevelopment, and this led most municipalities to allocate a large share of their budgets to programmes that would confront and reduce apartheid's legacy (Robbins, 2005: 63). Local governments were granted much more autonomy and essentially became their own spheres of government with their own powers and functions (Robbins, 2005: 63; Skinner and Valodia, 2003:

431). Both the 1996 Constitution, Local Government: Municipal Systems Act (No. 32 of 2000) and the Local Government: Municipal Structures Act (No. 117 of 1998) specified the new powers and roles of the municipalities, while requiring a commitment to 'Local Economic Development' and the increased participation of citizens in local government decisions and interventions (Robbins, 2005: 63; Skinner and Valodia, 2003: 431).

Local Economic Development is a policy and practice that has been emphasised as a solution to poverty in South Africa since the 1990s (Khosa and Naidoo, 1998: 226). Local Economic Development is defined as "government-supported programmes that seek to increase local jobs or the local tax base by measures such as providing assistance to individual businesses" (Bartik, 2003: 1). This development approach focuses on using the local economy to create possibilities and potential wealth for its citizens through the productive use of labour, land and the local economy. Local Economic Development programmes tend to focus on more specific tasks or areas supported by public and private groups in the hopes of promoting economic development (Bartik, 2003: 2).

Rodriguez-Pose and Tijmstra's (2005) article on 'Local Economic Development as an alternative approach to economic development in Sub-Saharan Africa' highlights both the advantages and disadvantages of using Local Economic Development in Sub-Saharan Africa. The benefits considered are: a greater participation from local businesses and residents; a focus on sustainable development initiatives; a concentration on issues specific to the area at hand; and the incorporation of social issues with economic goals. However, the ability of Local Economic Development to be successful can be hindered by weak governments, corruption and the size of the informal economy (Rodríguez-Pose and Tijmstra, 2005: 6). Their paper argues that while Local Economic Development could be a successful strategy for development, it would need to be case specific and dependent on the conditions in each place that it was put into action (Rodríguez-Pose and Tijmstra, 2005: 6). in Durban, Local Economic Development became the way in which municipalities would enact change during this 'time of transformation' with the goal being to improve the lives of previously disadvantaged black and urban citizens (Robbins, 2005: 63).

The formulation of local development policies of post-apartheid cities was shaped by the 'new' democratic model in South Africa. As Ballard et al. (2007) explain "democratic and

participatory processes have been flagged as an important part of building a shared vision for a city's future" (2007: 266). These participatory processes were central to the process of democracy, and were intended to allow communities to provide input as to what development initiatives should take place (Ballard et al., 2007: 266). While participatory democracy formed a strong part of national and local policy, Ballard et al. (2007) found that in practice, participation was subject to power relations and conflict. They highlight examples that include officials deciding on interpretations from participants, and shaping responses to suit their planning (Ballard et al., 2007: 284). Hicks and Buccus (2008) argue that citizens had little knowledge of political, planning or democratic processes and that this affected their ability to participate in these discussions. Consequently, decision-making remained in the hands of the elite and powerful (2008: 107). Hicks and Buccus argue that in situations where citizens were able to participate, often communities and groups of people were homogenised and that individual voices were not heard by those in power (2008: 107).

Durban was one of the first municipalities to set up a Local Economic Development Unit as it attempted to address the history of apartheid through community level initiatives and policies that would encourage skills development and improve the livelihoods of its citizens (Robbins, 2005: 65). Skinner and Valodia (2003) argue that Durban was more progressive than the rest of South Africa's municipalities in their policy designs which were aimed at improving the lives of informal economy workers. They suggest that the progressive policies are due to the innovative approach of local government (Skinner and Valodia, 2003: 432). During the first post-apartheid decade, Durban's aim was to address the previous apartheid heritage, particularly the city's informal economy policies, by such initiatives as "skills development, affirmative action programmes and community-level activities to encourage improved income" (Robbins, 2005: 65). Robbins (2005) states that these new policies and practices encouraged involvement, consultation and participation with stakeholders and NGOs in an attempt to include the needs of the people when designing policies and rolling out actions (2005: 69). However, after some time, the number and scale of projects increased and as "the municipal leadership grew more confident with their elected mandate, even project-level consultation began to be replaced by elaborate internal decision-making exercises" (Robbins, 2005: 70). Despite his criticism of the municipality's project management, it is worth noting that Robbins (2005) does highlight that the Warwick Junction project "effectively integrated policy [that was] sensitive to the needs of the urban poor in the form of street traders with

substantial infrastructure reorientation to meet the daily needs of almost a million commuters and informal traders" (2005: 67). While Durban's strategy of Local Economic Development was not without its challenges, Durban was still a pioneer in its development of a Local Economic Development policy, and in its approach to include informal traders and the marginalised poor in discussions and policy-making. This unprecedented move resulted in some success and, as such, warrants discussion and analysis.

3.3 The Informal Economy

The informal sector was first defined by Keith Hart in the 1970s, referring to "economic activities that are relatively small scale and elude certain government requirements, such as registration, tax and social security obligations" (Hart, 1973 cited in Skinner, 2008: 228). In 2003, Thabo Mbeki (former president of South Africa) referred to the informal economy as being 'underdeveloped' and contributing little to South Africa's Gross Domestic Product, while also arguing that new development projects should rather be aimed at formalising the informal economy (Devey et al., 2006: 1). Despite arguments that the informal economy does not contribute to the nation's formal economy, the informal economy has in fact been shown to contribute between seven and twelve percent to South Africa's gross domestic product and therefore requires attention, inclusion and intervention by the municipality (Devey et al., 2006: 16).

While Mbeki's notion of the informal economy contributing to the economy was misinformed, data shows that there is a high correlation between the informal economy and poverty (Skinner, 2008: 227). It is often as a result of poverty and a lack of employment opportunities that we observe "people resorting to informal activities for survival" (Robbins, 2005: 64). Informal activities vary; most in the informal sector are self-employed, and can be involved in a range of economic activity including "trading, collecting, providing a service and manufacturing" (Devey et al., 2006: 4). Street trading is a very common form of work in the informal economy and in most cases of street trading, national and local governments are either "ambivalent or repressive, but seldom supportive" (Skinner 2008: 227). Local governments are responsible for, and in control of, public space in cities, as well as the regulation of formal and informal trading. The informal economy often relies on the use of public space and terrain to function and trade (Skinner and Valodia, 2003: 437). Public space can be contested and fought over, and so there exists a high level

of tension in the informal economy, between what Skinner (2008) calls, "the modernisation of African cities and what are often perceived as 'non-modern' activities like street trading" (2008: 227). This continued tension has permeated government's (and society's) perceptions about street traders as well as their participation and inclusion in decision-making.

That said, many tactics are used to repress traders and their livelihoods throughout the world, including Durban. These include divisive racial and language barriers, excessive force to intimidate, as well as the law – declaring thousands of traders illegal based on newly enforced licensing laws (Desai, 2010: 430). Durban provides an interesting example as its inclusion of the informal economy into urban policies and planning is uncommon, and the city has received praise by both academics and policy makers for meeting the challenge of incorporating informal workers into city plans (Skinner, 2008: 16; Skinner and Valodia, 2003: 437).

During apartheid, street trading was explicitly banned, with some arguing that apartheid South Africa had some of the harshest anti-street trading laws at the time (Skinner, 2008: 14). However, since there was still widespread unemployment, informal traders continued to exist and sell, despite "a well-entrenched tradition of repression, persecution and prosecution" of street traders (Rogerson and Hart, 1989, cited in Skinner, 2008: 14). During this time, a number of laws were set in place which outlawed street trading. In 1973, for example, the Natal Ordinance (No. 11 of 1973) was instituted and included what were called 'move on' laws. These laws encompassed a series of practices that street traders had to observe which meant that they were constantly moving, and never able to set up a semi-temporary space of business (Skinner, 2008: 231). However, despite being able to set up temporary spaces legally, in practice, street traders were often harassed and in an example of this was in 1977 when fresh produce hawkers in Warwick Junction were forced to clear out their businesses within 24 hours (Skinner, 2008: 231).

Attitudes towards the informal economy and street traders began to change in the early 1980s as a more liberal council took office in the Durban municipality. This new council undertook the Market Survey which aimed to assess the street-trading situation, and led the municipality to recognise that some of the street traders would have to be incorporated into the city's economy (Skinner, 2008: 232). At the same time, national government laws were changing, influx control laws were relaxed and there began to be more tolerance of small black operated businesses

(Skinner, 2008: 232). In the early 1990s, the 'move on' laws became illegal to enforce and the 1991 Businesses Act (No. 71 of 1991) removed barriers to informal activities. As laws were relaxed, Durban saw an increase in informal trading. However, in 1993, the Businesses Amendment Act (No. 186 of 1993) allowed local authorities and municipalities to enforce and create their own street-trading by-laws, which gave local governments more control over what they would and would not allow (Skinner, 2008: 232). In Johannesburg, the municipality determined that no street trading could take place in the demarcated inner city (Skinner, 2008: 232). In contrast, Durban managed to accommodate the majority of traders, and elected to include by-laws that "regulate trading activities to minimise interference with the movement of pedestrians and vehicles" (Skinner, 2008: 232). Should a trader be deemed as uncooperative with these by-laws they would face harsh consequences, such as confiscation of goods, fines and even imprisonment. While Durban was considered progressive at the time, hard conditions and criminal punishments still remained for traders (Skinner, 2008: 233).

In 1995 and 1996, Durban began integrating street traders into city planning through the Warwick Junction Urban Renewal Project at a time when over 10 000 street traders were operating in Durban (Skinner, 2008: 233). Internationally there are very few cases of cities where both the informal economy, and more specifically street traders, were included in urban planning. Durban's involvement in the informal economy and the Warwick Project was an exception to the common practices of other cities, both local and international (Skinner, 2009: 101).

3.4 Warwick Junction

Unlike many other local governments who employ harsh and restrictive policies and actions to reduce street trading and informal activity, the eThekwini municipality recognised the informal economy and included it in policy and development initiatives (Devey et al., 2006: 15). The city's intervention in Warwick Junction is regarded as a successful initiative and example of "how poor people, in sensitive collaboration with urban planners, can enliven a city centre, generate employment for themselves and expand services for the population at large" (Keith Hart, 2008, cited in Skinner 2008: 235).

Warwick Junction is an area in Durban's city centre located at Warwick Avenue and Grey Street. Warwick Avenue contains the largest concentration of the city's transportation services (including a bus station, train station and taxi ranks), and is considered one of the city's primary transportation nodes. Because of the high volume of transport services available in this area, it has become one of the most accessible areas in Durban, and, as such, is the area with the highest concentration of informal traders who offer a wide variety of services and products (Khosa and Naidoo, 1998: 225; Chazan and Whiteside, 2007: 166). The street traders in Warwick Junction "exemplify how particular forces of societal transformation have come to bear on this heterogeneous and marginalised group and also how such a group can come to shape the character of a rapidly changing urban locale" (Chazan and Whiteside, 2007: 166). Traders have been working in Warwick Junction for over a century, making it one of the oldest desegregated areas in Durban that survived despite the apartheid state's attempts to destroy it (Desai, 2010: 429).

Warwick Junction's history begins in 1872 with Aboobaker Jhaveri (an Indian immigrant) establishing Indian owned businesses in Grey Street and the surrounding areas (where Warwick Junction is located). Over time, more Indian businesses were established in the area and rural African people began to come to the city and set up small trading areas around Grey Street and neighbouring pavements (Dobson et al., 2009: 43). During the 1930s, the municipality deemed the area a 'slum', however it was starting to become an integrated community, providing services and trade opportunities. In 1948, with the introduction of apartheid, harsh legislation preventing non-white trade in white areas was instituted. By the 1960s, as previously mentioned, street trading was prohibited in Durban with police "fighting a running battle" with traders in the 1970s (Dobson et al., 2009: 45). With a slightly more liberal government in the 1980s and pressure from anti-apartheid organisations, the Marker Survey on street trading was undertaken, and this was considered the beginning of a cooperative approach towards street traders in Durban (Dobson et al., 2009: 45).

After the end of apartheid, trading laws restricting black economic activity were relaxed. Due to rising unemployment, many new traders moved into the city to find and create a means of survival (Chazan and Whiteside, 2007: 166; Dobson et al., 2009). However, there was no management and no facilities provided to assist with these new traders, and the local Durban municipality needed to create policies and plans to facilitate this informal trading. In 2003, it was

estimated that two thirds of the city's informal traders were operating in Warwick Junction, numbering between 5000 and 8000 traders and serving approximately 450,000 commuters each day (Chazan and Whiteside, 2007: 166; Skinner and Valodia, 2003: 436).

The markets in Warwick Junction are made up of a variety of different markets, each with traders selling a wide range of goods and services including fresh produce, clothing, mielies (corn), clay, meat, traditional medicine, and music (Desai, 2010; Skinner and Valodia, 2003: 436). These traders live and work in unsafe conditions for long hours earning very little while still trying to provide for multiple dependents. Traders have experienced crime, harassment from security, dangerous open-fire cooking, hazardous waste, smoke inhalation, xenophobic tensions, and violence (Chazan and Whiteside, 2007: 166). After the Warwick Project was initiated, some of these issues were addressed, although the survivalist nature of street trading remains dangerous for those who work in Warwick Junction. According to Skinner and Valodia (2003: 436), Durban has spent more resources and money on street trading than any other city, having spent R45 million since the 1990s on improving infrastructure and conditions for street trading. The Warwick Project, through consultation and human-centred design with traders, resulted in a significant improvement in the area, making it safer, cleaner and providing a formal muthi (traditional medicine) market, and overnight accommodation for traders (Skinner and Valodia, 2003: 436).

3.5 The Warwick Junction Urban Renewal Project

Prior to the initiation of the Warwick Project, local government officials and trader organisations were already involved in improving the lives of the traders in Warwick Junction. The eThekwini Health Unit (Durban's health department) had begun improving the health conditions in the area; the Self Employed Women's Union (SEWU) was launched in 1994 with an active branch of street traders in Warwick Junction; and the Informal Traders Management Board (ITMB), set up in 1995, to represent traders, became an organisation for the city to negotiate with (Dobson et al., 2009: 47). These entities and their involvements meant that there were existing groups for the project to work with, negotiate with and learn from.

In 1995, the Durban Municipality allocated R4.7 million to the Warwick Project with the goal of regenerating Warwick Junction and setting up a structure and system of area-based management (discussed below). The project's aims were:

> to improve the overall quality of the urban environment in the Greater Warwick Avenue and Grey Street area in terms of safety, security, cleanliness, functionality and the promotion of economic opportunities. The redevelopment of the Warwick Avenue area, specifically, should be geared towards promoting its primary role and function as a major regional hub for public trading and transportation, with a particular focus on the needs of the urban poor (Dobson et al., 2009; 51).

The team leader for the Warwick Project was Richard Dobson (an architect by trade), who oversaw a group of council officials who had already been working in Warwick Junction as part of their department's directive. Instead of it having its own dedicated staff, it would draw on existing staff within the municipal departments to create an interdisciplinary team. According to Dobson et al. (2009) this resulted in several advantages. The project was able to include a variety of people with a range of skills from diverse departments in the city. Due to their existing work in the area, some had established relationships with the traders which became valuable as on-site observation began. Officials from city departments were involved in the project from its inception allowing them to understand the nature of the project and the needs of the traders. The approach also fostered cooperation and teamwork across the council departments, ensuring that the council was involved (Dobson et al., 2009: 51). These members, forming the project team, met weekly to discuss the project's progress, share information and solve issues (Dobson et al., 2009: 53).

The fundamental aspects of the Warwick Project were that it had an area-based management approach, an inter-departmental, interdisciplinary team, and the commitment to participation and consultation through human-centred design. This strategy differed from the traditional hierarchical, top-down system where, instead of decisions being made by those in power and the headquarters being situated in a remote location, traders were consulted and made active partners in the decision-making process and the project headquarters were located in Warwick Junction (Dobson et al., 2009: 59). According to Dobson (2009) the choice to avoid a top-down approach was made based on the opinion that hierarchical approaches would be neither viable nor sustainable in this context (Dobson et al., 2009: 59).

Area-based management meant that "planning and the management of public resources would be decentralised to a geographical area and that the various departments responsible for managing the area would work together rather than in isolation" (Dobson et al., 2009: 51). By making the decision to set up management offices in Warwick Junction, traders were better able to bring issues to the attention of council officials, participate in discussions about development planning, as well as having a place to organise trader meetings and discussions. In addition, the location of the project centre meant that officials would spend part of their day observing the area in which they were working while having discussions with traders and understanding local conditions (Dobson et al. 2009: 59).

Indispensable to the project's success was the practice of consultation and participation with traders throughout the project. This human-centred approach was integral to the project, as it was "essential to negotiate with all stakeholders rather than superimpose any plans" (Dobson et al., 2009: 59). This consultation occurred on an individual level as traders were consulted throughout the planning and implementation stages, as well as on a larger group level as meetings, forums and discussions were held in order for traders to express their needs and opinions about the ongoing project. In addition to the observation, there were active trader organisations and committees (run by trader leaders) which developed consultation and negotiation skills along with the project officials. This approach ensured that throughout the planning, design and implementation of the Warwick Project, traders and their needs remained the focus of the project.

Between 1997 and 2008, the Warwick Project initiated a series of projects aimed to improve the trading area and the livelihoods of the traders. While some projects only took a year to be planned, designed and completed, others took up to 11 years (Dobson et al., 2009: 61). During these 11 years the following projects were planned, designed and completed:

- The Muthi Market[1] was planned, designed and completed (including the extension of the freeway overpass)
- The Warwick Junction Project Centre (also known as iTrump) was renovated and made operational
- The Early Morning Market was refurbished

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[1] The colloquial name for the tradition medicine market found in Warwick Junction.

- Five off-street taxi ranks were planned, designed and completed
- The Brook Street Market was planned, designed and completed, including storage facilities, kiosks and roof extension
- A bead and corn sellers facility was planned, designed and completed
- A cardboard collectors facility was planned, designed and completed
- A bovine head cook facility was planned, designed and completed

(Dobson et al., 2009: 61).

In addition to these projects, the Warwick Project and experience helped inform and guide the informal economy practices and policies in eThekwini. The Warwick Project also led to the introduction of area-based management in various other areas in the municipality (Dobson et al., 2009: 61). The success of the Warwick Project was recognised by the municipality at the time as they used the project to guide their policies and the use of area-based management. In addition, the Warwick Project was both nationally and internationally recognised for its creative and successful way of improving the lives of the traders by being awarded the Mail and Guardian Green Trust Award (1999), the KwaZulu-Natal Institute of Architects Heritage Award (1999), South African Institute of Architect's Presidents Award (2007/2008), the UN Habitat/Dubai International Award for Good Practice (2008) and being nominated for the IBM Innovations in Government Award in 2007 (Dobson et al., 2009: 61). These awards and initiatives by the Durban municipality show that at the time the Warwick Project was seen as successful and beneficial to the community.

However, despite the progress of the renewal project and its success, in January 2008, ahead of the 2010 FIFA Soccer World Cup, the municipality announced plans to build a large shopping mall in Warwick Junction (Goldstone, 2008). These plans threatened the livelihoods of those trading in the area, as well as the livelihoods of their dependents (Skinner, 2009: 101). This behaviour was contradictory to the previously inclusive and consultative nature of the municipality towards street traders, especially as street traders were not consulted about this initiative. As a result, traders protested this development and sued Warwick Mall in 2010 (Mdluli, 2010). After many protests and challenges to the new development, in 2011, traders were successful as the decision to build a mall was withdrawn (The Mercury, 2011). This dissertation aims to explain why the municipality changed their approach of working with traders and what led to the discarding of a previously

successful way of using human-centred design and trader consultation to improve the lives of traders in Warwick Junction.

3.6 Conclusion

This chapter aimed to provide an understanding of Warwick Junction and the Warwick Project by positioning the case study within the background and context of South Africa and Durban at the time. In order to do, Local Economic Development policies and how they came to be utilised were presented with a focus on how government policies changed at the time which resulted in Durban using this progressive approach in including informal traders in city planning. A brief account of the informal economy in Durban with a focus on the history of street trading was discussed. In order to understand the Warwick Project, a history of Warwick Junction was outlined, followed by an explanation of the processes and interventions of the project. These included reviews of area-based management, interdisciplinary collaboration, consultation and participation, design interventions as well as a brief account of the events that took place post 2008.

Chapter Four: Methodology

4.1 Introduction

Human-centred design is a relatively novel theoretical approach that is only just being used within the social change and development sectors, and as such, very little in-depth research has been done on the role it has played in social change and development. Through qualitative methods, I have tried to understand how human-centred design was implemented in Warwick Junction, the outcomes that it led to and why it was discarded after its apparent success. To do so, I have undertaken a thematic analysis by looking at human-centred design and the history of Warwick Junction in addition to interviewing key informants from the design, municipal and trading sectors. Within the constructivist paradigmatic framework that I have chosen, it is understood that the researcher's values influence the research process and analysis, and that knowledge emerges through the researcher's interactions with the case study participants and interviewees. This chapter outlines the methodology used in this dissertation, the sampling techniques, as well as the issues faced when researching this topic.

4.2 Methods

The methodology applied in this dissertation is qualitative, with the study adopting a constructivist approach. The constructivist paradigmatic framework attempts to seek out knowledge that is interpreted from multiple, equally valid realties. In this case, research into the three realities presented by the municipality, the design team and the traders has been interpreted by the researcher, and questioned through interviews. Through that process, knowledge from all three realities has emerged. The reason for utilising a constructivist approach lies in the context of the study. Throughout the Warwick Project, designers, municipal officials and traders worked together. in an interdisciplinary way. These three groups occupied different roles throughout the process, and held different views and perceptions about the project and human-centred design. This study aims to discover how these three seemingly diverse realities and institutions played a role in the human-centred design process in Warwick Junction, and why this process was subsequently discarded. Through thematic analysis from archival research, as well as the interviews and questionnaires, the

constructivist approach allowed for knowledge to be as relevant and important from the traders and designers as from the municipality.

The first method used was text or thematic analysis. Previous academic research, newspaper articles, as well as texts written by design thinkers were read, compared and contrasted. Since the theory and process of human-centred design is not widely known nor used in development theories, the goal of thematic analysis was to consolidate and compare several Design Thinking approaches, the theory of human-centred design, as well as the theory of participatory development, in an attempt to create an understanding of human-centred design and its practices in the context of Warwick Junction. While researching theories of human-centred design and participatory design, research on the Warwick Project was compared, contrasted and linked to the previous research on the human-centred design process. This thematic analysis was successful in drawing links between the theory of this dissertation and the case study it focuses on.

The primary method employed in this dissertation was in-depth, semi-structured interviews with key informants, supported by a trader questionnaire. The purpose of these interviews was to explore ideas present in the stage of thematic analysis as well as to further explore and understand the role of human-centred design, its outcomes and what led to its abandonment in Warwick Junction. These semi-structured interviews took place with key informants representing traders in Warwick Junction, civil society, the municipality, academia and designers. These in-depth, key informant interviews provided valuable data for exploratory research since they were descriptive and explanatory. The semi-structured nature of the interviews allowed for follow-up questions, expansion on answers and the gathering of information that was out of the scope of the planned questioning.

Key informants for this dissertation are understood to be designers, municipal representatives and traders who were involved in the Warwick Project. These are individuals who were directly involved (most of whom are still involved) in Warwick Junction from the early 1990s through today. These key informants were able to give insight into the process and their role in the Warwick Project, as well as how they perceived the roles of other groups involved. Through these first-hand experiences, opinions and perceptions, a narrative was able to be created of the

implementations and outcomes of human-centred design in Warwick Junction. The choice of key informants will be expanded upon in the sampling section.

Using semi-structured interviews gave participants the freedom to be able to tell their own stories while still allowing the discussion focus to remain within the research framework. By creating an environment that felt comfortable to the interviewees, the interviewees were at ease and able to engage with the questions and express themselves and their opinions. Since my research aimed to explore the human-centred design process in Warwick Junction and those involved, the questions were open-ended, allowing the interviewee to talk, while creating a structure that allowed a narrative within the responses and follow-up questions. The list of questions served as a guide and a reference during the interview process. In some situations, I allowed the interviewee to veer away from the set questions as their answers were providing unexpected additional insight into the research. In addition, while I attended each interview with the same set of questions, newly gained information or insight from previous interviews would form part of my decision to focus on specific questions, as well as leading me to bring up new questions during the discussion. This method falls within the realm of a constructivist approach – through my interactions I was allowing knowledge to emerge, and using that knowledge to bring together a variety of realities.

It has been suggested that informants are most responsive when they understand the purpose and scope of the investigation (Patton, 2002: 321). Before each interview I would explain my research, and what I hoped to investigate. I would also ensure that the informants understood what I meant by the terms "Design Thinking" and "human-centred design". This was important as I found the designers and architects would refer to human-centred design as simply 'design'. I found that by doing this, the informants felt invested in the research and this allowed for productive discussions relevant to my research.

4.3 Issues of reliability and validity

Using the constructivist paradigmatic framework when conducting my research, I was aware that my values would influence my research and my interactions with interviewees. Similarly, the perspectives of the key informants can be selective and informed by preconceived ideas. In the case of the municipality, those who I interviewed were interviewed in their official capacity and

responded to the questions as such. Therefore there is a chance that there was bias and that these responses were not personal and did not reflect individual opinions. In the case of the traders, there is a high possibility that many had been negatively affected by the municipality's actions in the late 2000s and this was at times reflected in their statements and opinions.

I was able to interview multiple individuals, including those from the municipality, trader representatives, academics and designers. This data triangulation meant that my research was not reliant on one participant's view or experience, thereby enriching my research and affirming my findings.

When it came to interviewing traders, I enlisted the help of a Zulu speaking former trader and representative of Asiye eTafuleni (a trader organisation based in Warwick Junction). On two separate occasions, I went to Warwick Junction with her to assist in identifying traders who would be able to answer the questions set out in the questionnaire. I had been warned that traders would be reluctant to disclose their views and answer questions without the presence of someone they trusted. Furthermore, I do not speak Zulu and this is the primary language spoken by traders in the markets, so with her help, the questionnaires were translated to traders and their responses were explained to me.

4.4 Sampling Techniques

Warwick Junction is a critical example in understanding how three groups (namely the municipality, designers, and traders) came together to use human-centred design to initiate change. As a result of this, stratified purposive sampling was used to identify key individuals who were involved in the municipality, the design, and in representing the traders, as well as academics who had conducted research into the area. I conducted eight in-depth interviews with key informants who provided invaluable insight into Warwick Junction. These interviews were, on average, 45 minutes to an hour long, and took place at the individual's place of work. I prepared several questions that broadly covered three areas. First, I asked respondents a series of questions about their involvement and experiences in the Warwick Project; these questions included their experiences of working with the municipality, designers and traders. Second, questions were asked about their opinion of the role that the municipality, designers and traders played in the project.

These questions focused on the outcomes of area-based management and trader consultation, and compared two time periods (1995-2009 and 2009-present). Finally, the last set of questions concentrated on the implementations of human-centred design in Warwick Junction, asking about their opinions of human-centred design and the outcomes and challenges of human-centred design throughout the Warwick Project.

While these informants were from, or were representative of, the municipality, the design team or the traders, some represented more than one scope. For example, one of the participants was a city architect at the time which meant that while being a designer by trade, he also represented the municipality. In another case, the participant was a designer but now works to represent the interests of the traders. This overlap provided for interesting insights that were not limited to one perception or occupation and is reflective of a constructivist view where varying realities come together and allow knowledge to emerge.

In addition to the in-depth interviews with key informants, 18 traders were selected and asked a series of questions laid out in the questionnaire. This questionnaire gathered information from traders, including their location in Warwick Junction, their trade and how many years they had been trading. I had identified 11 design interventions that took place during the Warwick Project and asked traders whether or not they were consulted about these design interventions. If they were consulted, they were asked to provide a rating for each design intervention from 1-10 (1 being least useful and 10 being most useful). It was important to collect this data as it would show whether or not trader consultation was used, and if traders who were consulted considered the designs to be useful. At the time I conducted the questionnaires, I had not thought to include the ratings of traders who had not been consulted. In hindsight, these ratings may have provided additional insight.

These traders were purposively sampled, and identified through Asiye eTafuleni, as traders who would have been trading during the implementation of the Warwick Project. It was important to try to interview traders from the individual markets in Warwick Junction so as to get a holistic view of how human-centred design affected different areas and different traders. When inquiring whether traders were available for interviews, I was most often directed to the 'head' of the respective market. In most cases, this seemed to be the most senior trader who had traded at the market for upwards of 20 years. This purposive sampling allowed me to identify and interview key

and willing informants. While responding to the questionnaire, informants would often offer additional information, opinions and insights. These were annotated in a separate notebook with a corresponding number to the questionnaire. In addition, any further observations about Warwick Junction, the traders and the designs were also noted and written down and form part of my data collection.

4.5 Data Analysis and Interpretation

The data was analysed using thematic analysis. The deductive approach was dominant, as through my interactions, observations and interviews, meaning and knowledge emerged. I found that through my interviews and research I was presented with data and findings I had not anticipated. In these cases I would explore the data further by incorporating it into future interviews to gain a better understanding of the new data. During the study, understanding and meaning was an active and constructive process that was created by the interaction between myself as the researcher, and the respondents. Interview analysis focused on discourse, and aimed to deepen and broaden the understanding of the situation by identifying voices, opinions and patterns. These patterns and findings were analysed through the paradigm of human-centred design, while responses on participation were analysed within the framework of Arnstein's ladder. Data collected through the questionnaire filled out by traders was analysed to identify whether traders felt involved throughout the design process, as well as their opinions about specific design interventions. This was compared and contrasted with the key informants in order to understand the role of human-centred design in the Warwick Project.

4.6 Ethical Considerations

I discussed the concept of informed consent, as well as the interview process, with each informant before the beginning of every interview. Each of my key informants who participated in in-depth interviews granted consent for the interview to be recorded, as well for their names and positions to be used in the reporting of the research. During both my initial contact via email, as well as before each interview, I explained the objective of my research as well as what I hoped to gain and understand from the interview. This allowed respondents to make an informed decision whether to participate or not. Participants were also given a consent form to sign. Before each interaction with the traders, they were shown the questionnaire which was explained in Zulu by the

Asiye eTafuleni representative. In addition it was made very clear, also in Zulu, that the traders would be kept anonymous and minimal personal information was required.

4.7 Limitations of Research

There are a number of limitations to the study that need to be acknowledged. These limitations may affect, restrict or influence the research. In this case study, during the sampling process, those participants who could not be contacted (such as individuals in the municipality) were not included in the study. This may bias the findings if the people whom I could not contact had systematically different views from those that I interviewed. Those municipal participants who were included and were still employed by the municipality may have restricted their answers to reflect the municipality's views rather than their own. With regards to the traders interviewed, there is always the possibility of misinterpretation and mistranslation. Even though I was accompanied by a Zulu speaker, there is still the chance that some miscommunication took place. Due to time constraints and the semi-structured nature of the interviews, certain questions and themes were not able to be discussed. While this is the nature of semi-structured interviews, and while this format allowed for discussions to naturally flow, it is possible that this restricted the amount of information gained from each participant. When questioning traders, I failed to include the ratings of design interventions by traders who were not consulted, and it may bias or affect my findings on the perceptions of traders about the human-centred design process.

4.8 Conclusion

The aim of this dissertation is to evaluate the implementations and outcomes of human-centred design Warwick Junction, as well as establish why the approach was subsequently discarded. In order to answer these questions qualitatively, I have reviewed the theories of human-centred design and the literature on the history of Warwick Junction. I have complemented this with the collection of primary data from the designers, municipal officials and traders who were involved (or affected by) the Warwick Project. This chapter outlined the methodology used in this dissertation, including issues of reliability and validity, sampling techniques, data analysis and interpretation, ethical considerations and limitations of my research. In the next two chapters, the data that I have collected through the thematic analysis of academic research, interviews and

questionnaires will show how human-centred design was implemented in Warwick Junction and explore the outcomes of human-centred design. In addition, the following chapters will explain why the approach was considered so successful by many of the people involved in, or affected by, the project, and suggest reasons for the discontinued use of human-centred design.

Chapter Five: Findings

5.1 Introduction

This chapter presents my findings about the Warwick Project, gathered from in-depth interviews with eight key informants as well as from eighteen trader questionnaires. Throughout the chapter, key informants are distinguished from trader questionnaire respondents. Key informants were directly involved with the Warwick Project and were in municipal, design or trader leadership roles. The key informants have all consented to the use of their names and words. Traders who were given a questionnaire have had their anonymity protected and are referred to numerically. Key informants and trader respondents were asked questions about the Warwick Project and the role human-centred design played. It is important to note that throughout the interviews, respondents often compared the time of the Warwick Project (1995-2004) to the city's current practices (2004-present).

The aim of this dissertation is to evaluate both the implementations and outcomes of human-centred design using Warwick Junction and the Warwick Project as a case study. In order to answer the questions the dissertation poses, it is important to discern the difference between the implementations and outcomes of human-centred design. Based on my research and findings, the implementations of human-centred design concerns why this approach was chosen, how it was implemented and who implemented it (sections 5.2, 5.3, and 5.4 in this chapter). Outcomes are understood as the results of implementing human-centred design and in this context refer to the designs themselves, why the approach was discarded, and what lessons can be learnt (section 5.8, 5.9 and 5.10 in this chapter).

The interdisciplinary approach, area-based management, consultation and participation (section 5.5 and 5.6 in this chapter) were part of the process of human-centred design being implemented and therefore can be considered as implementations. However, it can also be argued that the interdisciplinary approach, area-based management, consultation and participation were outcomes of the implementation of the human-centred design process. For example, when the decision was made to implement human-centred design as an approach, consultation was an outcome of that decision. However, consultation was then used as a tool to gain insight from traders

which led to design outcomes in Warwick Junction. In some cases the process would move non-linearly as consultation would not inform an outcome but lead back to the designers and the implementation stage for refinement before resulting in a final design outcome. Therefore, for the purpose of this discussion, the human-centred design process in Warwick Junction falls either into the category of implementation, outcomes, or processes that functioned as both.

5.2 Factors Leading to Human-centred Design

Through my interviews with key players in the Warwick Project, I was able to identify three factors that led to the use of human-centred design in Warwick Junction. These elements were: the context of the urban and political environment at the time; the autonomy the project enjoyed; and the use of observation as an approach. Identifying these factors allowed for an understanding of how human-centred design came to be used in this ground-breaking project.

Context

The context of the post-apartheid urban and political environment was one of the over-arching factors that influenced many of the decisions being made and approaches used in Warwick Junction. As discussed in the background and context chapter, the Warwick Project took place shortly after the end of apartheid and during a time of great change in South Africa. Richard Dobson (the key player, project leader and architect in the Warwick Project) described the state of South Africa at the time by saying "our country was in a euphoric bubble and in that honeymoon period everyone was reaching out and doing things differently" (Interview with Dobson, 16/10/2014). Andrew Makin (another architect who was contracted to design the Muthi Market) agreed and explained that "we were interested in constructing another country from the one that we experienced when we were younger" (Interview with Makin, 8/10/2014).

These comments illustrate how important it was to those involved to approach this project differently from the way the apartheid government had previously dealt with informal traders. Caroline Skinner (an academic researcher who focuses on the informal economy and has undertaken considerable research into the Warwick Project) gave an example of how eager the new local government was to distance itself from the previous actions of the apartheid government. She explained that forced removals "had too much of a recent history to ever pursue" when dealing with

Warwick Junction post-1994. Skinner went on to say that during that 'honeymoon' period, the local government realised that they had to be more inclusive of the poor and black informal traders, and include them in urban planning (Interview with Skinner, 23/10/2014).

Glen Robbins (an academic researcher based at the University of KwaZulu-Natal who previously worked for the Durban Municipality managing Local Economic Development initiatives) described how, at the time of the post-apartheid transition, there was a sense that the city had lost control over Warwick Junction, as it was overrun with pedestrians, traders, minibus taxis and was fraught with crime. Because of this reputation, the city "felt something had to be done" (Interview with Robbins, 15/8/2014).

Therefore, in 1995, City Architects (the Durban architecture department) sought new ways to be involved in important areas in the city (Interview with Jonathan Edkins, past city architect for the eThekwini Municipality, 16/10/2014). Inspired by the political changes, City Architects aimed to remain relevant by working differently and presenting new ideas. Edkins explained that he hired Dobson "because he was coming with fresh ideas, different perspectives from the normal government way of doing things" (Interview with Edkins, 16/10/2014). Edkins explained that the hiring of Dobson was possible because at the time, the architecture department was able to choose who they hired, without having to go through a tender system (Interview with Edkins, 16/10/2014). This is essential to note, as it speaks of the context of autonomy at the time and the role that this played in the Warwick Project.

Autonomy

The issue of autonomy came up in a number of interview responses. Skinner, for example, spoke of "this kind of sense of being below the radar" with Dobson agreeing that there was "quite a lot of autonomy given to the programme" (Interview with Skinner, 23/10/2014; Interview with Dobson, 16/10/2014). Edkins also described how the Warwick Project was established as its own project with its own goals, budget and building and was therefore "seen as something which did not have to follow all the rules" (Interview with Edkins, 16/10/2014). This autonomy and flying 'under the radar' meant that "there was much more ability to experiment" in the Warwick Project (Interview with Skinner, 23/10/2014). The ability to freely make and implement decisions played an integral role in the Warwick Project as it provided the main drivers of the project with the

independence to use novel human-centred design approaches. This included an emphasis on observation in the design process.

Observations

Those involved in the Warwick Project were interested in doing something new and this meant interacting with the trader community in an original way. Not wanting to impose any preconceived ideas on the project, the designers involved began by observing Warwick Junction and the traders' day-to-day activities. Edkins and Dobson began to approach Warwick Junction looking for opportunities that traders created and ways to accommodate the informal traders while benefiting the informal and macro economy of the city (Interview with Edkins, 16/10/2014). Dobson (2014) explained that from his observation of Warwick Junction, something else had to be done in the area other than the municipality cleaning it up: "some of the activities that are happening in [Warwick Junction] have externalities which need to be managed in a specific way and some will not be able to be managed unless you intervene with the infrastructure" (Interview with Dobson, 16/10/2014).

Edkins described the observations they collected from the area, and how they spent considerable time analysing and observing systems of trading taking place and how this informed a human-centred design approach (Interview with Edkins, 16/10/2014). Robbins identified this method of observation, engagement and consultation with traders as being a result of Dobson's influence. This method of consultation involved sitting down with traders, and asking them about the problems they encountered and their livelihoods (Interview with Robbins, 15/8/2014).

Dobson has been described as someone who spent almost every day during the Warwick Project talking and consulting with traders, and as such he became an 'expert' on the issues as well as possible design solutions in Warwick Junction. Dobson himself brought up in the interview that throughout the initial processes, he found himself asking whether or not the traders would even want the ideas they were presenting. He explained saying: "[it] made me think that not only do we need area-based management, we need a whole new way of consulting" (Interview with Dobson, 16/10/2014). Makin gave an example of Dobson's involvement describing the extension of the Muthi Market: "The idea to connect or to use the existing freeways, disused freeways, for something else because they couldn't be used as freeways anymore…was Richard's, not ours. And

his involvement there made it possible for him to identify what was, or to define what was, [and] what could be done there" (Interview with Makin, 8/10/2014).

5.3 Human-centred Design in Warwick Junction

Knowing what factors led to the use of human-centred design in Warwick Junction, it is important to know from the key informants how human-centred design worked. This section describes how human-centred design was used in Warwick Junction, by firstly looking at how paradigms were shifted towards creative thinking, and considers the Warwick Project designs in a more macro sense. Secondly, it looks at the roles designers, traders and the municipality played in using human-centred design. During the interviews with the key informants, some of the informants were aware of the term "human-centred design" and required no explanation from me. For those that were not familiar, I offered an explanation for the term, which they accepted as an accurate description for what they had simply referred to as a combination of design and trader consultation.

Shifting and Challenging Paradigms

Because human-centred design was a novel approach, the designers in the project were tasked with shifting the paradigms of others involved by training them in "alternative thinking patterns", and "creative thinking" (Interview with Dobson, 16/10/2014). Robbins agreed that there was a need to challenge perceptions to realise that design and collaboration with end-users *is* of value. Based on his experience with the Warwick Project, he suggested that "you have to sort of de-center things and let go and not over-regulate…it's a problem-solve approach" (Interview with Robbins, 15/8/2014). Hussein Moolla (the head of iTrump, the area-based management programme), phrased it differently by explaining that post-apartheid governments had to reflect and challenge themselves in order to be more inclusive in their designs by considering all the diverse needs at play within the trader communities (Interview with Moolla, 8/10/2014). This notion of challenging paradigms, to embrace and use creative thinking, is a recurring theme throughout these findings.

Design must be systemic, macro and ever-evolving

One of the principles that guided the design process in the Warwick Project was that the designs could not be static or insular. Rather, the designs needed to be sensitive to the context in

which they would be used. In order to create more inclusive designs, Dobson began to engage with the public and the end-users, managing to combine the leadership of the officials with the needs of the end-user (Interview with Moolla, 8/10/2014).

Because Dobson was managing the human-centred design approach, Makin described how the architects involved were able to look at their interventions from the perspective of systemic design. He explained further by saying that "I think human-centred sounds to me, at a very particular and intimate scale of humans talking to each other. System is at a much greater enabling level, and it does not rely on a particular desired outcome by any party" (Interview with Makin, 8/10/2014). This idea of systemic design (designing for a whole system) meshed with the ethos of human-centred design (and more specifically, design for social change) as there is "a huge risk in being quite myopic in an area and you build this thing and suddenly one day you look up and it can't plug into anything" (Interview with Dobson, 16/10/2014). Dobson explained that another paradigm shift needed was to recognise that the intervention in Warwick could not be seen as a once-off, fix all solution; it was part of a greater system that would need constant evolving and commitment to ensure sustainability. An example of this discussed in the interview was the fact that the tables at the Bovine Head Market were originally designed with no gaps between them. This was mentioned to me by one of the traders as a concern. When I brought it up with Dobson, he agreed with the trader and explained that the cooking process was different now than to when it first began, and that the design and involvement in Warwick Junction "has to be evolutionary and you've got to be investing in it" (Interview with Dobson, 16/10/2014). In changing developing contexts it is especially important that design be systemic, macro, and ever-evolving to be effective and sustainable. In the case of the Warwick Project, once the intended interventions were complete they were not sustained and updated designs appropriate to current trader circumstances were not implemented.

5.4 The Role of the Municipality, Traders and Designers

In order to understand how human-centred design was used, it is critical to understand each role played by the municipality, traders and designers. This section discusses the role of designers as facilitators of human-centred design in the Warwick Project, and how Dobson championed his role as facilitator. While each of the respondents in the study belonged to a group (municipality, traders

and designers), some respondents belonged to or represented several groups and their issues. The municipality was made up of a variety of players: some were simply municipal officials, while Edkins was both an architect and a municipal official; and Moolla worked closely with the traders and the designers but was also a municipal official. This sometimes makes it difficult to distinguish clearly between their roles in the Warwick Project.

In his interview, Robbins explained that

> The municipality deals with a whole array of stakeholders and they try and balance these different concerns and interests as much as they can. At times they're swayed more by one than the other. I suppose they feel quite caught in the middle, in that they hear the concerns of the traders but they feel they've got other obligations as well…For them, their impact is very much a numbers game (Interview with Robbins, 15/8/2014).

Moolla described how the project needed someone who was able to facilitate and coordinate the different interest groups, to ensure that everyone came together considering the needs of both the municipality and those of the traders (Interview with Moolla, 8/10/2014). This is supported by Edkins's description of his job which he saw as "trying to facilitate and make sure we just stay on the right side of the law and that things could move ahead without too much obstruction" (Interview with Edkins, 16/10/2014). Edkins explained further that Dobson was charged with focusing on the detail of the design in Warwick Junction, while his role as the head city architect working for the municipality was to focus on how Dobson's design would fit into the city as a whole, in addition to managing and coordinating a budget (Interview with Edkins, 16/10/2014).

Being able to maintain a balance between the needs of the three groups (municipality, traders and designers) is probably the reason some of the key informants brought up the issue of the personalities of the key drivers of the Warwick Project. Moolla explained that "you need people who have minds that are able to do conflict resolutions; you need people who have a mind that will be able to cut out red tape in the bureaucracies in terms of getting things done, because if you do not have those problem solvers in your team a lot of people come up with textbook solutions" (Interview with Moolla, 8/10/2014). Moolla referred to the designers as people who could "think out of the box", and suggested that the issue of personality impacted the project (Interview with Moolla, 8/10/2014). This was echoed by Edkins when he spoke about architects,

and described them as people who think creatively, and were able to generate change if they have a positive reception for alternative thinking (Interview with Edkins, 16/10/2014). During the interview Dobson expressed the importance of personalities describing Moolla, as "a real organiser and a doer", alluding to the fact that this trait impacted the project's success (Interview with Dobson, 16/10/2014).

The architects who were hired to work for the Warwick Project aimed "to connect rural experiences of people and urban experiences of people together" through architecture (Interview with Makin, 8/10/2014). In order to do so, they needed to understand what was happening in Warwick Junction, and they looked to Dobson for that, "because he knew immensely more about the day to day activities and mechanics of those people's operations than we could ever know" (Interview with Makin, 8/10/2014). They combined those observations with their architectural knowledge to do what designers do: using creativity and "pulling together quite contested and varied things into something that more or less works" (Interview with Robbins, 15/8/2014). Members of the project, such as Dobson and Ndlovu (a former police officer who played an integral role in communicating with and representing traders), fell into more facilitator roles that combined design awareness and the interests of traders. They made up a dedicated team that spent time gathering knowledge about the area and the dynamics of informal trading which led to them gaining the respect of the traders. The traders themselves just wanted "some certainty, predictability about income, about infrastructure, about the legislative and regulatory framework" (Interview with Robbins, 15/8/2014). This information and these needs of the traders translated into important insights which in turn influenced the team's design interventions. Ndlovu pointed out that with an approach where the designers and the traders were co-designers, "even if the design that you do is not a success, no one will point fingers at you…because their input was incorporated" (Interview with Ndlovu, 9/10/2014).

Being able to incorporate and balance diverse views and opinions is possibly why designers involved in the Warwick Project self-described themselves as "mediators", "advisors", "local level intelligence gatherers", "facilitators" and as "architects first and municipal officials second" (Interview with Dobson, 16/10/2014; Interview with Makin, 8/10/2014; Interview with Edkins, 16/10/2014). Dobson described their purpose and roles as follows:

…first of all, act as advisors or local level intelligence gatherers that can assist that line department and then secondly, start to look sideways at who are actually going to be the users of that facility. Not only gather the intelligence but also try and advocate for the incorporation into either process that would bring the line department closer to the end-user" (Interview with Dobson, 16/10/2014).

In this description alone, Dobson identified key roles that designers played as creative individuals, facilitators and advocates for the end-user.

When asked who was making the decisions throughout the project, Dobson answered that it was the designers who became the local experts. With many projects in Warwick Junction on the go, Dobson explains that the decision-making was ultimately guided by Dobson and his team's observations from Warwick Junction (Interview with Dobson, 16/10/2014). During every interview with the key informants, Dobson's name emerged as the driver of the Warwick Project and of the human-centred design approach. Makin described him as "our link to them" (referring to the end-users), and that Dobson "took care of the human design approach", while Mkhize (a trader leader) called Dobson "the main man" (Interview with Makin, 8/10/2014; Interview with Mkhize, 9/10/2014). When asked about where the human-centred design approach was throughout the project, Edkins replied that "probably it was only really around the processes which Richard [Dobson] put together". This quote by Edkins highlights how Dobson's involvement and the processes he undertook (the trader consultation, area-based management, design interventions) were informed by human-centred design. Edkins, however, had to deal with more bureaucratic issues as a city architect, such as budget constraints, policies and municipal concerns. Perhaps this is why he referred to himself as a mediator between Dobson and the municipality (Interview with Edkins, 16/10/2014). This characterisation reinforced Dobson's self-described role as mediator, advisor, intelligence gatherer and advocate for human-centred design.

5.5 Interdisciplinary Approach and Area-based Management

As outlined in the introduction of this chapter, area-based management and the interdisciplinary approach are considered both implementations and outcomes of human-centred design in Warwick Junction. These two approaches are viewed as defining characteristics of the Warwick Project and as the reasons cited for its success. Ndlovu illustrated the Warwick Project as

being "a cluster of different departments working together" (Interview with Ndlovu, 9/10/2014). Makin described the experience as "a collaborative model, where you take individual responsibility for your area of expertise on…and shared responsibility totally for the delivery of the vision", while Moolla called it an excellent system and expressed how important it was to work together (Interview with Makin, 8/10/2014; Interview with Moolla, 8/10/2014). Moolla explained that by using an integrated management system (another name for a interdisciplinary approach), all the departments with an interest and mandate for a particular issue or area were able to 'be on the same page', and as such assisted each other with different issues and problems that might have arisen in Warwick Junction. He went on to describe how representatives from each department would all go into Warwick Junction on one day, and that this team building approach ensured that members from different departments were aware of the real issues that traders were facing. This meant eThekwini Water and Sanitation department and the eThekwini Health Unit could work together to solve an issue that both were responsible for (Interview with Moolla, 8/10/2014). In addition, the personalities of those involved, as well as their relative seniority in their departments, played a role in the interdisciplinary approach. Dobson described that "fairly senior people were allocated to the project and that they also turned out to be go-to people and doers", while Edkins explained that he worked with middle management and that these were the people who were getting things done (Interview with Dobson, 16/10/2014; Interview with Edkins, 16/10/2014).

Dobson explained that it was not enough to have a representative from each department be responsible in Warwick Junction, but that they needed to be located at the project office for a substantial amount of time, thus combining the interdisciplinary approach with the area-based management approach (Interview with Dobson, 16/10/2014). Area-based management is often pointed to as playing an important role in the success of the Warwick Project and has gone on to be used in other projects in the eThekwini municipality. Moolla described it as "basically taking a geographical area and maintaining that area, to see how best we could develop those areas in engaging with the communities that live within the area, that work in the area, that travel in there and commute in the area" (Interview with Moolla, 8/10/2014). Robbins described the success of area-based management by saying that it allowed the city to be more proactive than reactive in Warwick Junction, and that it was a good source of people who had knowledge of and insight into the area, as well as the ability and motivation to get something done. Robbins also spoke of a "collaborative vibe" in the trader community (Interview with Robbins, 15/8/2014). Moolla's

description of the meetings supported Robbins' description of a 'collaborative vibe' as it was through the project office that trader committees, street committees, Traders Against Crime and the Informal Trader's Management Board were formed which meant that the project was able to engage and consult with key and influential people (Interview with Moolla, 8/10/2014).

However, Robbins also suggested that after some time, the interdisciplinary approach became strained. People in various departments began to take issue with the role their representative was filling in the project office, asking "why is a city health department person sitting next to a trader all day?" (Interview with Robbins, 15/8/2014). According to Robbins, while iTrump, the area-based project centre, worked as an interdisciplinary team made up of department representatives, other department members who were not involved in iTrump were unable to see the benefits of an interdisciplinary approach (Interview with Robbins, 15/8/2014).

5.6 Consultation and Participation

The second implementation and outcome of human-centred design was trader consultation and participation. Due to its strong emphasis on consultation and trader participation, the Warwick Project was described as "a magic combination [where] things came together" (Interview with Skinner, 23/10/2014). When Dobson was put in charge of the Warwick Project he realised that a new way of consulting and including traders was necessary in order to use human-centred design successfully. As he explained, "having support and credibility from the stakeholders is critical" (Interview with Dobson, 16/10/2014). Edkins agreed saying that "it's got to start at the right level, and it's got to start at the trading level" (Interview with Edkins, 16/10/2014). As the Warwick Project got underway in the area, traders began to see that things were happening, and a relationship of negotiation, consultation and trust developed, reinforcing Dobson's view that "having support and credibility from the stakeholders is critical" (Interview with Dobson, 16/10/2014).

In this study, key informants were asked two questions: how consultation and participation worked and why they were necessary processes. In his response to these questions, Robbins said that "the city consults with people and might be interested in hearing some opinions but doesn't necessarily involve them in co-design or planning" (Interview with Robbins, 15/8/2014). Ndlovu

explained, "…if you are presenting, you are just telling people this is what is going to happen" without giving people the chance to express their own opinions and ideas (Interview with Ndlovu, 9/10/2014). These quotes distinguish the difference between consultation and 'a presentation' (with presentation representing a lower rung than consultation on Arnstein's (1969) Ladder). Throughout the Warwick Project, and through the facility of area-based management, "from the design, to the development, to the implementation stage, there is consultation with the communities we are dealing with" (Interview with Moolla, 8/10/2014). Edkins agreed, arguing that "it's much better to maintain specialist responsibilities in the city for different aspects and create a stakeholder forum group which works structurally through decision-making" (Interview with Edkins, 16/10/2014). During the consultation stages, Dobson explained that it was critical to be aware of who was in the room and role they played, as well as who was not in the room, who was not being consulted and whose voice was not being heard. He gave an example of how during the Muthi Market mass meetings where about 700-1000 traders were present, there was obvious leadership, but there was always an attempt to find the dissenting voices and those who were quiet throughout the meeting (Interview with Dobson, 16/10/2014).

One of the outcomes and implementations of using consultation and participation was that the end-user became the client. Dobson attributed this to human-centred design, as well as to the certain amount of autonomy given to the programme which meant that while the municipality was involved, the end-users were able to participate and in some cases, even co-design (Interview with Dobson, 16/10/2014). Ndlovu believed that "community involvement is of paramount importance" as it created a sense of ownership amongst the traders for their area, and the design interventions and outcomes (Interview with Ndlovu, 9/10/2014). This is echoed by Robbins and Moolla who said that through the participation of the end-user, this sense of ownership and investment fosters an appreciation of the worthy contribution of design as an intervention (Interview with Robbins, 15/8/2014). According to Moolla, a measure of the success of the human-centred design approach is that the design interventions are still being used on a daily basis (Interview with Moolla, 8/10/2014).

The reason why consultation and participation are so important is because without them, influence sits with those in charge and those who are involved in the budget. Influence should rather sit "in that collective which should be established at the beginning of the project" (Interview with

Edkins, 16/10/2014). Ndlovu described the consultation process during the Warwick Project as accommodative and explained that it was better to let users express their ideas, and give them reasons as to why these ideas may not work, rather than to ignore them completely. In the process, he explained, users may also "have brilliant ideas that could be solutions" and if they do become solutions, traders become true co-designers and participants (Interview with Ndlovu, 9/10/2014).

From the perspective of the traders, consultation is of paramount importance. In his interview Khabezela Mkhize (a long-time trader who is also the head of the Informal Traders Management Board) spoke about how the consultation strategies used to be highly effective during the time of the Warwick Project "I can say before [it] was better and now everything has changed… Everything has changed now, there's no more consulting" (Interview with Mkhize, 9/10/2014). He went on to describe how when dealing with Dobson, if traders were unhappy with a plan, they were able to voice this, and Dobson would take their views into account and redesign a solution. This contrasts with the current method where despite signing a 'record of understanding', actions are taken without consultation. Mkhize is clear on the benefits of human-centred design and the involvement of the end-users when he advises current government to, "Sit down with the leaders first" (Interview with Mkhize, 9/10/2014).

5.7 Interviews with Traders

I interviewed 18 traders in Warwick Junction by asking them a series of questions about design interventions on a questionnaire. I hoped to find out whether or not they were consulted about design interventions during the Warwick Project, and if they were consulted, how would they rate the design outcome from 1 to 10. Traders represented a variety of markets in Warwick Junction: the Bovine Head Market, the Early Morning Market, the Muthi Market, the Brook Street Market, the Lime and iMphepho Market, as well as some traders who were trading in Berea Station, on Market Road and Victoria Road. While most of the interventions in Warwick Junction took place by 2002, from 2003 until 2008 the project was still working on moving the taxi ranks off the streets and designing and implementing the Brook Street Market and the Bovine Head Market. The years the traders had been active in Warwick Junction ranged from 6 to 60 years, with an average of 25.6 years. This sample therefore included those who had been trading from the inception of the

Warwick Project, as well as some traders who would only have been trading for a short time before the completion of the project, but who were still consulted.

Prior to the questionnaires being conducted, I was unable to determine whether all of the design interventions would be relevant to all the traders based on where they traded in Warwick Junction. Some interventions such as tables and storage were likely to be relevant to traders in several markets, while the redesign of the Music Bridge might not have been as relevant to a trader in the Brook Street Market. However, my aim for the questionnaire was to explore whether or not traders were consulted about the Warwick Project, and I felt that all interventions within the project should be included in the questionnaire. There was also the possibility that a trader might have been consulted in a group meeting or as a trader representative about an intervention in a market different from the one they traded in. Therefore, I made the decision to ask each trader about every intervention.

Of the 18 traders I interviewed, four were not consulted about any of the design interventions. These four traders had all been trading in the area for over 30 years and represented three different markets (the Early Morning Market, the Lime and iMpepho Market and the Berea Station Market). Of the 14 traders who were consulted about interventions, three were consulted only about one intervention, while three other traders were consulted about eight of the eleven interventions. Those traders who were consulted were asked to rate the design interventions about which they had been consulted. On average 3.9 people (21% of the sample size) were consulted per intervention. The average rating per person on the design interventions was 6.1/10. The table below divides the number of people consulted by each intervention and the average rating per intervention.

Table 1: Consultation of traders and their evaluation of design interventions.

	Design Intervention	Number of people consulted (sample size of 18)	Average rating per intervention (rated 1-10, 1 being the least, 10 being the most useful)
1	Introduction of trader tables	4	4.5
2	Lines designating trading spaces	6	6
3	Cooking cubicles (Bovine Head Market)	5	6.8

4	Redesign of the music bridge (to prevent crime)	6	7.8
5	Redesign of the Muthi Market	5	8.6
6	Introduction of iTrump	3	9.3
7	Moving taxi ranks off the streets	1	1
8	Refurbishment of the Early Morning Market	4	3.5
9	Storage Facilities	4	6.2
10	Water taps and water services	2	4
11	Cardboard collection services	3	9.6

A few observations emerged by asking traders about design interventions, and these were noted along with the ratings. Firstly, it appears that certain traders were more likely to be asked about interventions specific to their area. From the findings it is clear that those who were trading in the Bovine Head Market were consulted about the cooking cubicles. Trader 1 informed me that she also helped decide how best to cook the meat when the design moved from charcoal and fire stoves to the current design of paraffin stoves. Trader 14, Trader 15 and Trader 18, who are all considered leaders in Warwick Junction (and fulfilled leadership roles during the Warwick Project), described the negotiations they participated in during the design of the Bovine Head Market. These negotiations involved finding a new and safer method of cooking, as well as a new place for the traders to trade. This resulted in the Bovine Head Market moving from outside the Early Morning Market to its current location in Warwick Junction. In addition, those who were involved in the Muthi Market were consulted about the redesign of the Muthi Market and the Music Bridge (which would affect the Muthi Market). Therefore it seems that while not all traders were consulted about all interventions, from this sample size, in certain cases, traders were consulted about the interventions specific to their area.

Secondly, within certain designs, there were differing opinions on whether or not traders were consulted. For example, when it came to discussing the storage facilities with Trader 7, Trader 9 and Trader 10, I received a variety of responses. Trader 7 did not mind that he was not consulted about storage facilities as he has his own consultation room in the Muthi Market. Trader 9 who works in the Brook Street Market was consulted about storage facilities during a meeting, and said

that he got exactly what he asked for which was safe storage, and he rated the design of the storage facilities a ten. However Trader 10 works in the Lime and iMpepho Market and described how no one spoke to her about storage, and in order to look after her merchandise she sleeps at the market for two weeks at a time, with a tarp over her, and her goods, to keep them safe and dry. It is clear that within the market there are diverse needs present amongst the traders, and that these were not addressed completely by the designs of the storage facilities.

Finally, when questioning traders, on some occasions I would be directed to a leader or a person in charge as some traders were reluctant to speak without a leader's consent and preferred that the leader answer the questions. This led me to consider whether leaders were more likely to be consulted or acted as gatekeepers. Of the 18 traders interviewed, seven were considered leaders or persons in charge in Warwick Junction. Among these seven, six were consulted resulting in an 85.7% consultation rate amongst leaders. Amongst those who were not identified as leaders, the rate of consultation was 72.7%. Based on this small sample size, leaders were only 13 percentage points more likely to be consulted than non-leaders, which shows that both leaders and non-leaders had a high percentage rate of consultation.

Although there is a high percentage rate of consultation in my sample, traders who were seen as leaders of a particular market were more likely to be consulted than other traders, but the difference is relatively small. However, leaders were far more likely to have been consulted on a wider range of interventions. Traders who did not identify as leaders were consulted on an average of one intervention per trader. Those traders who identified as leaders were consulted on an average of 2.8 interventions, almost three times the amount of the other traders.

Within this sample size, there was a variation in opinion and responses regarding consultations and the success of the design outcomes. There were instances of successful consultation, unsuccessful consultation, and no consultation at all. In addition, there were highly positive ratings as well as very negative ratings of certain design interventions. Overall, my sample showed that there were high consultation rates amongst traders, and these rates were higher still among those traders identified as leaders of particular markets. In addition, some of the design interventions were consistently evaluated very positively by traders, namely: the redesign of the music bridge; the redesign of the Muthi Market; the introduction of iTrump; and the cardboard

collection services. The findings also showed how certain markets were consulted more on interventions that took place in their particular market. However, this was not the case with other interventions which received low ratings from the traders. This could be due to the fact that within a particular design, throughout the project and after the project, several iterations of a particular intervention were implemented. It is important to note that there are diverse needs amongst the traders, and the interventions may not have been able to address each need. I would suggest that because the implementation of human-centred design was truncated after 2008, these collaborative interventions ceased; had there been continued interaction between the traders and designers, this could have increased the scope for more interventions or further modifications of those designs that had been implemented.

5.8 Design Interventions

This section takes an in-depth look at two design interventions (the Muthi Market, trader tables) and describes how the designers, traders and municipal officials were involved. Throughout the discussions, the key informants brought up examples of the human-centred design process in the Warwick Project. One of the examples mentioned was how design interventions were able to deal with certain crime issues by providing traders with storage for their goods, setting up the Traders Against Crime organisation and redesigning the unused freeway (to extend the Muthi Market) so as to have no dark or hidden corners where crimes could be committed (Interview with Moolla, 8/10/2014; Interview with Ndlovu, 9/10/2014; Interview with Makin, 8/10/2014). Trader 6, Trader 7 and Trader 15 were amongst those consulted, with Trader 6 describing the design in a positive way because there was no longer any crime on the bridge.

In addition, Makin described how the decision to extend an unused freeway and turn it into an area for the Muthi Market applied human-centred design in its development. He explained that the Muthi Market is linear, which means that every customer walks past every trader, creating equal exposure for all traders on the bridge. Furthermore, the traders' spaces that they rent are sheltered and quite small, which allows them to pay a small amount of money but, due to the linear design, still have a lot of customers (Interview with Makin, 8/10/2014).

However, not all the traders' needs were met. When I spoke to Trader 6 (who trades in the Muthi Market), he expressed how he had requested a roof to be built, in order to protect the products from getting wet. He further described how certain traders in the Muthi Market were given consultation rooms to conduct their traditional healing in, and those that were not had to pay extra costs to store their goods. Trader 7 (also trading in the Muthi Market) expressed the same views; nonetheless, he also considered the current market design a lot better than the market before the Warwick Project began.

Dobson described the building of the Muthi Market as an example of the local government's paradigm shift, since no local government had been able, or wanted, to build a market of that scale for its informal traders while taking into account their needs. He noted that the design team was able to show that although the Muthi Market cost R4.5 million to build, it had turned over R170 million in its first year. This meant that "people [municipal government] started to see things a bit differently" and began to understand the value of these human-centred design approaches (Interview with Dobson, 16/10/2014).

One of the most cited design interventions mentioned in these interviewed were the tables. Different traders have different needs and therefore were given different tables. Currently, as a result of the Warwick Project, those trading in the Bovine Head Market have concrete tables with metal on top of them to prepare the meat. Similarly, there are also other areas in the market that have concrete tables, while some traders have wooden tables that are packed up and stored at the end of the day. Ndlovu described the process of designing with the traders during the Warwick Project, saying that they would present prototype table designs to the traders, get feedback, and incorporate that into their design. He also pointed out how some traders (he used the example of those selling potatoes) did not want to have tables, because they preferred to display their items on the floor as a way of attracting customers. By engaging with and consulting these traders, Ndlovu argued that resources would not be wasted on designs that would not be used, and through this process, confrontation with traders was also avoided (Interview with Ndlovu, 9/10/2014).

Moolla brought up a different table design during the discussion which illustrated what happened to designs without trader consultation or prototyping. During the design process, it was suggested that a concrete table be designed with a storage facility underneath that had two wooden

doors that traders could lock. After prototyping this table design, according to Moolla, it was found that people began storing drugs and alcohol in the locked area, as well as sleeping under the tables. This is an example of how prototyping and trial and error can lead to a better design. Based on this knowledge, they created an open concrete table design which could be cleaned at night and have an impact in crime prevention (Interview with Moolla, 8/10/2014). When I spoke to Mkhize, he too brought up the design of these concrete tables and expressed that he would not have supported such a design for his trading area because the original lock-up design meant that locks could be broken and goods could be stolen overnight (Interview with Mhkize, 9/10/2014).

Mkhize also explained how at one point during the Warwick Project (he did not specify when), the traders were approached by the Department of Health with the suggestion of buying metal tables, despite the fact that they could not afford the materials and that the metal tables could not fold. This meant that traders would have to stay with their tables throughout the night. He explained how eventually through discussion and co-design, they came up with the idea of a folding wooden table. Mkhize recounted the process: "Then we were negotiating until they asked us what we think we can do now, because these tables, it's wrong to stay day and night on the road. We said, as leaders, we can make a new design of folding tables and then we came with that idea" (Interview with Mhkize, 9/10/2014). As a result of this suggestion, the decision was made to convert these existing tables into collapsible ones, which allowed the traders to take these tables and pack them away in storage or chain them to streetlight poles allowing for easier cleaning of the trading area at night (Interview with Ndlovu, 9/10/2014).

5.9 Why Was the Process of Human-centred Design Discarded?

Most of the intended design interventions in Warwick Junction were completed by 2004, with the exception of the Brook Street Market and the off-street taxi ranks which continued to 2008. However, Robbins described a shift, from the early 2000s, away from the previously inclusive approach adopted by the Warwick Project towards informal traders, as local government became more confident in their power and began to act on behalf of its citizens, without consultation (Interview with Robbins, 15/08/2014). In 2004, soon after South Africa won the right to host the 2010 FIFA World Cup, the priorities of local government changed in anticipation of this major sporting event. In 2008, the municipality had put forward a plan to demolish the Early Morning

Market and to build a mall, in order to make the area more attractive and 'rejuvenate' the area. Ndlovu argued that "we started to behave or think that we are this first world country" (Interview with Ndlovu, 9/10/2014). Traders were concerned that their livelihoods were threatened, and that they would lose their customer base or be prevented from trading, despite the city's reassurances that traders would be accommodated in the mall.

According to Moolla "The city was going to put up a mall, without consulting the people. People didn't want the mall…[Warwick Junction] is a survivalist market; it's a means of survival" (Interview with Moolla, 8/10/2014). Despite this description from Moolla, the city began to cut funding and restrict the role of iTrump, the area-based project office. Moolla explained how the city cut their funding in 2005, which restricted their ability to enact change. In addition they were relegated from a developmental department to an operational one, which meant that they could no longer enact projects or design interventions, but rather they had to manage the day to day operations in Warwick Junction (Interview with Moolla, 8/10/2014). At this time, Dobson resigned and Ndlovu left the project. Ndlovu described how this affected the area: "They [the municipality] came with their own vision, they didn't recognise or approve of the way that we used to do things… I would say there was no maintenance of the infrastructure and it deteriorated…I would say there was no consultation with the traders" (Interview with Ndlovu, 9/10/2014). Ndlovu believed that the city did not have the informal traders' interests at heart, and were more interested in revenue generated from formal stores and businesses (Interview with Ndlovu, 9/10/2014). Makin offered a similar opinion when he argued that the only way the government would consider the mall a success would be if it was a corporate success, and insisted that that would not be a success for anyone else concerned (Interview with Makin, 8/10/2014).

Moolla was very clear that the area-based management office was not involved or consulted in the mall development, but rather provided a space where traders could meet to discuss the issue and organise ways in which to object against the project. He believed that "if they [the traders] are not happy about something, they must state their objections, and that's what we are here for, to listen to the people" (Interview with Moolla, 8/10/2014). When I asked other interviewees about consultation with traders at this time, Ndlovu responded that there was no consultation, while both Robbins and Dobson spoke of the loss of "social goodwill" and of "investment in social capital" by

building a mall without trader consultation (Interview with Ndlovu, 9/10/2014; Interview with Robbins, 15/8/2014; Interview with Dobson, 16/20/2014).

Edkins explained how, as the new managers became involved, they began to break down the relationship that Dobson and other designers had forged with the traders (Interview with Edkins, 16/10/2014). However, during this time that Asiye eTafuleni was founded by Dobson and Ndlovu, and began to advocate for traders through legal, academic and political avenues, and this ultimately "put a stop to the mall development in Warwick" (Interview with Ndlovu, 9/10/2014). Through a series of legal interdicts and protests, plans to build a mall kept being postponed and delayed, until finally in 2011, Durban's municipal executive committee withdrew the plans for the mall development as a result of trader opposition.

5.10. Can Government Use Human-centred Design?

One of the most important questions this dissertation aims to answer is whether human-centred design can be integrated into both local and national government approaches to development, and whether methods used in Warwick Junction can be used again in different projects. These questions were put to the key informants in this study. Skinner believed that it would not be possible because of the state and local government itself, and she advocated for the local and national governments to 'rewire themselves' through a paradigm shift. When I asked whether she thought an NGO such as Asiye eTafuleni should be responsible for human-centred design interventions in Durban, she pointed out that it should not be the responsibility of NGOs to provide city infrastructure, but rather the job of the municipality (Interview with Skinner, 23/10/2014). With regards to Warwick Junction specifically, Skinner once again insisted that "mind-sets" about the informal economy needed to be shifted and that the informal economy needs to be seen "not as something that is economically insignificant, but as something that contributes to the economy, can enhance the cityscape – and it's got to be authentic". She argued that while the government is prepared to spend money, the choices about where that money goes are currently not influenced by human-centred design. She believed that the mind-sets of those in charge should be challenged to include human-centred design in development planning (Interview with Skinner, 23/10/2014). Ndlovu agreed, and in his interview said that they (referring to the government) went

ahead with projects and in some cases finalised their planning without consulting those who would be most affected (Interview with Ndlovu, 9/10/2014).

So what lessons could be learned from the use of human-centred design in Warwick Junction that could inform local governance? The key informants suggested that municipal officials should be trained and an awareness and utilisation of human-centred design should be encouraged. Moolla, who is still a government official, proposed workshops that would teach officials how to problem-solve creatively while resolving conflict with stakeholders in meetings and collaborating with end-users (Interview with Moolla, 8/10/2014). Dobson had spoken about how he spent a lot of his time as project manager training those he was working with to use Design Thinking to think alternatively, and while he believed that these skills are transferrable, he believes that the significance of design is often overlooked, saying "the key thing though is the lack of awareness about why design is important" (Interview with Dobson, 16/10/2014). It was Skinner and Dobson who believed that by presenting projects such as Warwick Junction to municipal officials, the government's approach to development could be changed. Skinner described the process as "a constant dance, a constant political process" (Interview with Skinner, 23/10/2014).

While it could be possible to change the opinions of human-centred design of those in government, it becomes difficult to change the processes in government that might not align with human-centred design. Makin explained that within government, issues such as budgets and available resources influence the decision to use human-centred design. He mentioned also that government terms are limited to a certain timeframe, which creates pressure for projects to be completed before a new person might take office, which might not allow for long-term ongoing projects. In addition, Makin believed that those in government do not have an understanding of how to better the city in a creative way and that their current projects only involve economic and political policy without considering the role design could play (Interview with Makin, 8/10/2014). Moolla expressed the view that local government had a role to play in shaping and influencing economic and political policies, and that if human-centred design was to be a part of local government, it needed to be outlined in local policies (Interview with Moolla, 8/10/2014).

One of the big constraints that human-centred design faces when working with government is succinctly expressed by Makin: "although human-centred design has shown great success…

there's a lot of effort – a lot of thought – that goes into it; it does create sustainable results, but it doesn't necessarily create scalable results, which is a problem for government to support" (Interview with Makin, 8/10/2014). Skinner echoed this, explaining that "there is something about the pressure to deliver at somewhat of a pace that does have these standardised solutions and the informal economy demands a much more creative process" (Interview with Skinner, 23/10/2014). These two responses highlight the difficulty in standardising and scaling design solutions, which is an aspect that is important to governments. Human-centred design advocates for prototyping, as a way of being able to test solutions to find the most sustainable and suitable one. However, as Edkins pointed out "auditors don't understand pilot projects", and in his experience and opinion, there is such an aversion to failure and risk in government that prototyping is not seen as valuable and is considered wasteful. However, he argues that while prototyping may be seen as a risk, the end benefit of knowing whether or not it will work or be accepted by the end-users is highly valuable (Interview with Edkins, 16/10/2014).

When speaking about the Warwick Project, Robbins acknowledged that "by its nature, it's not something you can replicate, massify, you can't really scale it up" (Interview with Robbins, 15/8/2014). He then went on to explain that there is a pressure in the municipality to provide equal and standardised opportunities to all. Part of that pressure, he argued, comes from the role of standardisation in governmental bureaucracy and another part is that prototypes are considered expensive and unnecessary. While designers, engineers and architects are aware of the benefits of something like human-centred design, "there is not a market for it amongst the decision makers", and the reason for that is because the decision makers favour efficiency, standardisation and scalability over sustainable, human-centred design (Interview with Robbins, 15/8/2014). Based on these government processes, Skinner suggested that when dealing with creative problem-solving, there needs to be policy changes that would allow for the removal of impeding factors such as the tender process, while allowing budgets for prototyping, in order for human-centred design to work (Interview with Skinner, 23/10/2014).

With government not incorporating human-centred design into its development projects, it has created a need for organisations such as Asiye eTafuleni, who fill the role of mediator and facilitator and who provide support for human-centred design interventions in Warwick Junction. They "follow the old approach of how we used to do things…the experience of facilitating, it's to

be co-developers with the informal traders" according to Ndlovu, who went on to say that "the city needs us, and we need them as well. So if there can be that co-operation, co-ordination, between us and the city, I think we can achieve more" (Interview with Ndlovu, 9/10/2014). Dobson and Ndlovu now work towards this goal together at Asiye eTafuleni, as they believe "you have to kind of keep breaking down those established boundaries of what and how things are done" (Interview with Dobson, 16/10/2014). Essentially, all those that I interviewed believed that the Durban municipality could incorporate human-centred design into their processes, but that "the city had to take responsibility" and change their policies and practices in order for it to happen (Interview with Edkins, 16/10/2014).

Dobson believed that initially there would be some resistance to the idea of human-centred design, and that ultimately it would need to be a team effort that would always require support and credibility from the end-users (Interview with Dobson, 16/10/2014). Ndlovu added that he felt that the initiators of the process of human-centred design should be the government or municipality who would approach stakeholders with a design and ask for their feedback (Interview with Ndlovu, 9/10/2014). One of the questions interviewees were asked was whose responsibility it was to advocate and campaign for human-centred design. Skinner, Dobson, Ndlovu and Makin responded with "anyone who can" and anyone "who pushes for it and is successful" (Interview with Skinner, 23/10/2014. Interview with Makin, 8/10/2014). However, as Makin pointed out, the real issue is that no one is advocating for human-centred design, so anyone who can – must (Interview with Makin, 8/10/2014).

5.11 Conclusion

This chapter has presented findings from my primary data collection on why human-centred design was adopted, how it was implemented, and what the outcomes of this approach were. In order to use the research findings to evaluate the implementations and outcomes of human-centred design, this chapter outlined the difference between implementations and outcomes. In doing so, it identified sections 5.2, 5.3 and 5.4 as implementations, sections 5.5 and 5.6 as both implementations and outcomes, and sections 5.8, 5.9, and 5.10 as outcomes of human-centred design. In doing so, this chapter was able to provide a chronological narrative of the Warwick Project, presenting the study's findings along the way.

This chapter identified possible reasons for the use of human-centred design in Warwick Junction as being the post-apartheid context at the time, the autonomy experienced by the Warwick Project team, as well as the insightful observations of traders which led to a desire to incorporate traders into designs. The key informants described how the project was seen as a chance to change how the city involved traders in urban planning, and how autonomy allowed the project team to experiment with new approaches, such as observation. I then described findings from my key informants on how the approach of human-centred design was implemented in the Warwick Project. The discussion included how paradigm shifts need to occur, and how design needs to be systemic, macro and ever-evolving. Key informants explained that the Warwick Project was never intended to be a once-off solution but that in order for the interventions to be sustained, human-centred design approaches need to be continued.

This was followed by a discussion of the role that designers, municipal officials and traders played in the Warwick Project, highlighting the fact that personalities played an important part, as well as the emerging role of designers and facilitators. Through the interviews, it was made clear that personalities played a role in achieving project goals, managing the needs of different departments and being able to problem solve creatively. In addition, key informants emphasised how the designer, and in particular Dobson, took on the role of a facilitator.

Area-based management and a interdisciplinary approach were outlined next as both implementations and outcomes of human-centred design, after which an analysis on consultation and participation profiled how traders were involved throughout the Warwick Project. Respondents expressed that using interdisciplinary approaches and area-based management meant that they were able to collaborate and better involve traders and municipal officials throughout the Warwick Project. From these findings it was apparent that participation and consultation were critical in the involvement of traders in the Warwick Project. Trader interviews showed that while there was a high rate of consultation, trader leaders were more likely to be consulted about design interventions.

The design outcomes of human-centred design were presented along with ratings by traders. Finally, the findings chapter presented reasons for the discarding of the human-centred design approach, and questioned whether or not human-centred design could be repeated. According to

these findings, when the Durban municipality made the decision to build a mall, they abandoned the process of human-centred design and began to break down the relationship they had with traders. It was suggested that in order for human-centred design to be adopted by government, municipal officials would need to embrace and be trained in human-centred design practices.

Chapter Six: Discussion and Conclusion

1. Introduction

The aim of this dissertation was to evaluate the implementation and outcomes of human-centred design using Warwick Junction as a case study. In order to achieve this, the theories of human-centred design and participation in development were looked at in the literature review. This conceptual framework was accompanied by an understanding of Warwick Junction as a context in which the Warwick Junction Urban Renewal Project took place. The background and context chapter explored the political and social conditions (including Local Economic Development policies and the role of the informal economy) that were present during the Warwick Project in an attempt to understand how the project came to be. The case study research enabled me to look at how human-centred design was implemented and what the outcomes were in Warwick Junction.

In the introduction chapter, objectives and questions that this dissertation aimed to answer about human-centred design in Warwick Junction were identified. These objectives and questions have been combined and further refined to formulate the discussion questions presented below:

- What factors led to the use of human-centred design?
- How was human-centred design implemented?
- What roles did the designers, traders and municipality play?
- What role did an interdisciplinary approach and area-based management play?
- What role did trader consultation and participation play?
- What were the outcomes of human-centred design?
- Why was the human-centred design approach eventually discarded?
- Could the municipality use human-centred design as a development approach?

In order to answer these questions a thorough understanding of Design Thinking theories was needed. In the literature review I analysed and synthesised a range of Design Thinking theories with a focus on the theme of human-centred design. To my knowledge, this is a novel analysis and is the first time these theories are presented together in an attempt to contrast and link their

approaches. This was necessary to create a conceptual framework so that design theories could be used to explain how human-centred design was used in a development context.

Before looking at human-centred design, it was necessary to look at Design Thinking and how this emerged as a new way of creative problem-solving through its approaches of prototyping, interdisciplinary teamwork, the 3 I model and, most importantly, human-centred design. Through this analysis I was able to show how, while human-centred design is a part of Design Thinking, it has become a theory and approach in its own right. This was necessary to explain how human-centred design uses the Design Thinking approaches (prototyping, interdisciplinary thought, the 3 I model), but with its focus being on the end-user (Brown, 2009). In addition, I felt that it was important to look at the theories and practices of participatory design and human-centred design for social change, and contrast these to the participation theory present in development studies.

Participatory design challenges designing *for* the end-user to become designing *with* the end-user (Binder et al., 2011). This approach is reinforced by Arnstein's (1969) participation theory present in development that argued that only when citizens have the power to change or control, have they truly participated (Arnstein, 1969). In the case of design, end-users must become co-designers in order to have fully participated in the process. Development practitioners advocate for looking at development issues in a more macro context. This is where human-centred design for social change comes in. Human-centred design for social change argues that human-centred design must include human rights and human dignity and not just designers (Buchanan, 2001; Meroni and Sangiorgi, 2011). It was important to be able to bring together a variety of theories and approaches that, once analysed, were connected and could provide a conceptual framework for the role of human-centred design in Warwick Junction.

In order to answer my research questions, an understanding of what happened in the Warwick Project and how human-centred design was used throughout the project was necessary. By looking at the background and context to the Warwick Project, I was able to understand what happened throughout the project, how the project was run, what the project achieved, and what happened after the project was completed. However, because the project was not referred to in a human-centred design context, and had never been looked at in this way, I needed to interview key informants who were involved. To get a full understanding, I interviewed key informants who were

trader representatives, designers, and municipal officials. In addition I administered a questionnaire to 18 traders in order to assess the level of consultation with traders and how existing traders evaluated the design interventions that resulted from the Warwick project. In my interviews I also probed why the Warwick Project, together with human-centred design, was later discarded by the municipality, and whether or not human-centred design could be used by governments in other situations and contexts.

In this chapter, I respond to the research questions of this study by discussing the findings which were described in the previous chapter. In so doing, I will also refer to the available literature discussed in Chapter Two, which helps frame and contextualise my findings. In addition, I show why these findings are significant and what can be learnt from them, along with what conclusions could be drawn from them. In conclusion, I discuss the limitations of my work, as well as provide recommendations for future research.

6.2 What Led to Human-centred Design?

Warwick Junction provides a unique example of human-centred design being used in a development context, which is why it is important to understand the factors that led to the adoption of human-centred design as a novel and alternative approach.

The research shows that the context of the time played a role as both the municipality and designers wanted to do something different to previous approaches and be creative in order to involve informal traders in city planning. Apartheid had just ended, the municipality had instituted Local Economic Development policies, and had initiated the Warwick Project by hiring creative problem solvers. According to Brown (2009), for Design Thinking to work, the approach must be supported by management so that designers are able to have the freedom to create something different. In the case of Warwick Junction, key informants described how there was a level of autonomy that enabled them to adopt unusual practices (Interview with Dobson, 16/10/2014; Interview with Edkins, 16/10/2014; Interview with Skinner, 23/10/2014). Two of these practices were observation and empathy, human-centred design approaches, where, through spending time with the traders, insights emerged and the designers realised that there needed to be a change from designing with a solution in mind, to collaboratively designing with the traders to come up with a

solution. This mirrors the shift from Design Thinking to human-centred design with the addition of empathy for the end-user (Brown, 2009).

The findings of this case study suggest that human-centred design may be more likely to be used when there is an environment of change, and when there is official support for participatory development, Local Economic Development and creative problem-solving. Drawing a comparison to Warwick Junction after the project, while Local Economic Development policies were still in practice, but there was a lack of trader participation and support for human-centred design practices. In addition, this research shows that using observation and empathy enable designers to find insights into the role traders could play in the human-centred design process. Of course, it is also possible that luck or other factors not considered here, could have contributed to the adoption of human-centred design and that alternate approaches, other than human-centred design, could have been used within the same context.

6.3 How Was Human-centred Design Implemented?

One of the questions I hoped this dissertation would answer was how human-centred design was implemented in Warwick Junction. Because there is little to no research on the use of human-centred design in a development context in South Africa, understanding how the process was able to be implemented would provide invaluable insight for future attempts and research. As discussed in the findings chapter, research and analysis showed that for human-centred design to be implemented, paradigms had to shift and design had to be understood as ever-evolving, systemic and macro. For the purpose of this discussion, area-based management, the interdisciplinary approach and trader consultation and participation are considered both implementations and outcomes, and as such will be discussed separately in this chapter. The Warwick Project was widely considered a success in its implementation, although the project's success was subsequently undermined when the project ended. It is therefore important to understand how the team involved in the Warwick Project was able to implement human-centred design. The research for this study finds that there were two implementations that made human-centred design possible: being able to shift paradigms and the use of systemic, evolving design.

Design Thinking literature advocates for paradigm shifts of those using the approach, as it argues that design is a new and challenging field (Brown, 2009). When implementing human-centred design in Warwick Junction, key informants spoke of how their paradigms and those of the municipality had to be shifted, and mind-sets changed, with Dobson describing how he had to train those working with him in "alternative patterns" and "creative thinking" (Interview with Dobson, 16/10/2014). When designers wanted to implement human-centred design in Warwick Junction, they became aware, through their observations, that their design had to be systemic so that it would be able to be a part of the city. In addition their design had to deal not only with the insular conditions faced by traders, but also with issues relating to transport moving through Warwick Junction and the safety of pedestrians. Human-centred design for social change argues that in order for design interventions to be successful, they must be systemic, and they must also consider the human-rights and human dignity of the end-users they work with. These characteristics are visible in the Warwick Project which sought to support traders in their political, social and economic needs (Meroni and Sangiorgi, 2011). In addition to being systemic, participatory design (a part of human-centred design) argues that in order for human-centred design to be implemented successfully, it must be ever-evolving and sustainable. Dobson agreed by explaining that the design in Warwick Junction had "to be evolutionary and you've got to be investing in it" (Interview with Dobson, 16/10/2014). Therefore according to the research, in order for human-centred design to be successful, it should take place in an environment that supports creative problem-solving, and should be accompanied by training in creative thinking, systemic design and developing evolving and sustainable solutions.

This finding led me to question whether designers were able to create a sustainable paradigm shift to last beyond the scope of the Warwick Project. I raise this because the Warwick Project did not result in any human-centred design policy changes (other than area-based management), nor were the tenants of human-centred design maintained after key advocates of the position resigned, and the Warwick Project was considered 'complete'. One of the lessons that could be learnt from this finding is that it is important and necessary to change paradigms in order to be able to introduce human-centred design processes. If these paradigm shifts are not adopted by municipal officials nor result in common practice and policy changes, human-centred design will be difficult to sustain. In order for human-centred design approaches to be successful, management must accept and encourage human-centred design processes. Similarly, designers hoped that the

Warwick Project would not be seen as a 'fix-all' solution and hoped for continued support, design interventions and sustainability in the area once their intended project interventions were implemented. The Warwick Project was completed in the sense that a range of design interventions were implemented, but the essence of the human-centred design approach is that these interventions be adapted and updated over time as circumstances change. However, by 2008, the approach to Warwick Junction at the city-level had changed considerably, and the tenets of human-centred design were no longer adopted. In this sense, the Warwick Project was ended before the full benefits of the design process could be realised.

As a result I would recommend that future design endeavours include a wider evaluation and awareness of what happens to the designs once the project is considered complete. I do question who is responsible for the evolution and sustainability of design projects after completion, and recommend in addition to municipality education about design, that end-users be trained in Design Thinking and human-centred design in order to be able to maintain and sustain design interventions.

6.4 What Roles Did the Municipality, Traders and Designers Play?

One of the reasons Warwick Junction presents an interesting case study is that three seemingly diverse groups of people came together in the human-centred design process, and I believe that there are worthwhile findings to be gleaned from this, should this approach of human-centred design be attempted again. This section will discuss the roles that each group (municipality, traders and designers) played in the Warwick Project, how personalities affected the project, and most importantly, how designers took on the role as facilitators of human-centred design.

The purpose of design thinking is to deal with complex situations while balancing a diverse group of needs, resulting in creative problem-solving. This is why Brown (2009) believes that people who have a variety of skills and abilities are well suited to working in Design Thinking groups. In the case of the Warwick Project, those involved often fulfilled multiple roles (designers being municipal officials, trader representatives being design thinkers etc.). As they were all brought together, it became apparent that the issue of personalities of those involved was important, and many of the key informants expressed this in their interviews. In my literature research it was clear that in certain contexts of human-centred design, the designer played the role of facilitator.

This was confirmed in my findings, with a few key informants subscribing to the role of facilitator, although none more so than Dobson. However, it seemed that in the case of Warwick Junction there was an additional role as a mediator, which Edkins and Moolla claim they fulfilled, being able to balance the needs of government (in terms of policy and budget constraints) with the needs of the designers and traders (Interview with Edkins, 16/10/2014; Interview with Moolla, 8/10/2014).

Understanding the roles that the municipality, designers and traders played in the Warwick Project highlighted important lessons about design interventions. Firstly, it is important to involve people who are varied in their skills and abilities as this seems to provide a suitable environment for human-centred design practices. Secondly, while this research cannot provide evidence to the claim that personality was integral, the issue of personality was clearly substantial enough for key informants to consider it a factor in the success of the Warwick Project. Thirdly, I became aware of two new roles that are essential to the human-centred design process: those of design facilitator and mediator. While this research was unable to determine to what extent the success of Warwick Junction was a result of Dobson's role as a facilitator, his name was synonymous with the role of human-centred design in Warwick Junction and was considered a vital component in facilitating the consultation and participation of traders in the design process. In addition, it can be argued that Dobson and his team were able to fulfil their roles because individuals such as Edkins and Moolla were able attend to the municipality's needs. I would argue that in future human-centred design projects, there should be a role for a design facilitator as well as a mediator who could manage the various needs present so that designers are better able to focus on design and the end-users.

6.5 The Role of the Interdisciplinary Approach and Area-based Management

It is necessary to study the role of the interdisciplinary approach and area-based management because they were both novel approaches in development at the time, not commonly found in government practices, and both are still used today. When trying to analyse the implementation and outcomes of human-centred design in Warwick Junction, I realised that the interdisciplinary approach and area-based management fulfilled the role of both implementations and outcomes. They are considered outcomes, since they were a direct result of the implementation of human-centred design, but as outcomes, they implemented design solutions.

Design Thinking's 3 I model promotes a non-linear approach when using human-centred design (Brown, 2009). This is clearly present in the role that consultation played in both implementation and design outcome in the Warwick Project. As a human-centred design outcome, consultation was in turn implemented and led to further design outcomes. However once these design outcomes were prototyped, traders may have offered insight through consultation and co-design that would result in the prototype being altered. This shows how human-centred design in Warwick Junction made use of a non-linear approach as design outcomes moved backwards and forwards through the consultation stages. As discussed in the previous section, having an interdisciplinary team, according to Design Thinking, allows for creative involvement and input (Brown, 2009). In the case of the Warwick Project involving different municipal officials from a variety of departments, the project was able to engage a larger number of allies who were able to dispense and support the aims of the project and the needs of the traders. In addition, this supports Brown's (2009) idea that in order for design interventions to succeed, management should be involved.

Area-based management as a design implementation is validated by the theories of human-centred design, participatory design and Arnstein's (1969) ladder. Because this research did not undertake an analysis of the meetings that took place at iTrump (the area-based management centre), it is unable to rank area-based management using Arnstein's ladder. Interviews with traders and key informants, however, revealed that having management located in Warwick Junction made it easier for traders to be consulted as end-users, to co-design, as well as hold their own meetings.

There are several lessons that can be drawn from this research. Firstly, non-linear approaches were successful in Warwick Junction, and resulted in design outcomes. Moreover, the interdisciplinary approach is important during human-centred design as, in the Warwick Project, it enabled municipal officials to be involved with the design outcomes, offer suggestions and be aware of the issues that the traders were facing. Most importantly, area-based management played a significant role in giving the traders not only the ability to participate and co-design, but also hold their own meetings and start their own initiatives. More importantly, if area-based management aims to sustain human-centred design after the end of a project, it must remain developmental, not simply operational, as it allows the project to continually grow and adapt to new challenges and changes.

My research did not consider whether or not the interdisciplinary approach and area-based management would have happened without human-centred design. However, I do believe that my research has shown that these approaches were a result of those involved in the Warwick Project wanting to apply human-centred design to the situation at hand.

6.6 Consultation and Participation

Consultation and participation were considered as reasons for the success of human-centred design in Warwick Junction by the municipality, designer and traders, and as such they warrant discussion in order to understand how they were used and to what extent they are responsible for Warwick Junction's initial success. Just like the approaches discussed above, trader consultation and participation are also considered as both implementations and outcomes of human-centred design in my research, and are presented as such.

Consultation and participation are central processes highlighted in the theories which inform this research, namely: human-centred design, participatory design and participation theory. Human-centred design fundamentally insists on involving the end-user in the process of design, either through consultation or co-design. Along with this, one of the traits that differentiates human-centred design from Design Thinking is its focus on developing empathy for the end-user (Brown, 2009; Tschimmel, 2012). This is evident in the Warwick Project, as from its inception, designers aimed to understand and empathise with the needs and livelihoods of traders. Participatory design, in contrast, insists on co-design above consultation, arguing that "use before use" with end-users will result in better solutions and designs since traders "have brilliant ideas that could be solutions" (Binder et al., 2009. Interview with Ndlovu, 9/10/2014). Both designing for the end-user through consultation, and co-designing with the user are evident in the findings and were used throughout the Warwick Project.

The theory of participation and Arnstein's (1969) ladder is particularly important in understanding the nature of trader participation in the Warwick Project. According to Arnstein (1969), consultation with traders would be considered a 'degree of tokenism' and would only register on the fourth rung of her ladder, but consultation is considered a better approach than

presentation which ranks third. However, should this consultation result in co-design, it would lead to a transfer of power and could be considered 'partnership' or even 'citizen control', both higher rungs on the ladder.

The research shows that during the Warwick Project there was genuine consultation (and not simply presentation of interventions) with traders as their views were actively sought by the design team. Moreover, the large majority of the traders I interviewed had been consulted about at least one of the design interventions. Consultation was higher among traders identified as leaders in markets and were also shown to have been consulted about a wider range of interventions. Although four of the 18 traders interviewed reported that they had not been consulted, it should also be recognised that there are several hundred traders in Warwick Junction at any one point in time, which would have made consulting every trader about every intervention impossible. This trader participation in the Warwick Project would therefore rank relatively highly in Arnstein's (1969) ladder, although not at the highest rung (citizen control). However, in many cases, the process of consultation also led to co-design with traders, which would reflect participation on the highest rung of Arnstein's ladder.

Secondly, human-centred design must involve end-users as this leads to better design outcomes. This is supported both by the literature and the findings presented in this research. By involving the end-users, designers were able to prototype their designs, create discussions around interventions and gain the trust of the traders. It would be my recommendation, that human-centred design always involves the end-users, and uses Arnstein's (1969) ladder to analyse what level of participation they are engaging in, and where possible, make the necessary changes to involve traders at the top rungs, where co-design becomes citizen control.

6.7 Human-centred Design Outcomes

Trying to determine to what extent human-centred design played a role in the design outcomes of the Warwick Project is difficult. Because there is no way scientifically to measure this, my findings are based on the opinions of key informants and traders, who felt that human-centred design was integral to the success of the Warwick Project. Being able to answer this question is important because it speaks to the value of human-centred design, the value of engaging the end-user, and presents both of these as necessary investments in development work.

Design Thinking theorists insist that a human-centred approach will always be successful when designing a product or system (Brown, 2009. Binder et al., 2011. Tschimmel, 2012). More specifically, human-centred design believes that without the involvement of the end-user, human-centred design will not be able to achieve its goal of translating "observations into insight and insights into products and services that will improve lives" (Brown, 2009: 48). Though my interviews with key informants, everyone agreed that human-centred design played an indispensable role in the success of the Warwick Project.

Design Thinking, prescribes prototyping and testing as one of the vital processes of human-centred design. Prototyping which is advocated as "use before use" was utilised as a way "to meet the unattainable design challenge of fully anticipating or envisioning use before actual use takes place in people's lifeworlds" (Binder et al., 2011: 176). Throughout the project, traders were encouraged to become co-designers and be involved in the design process, with Trader 1 explaining how she helped decide how best meat should be cooked in the Bovine Head Market and that this led to the introduction of paraffin stoves replacing open fires, as well as Mkhize putting forward new designs for tables (Interview with Mkhize, 9/10/2014). In my findings compiled from trader questionnaires, trader ratings were varied with some design outcomes being rated highly and others poorly. In certain cases within the same design outcome, ratings varied widely. As previously discussed these trader ratings are difficult to analyse because in certain cases there were several iterations of one design outcome (possibly due to prototyping, and municipal interventions after the Warwick Project was complete) and my trader sample was quite small. Through the use of human-centred design, non-linear approaches were used, which enabled the refining of ideas before final implementation. However these designs have not been adapted, updated or sustained using human-centred design, and as such have become static. It is important to note that this was never the intention of the designers, and that they still insist that these designs need to be revisited in order to be evolving and sustainable for the traders.

The Warwick Project was an early adoption of human-centred design in development, and therefore participants found themselves on a steep learning curve. It is necessary to outline these lessons here as they provide guidance for how human-centred design can be best implemented to affect social change. Firstly, there needs to be an understanding of the role prototyping plays in

human-centred design and that, in order for it to be successful, it must form part of a non-linear approach. This would allow the idea to move backwards and forwards between ideation and implementation, with each stage resulting in better insights that would guide the final design outcome. Projects hoping to use human-centred design must realise the value of a non-linear approach using prototyping should they hope to create human-centred design outcomes.

Secondly, human-centred design does not produce a 'one size fits all' solution that results in mass distribution. Government development policies may require a standardised, scalable solution that can be distributed equally, but human-centred design seeks to be context-specific and to assess and address individual users' needs.

Finally, it has been noted in the research that some of these design interventions were not able to be sustained in Warwick Junction. I would posit that the principles of the Warwick Project, which involved the continued interaction with the trader community and revision of designs, were not maintained. Therefore, I argue that without the continued implementation and maintenance of human-centred design, the design outcomes will not be sustained. One could argue that when the municipality stopped the process of human-centred design, especially that of consultation, it became more difficult for traders to express their needs and co-design solutions. This helps to explain why traders' evaluations of design interventions, as they are being used in their current context, were not consistently positive.

There were some limitations to my research on design outcomes in Warwick Junction. Most notably, when giving questionnaires to traders, I failed to follow up with those traders who were not consulted and therefore was unable to gather insight into their ratings of design interventions. Had this been done, this may have led to greater insights into their views of the human-centred design outcomes.

6.8 Why Was Human-centred Design Discarded?

If the Warwick Project was considered a success, then an important part of this research is to understand why the approach informing this project was discarded in the second decade of the post-apartheid period.

From 2008 onwards, the intended Warwick Project interventions had been implemented and considered complete. However it was never the intention of the designers to abandon the process of human-centred design in Warwick Junction. Designers believed that trader consultation, and human-centred design processes would continue through design interventions such as area-based management. Instead, the municipality announced the introduction of a mall in Warwick Junction without the consultation and involvement of traders in the decision-making process. This policy change contradicted a human-centred design approach and suggested that municipal officials had not embraced the practice of human-centred design. It is difficult to determine whether or not this was because the municipality had not been trained in human-centred design, whether designers in the early 2000s had less influence than in the early 1990s, or whether different municipal officials were now involved in decision-making. Regardless, this process resulted in a loss of "social goodwill" and the loss of the relationships of trust that had been built up with the traders (Interview with Robbins, 15/8/2014).

With reference to Arnstein's (1969) ladder, the municipality was now using 'non-participation' processes, which simply dispenses information without allowing citizens to participate in the decision-making process at all (Arnstein, 1969). As the research shows, this led to protests, demonstrations and legal action by the traders. At the same time, iTrump (the area-based management initiative) was restricted to operational functions and was not given the opportunity to continue human-centred design initiatives and implementations. Without the support of the municipality, autonomy, or the ability to use human-centred design, the design outcomes became unsustainable. It was at this time that Dobson and Mkhize began Asiye eTafuleni in an attempt to continue the human-centred design approach in Warwick Junction through their NGO, because they had realised the value of this approach. What the research is unable to answer is if the human-centred design approach had not been abandoned by the municipality, and a mall had not been proposed, would the design outcomes have been sustained? While there is no evidence presented in this dissertation to support this, I believe that the continued use of human-centred design would have resulted in continued trader involvement, better trader relationships with the municipality, and evolving and sustainable outcomes.

It is clear from this research that continued consultation and participation is integral to the success of human-centred design outcomes. It is important to note that this research argues that consultation and participation should, ideally, be as high on Arnstein's (1969) ladder as possible to result in sustainable development. I would argue that without continued consultation and participation, human-centred design will be unable to sustain development initiatives. This is why government support is paramount in the sustaining of human-centred design, and why this dissertation argues that government should include human-centred design approaches in its practices. However it is clear from this research question, that in order for it to happen, government would have to change, and this is discussed in the following section.

6.9 Can Government Use Human-centred Design?

The interest in this dissertation began with this very question. I had hoped that by looking at the implementation and outcomes of human-centred design in Warwick Junction, I would be able to answer whether or not government could use human-centred design and whether the lessons learnt from the Warwick Project could be used in other development initiatives. Understanding how government can use human-centred design adds to both design and development research, helping to understand why municipalities might find it difficult to adopt human-centred design in their development programs, and what practices might be easier for government to undertake.

My research shows that in order for human-centred design to be used successfully, it must be adopted and accepted as an approach by all involved. Once again, I quote Brown as he argues for the importance of collaboration saying that "design is too important to be left to designers" (Brown, 2009, 36). In situations where design involves and affects several entities and their interests, this design shows that they must be involved in the human-centred design process, and more importantly, they must support and incorporate human-centred design approaches into their practices. My findings show that key informants believed that government would have to undergo a paradigm shift in order to accommodate human-centred design practices which is a difficult thing to achieve. Human-centred design does not always result in scalable solutions, and design outcomes cannot always be standardised and will require prototyping and pilot projects. Makin described how human-centred design "doesn't necessarily create scalable results which is a problem for government to support", while Edkins argued that government budgets do not allow for pilot

projects and prototyping (Interview with Makin, 8/10/2014, Interview with Edkins 16/10/2014). It is clear from this research that in order to human-centred design to be supported and used by government, government processes, policies and practices would have to be changed.

When using human-centred design in a development project, the designer takes on a facilitative role and is responsible for "forging connections among people and organisations, bringing users to the centre of each project and defining the platforms and tools needed to enable and encourage participation" (Cottam and Leadbeater, 2004 cited in Meroni and Sangiorgi, 2011: 45). It is clear from my interviews with key informants that during the Warwick Project, Dobson took on this role and was effective as a facilitator. Should government wish to incorporate human-centred design into its practices, it should allow for a designer or design team to fulfil that facilitative role. Currently in Warwick Junction, Asiye eTafuleni is trying to fulfil the role of a human-centred design facilitator.

What lessons can be learnt from the implementation and outcomes of human-centred design in Warwick Junction that could inform local governance? Through my research and discussions with key informants, I have identified two lessons. Firstly, if local government structures wished to incorporate human-centred design as an approach, paradigms and practices would have to change. The municipality would have to allow human-centred design implementations, such as systemic design, a design facilitator, an interdisciplinary approach, non-linear approaches, area-based management and most importantly, consultation and participation. In order to change these approaches, individuals and departments in government would have to believe in the value of human-centred design and be trained in Design Thinking. A second lesson would be to adopt human-centred design in a facilitative role. This would still have to involve the incorporation of new practices outlined above, but would include the introduction of individuals or departments whose role it is to facilitate human-centred design in development initiatives. Asiye eTafuleni is currently facilitating for traders, and while this is of benefit to the traders, Asiye eTafuleni is not involved in development initiatives outside of Warwick Junction. I am advocating for a greater involvement by the municipality to extend human-centred design into other development initiatives. In order for this to become a reality, human-centred design must be advocated for as an approach. When key informants were asked who should advocate for human-centred design, they believed

that anyone who could, should. This research ultimately hopes to advocate for the use of human-centred design in development and to encourage others to do the same.

6.10 Possible Future Research

The aim of this study was to evaluate the implementations and outcomes of human-centred design in Warwick Junction, in order to contribute to the sparse research on how Design Thinking is being used in development. There are many themes and questions that could have been explored in this research, however the scope and timeframe of a master's dissertation does not allow for that. Nevertheless there are a number of areas that I believe may benefit from further research and will add to the small collection of literature on Design Thinking in development.

Human-centred design is a relatively new approach that has mainly been researched within the discipline of design. However, in recent years many projects have been implemented where Design Thinking and human-centred design have been applied to development. While these may have been studied and analysed from a design perspective, it is vital that they are looked at from a development and academic context.

Further research might focus on how design groups, such as IDEO.org, Asiye eTafuleni and the Design Council work together with government and municipalities to achieve human-centred design, and how their role as design facilitators aid the design process. This research would also benefit from an analysis into government practices to determine how these could be made more compatible with the tenets of Design Thinking, and investigate why or why not governments might be resistant to the idea of human-centred design.

In this study, it was suggested that one of the reasons why the municipality abandoned the human-centred approach was because they were unable to see the value of using human-centred design along with prototyping, consultation and participation, and creative problem-solving. Further research, therefore, could explore the cost implications of adopting human-centred design. A comparative study could be undertaken to explore whether human-centred design approaches such as prototyping and consultation result in more sustainable, cost-effective development solutions than projects that do not use these approaches. A suggestion would be to conduct a local study into

the Durban Beachfront Development of 2010 to determine whether human-centred design was used, and whether end-users (such as beadwork and curios traders) were consulted throughout the design process.

Finally, I believe that it would be of great interest to research how the end-user is being incorporated into human-centred design approaches in development. This research could use Arnstein's (1969) ladder and look at the levels of participation that are used in these approaches, as well as analysing whether or not involving the end-user leads to a more successful design outcome. This could benefit both participation and human-centred design research.

6.11 Concluding Remarks

Through this research I have tried to evaluate the implementation and outcomes of human-centred design using the Warwick Project as a case study. By combining human-centred design theories with development initiatives I believe that this research allows for a better understanding of why and how human-centred design was used in a development context, and what lessons might be learnt for future attempts.

As a result of this study, I have come to understand that there were three major factors that led to the use of human-centred design in Warwick Junction. With the end of apartheid, local government and designers were keen to try new approaches to incorporate traders into city planning. As a result of a certain level of autonomy, designers and municipal officials were free to try new human-centred design practices, such as observation. The observation of traders and their daily lives in Warwick Junction, led designers to use empathy and human-centred design while involving the traders in the design process. The findings also showed that two additional factors needed to be met to allow human-centred design to be implemented. Firstly, the paradigms of the institutions and individuals involved must be challenged and encouraged to support the human-centred design approach. Secondly, the design outcomes of this approach must be macro, systemic and ever-evolving. If these two factors are not adopted by those in management (i.e government or municipal officials), nor result in common practice or policy changes, the human-centred design interventions will not be sustained.

Through conducting this research, it became clear how human-centred design was implemented during the Warwick Project through a combination of an interdisciplinary team, area-based management, consultation and participation, prototyping and the role of the designer as a facilitator and mediator. An interdisciplinary team allowed for the sharing of ideas, as well as the involvement of representatives from municipal departments, designers and trader leaders. Through the use of area-based management, the project centre located in Warwick Junction encouraged trader involvement and consultation. The data shows that there was a high rate of trader consultation and participation throughout the design process, which led to effective design outcomes and implementations. Much of this trader consultation was made possible by the designer, who fulfilled the role of facilitator, mediating the needs and objectives of several parties. The research shows that these human-centred design approaches played an integral role in the success of Warwick Junction and should be incorporated into future human-centred design development endeavours.

This research has shown that in order for design interventions to be sustained after their initial implementation, the practice of human-centred design must be continued. In addition, although human-centred design has the capacity to incorporate many forms of participation, it should always aim for the highest level of user participation. Finally, design is too important to be left to the designer alone and the approach should be actively included, examined and refined in development practices and initiatives, including those initiated by government officials.

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Interview with Andrew Makin, Architect, Morningside, 8 October 2014.

Interview with Hussein Moolla, Head of iTrump, Durban, 8 October 2014.

Interview with Khabazela Mkhize, Head of Informal Traders Management Board, Warwick Junction, 9 October 2014.

Interview with Patrick Ndlovu, Senior Project Officer at Asiye eTafuleni, Warwick Junction, 9 October 2014.

Interview with Richard Dobson, Project Leader at Asiye eTafuleni, Warwick Junction, 16 October 2014.

Interview with Jonathan Edkins, Former City Architect, Durban, 16 October 2014.

Interview with Caroline Skinner, Senior Researcher at the University of Cape Town, University of Cape Town, 23 October 2014.

Trader Questionnaires

Interview with Trader 1, Warwick Junction, 13 October 2014.

Interview with Trader 2, Warwick Junction, 13 October 2014.

Interview with Trader 3, Warwick Junction, 13 October 2014.

Interview with Trader 4, Warwick Junction, 13 October 2014.

Interview with Trader 5, Warwick Junction, 13 October 2014.

Interview with Trader 6, Warwick Junction, 13 October 2014.

Interview with Trader 7, Warwick Junction, 13 October 2014.

Interview with Trader 8, Warwick Junction, 13 October 2014.

Interview with Trader 9, Warwick Junction, 13 October 2014.

Interview with Trader 10, Warwick Junction, 13 October 2014.

Interview with Trader 11, Warwick Junction, 13 October 2014.

Interview with Trader 12, Warwick Junction, 14 October 2014.

Interview with Trader 13, Warwick Junction, 14 October 2014.

Interview with Trader 14, Warwick Junction, 14 October 2014.

Interview with Trader 15, Warwick Junction, 14 October 2014.

Interview with Trader 16, Warwick Junction, 14 October 2014.

Interview with Trader 17, Warwick Junction, 9 October 2014.

Appendix A: Interview Questions for Key Informants

1. In what capacity have you been involved in the Warwick Junction area and in what capacity were you involved in the Warwick Junction Urban Renewal Project?

2. What was your reaction to the initial plans of the Warwick Junction Urban Renewal Project?
   a. Has your opinion of the project changed since then? Why?

3. Could you describe your experience and involvement in the Warwick Junction Urban Renewal Project (during the time period from 1995-2010)?

4. Could you describe your experience working with the following groups;
   a.i.The Municipality
   a.ii.The Designers
   a.iii.The Traders

5. What role did area-based management play in the Warwick Junction Urban Renewal Project?

6. What role did interdisciplinary collaboration play in the Warwick Junction Urban Renewal Project?

7. What are the characteristics of successful interdisciplinary collaboration?

8. What is your opinion of the overall capacity of the municipality's ability and intention to engage with traders throughout the project during;
   a. 1995-2008
   b. 2008-present

9. What is your opinion of the overall capacity of the designer's ability and intention to engage with traders throughout the project during;
   a. 1995-2008

b. 2009-present

10. In your opinion what influenced decision-making in Warwick for the following groups?
Municipality
Traders
Designers

11. In your opinion, did the intervention by government, designers and users achieve a better Warwick Junction?

12. Can you describe the role of human-centred design throughout the project? What factors led to its use?

13. In your opinion, how important was the role of human-centred design throughout the project?

14. In your experience, what examples can you provide of the human-centred design process during the project?

15. In your opinion, what were the challenges of using human-centred design throughout the project?

16. Was the human-centred design process supported/hindered by the municipality, traders and designers?

17. Who is responsible for the advocating and enforcement of human-centred design?

18. What is the role of designers in human-centred design projects?

19. Can you describe how the traders were consulted throughout the project? Did trader consultation influence the designs? If so, can you provide examples?

20. To what extent do you think users should be involved in the design and to what extent?

21. Does the city need designers? Can/should human-centred design be taught to non-designers?

22. Do you think a similar approach could be achieved somewhere else? What would the challenges be?

23. In your opinion why is human-centred design not widely used in social change interventions in South Africa?

Appendix B: Trader Questionnaire

Location of Trader:

Trade:

Years trading in Warwick Junction:

Please complete the following questionnaire, by ticking whether or not you were involved in the process for the following designs, and how you would rate them based on usefulness for you, as a trader.

Design	Involvement (Y/N)	Rating (1-10, 1 being least useful, 10 being most useful)
1. Introduction of trader tables		
2. Lines designating trading spaces		
3. Cooking cubicles (bovine markets)		
4. Redesign of the Music Bridge (to prevent crime)		
5. Redesign of the Muthi Market		
6. Introduction of the Project Centre		
7. Moving taxi ranks off the streets		
8. Refurbishment of the Early Morning Market		
9. Storage Facilities		
10. Water taps & water services		
11. Cardboard Collection Services		

Appendix C: Informed Consent Form

Dear Participant,

I am currently conducting a Masters study on "An evaluation of the implementation and outcomes of human-centred design: A case study of Warwick Junction".

You are kindly requested to consider and respond to the questions attached herewith. Details of the project appear below. Information provided by you will be treated with the strictest anonymity and your identity will not be revealed to anyone, unless you give consent. Participation in this survey / interview is voluntary and you may withdraw if you should choose to do so, at any time. Your time and effort in participating in this project are greatly appreciated.

Micaela de Freitas

Title of Project : An evaluation of the implementation and outcomes of human-centred design: A case study of Warwick Junction.

Investigator : Micaela de Freitas

    University of Kwa-Zulu Natal

    Durban

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Reason for Selection as Participant : Participant is a key individual who was involved in the Warwick Junction Urban Renewal Project.

I_____**(full name) hereby confirm that I understand the contents of this document and the nature of the research project and I consent to participating in the research project.**

I understand that I am at liberty to withdraw from the project at any time, should I so desire.

Signature _____   **Date** _____