Exploring conversance with 'research for design' methods in communication design companies

by

MARNO JOHAN KIRSTEIN

Student number: 04392329

Submitted in partial fulfillment of the requirements
for the degree of *MA in Information Design (coursework)*

DEPARTMENT OF VISUAL ARTS
FACULTY OF HUMANITIES
UNIVERSITY OF PRETORIA

Study Leader: Dr Duncan Reyburn

NOVEMBER 2014

Table of Contents   Page

ACKNOWLEDGEMENTS

I would like to begin by thanking the staff at the University of Pretoria Department of Visual Arts, both past and present, who have played an integral role in forging me and this research project. Special thanks go to my study leader Duncan Reyburn and HoD Jeanne van Eeden, both of whom have the patience of mountains.

My deep and heartfelt thanks to my parents and brothers who have supported me emotionally, materially and spiritually these last years as I embarked on this madness. Completing this research is as much your victory as mine. I have also been blessed with an incredible group of friends, mentors, brothers and sisters who have been a constant source of support and edification; much love and many thanks to my family at Central Baptist Church Pretoria. *Soli Deo Gloria*.

Thank you to all those respondents who willingly participated in the research process; for patiently answering my questions and setting aside your valuable time to make a contribution to this study, the discourse herein and to the industry as a whole. May this yield dividends for us all.

Lastly, I am deeply indebted and grateful to all those voices in the field who contributed to this study and helped to hone my thinking through your books, articles and other publications.

<div align="center">

Only one life, 'twill soon be past,
Only what's done for Christ will last.
C.T. Studd

</div>

ABSTRACT

The number of research for design methods is increasing every year, but existing literature reveals very little about the state of research in communication design in the South African context. It is not clear whether practitioners are implementing the methods, whether the methods are suitable to the South African context, or even whether practitioners are aware of the methods in the first place. This study is exploratory in nature and investigates three aspects of communication design practitioners' relationship with current research for design methods: awareness, attitudes and aptitude. These three aspects are collectively referred to as 'conversance'.

The study briefly covers the etymology of research for design and the literature that is currently available from the South African industry. The literature review for the study is divided into two sections, the first investigating what research is and what constitutes acceptable scholarly research practices.The second part of the literature review establishes what the state of the art in research for design is and gives some idea of what good research for design practices look like, in the broader context of acceptable scholarly research practices.

Four heterogeneous case companies are investigated in terms of their conversance with research for design methods, using a mixed methods embedded design. The field research data for these case studies is discussed separately, whereafter a cross-case analysis is conducted, to help guide the lines of inquiry in future research projects investigating research practices in the South African communication design industry. The study ends by making recommendations for further research, based on the outcomes.

LIST OF FIGURES

v

LIST OF APPENDICES

Page

DECLARATION OF ORIGINALITY

UNIVERSITY OF PRETORIA
FACULTY OF HUMANITIES
DEPARTMENT OF VISUAL ARTS

The Department of Visual Arts places specific emphasis on integrity and ethical behaviour with regard to the preparation of all written work to be submitted for academic evaluation.

Although academic personnel will provide you with information regarding reference techniques as well as ways to avoid plagiarism, you also have a responsibility to fulfil in this regard. Should you at anytime feel unsure about the requirements, you must consult the lecturer concerned before you submit any written work.

You are guilty of plagiarism when you extract in formation from a book, article or web page without acknowledging the source and pretend that it is your own work. In truth, you are stealing someone else's property. This doesn't only apply to cases where you quote verbatim, but also when you present someone else's work in a somewhat amended form at (paraphrase), or even when you use someone else's deliberation without the necessary acknowledgement. You are not allowed to use another student's previous work. You are furthermore not allowed to let anyone copy or use your work with the intention of presenting it as his/her own.

Students who are guilty of plagiarism will forfeit all credit for the work concerned. In addition, the matter can also be referred to the Committee for Discipline (Students) for a ruling to be made. Plagiarism is considered a serious violation of the University's regulations and may lead to suspension from the University.

For the period that you are a student at the Department of Visual Arts, the undermentioned declaration must accompany all written work to be submitted. No written work will be accepted unless the declaration has been completed and attached.

I (full names),	**Marno Johan Kirstein**
Student number:	**04392329**
Subject of the work:	**Exploring conversance with 'research for design' methods in communication design companies**

Declaration

1. I understand what plagiarism entails and am aware of the University's policy in this regard.

2. I declare that this mini-dissertation is my own, original work. Where someone else's work was used (whether from a printed source, the internet or any other source) due acknowledgement was given and reference was made according to departmental requirements.

3. I did not make use of another student's previous work and submitted it as my own.

4. I did not allow and will not allow anyone to copy my work with the intention of presenting it as his or her own work.

Signature _____

CHAPTER 1: INTRODUCTION AND STATEMENT OF RESEARCH PROBLEM

1.1 A context for the study

1.1.1 Design and design research: a brief etymology

The meaning of 'design' is a contentious issue. Some would have the definition be as broad as including anything artificial[1] (Buchanan 2001b:38; Julier 2008:40; MacGarry 2008:34), whereas others use the term to denote only a certain field or group of fields in which design is the primary activity (Julier 2008:40-42). However, by and large design is seen as denoting industrial design, architecture, jewellery and fashion design, graphic design, human interface design and other closely related fields of practice. For the sake of simplicity, the specific field of communication design forms the context for discussion in this study. Communication design focuses not on a particular design product or product set, but rather on a collection of ways of thinking, doing and creating that manifest in or help enable visual communication of some kind (Defining the Profession [sa])[2]. It is broad enough to include applications for design such as information graphics, graphic design, animation (and other forms of motion graphics), but does not include product design *per se*, such as industrial, fashion, jewellery and packaging design.

The origin of the design discipline is also a contested issue. It may be argued logically, by aligning the notion of design with 'artifice' that design started with the earliest of weaponry and cave-paintings. In academia there are various opinions regarding the origins of design as a distinct field, ranging from the early seventeenth century to as recently as the middle of the twentieth century (Bayazit 2004:17; Buchanan 1996:5-6; Buchanan 2001a:3-4; Findeli 2001:6-7; Gomez-Palacio & Vit 2009:10; Hollis 2001:8; Nelson & Stolterman 2010:11).

Fortunately, there seems to be more consensus with regard to the beginnings of design research and research for design. Richard Buchanan (2001a:3-4) attributes the origins of principles

---

[1] Many authors hone in on this concept because of the seminal work done by Herbert Simon in "The sciences of the artificial", first published in 1969.

[2] Icograda (the International Council of Communication Design) provides some useful definitions about communication design and its practitioners. The following definition was ratified in La Habana, Cuba, by the general assembly on 26 October 2007: "Communication design is an intellectual, technical and creative activity concerned not simply with the production of images but with the analysis, organisation and methods of presentation of visual solutions to communication problems."

governing design practice and research to Galileo Galilei and Francis Bacon, whilst Alain Findeli (2001:6), Jenn and Ken Visocky O'grady (2006:13) assert that the first traces of design research planning can be found in Walter Gropius' original planning for the Bauhaus curriculum dating to 1919. It is generally accepted, however, that formalised research for design did not start taking place until the early 1960s (Bayazit 2004:18; Bærenholdt *et al* 2010:2). Prior to the 1960s, design and design education was primarily product-centred (Bayazit 2004:17-18). After this period design focused more and more on human needs, giving rise to the early precursors of communication design as it exists today (Bayazit 2004:18-28). Taking this into consideration, it would seem logical that the history of research for communication design cannot easily be separated from that of product design prior to the early 1960s.[3]

1.1.2 Development of research for design methods

Leading on from the above, one may assume that research for communication design is still a very young field, only recently having reached its 50-year mark.[4] Even so, various authors have accused design theory and research of being too reliant on related but dissimilar fields of enquiry such as engineering and architecture (Cross 1999:5, Bayazit 2004:19-20) as well as visual culture studies and fine arts (Cross 1999:5; Julier 2006; Julier 2008:1-3). Indeed, the earliest publications on design methods were written by a chemical engineer, operations researcher and information technologist respectively, in an attempt to pioneer "scientific approaches to design" (Bayazit 2004:18-19).[5]

Around the turn of the millennium, certain theorists started expressing dissatisfaction with this state of affairs. Nigel Cross (1999:5) lists several research-based design journals, specifically

---

[3] Tracing the development of communication design and its continually changing nature is an incredibly complex issue that is not easily reduced. Its alliances and relation to other disciplines have shifted and are continually being contested. A reading of the following sources is suggested for a greater understanding of this issue: Bayazit (2004), Buchanan (1996, 2001a), Cross (1999), Hollis (2001), Findeli (2001) and Julier (2008).

[4] The origins of communication design as an academic research discipline is generally accepted as lying in 1963, at the Conference on Design Methods and the formation of the International Council of Graphic Design Associations (Icograda at that time) (Bayazit 2004:18. See also Hollis 2001:166-167; Gomez-Palacio & Vit 2009:248).

[5] Moris Aslow , a chemical engineer, wrote "Introduction to design" (1962) which dealt with engineering design. Bruce Archer published his book "Systematic methods for designers" (1965) whilst being the head of the Design Research Unit at the Royal College of Art. Although Archer had previously been a teacher at the HfG (Hochschule für Gestaltung), this book was modelled around critical path analysis, which is a model of operations research. Christopher Alexander published the first Ph.D. thesis on design methods, "Notes on the synthesis of form" in 1964, although portions of this work were already presented as early as 1963. Alexander wrote on the domain of architecture, although his thesis was based on information theory.

pointing out how some of them draw on "paradigms of scholarship" derived from natural sciences and arts. He further states that:

> the important thing is that collectively we have the possibility of adding to these other paradigms and of developing our own design research culture… Our axiom has to be that there are forms of knowledge peculiar to the awareness and ability of a designer, just as the other intellectual cultures in the sciences and the arts concentrate on the forms of knowledge peculiar to the scientist or the artist. (Cross 1999:5)

Clearly Cross feels that leaning on research traditions and cultures borrowed from other disciplines does not meet the particular needs of design. This notion is not unique to Cross; the same led Luz Narváez (2000) to write the short but seminal paper *Design's own knowledge*: a call to designers to develop research methods and practices that will facilitate development of theory that is relevant specifically to design and its processes and which is not necessarily derived from other disciplines. These articles were not written in a vacuum and reflect a more widespread dissatisfaction with the state of design practice and research (Melles 2008). It is therefore not surprising that the years leading up to and subsequent to their publication have seen a proliferation of design research books[6] and academic journals[7] emerging, specifically targeting the issue of design research methods.

It is therefore clear that the need for an academic discipline of design research was identified and has now been established; research methods are being developed and published.[8] This begs the question as to whether design practitioners are aware of these research methods and if they are, whether they are applying them in industry.

1.1.3 Filling a knowledge gap through research for design

Design practice can potentially feed into research for design, or *vice versa*, which both in turn help develop and enlarge the body of knowledge built around communication design. However to effectively marry practice to research and research to practice, the ability, capability and willingness of design practitioners to engage in research for design is necessary (Augustin &

---

[6] See Augustin & Coleman 2012; Bærenholdt *et al* 2010; Bowers 2011; Crouch & Pearce 2012; Laurel 2003; Koskinen *et al* 2011; Martin & Hanington 2012 and Visocky O'grady & Visocky O'grady 2006.
[7] *Design studies*, *Design issues*, *Languages of design*, *International journal of design*, *Temes de desseny* and *FormDiskurs*, to name a few.
[8] See Figure 11.

3

Coleman 2012:xi-xxvii; Crouch & Pearce 2012:8-22; Koskinen *et al* 2011:ix-xiv). Lack in one or more of these three areas could result in a gap between research and practice. According to Bruce Archer, Ken Baynes and Richard Langdon (in Cross 1999:7) this gap of design knowledge is an intellectual culture that is concerned with "things to know, ways of knowing them, and ways of finding out about them". Cross (1999; 2007:22-27) suggests that this knowledge can be discovered through research of people, processes and products.

The abovementioned potential gap is collectively referred to as 'conversance' in this study. This term is used because conversance implies a relationship that goes deeper than mere awareness. Conversance with research for design methods implies a more profound relationship between design researcher and research method: one of reciprocation, dialogical engagement, experimentation and possibly even adaptation. Arm's-length or non-specific knowledge of research for design methods is insufficient (Bærenholdt *et al* 2010:3) as is seen in subsequent chapters.

Figure 1 places this 'gap' into context. The figure shows the bi-directional relationship between some of the different levels at which design thinking operates, namely knowledge, research, conversance and practice[9]. There is by no means a linear relationship between these levels – one can skip straight past one to the next level, and more than one level can co-exist simultaneously. In this figure, one can start identifying an area for research which begins to address the question raised at the end of the previous section: are design practitioners aware of research for design methods and if so, are they applying them in industry?

1.1.4 The South African context

Discussing trends in research for design as a discipline is one thing, but in and of itself does little to illumine the *status quo* in South Africa. The next question that then arises is whether South African communication designers are implementing credible and adequately rigorous[10] research for design practices, or whether they are even aware of these practices to begin with. Although the literature on this is fleshed out in more detail in the chapters 2 and 3 (and is a focus of the research for this study), it is necessary to give a brief introduction here.

---

[9] The figure is a gross over-simplification of the domain of design knowledge, but is an attempt to paint a broad map of its position within design practice. The domain itself is coloured in more detail as the study progresses.
[10] A discussion as to what constitutes acceptable research for design practices is entered into in the following chapters.

research
research for design
research rigour

Sanders (2002)
Laurel (2003)
Visocky O'Grady &
Visocky O'Grady (2006)
Breslin & Buchanan (2007)
Roumelriotis (2011)
Augustin & Coleman (2012)
Crouch & Pearce (2012)

conversance
awareness
attitudes
aptitude

IDA World Design Survey
Pilot Project SA (2008)
MacGarry (2008)

knowledge
design's own knowledge,
theory

Buchanan (1996, 2001a)
Cross (1999, 2007)
Narváez (2000)
Dorst (2008)

practice
application
implementing

The primary focus of
industry and many design
education institutions

Figure 1: *The gap between research for design and practice*

In answering the abovementioned question, there is very little existing literature that would enable one to come to a reliable conclusion. In the 2008 South African pilot project of the IDA world design survey, when designers were asked what the biggest stumbling blocks in the industry are, "do more research in the design sector" got the least mentions of all, with only 1.67% prevalence (IDA world design survey pilot project 2008:66). When Michael MacGarry[11] asked creative directors at various design companies what role theory plays in their everyday practice, he received answers like "All practice. No theory" and "less than zip" (MacGarry 2008:135,143). Assuming that a theoretical frame of reference of some sort is a precursor to any kind of coherent research, no theory means: no research. At the very least it reflects a gross misunderstanding of what theory is, which would lead one to anticipate an environment in which credible research is unlikely, if not impossible.

Quite frankly these two sources do not seem to yield a positive picture, but they cannot be said to be representative or conclusive. Until more is known about the relationship between designers and research for design methods, it hinders development in many sectors of the design field. Poul Olsen and Lorna Heaton (2010:81) remind that design research is not useful in and of itself; rather, it becomes useful at the point where it is enacted. Failing this it becomes practically

---

[11] Michael MacGarry is one of the first authors to have compiled a handbook explaining graphic design from first principles using South African designs and visual vernacular as point of departure. As part of his research for this book, he interviewed prominent communication design practitioners in the local industry regarding their practices.

5

useless. Whether research methods are effective (and how they can be improved) will be unknown, and it will be difficult to strategically plan further development and implementation of research for design methods and how they are taught to designers. It is therefore crucial to form as holistic an idea as possible of the state of research for design practices in South Africa to even begin to address the questions raised so far in this chapter.

1.2 The research problem

1.2.1 Research aim

With the above as background, it is possible to start framing the aim and objectives of this study. The following question has been identified: are South African communication design practitioners implementing research for design methods in industry? Answering this question is no simple task, since it cannot be assumed that design practitioners are aware of the research for design methods to begin with. Existing literature on the South African industry is not forthcoming in answering even this question so any research hoping to make an meaningful contribution to helping to answer the first question must also take the second into account: what is the level of conversance of South African communication design practitioners regarding research for design methods?

The duration and other limitations of this study are of such a nature that neither of these questions can be answered in a representative manner. The aim of this study is therefore to do an exploratory investigation into the conversance of selected South African communication design practitioners with regard to research for design methods. With the findings of an exploratory study in hand, it will be possible to clarify and identify more targeted research questions. Only then will it be feasible to embark on a study that attempts to answer the above questions in a more coherent and representative fashion.

1.2.2 Delineating the study

The area of inquiry needs to be carefully delineated and in doing so the research objectives become clear. The term 'conversance' has been used in describing a potential design knowledge gap between research and practice. This term suggests that this study needs to delve deeper than into perceptions only. 'Perception' only connotes a group of attitudes and this is only a small

part of what needs to be explored. Before attitudes can be gauged, some attempt has to be made to investigate whether there is any awareness of the research for design methods to begin with. Beyond attitudes (if there is awareness), aptitude also needs to be investigated, which will help verify whether the designers' professed attitudes match their practice. Gathering data on all three of these aspects (awareness, attitudes and aptitude) will also make data triangulation[12] possible when it comes to analysing the research findings. The domain of investigation encapsulated in conversance is depicted in Figure 2.

Figure 2: *Conversance: a design knowledge gap between research and practice*

For the purposes of the study four communication design companies were investigated (in Johannesburg, Pretoria and Cape Town respectively), constituting four separate case studies. This is too small a sample to be representative of the entire industry (which is not the intent of the study), but if an investigation is approached and framed in the correct way, even such a small

---

[12] When conducting qualitative research, it is necessary to compare results from more than one type of source to assist in verifying findings (by addressing construct validity; see Figure 4). This process of cross-comparison and convergence of source material is called data triangulation (Yin 2009:116-117). How data triangulation was achieved in this study is explained in more detail in chapter 4, section 4.3.1.5).

© University of Pretoria

sample can yield some statistically significant results (Hubbard 2010:30-31,107).[13] Certainly the sample size is sufficient for an exploratory study and has helped to identify areas for further research. How data-rich sample sets were extracted from each of the represented companies is detailed in chapter 4.

Another term that needs to be delineated is 'research for design'. For the purposes of this study, a distinction has been made between *research for design* methods and *design research* methods. *Research for design* methods imply research conducted specifically to aid the given design assignment in meeting its objectives, as is the case in traditional clinical research (Archer 1995:6). This is also called constructive research and is the focus of *Design research through practice: from the lab, field, and showroom* (Koskinen *et al* 2011). Research for design can also aid in developing theory that will benefit a broader scope of applications, in the case of strategic and fundamental research (Archer 1995:6). Some research for design methods are conducted during and through design processes, while others are conducted prior and subsequent to design.[14] *Design research* however refers to incorporating design itself into conducting research, as a part of the research method (Bærenholdt *et al* 2010:3-4). More simply, design research is using design to research something else (which may or may not be design-orientated). Owain Pedgeley and Paul Wormald (2007), Jesper Simonsen and Mortem Hertzum (2010) and Bruno Ingemann (2010) discuss examples of this kind of research. Design research methods are *not* under investigation in this study, except where they are used as research for design, namely where design is used to conduct research which aids further design.

1.2.3 Research objectives and division of chapters

What remains for this chapter is to lay out a set of determinable research objectives which serve the dual purpose of answering the research questions and structuring the design of the research study.

---

[13] Several data samples were captured from each company: an average of five in-depth interviews were conducted in each company, and companies are represented through questionnaire responses. Given that these individuals represent a much wider variety of age, level of experience, ethnicity, gender and training institutions (to name a few variables), the data sets represent a much richer data pool than one would immediately assume, given the small number of companies represented. All in all, 20 in-depth interviews were conducted and 11 questionnaires were completed.

[14] The position regarding research for design adopted for this study straddles the research domains that Peter Lunenfeld (2003:11) calls "the three key modes of design research: research *into* design, research t*hrough* design and research *for* design" (emphases in original). Research for design methods are investigated in much more detail in chapter 3.

Since conversance of South African communication design practitioners with regard to research for design methods is being explored, a foundational understanding of research for design and its methods needs to be established. This foundation needs to be in place before the conversance of said practitioners can be gauged in a manner that is informed and sensible. The first research objectives therefore become:

- To form a picture of what constitutes acceptable research practices (that will aid research for design in achieving its primary objectives).
- To investigate existing research for design methods and to see whether they can be implemented using acceptable research practices.

Meeting these two objectives forms the focus for chapters 2 and 3 of this dissertation. Chapter 2 surveys literature to help establish an understanding of what research is at a foundational level and what research practices do and do not qualify as being acceptable, given the nature of research. As such, chapter 2 gives a broad perspective of and theoretical paradigm for good research practices. Chapter 3 then builds on this by surveying published research for design theory and methods, with the implications of how the latter could potentially be implemented using good research practices. The chapter therefore gives a narrower and more defined perspective of good research practices within the locus of communication design, specifically research for design.

Chapters 2 and 3 do not give a comprehensive, detailed account of practice-based research for communication design, but rather collectively form the theoretical paradigm which undergirds the data collection and analysis for the case studies embedded in this dissertation.

Having established a theoretical paradigm in which the study can operate, the next objectives then need to address the gathering of data from communication design practitioners so that their conversance with research for design methods can be studied. This data then needs to be appropriately processed to enrich the study and answer the research questions. The next set of research objectives have been determined to be:

- To identify a *heterogeneous* selection of communication design companies to use as case studies, since the study is exploratory in nature.

9

- To capture data sets from each of these companies that are both data rich (to open up discourse) and representative of those companies (more structured responses, to assist data triangulation).
- To analyse the captured data to discuss the conversance (awareness, attitudes and aptitude) of the design practitioners in those companies, and the companies as a whole, with research for design methods

The first of these research objectives is addressed in chapter 4. In this chapter the research method of the study is unpacked and justified. The selection of the study participants is also explained in light of the research method. The next research objective was achieved in the capturing of the data on which this dissertation is partly based. The data capturing tools that were used are detailed in Appendices A and B. The last of the research objectives above is addressed in chapter 5, wherein the data is processed, analysed and structured in a more coherent and discursive manner. Each case study is investigated in isolation as a data cluster, after which data is aggregated across all of the cases (where appropriate).

Finally it is necessary to bring all the different parts of the study together into one cohesive summary. This is done in the final chapter, where the final research objective is also addressed, namely:

- To use the findings of the study to open up more focused research questions and in doing so identify further research opportunities.

This chapter has then given the background and context to the study at hand, identified the research questions and explained the research objectives, which also help form the structure for this dissertation. The following chapter delves into the first literature survey, to help gain a broad-based understanding of what research is and what constitutes acceptable research practices.

CHAPTER 2: FOUNDATIONS OF RESEARCH

This chapter forms the first part of the literature review for this dissertation. One of the research objectives that was identified in the previous chapter is to take some strides towards explaining what does (and by implication what does not) constitute "good" (creditable and acceptable) research practice. It is therefore necessary to start by reviewing what research is.

2.1. What is and what is not research?

In common usage, the word *research* suffers from what may be termed semantic fuzziness. This simply means that it is used in a very broad and non-specific sense. In addition to this, it is at different times a term ascribed to activities that are quite different to one another, resulting in (or belying) confusion as to what it precisely means and how it should be delineated. Paul Leedy and Jeanne Ellis Ormrod (2013:2) begin the process of establishing what research is with the following definition:

> Research is a systematic process of collecting, analyzing, and interpreting information – *data* – in order to increase our understanding of a phenomenon about which we are interested or concerned. *(Emphasis in original).*

This is not to suggest that research is inherently phenomenological in nature, but rather that it refers to some subject of interest – whether observed, realised, ideated or struck upon by some other means – around which a systematic process of inquiry can be formulated. This definition may not seem to be useful in and of itself, but it reveals two core principles that are essential to all research: namely, that it is a systematic process and that from the outset it has a particular focus around which the inquiry is formulated. Leedy and Ormrod, from the beginning, exclude aimless activities that rely on happenstance and serendipity as directive forces from being research.

To help establish an understanding of what research is (before delving into its characteristics), Leedy and Ormrod (2013:1-2) describe three activities that are often referred to as research, but cannot truly be considered to be research although they share some common characteristics with it. The first of these is *information gathering*, or *information discovery*. This is when a person studies an existing body of organised information in order to learn about some subject (Biggs & Büchler 2007:66; Leedy & Ormrod 2013:1). Examples of this may be reading articles in

magazines, searching for information through a web-based search engine or consulting an expert on their field of specialisation. This activity of information discovery was also enacted in order for this chapter to be written and is an invaluable component of research, but is only a constituent of the process and not the whole.

The second activity Leedy and Ormrod (2013:1) describe is a form of information collation, or *rummaging*[15]. This is when one makes a targeted search for information that is comparable to each other (and is perhaps in-house information available to the searcher), for the purposes of establishing a frame of reference (or 'ball-park' framework) (Leedy & Ormrod 2013:1). Examples of rummaging can be found in trying to establish what a fair price for a particular product or service may be, identifying competitor's market segments in an industry and when planning a production project of some sort. Rummaging may identify data-rich sources that are contemporary, but these sources may not be well founded to begin with and merely help to discover (and hence perpetuate) a pre-existing *status quo*. This process is also a necessary step in research, but is only one aspect of it.

The last activity Leedy and Ormrod (2013:2) debunk as being research is *fact organisation* or *summarisation*. This is a process of transcribing, documenting and distilling existing sources into a new, compound document (Leedy & Ormrod 2013:2). What is often called a research report is really only an exercise in source organisation – finding existing material on a topic that has been extensively investigated and compiling extracts from these sources into an ordered document. This process is also sometimes erroneously called secondary research. Leedy and Ormrod (2013:2) explain that the difference between this process and secondary research is that information has only been transported and not interpreted. The person who compiles such a document may have insight into the information and be able to engage in it critically, but unless they demonstrate it they have not produced something that is genuinely research.

2.2 Characteristics of research

Leedy and Ormrod (2013:2-7) identify eight distinct characteristics common to research projects, although not every research project will necessarily have all of them. This does beg the question

---

[15] Bruce Archer (1995:6-7) calls this 'option research' since it is usually conducted to assist in formulating potential courses of action (identifying what the options are). Despite the designation, he too cautions that it is rarely recognised as legitimate research.

whether all research has to be encased within a research project. However for the sake of this study, given that these characteristics are discussed with a view to inform acceptable research practices within the communication design industry (and not merely on a theoretical level), it is assumed that research is formalised within projects.[16]

Research must originate with, or use as its point of departure, a research question or problem (Archer 1995:10; Leedy & Ormrod 2013:2, van der Merwe 1996:286). This principle illumines two qualities that are essential to have in place even before the question or problem is formulated. The first of these is that the research needs to have a subject of enquiry – something that it is directed towards investigating and (by implication) achieving. If it cannot be clearly stated what research is about, there is no purpose in it and it is not possible to formulate a coherent approach to conducting it. How this question is arrived at, and what inspires it to be formulated, does not need to be probed or justified in and of itself[17] (Popper 1959:8-9). Secondly the problem or question must be unresolved prior to the research being conducted (Leedy & Ormrod 2013:2), otherwise it is rhetorical and does not warrant research in the first place.

A problem (or question) and goal having been identified, the research must then be guided by this same problem, or at least by a hypothesis derived from it (Leedy & Ormrod 2013:3). Hypotheses (essentially 'best' or informed guesses) are foundational to some forms of research (Leedy & Ormrod 2013:4; Neuman 2012:97-98; Plowman 2003:35), although they are not always appropriate in research for design (Koskinen *et al* 2011:55-56).[18] It is however necessary to use the research question to guide the research, otherwise it would be difficult (if possible) to determine that what is discovered is relevant to the research question and helps to address it.

---

[16] Gavin Melles (2008:5) argues that it is the attempt to remove design from it practice-invested origins that leads to a decontextualising in design that is detrimental to the process of theory construction. Rather it results in a series of what he calls "theory fashions in design" (Melles 2008:5) that universalize one or a few aspects of design in lieu of the rest, resulting in an unbalanced account of design thinking and practice. For more on Melles, see chapter 3 section 3.2.3.

[17] According to Karl Popper (1959:8) "there is no such thing as a logical method of having new ideas, or a logical reconstruction of this process… [*and*] every discovery contains 'an irrational element', or a 'creative intuition'". Understanding how the research question (or indeed a design concept) is arrived at is not essential in having a credible, rigorous scientific research project. It is the way in which the research problem is *addressed* that needs to be well constructed and tested for validity and reliability. Even so, Nigel Cross (2006:43-61) has attempted to explain how this process of 'creative cognition' in design works.

[18] Hypotheses always assume some level of causality between two or more variables being investigated. In this study however, which is exploratory in nature, being hypothesis driven would have been inappropriate. For more information about the characteristics and methods of testing hypotheses, see W. Laurence Neuman (2012:95-100).

It is often also necessary to break a core research problem down into constituent sub-questions or problems (Leedy & Ormrod 2013:3), depending on the complexity of the question being addressed. Where the subject of investigation is an intangible, it also necessary to step or stagger the research in order to answer the question in an indirect but effective manner (Hubbard 2010:26-28,47-55); this is often the case in communication design. This is because the point of tangible influence needs to be studied directly, and this then needs to be carefully correlated back to the original subject of inquiry.

Research must have a specific procedural plan (Leedy & Ormrod 2013:4; van der Merwe 1996:286):

> Research is not a blind excursion into the unknown, with the hope that the data necessary to answer the question at hand will somehow fortuitously emerge. It is, instead, a carefully planned itinerary of the route you intend to take in order to reach your final destination – your research goal. (Leedy & Ormrod 2013:4)

If the research is well planned, it will cut down on the amount of resources needed for it to be conducted, especially time (Augustin & Coleman 2012:4).[19] Besides aiding the research in being completed in the first place, it also assists the research in standing up to scrutiny after the fact, as it allows for external and construct validity to be built into it and accountability from the research community in general.[20] The research plan is directed by the research methodology (Leedy & Ormrod 2013:4).[21]

The next characteristic of research is not one that needs to be consciously implemented, as it is an unavoidable component of any epistemological enterprise. It is however necessary to understand and acknowledge that research is always underpinned by a certain set of assumptions (Leedy & Ormrod 2013:5; Blaikie 2007:12-13). Assumptions are treated as self-

---

[19] This is worth keeping in mind when considering the responses of study respondents, many of whom complained that they do not conduct research for design because they do not have time to do so (while maintaining that research for design is not methodical, or that they are not aware of research for design methods).

[20] There are four 'checks' or criteria used to determine the quality of research that need to be understood here. Firstly, according to Robert Yin (2009:40), construct validity is "identifying correct operational measures for the concepts being studied". External validity refers to "defining the domain to which a study's findings can be generalized" (Yin 2009:40). The research design restricts the research from creeping outside of its own locus of investigation. Thirdly internal validity seeks to establish exclusive causal relationships between variables under investigation (Yin 2009:40). The accountability, which is here meant in the sense of reliability of research results, must also be intact. The validity and reliability criteria in research are explained in more depth in section 2.4 of this chapter.

[21] Research methodology is explained in more detail in chapter 4, section 4.2.

14

evident and reasonable without any ultimate proof simply because they cannot be proved to be self-evident or reasonable. It is necessary for the researcher to acknowledge the assumptions underlying their research (Archer 1995:10) as these have a critical impact on the manner in which data is gathered, interpreted and represented.[22]

The manner in which data is handled is also a critical component of research. As was mentioned in section 2.1 accepting existing research results, uncritically and without recontextualising them to the research problem at hand, is not research. This is applicable to secondary research. With primary research, data must also be collected and interpreted in such a manner as to achieve the goal that initiated the research in the first place (Archer 1995:10; Leedy & Ormrod 2013:5). The interpretation of the data gives it meaning and hence significance; raw data is worthless (Leedy & Ormrod 2013:5). It must therefore be understood that the underlying assumptions and the data analysis are absolutely pivotal in any research project.[23]

Lastly, the research process is cyclical in nature (Leedy & Ormrod 2013:6-7); it follows on from pre-existing research (to a greater or lesser extent) and does not resolve. Rather, it identifies new avenues for research that will start the process all over again. "Research begets more research" (Leedy & Ormrod 2013:7). This also strongly implies that research is recorded and communicated in some fashion (Archer 1995:10; Biggs & Büchler 2007:66). Hannetjie van der Merwe (1996:286) points out that communality is an essential component of research as it allows organised skepticism by the research community (also Archer 1995:10). This also means that other researchers may take up new research questions that are identified in a project, not necessarily the one who identified the questions (Archer 1995:10).

As has already been mentioned, not every research project will necessarily have all eight of the characteristics unpacked above. One or two may be missing because of the scope, complexity, audience or nature of a specific research project. Figure 3 summarizes these eight principles and their contribution to a research project. Regardless of whether a research project contains all of these characteristics or not, it must also subscribe to various principles that serve as quality

---

[22] Although the underlying ontological and epistemological assumptions underpinning this study are outlined in chapter 4 (see section 4.1.3.), it lies outside of the scope of this report to outline all the various potential assumptions that may be at play in a given research project. For a good summary on this, see Norman Blaikie (2007:12-24)

[23] See chapter 4 sections 4.1 and 4.3.3 respectively.

control checks for it to be considered sufficiently thorough and credible. Some of these principles are discussed in the following sections.
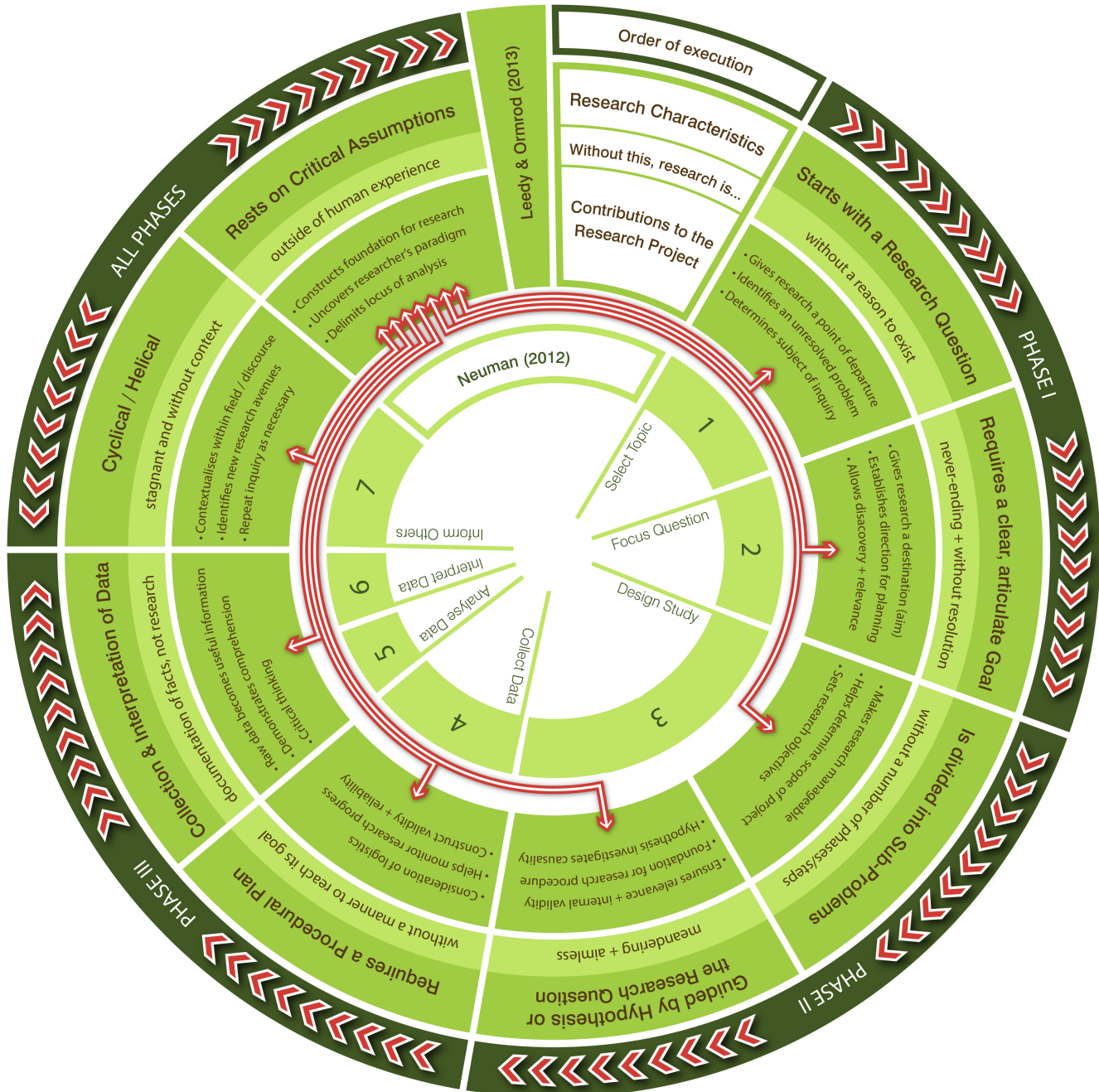

Figure 3: *Characteristics of scholarly research*
(Compiled from various sources) [24]

---

[24] Figure derived from Leedy and Ormrod (2013:2-7) and Neuman (2012:11).

16

2.3 Rigor

One principle in research, which speaks more to the researcher than to the nature of research itself, is that it must be rigorous. Rigor is traditionally considered a cornerstone of academic research and there has been much debate about whether it is equally necessary in practice-based research (PbR) (Biggs & Büchler 2007:62-64). One of the chief contentions in the field of design against rigor is that it inhibits creativity by structurally opposing change and new ideas (Augustin & Coleman 2012:xiv; Biggs & Büchler 2007:62).

In some quarters there is a push for design practice to be seen as an inherent form of research (Augustin & Coleman 2012:xi-xx; Biggs & Büchler 2007:63). One would however be hard-pressed to demonstrate this; the evidences of commonality are anecdotal and just because design and research share some common characteristics it does not follow that they are one and the same thing[25] (as was demonstrated with three other activities in section 2.1 of this chapter). What is undeniable is that the contexts of academic research and PbR are often worlds apart. This may very well mean that the criterion of rigor needs to be revisited and revised in the context of PbR, although the latter should by no means be divorced from academic research (Biggs & Büchler 2007:63,64). Michael Biggs and Daniela Büchler (2007:64-65) suggest that:

> PbR should not be set apart from traditional concepts of academic research…
> PbR is a subcategory of academic research that can and should attend to and
> observe conventional research criteria. Some of these criteria may, however,
> need to be rearticulated so that they are recognised as meaningful to the areas
> of design practice.

Rigor should not be etymologically confused with rigidity (from the Latin *rigidus*), but should be associated with unyielding severity (as in the old French *rigeur*) (Biggs & Büchler 2007:62,65; Friedman 2002:393). Research should not be rigid in conforming only to old ideas and practices, but should rather be uncompromising in following processes that yield creditable findings. Conducting a rigorous research for design process is not alien to design thinking, nor does it restrict or delimit design in achieving its objectives effectively. In fact Tim Brown (2009:18) goes as far as to suggest, "The willing and even enthusiastic acceptance of competing constraints is the foundation of design thinking."

---

[25] A more thorough differentiation of research for design and design practice is conducted in chapter 3, specifically section 3.3.

One of the aspects of rigor that designers shy away from is the perception that it is a linear process, which is seen as being incompatible with design (Brown 2009:16-19; Friedman 2002:393). This is because of the nature of design problems, which have been described as being "wicked"[26] or unique, and requiring a customised problem solving approach for each problem.[27] However as has been pointed out in the previous section, one of the hallmarks of research is that it is helical (cyclical in nature). The apparent lack of compatibility between the linear approach of rigorous research and the reflexive, reiterative nature of design projects could perhaps be attributed to a misunderstanding of what being linear and what being helical means. The better a research problem is understood, the better a research plan can be formulated to address it (Augustin & Coleman 2012:4). The same can be said of design problems, with the *proviso* that the understanding often comes as a result of doing (Cross 1999:6). It is conceivable, from this perspective, that design and good research practices can be effectively married in at least some instances.

Biggs and Büchler (2007:66) further suggest that for PbR to be regarded as research in the same sense as academic research, in addition to having the characteristics of the latter, it must contribute new knowledge, must be documented and must be rigorous. All three have to be present to satisfy the research community that the research is in fact a contribution and not a duplicate of research that has already been conducted and was simply not discovered by the researcher (Biggs & Büchler 2007:66).

If the notion of rigor has to be re-evaluated in the context of research for design (as PbR), the methods used in research for design must also be investigated to ensure that they satisfy and survive the process of peer review within the research community, as methods developed for other disciplines in the natural and social sciences have. Bruce Archer (1995:9) points out that every research discipline needs rubrics for good research practices (within that particular discipline), which would include research for design. The testing of the validity of research for

---

[26] The notion that design problems are wicked is attributed to Horst Rittel's "Wicked Problems" theory (See Crouch & Pearce 2012:24-27, Buchanan 1996). In a nutshell, Rittel claims that design problems are inherently complex social issues that are difficult to resolve because they have a host of irreducible co-related characteristics (of which he lists ten). Also central to the 'wickedness' of design problems is the resistance to generisability, because of the uniquencess of context in each iteration of formulating a design problem.

[27] Bruce Archer (1995:7) points out: "Science is not defined by its subject matter. Science is defined by its intellectual approach." This would suggest that the nature of the subject matter of design inquiry is immaterial in whether the inquiry should or should not be classified as legitimate "scientific" research. Rather, it is subscription to the principles of research (or not) that should be considered.

design methods, by testing whether they can substantially meet the outcomes they claim under scrutiny, is discussed in more depth in the following chapter.

2.4 Validity and reliability

According to Robert Yin (2009:41) there are four tests or criteria according to which research designs are judged to establish quality. Three of these tests address the validity of the research, the fourth its reliability. In a good research report, every aspect of the research is communicated in a lucid and transparent manner (Augustin & Coleman 2012:26) – the details of how the research was planned, how data was collected and how data analysis tools were used in interpreting the facts. Both validity and reliability refer more to the manner in which research was conducted than to the actual research tools implemented (Augustin & Coleman 2012:27), although the *apropos* of the measures taken in the research is also an important aspect of validity (Neuman 2012:123).

Validity lies "between a construct and the data" (Neuman 2012:125), meaning that it is concerned with the authenticity of the research findings, or how truthful a representation they offer of the issues in question. Reliability on the other hand refers to how dependable and consistent the research is (Neuman 2012:124; Yin 2009:45), the idea being that if the same project were to be repeated by a different researcher, the results would be the same (Neuman 2012:121; Yin 2009:45).

Whereas Yin (2009:41-44) discusses three types of validity, and what tactics can be used to attain them, Laurence Neuman (2012:123-124,126-127) identifies seven and Kerry Howell (2013:188-191) eight. Figure 4 gives an overview of various types of validity, their contribution, what tactics are used for each and when these are implemented in the research project. An inordinate amount of time could be spent on nuanced elaborations of each, but it is sufficient at this point to realise that validity needs to be thoroughly addressed from research planning right through to the composition of the final research report. If sufficient care is not taken to ensure the validity of research, it is impossible to determine whether the research has succeeded in achieving its aims. Consequently the research would have to be summarily rejected, regardless of its actual accuracy and potential value. It can here be seen again how essential it is to ensure that every step of the research is meticulously documented.

19

Type of Validity	When is it used?	Tactics	Research Phase
Construct Validity	Identifying correct operational measures for the study	• Multiple sources of evidence • Establish chain of evidence • Key informants review draft report	• Data collection • Data collection • Composition
Internal Validity	Seeking causal relationships and establishing sequencing of indicator	• Pattern matching • Explanation Building • Address rival explanations • Use logic models	• Data analysis • Data analysis • Data analysis • Data analysis
External Validity	Defining the domain to which findings can be generalized	• Apply Theory (single-case studies) • Replication Logic (multiple-case studies)	• Research design • Research design
Face Validity	Establishing consensus whether the indicators measure the research construct	• Scrutiny of research community	• After composition
Content Validity	Determining whether the measures fully address the research definition	• Specify entire content of construct definition • Sample from all defined areas • Develop indicator that taps all parts of construct	• Research design • Data collection • Data analysis
Criterion Validity (Concurrent)	Identifying criteria to determine accuracy of construct indicators	• Compare indicator with accepted pre-existing indicator(s)	• Data analysis
Criterion Validity (Predictive)		• Compare predicted outcomes to actual future outcomes	• Data analysis
Statistical Validity	Assuring concurrence of measures with procedural assumptions	• Establish robustness of statistical assumptions • Determine whether uses of statistics are valid	• Research design • Data analysis
Grouping Validity	Establishing accord across data set	• Compare phenomenon in question with different groupings	• Data analysis
Experiential Validity	Determining similarity between research environment and lived experience.	• Use natural setting as research settir	• Research design

Figure 4: *Types of validity and how they function within a research project*
(compiled from several sources)[28]

The criterion of reliability needs to be unpacked a little more however. The criterion (also sometimes called *repeatability logic*) has its origins in the natural sciences where research is traditionally experimental, quantitative and empirical (Archer 1995:7). Achieving reliability in research that leans more towards social sciences (as much research for design does) is more complex. Research in social sciences is not often repeated or indeed repeatable (Augustin & Coleman 2012:28). Reliability can still however be achieved by making use of concurrent validity (Augustin & Coleman 2012:28; Yin 2009:116) or by conducting multiple case studies concurrently, using the same research protocol and procedure for each (Yin 2009:114-116). In this manner an

---

[28] Figure compiled from Yin (2009:41-44), Neuman (2012:123-125, 126-127) and Howell (2013:188-191).

evaluation can be made whether the various findings of the research are convergent or non-convergent (Yin 2009:116-117) through data triangulation.[29]

Reliability demands that the research be consistently systematic (and rigorous) as it seeks to address the research question, without lapses along the way (Archer 1995:10). One lapse in judgement can compromise the validity of a whole research project, much as one small leak can sink an entire ship.

2.5 Logic of inquiry

To help answer the research question, a logic of inquiry (a procedure of reasoning) needs to be established to help with the generation of new knowledge (Blaikie 2007:8). Norman Blaikie (2007:8) calls these types reasoning RSs (research strategies), claiming that deciding which one (or ones) to use constitutes the most important decision a researcher must make. The type of research question and sub-questions will largely determine which types of RSs are the most appropriate to implement. Although each type of reasoning was developed to operate independently, detailed discourse on each has revealed that it is practically impossible to implement any one of them independently, in their classical sense (Blaikie 2007:63-69,75-82,88,101-104).[30]

Although only one or two types of RSs may be selected by the researcher for a particular research project, it is useful to keep in mind that their use may at times overlap with characteristics traditionally attributed to other RSs (and that this is not necessarily problematic). Figure 5 gives a broad overview of the four logics of the research strategies namely induction, deduction, abduction and retroduction. Figure 6 demonstrates how two of these RSs can work in conjunction with each other (in this instance, within the cycles of theory construction and testing) within a single research project.[31]

---

[29] Data triangulation is explained in more detail in chapter 4, particularly section 4.3.1.5

[30] The characteristics, mechanisms, shortcomings and schools of thought surrounding their implementation constitute an incredibly dense and nuanced body of discourse. Every type of logic of inquiry contains one or more elements of one or more of the other types and it becomes a theoretical and ideological minefield once one tries to track exactly which parts of the analysis, reasoning and theory building of a research project belongs to which research strategy. For a helpful overview of the relationships between the four types of research strategies and the ontological and epistemological assumptions underpinning each, read Blaikie (2007:8-11,57-108).

[31] This may seem a strange point to labour, but the principle is explained (and demonstrated in Figure 6) since this study also makes use of multiple RSs.

	Induction	Deduction	Retroduction	Abduction
Aim	**(Classic Model)** Establish universal generalizations to use as pattern explanations **(Revised Model)** Establish descriptions of characteristics and patterns	Test theories, eliminate false theories and corroborate the survivor	To discover underlying mechanisms to explain observed realities	Describe and understand social life from social actors' motives and understanding
Favoured Ontological Positions	Cautious Realism Depth Realism Subtle Realism	Cautious Realism Subtle Realism	Depth Realism Subtle Realism	Idealism Subtle Realism
Favoured Epistemological Position(s)	Conventionalism	Conventionalism Falsificationism	Modified Neo-Realism	Constructionism
Start	**(Classic Model)** • Accumulate observations or data • Produce generalisations **(Revised Model)** • Collect data on characteristics and/or patterns • Produce descriptions	• Idenitfy regularity to explain • Construct theory and deduce hypotheses	**(Classic Model)** • Document and model regularity • Construct hypothetical model of underlying mechanism **(Revised Model)** • Document and model regularity • Describe context and possible undelrying mechanisms	• Discover everday lay concepts, meanings and motives • Produce technical account from lay accounts
Finish	**(Classic Model)** Use the generalizations to explain further observations **(Revised Model)** Relate the descriptions to the research questions	Test the hypotheses by matching them with data	**(Classic Model)** Find real mechanisms by observation and/or experiment **(Revised Model)** Establish which mechanism(s) provide(s) best explanation in context	**(Classic Model)** Develop theory and test iteratively **(Revised Model)** Develop theory and elaborate iteratively

Figure 5: *An overview of the logics of the four RSs*
(adapted from Blaikie 2007:8,68)

Just as every type of logic of inquiry is appropriate in answering certain types of questions, each one also has shortcomings, bedrock assumptions and flaws. Combining two of the types (as in Figure 6) can help circumvent some of these stumbling blocks, but it is safest to assume that at the conclusion of the project nothing can be stated to an absolute certainty (unless if the underlying assumptions of the research and research strategy are held to be true).

Because of the particular characteristics of design, some theorists have proposed that abductive reasoning is the most appropriate RS for communication design (Augustin & Coleman 2012:1-2; Crouch & Pearce 2012:21-24). This could be argued in instances of research for design where the research operates as design research[32] or where the object of the research itself is

---

[32] As defined in chapter 1.2.2

communication design. Michael Bierut (2007:13) however points out, "…the great thing about graphic design is that it is almost always about something else."[33] This means that a given research project may require that any one (or more) of the RSs be implemented, which means that all four need to be understood in research for design.
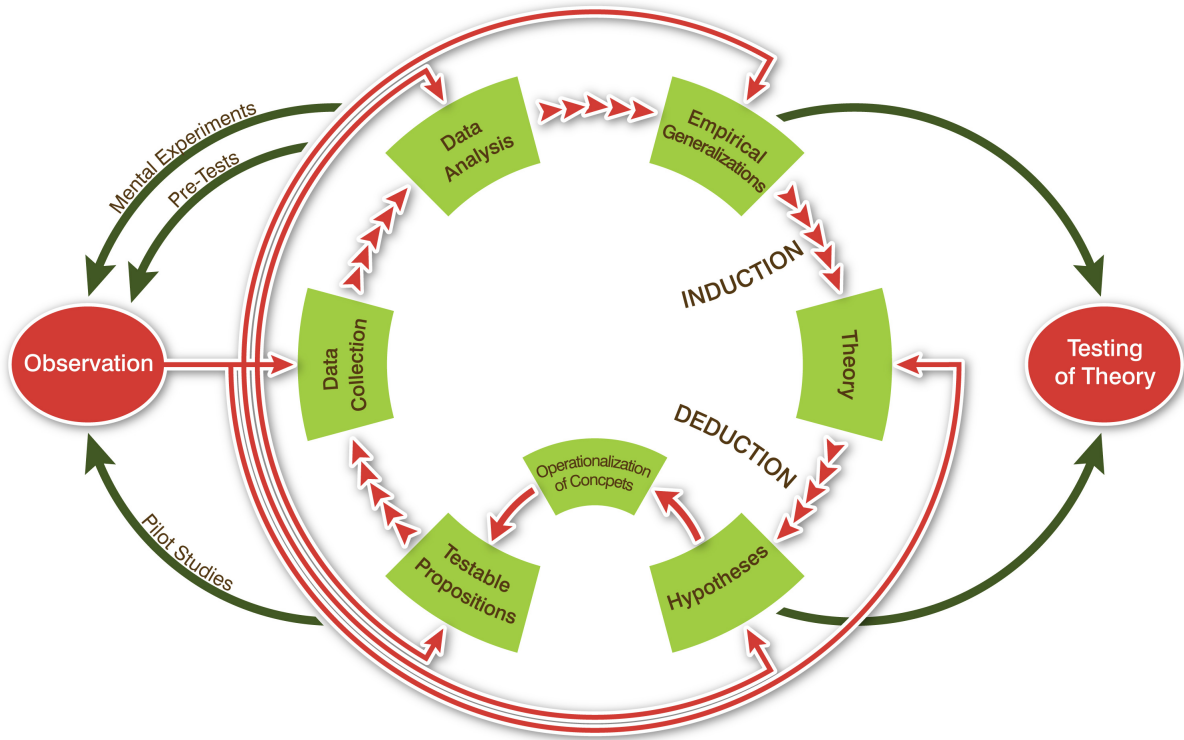
Figure 6: *Using induction and deduction in the cycle of theory construction and testing* (compiled from several sources)[34]

Having explored the characteristics and principles of research in this chapter, it remains to investigate how (and whether) research for design methods can be implemented in industry (as PbR or otherwise). This investigation can be found in the following chapter, the next part of the literature review.

---

[33] Bierut speaks specifically from the context of graphic design (which is one form of communication design), however this principle can also be applied to other fields within communication design.

[34] This figure is adapted from de Vaus (2014:10-12), and Walter L. Wallace's '*The logic of science in sociology*' (1971) and '*Principles of scientific sociology*' (1983) via Blaikie (2007:81).

CHAPTER 3: RESEARCH FOR DESIGN

In the previous chapter some of the characteristics and principles foundational to conducting research were unpacked, forming the first part of the literature review for this dissertation. In this chapter the literature surrounding research for design, its methods and some South African examples are explored in the light of these characteristics and principles. By engaging with research for design literature, some strides can be taken towards understanding what good research for design practices look like. The engagement is with developments that have taken place in research for design theory since the turn of the millenium, with special focus on literature from the past six years. In this way an attempt is made to form some idea of the state of the art in research for design. Combining an understanding of acceptable research practices gained in the preceding chapter with what the current landscape in research for design literature looks like, a richer understanding can be formed of what creditable research for design could look like. A few cases of published results of research for design projects are also briefly discussed to ascertain whether they demonstrate good research for design practices. By the end of this chapter, the reader should have a grasp of the context in which conversance with research for design methods (among communication design practitioners) is investigated in the subsequent chapters.

3.1 Research for design since 2000

As was already pointed out in the first chapter, there is a general dissatisfaction with the sources of knowledge creation and research in the design field at the turn of the millennium. It is generally felt that even though research for design has been conducted since the 1960s, it relies too heavily on other established academic fields, and is therefore not necessarily appropriate to design since the methods themselves were developed to be used in other disciplines (Cross 1999; Narváez 2000; Bærenholdt *et al* 2010:6). Subsequent to this a great deal of literature deals with adapting existing research methods to the design fields and developing new research methods unique to design.

By 2007[35] Kees Dorst, upon re-evaluating the state of research for design, shifts this criticism. Research for design based on research for design methods is being conducted by this time, but is still not adequate to help develop design theory holistically. This is because the focus of the

---

[35] Although Dorst's article *Design research: a revolution-waiting-to-happen* was published in 2008, it was already submitted for publication in 2007.

research is almost exclusively on the design process whilst neglecting other equally important facets of the discipline, namely the object of design (that which design addresses and investigates), the actors of design (design practitioners) and the context of design (both the broader societal context, and the cultural context within the industry itself) (Dorst 2008:5). Doing design disproportionately on this one domain of design thinking, rather than all four, has led to a lopsided body of literature and inevitably influences the manner in which new designers are trained (Dorst 2008:6). In reflecting on the 'state of the art', Dorst (2008:6-7) highlights five areas of concern in research for design:

1) Design research is process-oriented and prescriptive, but not explanatory.[36]
2) Owing to an overwhelming emphasis on design practice, there is often a leap from description to prescription (whilst leaving out several logical intermediary steps).
3) There is an apparent lack of rigor in testing new research for design methods before implementing them.
4) Research for design methods generally lack quality criteria, so their efficacy cannot be evaluated.
5) Most research for design methods address design activity at only the most basic levels, leaving higher order design thinking (conducted by senior designers and design managers) to exist as tacit knowledge only.

Dorst (2008:7) sums up the state of research for design as being a body of

> …untested tolls and methods, that come without a 'manual' for application, that are not connected to the design content, and are not built upon an understanding of the designer who is supposed to apply them. A deeper understanding of design can only be built when we start considering all aspects of the design activity, and build a new kind of design research…

According to Dorst, this lopsided and 'untested' research for design leads to various anomalies that cannot be satisfactorily explained and is forcing the field into a revolutionary state where foundational issues will need to be reappraised. Part of this predicted paradigm shift relies on a more holistic approach to research for design, in which all the various domains are understood in

---

[36] According to Dorst (2008:6) there are two different models of research used in design, both geared towards the process. The first of these is one of rational problem-solving, which is to say that it is goal-oriented. The second prefers reflective practice, which is retrospective and learning-orientated. Both yield results that are prescriptive without offering deeper insight, a line of reasoning or justification for their claims. Dorst (2008:6) asserts that both models are inevitably unclear, since they make no attempt to build explanations that help understand design activity holisitically.

relation to one another. Figure 7a-b illustrates the shift Dorst envisages. If the field was said to be on the verge of a revolution in 2008, has this revolution started by 2014? To help answer this question, the rest of this chapter is spent looking at what has been written about and put into practice in research for design since Dorst's article was published. This investigation begins in the following section, which discusses contributions to the literature that address how to approach contributing knowledge to the design field through research.
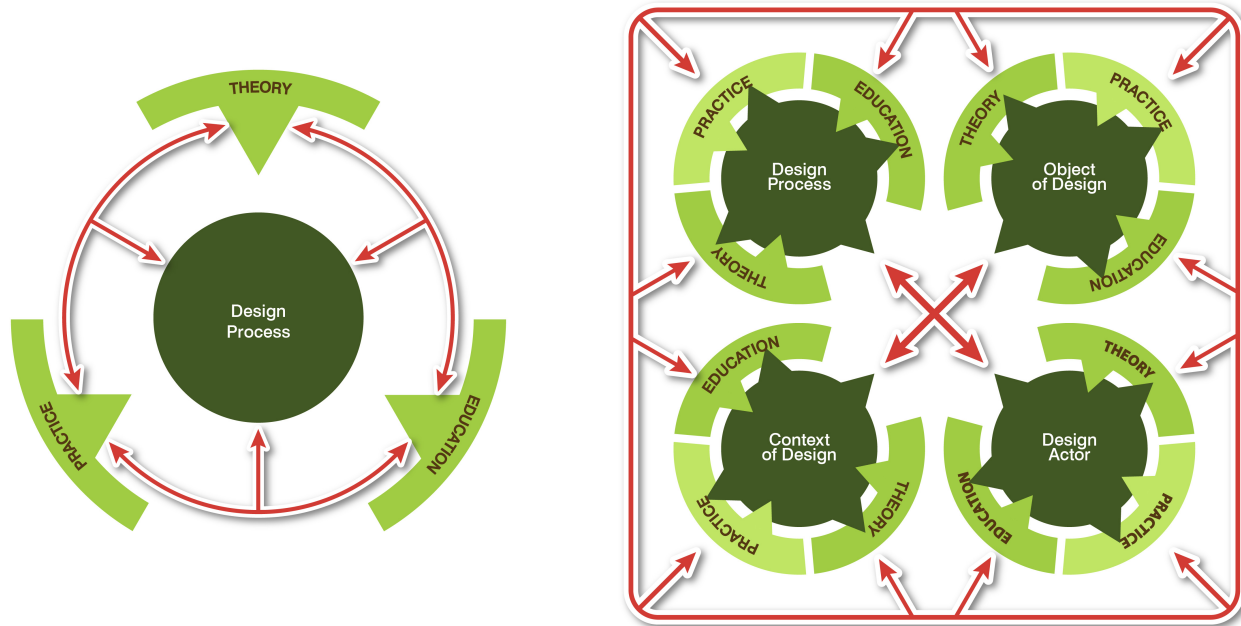
Figure 7a-b: *Shifting from process-orientated to holistic research for design*
(derived from Dorst 2008:5-7)

3.2 Theory building through research for design

Echoing Dorst (2008:5-7), others have pointed out that a lot of what is published as design research is anecdotal and lacking in the rigor required for creditable research (Breslin & Buchanan 2008:37-38; Olsen & Heaton 2010:90). Attempts to form a more holistic way of conducting research for design are pulling the discourse in various directions,[37] but a few dominant approaches are emerging. Four of these are briefly discussed in this section.

---

[37] There are so many different contributions and voices in this part of the discourse that Frances Joseph (2010) focused his entire PhD project on developing a mnemotechne (understanding of how memories are formed) for

3.2.1 Research into, through and for design

Christopher Frayling (in Lunenfeld 2003:11) first developed what is referred to as "three key modes of design research, namely research *into* design,[38] research *through* design, and research *for* design" (emphases in original). The idea of these three modes has been adopted and developed by several other theorists (Bærenholdt *et al* 2010; Cross 2006; Lunenfeld 2003; Friedman 2008).[39] This means that there are differing and nuanced interpretations of what each of these modes encompass, but only a general understanding of each is presented here.

Research *into* design[40] (hereafter referred to as RiD) focuses on historical and aesthetic studies (Lunenfeld 2003:11), being descriptive in the narrative. Examples of the classic approach to RiD are showcase-styled historical accounts of product- and graphic design such as those compiled by Richard Hollis (2001), Bryony Gomez-Palacio and Armin Vit (2009) and Philip Meggs (2011).[41] RiD studies design processes, seeking to describe and analyse the manner in which design operates (Bærenholdt *et al* 2010:3). Nigel Cross (2006:98) has called this mode a "science of design". The notion of RiD can manifest in many different applications and as such can fall into either the social sciences or natural sciences, given the case at hand (Archer 1995:11). When RiD focuses on design history, or gives a critique of design outputs for example, it falls within the domain of 'humanities' (Archer 1995:11). At other times it may however be investigating materials and the processes in which they are used, in which case it leans more towards the realm of natural sciences (Archer 1995:11).

Research *through* design refers to a mode of research that is inextricably practice-based (Lunenfeld 2003:11), what has been referred to as PbR in this dissertation. In PbR, the research is conducted by executing a design project and is an integral part of the practice. It also often

---

design, as he could not formulate a single unifying meta-theory that reveals a common thread in all the different research for design theories.

[38] Note that the sense in which these authors use this term is different to the sense it is used in this dissertation. This dissertation includes all three modes of design research under the umbrella term 'research for design', except for research *through* design that is not geared towards aiding design itself in meeting its objectives (i.e. research *through* design geared towards developing knowledge in other fields).

[39] Christopher Frayling's research itself is not cited in this study, because it contains critical errors (see Friedman 2008:155-156) that have subsequently been amended by other authors.

[40] Bruce Archer (1995:11) initially called this mode of research "research about practice". As such occurrences of 'research *about* design' have also arisen in the literature, which should be understood to be synonymous with 'research *into* design'.

[41] The first edition of Hollis's book was published in 1994, Meggs's in 1983. Both have continued updating and developing their volumes in this same historical narrative style.

focuses on materials research and development (Lunenfeld 2003:11), although it also delves much deeper at times, investigating the complex, interdependent integrations of research and practice (Bærenholdt *et al* 2010:4). This means that the design not only becomes a part of the research method and process, but its medium and sometimes even its result (Bærenholdt *et al* 2010:4).[42] In the context of this study, PbR refers to research that has some aspect of design as its object of investigation and also operates through conducting a design project. Owing to certain confusions regarding this mode of research, a few examples are discussed in section 3.3 of this chapter.

The third mode, called research *for* design (here referred to as RfD), refers to research that is conducted separately to design, but is geared towards building knowledge that aids design by providing models of operation and other inputs (Bærenholdt *et al* 2010:3). This mode of research also attempts to provide systems or objects by which design results can be ratified and evaluated (Lunenfeld 2003:11). Like the other modes of design research, RfD straddles the natural and social sciences (Archer 1995:11). It is in fact often difficult to classify research for design as belonging to RiD, PbR or RfD, as it may belong to two or more of these modes simultaneously; making the distinction may not always be useful. Regardless of which science tradition (natural or human) a given RfD project falls into, Archer (1995:11) asserts that the principles that govern the practices of that 'category' need to be adhered to. It may very well be argued that this statement only holds true in an era where sophisticated "designerly ways of knowing" (Cross 1999; 2006) have not yet been developed that make it possible to conduct such research purely from a research for design paradigm (which may or may not be founded on the governing principles of an older science tradition).

These three modes of research, although useful in classifying the manner in which research for design operates, can still potentially result in a body of literature that is steeped in an obsession with design process only. To develop more holistic research practices (as suggested by Dorst), additional tiers of understanding need to be investigated.

---

[42] It is however essential to distinguish between design practice and PbR. There is a common perception that "creative practitioner activity is synonymous with research activity" (Archer 1995:10). This position has been defended from various perspectives, some of which are discussed in sections 3.3 and 3.4 of this chapter.

3.2.2 Research for design taxonomy

In addition to the body of literature investigating the various modes in which research for design operates, attempts have also been made to classify research for design projects in terms of the level at which they contribute to the discourse. Different authors espouse different criteria according to which these classifications should be distinguished; a few of these are briefly engaged below.

Ken Friedman (2002:390-400; 2003:507-516) takes a scholarly approach to the discussion, seeking to define not only the criteria for classification of research for design, but also design, research and theory themselves. In many research disciplines, there is a traditional division between what are called basic research and applied research (Friedman 2002:393), or theory-building research based on ideation and reason on the one side, and finding practical applications for those theories on the other. Friedman (2002:393) however posits that this dyadic perspective, although perhaps appropriate for the natural sciences, is not adequate for research for design. Instead he proposes a three-pronged distinction between research practice, the prongs being basic research, applied research and clinical research (Friedman 2002:393-394; 2003:509-510).

The distinction between basic, applied and clinical research is determined along the lines of how well it lends itself to generalisation. The broadest of these is basic research, which elucidates principles that lend themselves to abstraction and that can therefore be applied to a wide range of situations, cases and approaches (Friedman 2003:510). Slightly less adaptable research, but which can still be applied to an entire class of new research problems, is called applied research (Friedman 2003:510). Friedman (2002:394) asserts that applied research often uncovers 'bigger' questions that lead to the conduction of basic research. The narrowest of Friedman's (2003:510) proposed classes is clinical research, which may or may not have findings that are applicable beyond the specific case at hand. Clinical research relies on principles uncovered in basic and applied research and uses these to conduct an investigation into a very specific or unique research question. Friedman (2002:394) admits however that in daily research practice, there is seldom time to conduct anything broader than clinical research.

Although introducing these three classes of research, Friedman does not explain how to classify research for design projects as belonging to one class or another. Lois Frankel and Martin Racine (2010) however build a case for pairing up each of these classifications with one of the modes of

research for design discussed in the previous section, namely RiD, PbR and RfD. RiD is said to operate within the parameters of basic research, as it aims to understand the ways of knowing unique to designers that contribute to them being able to function as designers, namely their skills and awareness (Frankel & Racine 2010:524). To gain a broader bird's-eye perspective of the machinations of the design discipline, basic research geared toward understanding design is often carried out in research disciplines outside of design (Findeli in Frankel & Racine 2010:524). This would suggest that research for design that relies primarily on a research tradition outside of the design field, while at the same time investigating a research question or problem that pertains to fundamental principles in design, is likely to be RiD. It is also conceivable that RiD can operate by building knowledge about the core principles of design from within the field (in fact, this seems the most sensible way to do it), but this approach has traditionally resulted in gross misunderstandings of what research for design is (as is explained in section 3.3 of this chapter).

Frankel and Racine (2010:523) assert that PbR falls within the class of applied research, since it operates by generating new knowledge through "an action-reflection approach." PbR seeks to construct explanations that can be applied to a broader context (Frankel & Racine 2010:523), although given that research for design is project-based, this means that practically this would be done through a case project, or clustering a series of projects' findings. The key difference between applied research and clinical research, although both may operate under the guises of a single case, is in the former's primary concern with the "research ojective of creating new design knowledge, not the project solution" (Frankel & Racine 2010:523).

Clinical research is then paired with RfD, the remaining research mode. Frankel and Racine (2010) justify this pairing by pointing out that the insights uncovered in clinical research are of such a nature that they can be applied within the research for design project at hand, in such a manner as to help achieve the desired end-result of that project. In other words, the concern of the research is to help shape the design process toward developing a desired design outcome. Although some of the insights gained from such a process could conceivably lend themselves to generalisation, this would be an added bonus, not forming part of the research aims.

It would be difficult to demonstrate that these pairings are exclusive and restrictive and indeed Frankel and Racine (2010:525-526) do go on to point out that each of these tiers of contribution to design knowledge are interrelated and need to be understood within context one of the others.

Figure 8 depicts their attempt to relate the different pairings of modes of research with research classes back to each other.
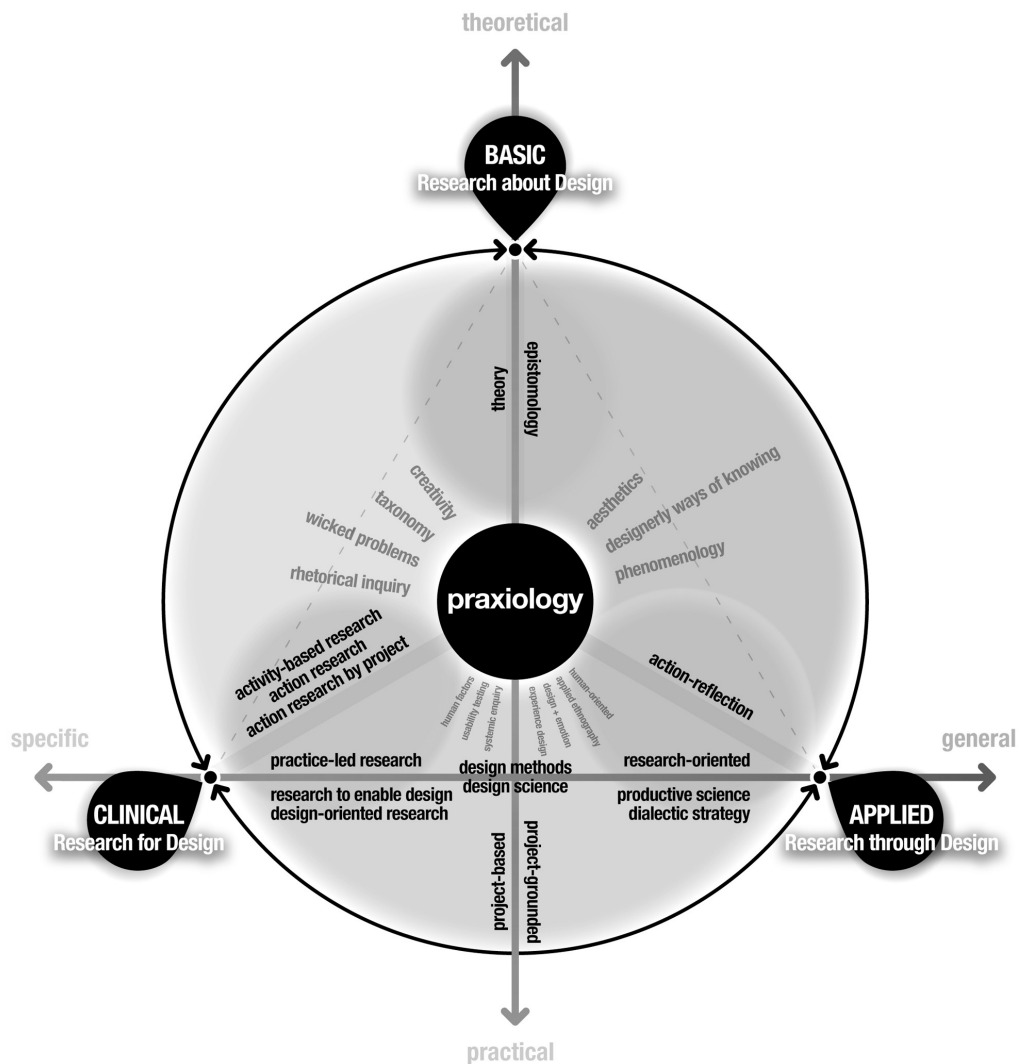
Figure 8: *Map of design research categories*
(Frankel & Racine 2010:526)

As opposed to the principle of generalisation, Bruce Archer (1995:6) distinguishes between different classes of research according to intentionality. He justifies this by pointing out that science is defined by the intellectual approaches its researchers employ, rather than by the subject matter of the given research project (Archer 1995:7). Figure 9 contrasts Archer's five categories of research.

Research Category	Procedure	Aim	Application
Fundamental	systematic enquiry	acquisition of new knowledge	none in particular
Strategic	systematic enquiry	fill gaps in Fundamental Research	facilitate finding applications for Fundamental Research
Applied	systematic enquiry	acquisition, conversion or extension of knowledge	particular applications
Action	systematic investigation through practical action	devising or testing new information, ideas, forms or procedures	communicability
Option	systematic enquiry	acquisition of information	provide grounds for decision or action

Figure 9: *Archer's five categories of research in the science tradition*
(derived from Archer 1995:6)

Archer does not however leave the discussion there, but continues to explain the nature of research in the humanities tradition (as opposed to the natural sciences) and how this relates to 'the Arts', or art and design (Archer 1995:8-10). In doing so, he helps construct (perhaps inadvertently) an understanding of the perception that design PbR need not subscribe to certain criteria of academic scholarship, such as rigor and the supposed rigidity of the scholarly approach to investigating problems. This is because research for design encompasses more than just scholarship, also understood to be a detailed and circumscribed body of accumulated knowledge on a given field (Archer 1995:9). Research for design seeks to know not only new things, but also in uncovering new things that need to be known, how to know them and how existing knowledge can be challenged to improve our capacity to do so (Archer 1995:9).

Given that intentionality is central to Archer's approach to classifying research, he also emphasises the need for the research to declare their research paradigm, strategy, theoretical positions and all aspects that bear upon the subjectivity of the research (Archer 1995:9, also Nelson & Stolterman 2012:25). It is also essential to have well developed rubrics for there to be any chance of a coherent body of research being developed in community in design. Such rubrics

had perhaps not been developed in research for design at the time of Archer's article, but this issue has subsequently been addressed (as can be seen throughout this chapter).

A third set of criteria for establishing research for design taxonomy is to divide the classifications according to content. Given the complexity of design problems, Nigel Cross (1999:6) proffers that such an approach is justified in that the object of the investigation can be fundamentally different, depending on whether it concerns people, processes or products. Cross (1999:6) therefore suggests that research be categorised according to design epistemology (in which 'designerly ways of knowing' are investigated), design praxiology (concerned with the practices and processes of design) and design phenomenology (which looks at the form and formation of design outcomes). This implies, as Dorst (2008:5) states, that praxiology (especially the study of design processes) should not enjoy preference in the broader collection of research for design initiatives but be balanced with concurrent explanation building around the other domains of the design field. Cross (2006; 2011)[43] fleshes out his ideas regarding these three categories of research in much more detail later on, in defending design as a research discipline in its own right; a 'third area' (Cross 2006:1-13), as opposed to the arts and sciences.

Perhaps the most comprehensive contribution to research for design taxonomy (including the pre-understanding necessary to formulate actionable rubrics) is by Frances Joseph (2010). Joseph demonstrates that there is not a useful manner in which to unify the various categories (developed for classifying research for design projects) within the discourse of design taxonomy. The shortcoming of attempting to construct such a unifying theory (here called a meta-theory) is briefly explained below.

Joseph (2010:93-100) takes one text, an article by Richard Buchanan that identifies three key research strategies employed in research for design,[44] and maps out the relationships between each of these strategies, their aims, characteristics, saliencies in discourse and linking common

---

[43] Cross wrote '*Designerly ways of knowing*' (2006) to give more substance to the assertion that design should be recognised as a standalone research tradition. He embellishes on the epistemological (2006:1-13,29-93), praxiological (2006:15-27) and phenomonological (2006:31-41,95-103) aspects of design. This text was later adapted into '*Design thinking*' (2011) to make the theory more easily accessible to design practitioners and laypeople.

[44] See: Buchanan, R. 2007. Strategies of design research: productive science and rhetorical inquiry in *Design research now*, edited by R Michel. Basel: Birkhauser.

prepositional ideas in a systematic (hermeneutic) C Mapping exercise.[45] When the 'map' of a text is then related to the conceptual categorisations of a second author,[46] the resulting map becomes too complex to be represented coherently in a two-dimensional space (Joseph 2010:99). Besides the complexity (which is too great for the comparison between the models to be legible and cognitively accessible), the level of relation yielded between the two authors' ideas is also far too low to be useful (Joseph 2010:100).[47] What becomes exceedingly clear through this demonstration is that it is inconceivable that the various schools of thought regarding research for design can be united under one or a few meta-theories without reducing and truncating (or disregarding the bulk of the content of) each of the contributors beyond all recognition.

Practically, this demonstrates that each researcher engaged in research for design cannot neglect to overtly state the (subjective) positions they take that will ultimately underpin their research approach, strategies, epistemology, ontology and analysis, let alone their research findings. If the researcher does not communicate each of these clearly, it is left to the reader to assume that the designer is appealing to some higher, universal set of research ideals that can serve as a default approach in research for design. Joseph's (2010:93-100) demonstration reveals that there cannot possibly be such a default to appeal to; neglecting to state the researcher's position is simply negligence.

3.2.3 Theory construction approaches

In addition to the problem revealed by Joseph, that research for design taxonomy suffers from a state of irreducible complexity,[48] there is also the problem of how such taxonomies (and indeed all

---

[45] Joseph begins by identifying the author, text and the central concept of the latter (Joseph 2010:93-94). Drawing on Buchanan's linguistic linking of the core propositions to the text with use of certain terminologies, Joseph (2010:94,95) maps out the prepositional ideas in the text, together with their concept sub-sets, in a two-dimensional diagram. The next step was to identify a third layer of relationships between the key propositions, and inclusive notions that are identified within their concept sub-sets, and map these under their respective headings (Joseph 2010:94-96). Joseph proceeds in this manner, digging a little deeper into the content of the article with each pass of the hermeneutic circle until he is satisfied that he has mapped out the theorist's model in a representative manner.

[46] In this instance, the second author is Frances Joseph himself.

[47] In this instance, there is a 0% match between propositions between the two sources, and only a 14% match in conceptual content. Although the author admits that the process of matching is imperfect (Joseph 2010:100), one would expect a mapped comparison based on linguistics (the mode of communication used for each of the respective theories) to yield a much more substantial correlation, if a meta-theory were to be developed for both texts.

[48] Nassim Taleb (2010:62-84) explains a phenomenon he calls the 'narrative fallacy' in great detail. In a nutshell, it encompasses the tendency of people to recall experiences of reality in the narrative (which is a useful

aspects of design theory) can and should be constructed. A few key authors who have contributed to this aspect of the discourse are engaged in this section.

Many authors who engage with theory construction in research for design, do so using the notion of design's own knowledge (Narváez 2000) as a springboard. Harold Nelson and Erik Stolterman (2012:2) pick up on this notion and set about constructing a foundation on which to develop an understanding of design's own knowledge, primarily around design culture (Nelson & Stolterman 2012:2-3,22).[49] They make no apology for the fact that their proposed model of theory construction is one of artifice, not one that is discovered in the sense of the laws of natural sciences (Nelson & Stolterman 2012:11-12). Rather, the model is a designed one, a product of human volition (Nelson & Stolterman 2012:12), much like design solutions themselves. This philosophical approach to theory construction places a greater burden of responsibility on its developers than designers carry for their own work outcomes; designers can change society, but those who build the theory change the designers who change society.

Nelson and Stolterman (2012:4) build their approach to theory construction around design culture on three core principles, namely foundations (first principles in design), fundamentals (dealing with practice and reflexivity) and metaphysics (that is, the intersection of the design field itself with the broader context of human experience). Each of these three core principles are fleshed out into a set of parameters, briefly discussed below.

The principle of *foundations* operates from the understanding that new paradigms are essential for delineating new ways of thinking (Nelson & Stolterman 2012:25). Before such paradigms can be developed, the conceptual foundations that will undergird the discipline of theory building (that is to be constructed) need to be delineated (Nelson & Stolterman 2012:25). The authors propose that four foundations need to be laid by the prospective theory builder, researcher and design

---

communication mechanism) but then a) recall the narrative itself as the substitute for reality and b) cause others to receive second-hand, mediated information which has been 'narrativised' (reconstructed in narrative form) and bears no actual resemblance to the reality it pretends to account for. Although the narrative fallacy is a very natural phenomenon, it is extremely counterproductive. For the narrative to exist, the narrator must attempt to reduce that which is irreducibly complex (reality). Attempts to create a meta-theory of research for design taxonomy similarly jettisons so much in the process of condensing various (irreducibly complex) theories that what is left is not only non-representative of any of the theories it cites, but in fact misrepresents all of them.

[49] Nelson and Stolterman's understanding of design culture seems to be similar to Crouch and Pearce's understanding of the habitus and field of design (encompassing the design object, context, actors and processes). It also relates to design as a third culture, in contrast to the two traditional cultures in western research, namely the arts and sciences (see Cross 1999:7).

actor, before they can form an understanding of design culture. The foundations they refer to begin with the "ultimate particular" (Nelson & Stolterman 2012:31), which lies at the other end of abstraction and reality in relation to universal truths. In other words, whereas universal truths are increasingly abstracted and simple (the more universal, the more abstract and the simpler), the ultimate particulars are increasingly complex and concrete (in terms of meaning) and are equally the focus of design (Nelson & Stolterman 2012:31).

The levels of concern of design range from the universal and absolute, down through contingent truths, protocols, dualities and interrelationships to the finest distinctions between form, composition and conceptual connections (Nelson & Stolterman 2012:31).[50] Whereas the universal can be discovered (and is pre-existent to its discovery), the ultimate particular is formulated and created through human intentionality. The other foundations are *service*, or the position of the designer and their designing in relation to their clients, consumers and other stake holders (Nelson & Stolterman 2012:41); *systemics*, the various socially constructed (ordered or organised) and naturally occurring systems that design must address and adapt to (Nelson & Stolterman 2012:57,71); and *the whole*, referring not to holistic sensibilities of the entirety of existence, but rather to the point at which design achieves formation as a finalised outcome, what Nelson and Stolterman (2012:93) call 'emergence'.

The second core principle of developing designerly ways of knowing with regard to design culture lies in the nurturing of the skillset that enables the designer to drive their investigations and actions. The *fundamentals* Nelson and Stolterman (2012:103) refer to here are not only a set of cognitive acquiescences of how design thinking should occur, but to a set of competencies developed through implementation.[51] The idea of fundamentals relates back to what was asserted in the first chapter of this dissertation: that an arms-length knowledge of research for design methods is an incomplete and ineffective knowledge. Dialogical (self-reflective) engagement with and adaptation of the knowledge (to the project at hand) are essential components of the learning process.

---

[50] This is also comparable to the spectrum of generisability found in Friedman's classifications of basic, applied and clinical research.

[51] This relates to the three tiers of learning described in Bloom's taxonomy: the cognitive (ideation), the affective (emoting) and the psychomotor (physical prowess). Although nearly 60 years old, Bloom's taxonomy is still a highly regarded model of how a robust command and mastery occurs in any form of learning. See: Bloom, B, Engelhart, M, Furst, E, Hill, W & Krathwohl, D. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: cognitive domain*. New York: David McKay

The fundamentals are delineated under the desiderata (the desire to change the current state of things to one that is more desirable) (Nelson & Stolterman 2012:105,112), the processes involved in interpretation and measurement (2012:121-126), imagination (or ideation) versus communication of the abstract through abstract means (2012:127-128,132-133), exercising judgement and discernment (2012:141-145), composing and connecting (the two components in compositional assembly) (2012:159) and considerations of crafting and materials (2012:173-175).

The third principle, that of *metaphysics*, is concerned with the nature of design itself – its paradoxes, ethics and the moral implications it conjures up. Metaphysics inquires into the inherencies of design and how this intersects with the lived reality of the design actor's internalised sensibilities of duty, excellence, good and evil, and boundaries of practice (Nelson & Stolterman 2010:181). One aspect of metaphysics that Nelson and Stolterman (2010:201-202) adhere to is the idea of what they term a "guarantor of design" (or g.o.d.). The discussion couples very pertinently to this study in the discussion of where to lay the responsibility of design decisions. While it is true that research for design can potentially empower designers to make more responsible and informed decisions, it can as easily serve as a scape-goat; a non-personal entity to which the buck of responsibility can be passed so the designer no longer considers themself to be responsible for their own actions (Nelson & Stolterman 2010:204-205). Which way the perceived burden of responsibility pendulates will depend very much on the manner in which research practices are adopted, and which motives drive the design actor in doing so.

The importance of having a correct understanding of the role of tacit knowledge in research for design and design practice, the notion of which is borrowed from Michael Polanyi's[52] work, is emphasised by Ken Friedman (2002:395-396; 2008:153-155). It is because of a faineance in understanding (at a foundational level) the importance, nature and contribution of tacit knowledge to design that some dismiss it completely in theory construction, whilst others see it as a blanket term that excuses them from having to engage in the rigors of good research practices (Friedman 2002:395; 2008:154). The (proper) positioning of tacit knowledge in support of research for design is explained in section 3.3. of this chapter.

---

[52] The notion of tacit knowledge was developed by Michael Polanyi (See Polanyi, M. 1966. *The tacit dimension*. New York: Doubleday). Although the notion of tacit knowledge is incredibly complex, in the broadest terms it refers to a stock of knowledge held by (in this context) designers, consisting of practices and behaviours that are so deeply embedded in their personal action that they may not even be able to express it in words, or perhaps even be consciously aware that they possess it. It is knowledge that has become concretised through repeated implementation to the point where it seems to be intuitive, or second nature.

It has also been asserted that pragmatism needs to be at the heart of theory construction in research for design (Melles 2008). Gavin Melles (2008:4) defines pragmatism simply as "tracing the practical consequences of competing arguments." By taking a pragmatic approach to constructing theory in research for design, Melles (2008:5) asserts that design will easily straddle the epistemological and ontological approaches of both the natural sciences and humanities at need, since it will not place a higher value on the one's claims to universal truths over the other. In deconstructing the notion of design's own knowledge, Melles (2008:4) contends that the knowledge is more about "warranted assertibility" (what can be asserted based on experiences of reality) than it is about absolute truths. In doing so Melles drives the focus of design more towards the domain of what Nelson and Stolterman (2012:31) call the ultimate particular than towards universalism. Design relies as much on 'naturalistic' ways of thinking (rational), such as reasoning, as it does on 'noncognitive' thought structures (irrational), such as imagination (Melles 2008:4). This is already a far cry from what Narváez (2000) envisaged design's own knowledge to look like.

It is because of the abovementioned accepted duality inherent in design that Melles (2008:7) claims that is necessary to take a mixed methods approach to constructing research for design methods, including both qualitative and quantitative scientific traditions of inquiry. He calls this inclusive approach to theory construction (which is agnostic in terms of the truth claims of the two science traditions) instrumental eclecticism[53] (Melles 2008:7). The pragmatic nature of instrumental eclecticism is also clarified when one takes into consideration the wicked[26] nature of design problems.[54] If it is accepted that design problems are wicked in nature, it could also be reasoned that for any given design problem to be understood in the most comprehensive way, a collective approach of investigation is better than a restricitive one. From this perspective it appears that instrumental eclecticism is preferential to either a qualitative or quantitative approach in isolation.

---

[53] The word instrumental is not intended to be understood in terms of instrumentalism (as school of thought). Rather, it indicates a dependance on instruments of investigation (i.e. methods).

[54] Melles heavily criticises Cross's as well as Nelson and Stolterman's approaches to theory construction, claiming that they divorce design from its natural practice-oriented state. In spite of this disagreement, all of the models agree on the issue of the nature of the design problems themselves: that they are wicked (see Buchanan, R. 1995. Wicked problems in design thinking, in *The idea of design: a design issues reader*, edited by V Margolin & R Buchanan. London: MIT Press). Claiming, as Melles does, that one or another aspect of design is 'natural' seems untenable, since design itself is an artificial, man-made construct. It is however in the meeting of the artificial with the natural that the notion of wicked problems in design emerges, since it is the point of collision between a man-made approach to bringing about change with the infinitely complex 'natural' reality it seeks to alter.

With a better understanding of ways in which design theory and research methods can be constructed, it is useful to investigate which of Dorst's facets of the discipline have been researched and to what extent.

3.2.4 The object, actors and context of design

As Dorst (2008:5) points out, up until 2007 the lion's share of research for design focuses primarily on the design process, in lieu of investigating the object, actors and context of design. This section focuses on research conducted by other authors and by Dorst to help enlarge the body of literature around these three previously neglected facets of the discipline.

Dorst himself takes some strides toward correcting the abovementioned oversight by suggesting what theory-building around the design actor (Dorst 2008:8-10) and design context (Dorst 2008:10-11) could potentially look like. By building classifications around what is understood to be 'design expertise', Dorst hopes to better explain who the designer is and what they do. The classifications are tiered, grouping designers according to level of expertise but without distinctions between the differences in their functions (other than that some designers would work in more senior positions than others within an agency) (Dorst 2008:8-9; also Cross 2011:140-148). Dorst (2008:10) also points out that the context in which the design actors act out design projects is man-made. This would suggest that it is possible to build explanations of how this context is constructed, what its characteristics are and how it is to be navigated. Dorst (2008:10-11) therefore suggests a systematic investigation of the design 'practice' (or organisation) in which the design actors operate, at their different tiers.

In investigating the object of design, defined as those aspects of design pertaining to the problems addressed and investigated by designing (Dorst 2008:5), there are two broad areas of focus: the design *problem* and whatever manifests as the design *solution*. Ramia Mazé and Johan Redström (2009) focus on these in their investigation of 'critical practice' traditions[55] in both research for design and discourse of design objects. What becomes very clear in their discussion is that it is necessary to discuss the object of design within an understanding of the broader context of design; this approach is certainly in line with Dorst's (2008:7) suggested reappraisal, as its point of departure is an understanding of the object of design in relation to the other (often siloed) facets of

---

[55] For more on developments in critical writing in design, read "*Discourse this! Designers and alternative critical writing*" (Crisp 2009).

design. In this article, which poses as a self-proclaimed "criticism from within" (Mazé & Redström 2009:28) there is also another point of intersection with Dorst's 'revolutionary' proposition of research for design. That is, that in discussing the 'critical practices' tradition an intellectual basis for design is built (Mazé & Redström 2009:32-36) – one that is interested in a thorough description of design before leaping to prescriptions for designers. These are the first two of Dorst's (2008:6) five identified areas of concern in research for design.

Ilpo Kosinen, John Zimmerman, Thomas Binder, Johan Redström and Stephan Wensveen (2011) in their textbook on constructive design research (CDR), focus on how research for design can operate within the context of conducting design experiments. At face value this may seem like process-centred research (and indeed it is, in the sense that the research method is process-heavy), but the authors give almost equal attention to how CDR relates to the object and actors of design, and focus predominantly on the context of design (mostly in terms of the context of design practitioners, but also the broader societal context in which the designs operate). The discussion of the four facets of design also does not happen in separation (chapter by chapter). Rather, using a different context of CDR in each chapter, a discussion is embarked on that considers the design actors, objects and processes at play in the given context.[56]

In addition to authors that focus on one facet of design or another in an integrated way, like the abovementioned (Mazé & Redström 2009; Koskinen *et al* 2011), some have attempted to discuss the four facets in a systematic way. Two textbooks on research for design are briefly discussed below.

Augustin and Coleman (2012) attempt to address the four facets in research for design in a manner that takes a broad view of all the design fields, including communication design. For example by way of introduction, the differences between design thinking and design knowledge are explored from various perspectives (Augustin & Coleman 2012:xx-xxix). Here research for

---

[56] For example, one chapter starts with the question: "Can you really study design in the laboratory?" (Koskinen *et al* 2011:51), addressing the contention that laboratory-based PbR is divorced from society and the context in which the design operates. Through the guises of a Rich Interaction design project (in which tangible prototypes are constructed for rich user interaction), the authors first consider the **process** of the PbR project (Koskinen *et al* 2011:51-54). The **design actor** is considered next in terms of their role within the PbR project, what skill set they need to demonstrate, what principles they need to apply and how they relate to both the **object** of inquiry and the research participants (Koskinen *et al* 2011:55-60). A pivotal part of the case study regards the relation of the PbR (which was conducted in a laboratory setting, isolated from society) back to 'real world' to ensure its relevance (Koskinen *et al* 2011:61-64). This part of the discussion is primarily concerned with the societal **context** of design, but relates this back to the process and actors of the project.

40

design is envisaged as an instrument that relies on the designer's pre-existing tacit knowledge (such as a knowledge of and experience in implementing first principles) and focuses its application in design thinking (the process of problem solving) into broad, desirable channels (Augustin & Coleman 2012:xxiv). The research is incorporated in this way since it is "insight distilled from research that keeps a project on target toward a happy resolution, as opposed to wandering aimlessly through an abstract vision" (Augustin & Coleman 2012:xxiv). As was seen in the previous chapter, this is one of the advantages of using a research question or hypothesis to direct the research inquiry.

Augustin and Coleman may seem to suggest a biased approach to implementing research, as it seems that the design solution is founded on knowledge already held by the designer (Augustin & Coleman 2012:xxv) and that the research serves a secondary role in honing and finalising what the designer had already determined to do.[57] This must however be understood in the context of what Crouch and Pearce (2012:8-12) call the 'habitus' and 'field' of the designer, respectively. To understand how research for design relates to the designer's (or designers') tacit knowledge, one must have a clearer understanding of design actors themselves.

To help understand what it is that the design actor does (Crouch & Pearce 2012:1-3), the authors look at the position of the individual designer (Crouch & Pearce 2012:3-5), as well as their identity (Crouch & Pearce 2012:5-6) and what context these are located in (Crouch & Pearce 2012:6-8). It is in grappling with these notions that Crouch and Pearce distinguish the *field* from the *habitus* of the designer. The field refers to a collection of practices and perspectives that delineate what falls within the domain of design and what lies outside of design. The delineation however is not necessarily a clearly drawn line, but a space which is contested by those practising within the design field, design institutions and those outside of the field defining themselves against and in relation to the design field (Crouch & Pearce 2012:8). Crouch and Pearce (2012:8), who base their explanation on the writings of Pierre Bordieu,[58] say that

---

[57] Indeed, if the research were to be implemented in such a manner it would be useless and intellectually dishonest. The designer would essentially be pretending to seek an answer to a research question when they are convinced they have the answer already, resulting in what could be termed *reverse ratiocination* or *post rationalisation*. This type of thinking is identified and discussed in chapter 5, particularly section 5.2.1.

[58] In *Disctinction: a social critique of the judgement of taste* (1984), Pierre Bordieu examines various aspects of the relationship people have with their socio-cultural context. He distinguishes between the actual environment a person exists in, and their (imagined) relationship with that environment; a relationship in which they exercise subjective choices about an objective reality, based on subjective understanding.

> The field of design does not exist just because a series of design institutions says it does. It also exists because outside the design field, in the wider field of cultural production, there are institutions deciding what is art and what is design, what is design and what is engineering, what is design and what are management systems, and so on[;]… within it, formal and informal groups of designers and individual designers contest what each other is doing by making reference to what is going in and outside of the field.

There is also a hierarchy involved in this process of contestation, in which some views are considered to be more important than others (Crouch & Pearce 2012:8-9).[59] This means that even within the field of design, there are disagreements and opposing practices out of which any individual designer must elect their own set of convictions and modes of operation (Crouch & Pearce 2012:10; Nelson & Stolterman 2012:22-23). This individualised concretisation of a specific set of views, practices and attitudes is what becomes the habitus of the design actor.

With these notions of the habitus and field in mind, it becomes clear that what Augustin and Coleman (2012:xx-xxix) refer to as the 'knowledge' that already underpins the designer's practice prior to the implementation of research, is a paradigm formulated through discriminate selection from many different potential perspectives. Blaikie (2007:12) calls this the "research paradigm" (RP) and points out that it is essential for the researcher to declare theirs when communicating research findings, much as bedrock assumptions in natural science research need to be stated.

Although it should already be clear that no single facet of design can be coherently discussed in complete isolation from the others, Augustin and Coleman (2012), and Crouch and Pearce (2012), continue on from their discussions of the design actor and also systematically unpack the other facets in like manner before embarking on discussions of research for design methods and how they should be implemented. Discussing how to approach contributing knowledge to the design field is however not the only aspect which needs to be taken into consideration in trying to ascertain whether strides have been taken towards realising Dorst's goal of holistic research for design. Sections 3.3. (which is appended with case examples) and 3.4. look at some of the discussions prevalent in the literature with regard to the nature of design research.

---

[59] This is a very important aspect of establishing the field of design, as the more dominant voices in the discourse effectively get to decide (at a high level) whether research for design practices are considered a part of the field or not. The process of contestation works as hegemony, attempting to naturalise itself so that it not only encourages practitioners within the field to do things in a prescribed way, unthinkingly, but also discourages them from questioning the status quo.

3.3 Is design practice a form of exploratory research?

A notion that has surfaced in the literature time and again, and has been quashed every time it does, is that design practice itself is a form of exploratory research (Archer 1995:10; Augustin & Coleman 2012:xii-xix; Biggs & Buchler 2007:63; Cross 1999:9; 2006:102; Friedman 2002:395-396; 2008:154-155; Lunenfeld 2003:14; Mazé & Redström 2009:32; Olsen & Heaton 2010:80; Pedgeley 2005:83-84). One could be tempted to dismiss the notion of design practice as being exploratory research because it has been dispelled so many times. Such a dismissal does not however consider why this idea keeps on cropping up. Every time one line of reasoning linking design praxis with research for design is overturned, another author offers yet another reason why the two concepts *are* synonymous after all. The persistence of the idea warrants a deeper investigation. For the sake of simplicity, Figure 10 lists some of the claims that have been tabled as to why design practice should be considered a form of research, as well as the objections that have been raised to dispute them.[60] One idea that seems to lie at the heart of the confusion of the discussion surrounding the relationship of design praxis and theory is that of tacit knowledge.[53] Friedman (2008:154) laments that many of the (flawed) theoretical positions posited in research for design are based on a superficial understanding of tacit knowledge that is uninformed by literature. Understanding generally that tacit knowledge is embedded knowledge that all designers possess (regardless of whether they can articulate and communicate this knowledge), there are generally one of two polar responses to the role tacit knowledge plays in theory formation and research for design:

1) Tacit knowledge is a major component of the designer's expertise and enables them to do their job. As such, implementation of this knowledge into a design project (in other words, design practice) constitutes exploratory research, as its aim is to develop new knowledge that can be implemented in the execution of the design solution.
2) Tacit knowledge is not objectively testable or available for scholarly scrutiny, and as such must be disregarded as a legitimate source of knowledge.

As can be seen in Figure 10, weighing up the diametric options of either all or nothing when it comes to incorporating tacit knowledge into research for design will likely lean in favour of the

---

[60] It is important to note that not all the sources cited in Figure 10 follow a falsificationist rationale as the figure does; they have been reinterpreted this way for the sake of comparison.

43

Source	Claim	Objection
Archer (1995:10)	Design products are a form of new knowledge, and are therefore research pieces.	If it cannot be demonstrated that the practitioner followed good research practices, it cannot be ascertained whether the design product is research.
	Public exhibition or distribution of design products is a form of research publication.	Without a process of scholarly review or referee, a publication is not accepted as research.
Friedman (2003:520)	The act of design practice is an act of research.	Design theory is not the same as tacit knowledge in design practice; the former requires explicit knowledge rendered articulate for shared communication and reflection.
Friedman (2008:154)	Design practice is PbR as well as a form of theory construction.	Theory can only be developed through practice when engaging with grounded theory, which includes articulation and inductive inquiry as indespensable components.
Biggs & Büchler (2007:63)	Design practice makes strong contributions to professional practice, so even private research practices should count as academic research.	Practice-led research can be classified under PbR, but traditional scholarship is defined as research without practice. Until adequate criteria for acceptable practices in PbR are established, it cannot be regulated, funded or evaluated.
	There is differentiation between academic research and PbR, so PbR doesn't have to subscribe to the same standards as academic research (inferring that any practice can be declared to be PbR).	Each researcher cannot decide for themselves what research criteria should be. Even if the standards for PbR are different, these standards still need to be mandated by common consent of the research community.
Cross (2006:101-102)	Everyday design work entails the use of material precedents (exemplars), as they contain knowledge of how design should be executed. Design artefacts can be considered embodiments of research for design.	Research for design has to adhere to best practices, so exemplars that fail to communicate clearly, are ill-informed or undisciplined, add no knowledge and are not products of research.
Breslin & Buchanan (2008:37-38)	Pluralism in practice is a hallmark of the design field. Research for design cannot be policed through regulation (as in other fields of research).	Some pluralism may result from differences in circumstances and product types, but some may be because of personal ideosynchrosies. Pluralism itself does not exempt research for design from good research practices.
	Design development is priveleged intellectual property (in many instances) and does not need to be shared. The design end-product however can still be used as a case study for publication and teaching.	Secrecy in research does not lend itself to examination, and therefore to verification/ ratification. Submissions built on clandestine practices cannot be accepted into the fold of research.
Dorst (2008:7)	Designers take a pragmatic approach, using methods if they work. The research component becomes implicit through years of experience, but it is there.	Research is by definition an explicit, intentional, systematic inquiry. An automated process of ingrained practices is by definition not research.
	Experienced designers' claims that they do not use methods can be explained away because they overlook their own tacit knowledge.	If designers claim not to use methods, it is inconceivable that they are subscriing to the rigors of research. Unwillingness to adopt accepted research tools attests to this.

Figure 10.1: *Claims and objections that have been raised in equating design practice with research*
(compiled from several sources)

44

Source	Claim	Objection
Lunenfeld (2003:10-13)	Design research results cannot be tested or reproduced. These should not be criteria for research for design.	Although distinctions can be made between science as research and design as research, it does not logically follow that all design is research, regardless of how it is conceived or conducted.
	Serendipity enlivens design, it doesn't disqualify it from being research.	
Mazé & Redström (2009:32)	As long as design is executed using the tropes of critical design, it can contribute to theoretical frameworks for design by engaging with design on a conceptual level (ergo, critical design is research).	Engaging in conceptual development does not guarantee scalability and generalisation.
		Without extending beyond critique, design becomes overly self-reflexive and results in design for designers, which is not useful.
		The contribution of critical design relies heavily on structuralist tropes, which has been shown to have challenges in contributing knowledge. Mobilising critical practice as research for design needs to be revised.
Olsen & Heaton (2010:92-93)	Design is a process more than a product. Similarly, the process of research is more important than the outcome, therefore…	Given the similarity, it demonstrates that design practice is only legitimately research when it follows good research practices.
	…design yields robust knowledge which can be extrapolated beyond the original context.	Focussing on application, rather than implications, results in decontextualised problem solving processes, which is poor design.
	Design processes contribute knowledge that change the knowledge culture.	Design knowledge is only robust when it yields local understanding and social efficiency. In other words, if the knowledge is not demonstrably relevant it is not really research.
Melles (2008:6)	Design is scientific because of its pragmatist, practical origins. It has become increasingly scientific by adopting scientific methods.	Claiming that design approaches are scientific (in the natural sciences sense) contributes a notion of objective, rationalist perspective which is not truly a part of design's applications, processes or aims.
Augustin & Coleman (2012:xvi-xvii)	Design process is similar to research methodology in myriad ways. This is because design process is a research methodology.	Design process only becomes similar to research methodology in instances where it is underpinned by sound methodology and subscribes to good research practices.

Figure 10.2: *Claims and objections that have been raised in equating design practice with research* (compiled from several sources)

45

latter option. There is however a third way to contemplate. Friedman (2008:154-155) points out that tacit knowledge is not only important in professional practice, but makes it possible. Every field, not just design, rests on tacit knowledge.

> Without tacit knowledge, embodied and habitual, nothing human beings do would be possible. Every action would require explicit conceptualization and planning, and this would be the case every time we acted. The limits on immediate attention and cognition would make it impossible to store and act on enough knowledge for effective individual practice in any art or science, let alone accumulate the knowledge on which a field depends. (Friedman 2008:154-155)

Tacit knowledge simply cannot be avoided, even in the most abstracted theory construction processes, far removed from design practice, but one simply cannot infer from this that tacit knowledge being enacted by itself is sufficient to constitute research for design. Nor does denying that tacit knowledge is the same thing as research diminish its importance. It simply serves to point out that tacit knowledge is one component of research, not its entirety. A house is incomplete without a foundation, but this does not mean that a foundation is a house. A house without floors, walls, fittings, windows, wiring, plumbing, a ceiling and a roof does simply not qualify as a house. Design practice is a legitimate (even indispensable) component of certain research methods, but is still only a component after all.

One area where this semantic confusion is seen to be at play is in the publishing of design case studies. Several authors have cautioned that case studies have accumulated a bad reputation in academia because they do not always subscribe to the characteristics and rigor of creditable research (Breslin & Buchanan 2008:37-38; Svengren 1991:444,446; Yin 2009:3-5). This is not however a criticism of the research method itself as much as a criticism of how the method has been implemented in practice. Maggie Breslin and Richard Buchanan (2008:37) assert that PbR published by designers working in the industry are especially guilty of attaching the label 'case study' to their work to give it a veneer of creditibility, without following acceptable research practices in putting the studies and research findings together in the first place.

One such set of examples is the case studies published by Brand Council SA. BCSA has published 12 case studies on their website over a period spanning roughly two years (Latest Case Studies 2014:[sp]). Although some of these case studies arguably state a research question by explaining the aims set out in the project briefs, none of them articultes a research aim (or objectives), a procedural plan, how data was collected and interpreted, or what key assumptions

the project rested on. There are no indicators of the research methods implemented, or how validity or reliability of research outcomes were achieved. The case studies jump from contextualising the research question to the implemented solution without detailing any of the intermediary steps. Following Newton's ordering of research (see Figure 3), the write-up of these cases jumps from selecting the topics (the first step) right to communicating the findings to others (the final step). It is also reminiscent of Dorst's contention that research for design tends to leap from description to prescription (see section 3.1). Using the term 'case studies' in the way BCSA does is what gives case study research a bad name.

If one looks a little further however, there are also examples of research for design case studies that subscribe to the dictates of good research practices. Some of these are published periodically in the *International journal of design*, for example Tianjiao Zhao and Kin Wai Michael Siu's (2014: 43-60) study of public space boundaries in the context of Hong Kong's mass transit railway, and Pietro Polotti and Guillaume Lemaitre's (2013:67-82) study on rhetorical strategies for sound design and auditory display, in the context of earcons for computer interfaces.

While the abovementioned are arguably from two very different types of sources with a different readership and target audience, it is useful to keep in mind that they are not equally reliable. The one source could potentially be used as a basis for decision-making if carefully appropriated into a subsequent research for design project, or even for teaching purposes, whereas the other source simply does not qualify for either.[61]

3.4 Logics of inquiry in design

Somewhat related to the notion of research for design being a form of exploratory research, is deliberating whether research for design is restricted to the employment of certain logics of inquiry (also called Research Strategies, or RSs). Is research for design so specific in nature that only one RS or another is appropriate to it? In considering the traditional logics of inquiry, various authors have suggested not only that abductive reasoning is the most suitable to design, but that design practice should be considered a form of exploratory research because it operates using abductive reasoning (Augustin & Coleman 2012:2; Crouch & Pearce 2012:21-24).[62] This

---

[61] By way of summary: *International journal of design* case studies – acceptable. BCSA case studies – reprehensible.
[62] Augustin and Coleman rely on a very loose understanding of abductive logic to make this connection in the first place, claiming that "designers are masters of abduction" (Augustin & Coleman 2012:2) because they focus on

suggestion forms part of the confusion surrounding the implementation of tacit knowledge into research for design explained in the previous section. The abovementioned authors focus on the proclivity of abduction to make new, previously unseen connections between its objects of inquiry, but fail to acknowledge that induction and retroduction do the same.

There is a more foundational reason to consider abductive reasoning appropriate for design practice. According to Blaikie (2007:89-90):

> [abduction] involves constructing theories that are derived from social actors' language, meanings and accounts in the context of everyday activities. Such research begins by describing these activities and meanings, and then derives from them categories and concepts that can form the basis of an understanding or an explanation of the problem at hand.

In other words abductive reasoning is very different to the other three RSs in that it is inherently human-centred; it's point of departure is the domain of social interactions and the social actors in it (Blaikie 2007:10). Through abductive reasoning social life is understood in terms of human beings' motives and understanding (Blaikie 2007:8). As a human-centred endeavour, communication design seems to demonstrate an inherent affinity to this RS.[63] As has already been pointed out in the previous chapter however, a sharing of common characteristics does not mean synonymy.[64] Operating using the logic of abductive reason will not qualify design as research (especially since abduction is a component of research, not research itself) unless it also demonstrates each of the necessary characteristics and principles discussed in chapter 2.

Having discussed how to approach developing design theory, research methods and determining the nature and qualities of research for design, it remains to establish what research for design

---

future possibilities rather than on standard definitions of proof (relying on past ratifications). Similarly, Crouch and Pearce (2012:22) claim that it is the ability of abduction to consider what might be, rather than what can already be observed to be the case, that makes it synonymous with what is called 'intuition' (read: abductive reasoning) in design thinking. Nigel Cross (2006:viii), although not claiming that design is inherently abductive, also asserts that design uses abductive appositional reasoning, as it often operates from an appositional vantage point.

[63] Not every aspect of a design project focuses on human aspects *per se*, however. This means that other RSs may be employed during and throughout communication design projects and therefore research for design projects. The design and/or research do ultimately re-intersect with one human-centred endeavour or another, at which juncture it re-enters the domain of abductive reasoning. It could be argued that design begins and ends with abduction.

[64] This type of reasoning falls prey to a phenomenon called 'confirmation bias' (Taleb 2010:51-61). It only takes one instance of disconfirmation to completely dismantle such a theory; several such instances are posited in this chapter. A post box and a Ferrari may both be painted red, but this does not mean that they are one and the same thing. Nassim Nicholas Taleb (2010) demonstrates many instances of this flawed kind of reasoning, which he calls the "turkey problem" (Taleb 2010:40-41), based on Bertrand Russell's 'problem of inductive logic'.

methods exist to date. The following section attempts to list fairly comprehensively what research for design methods have been developed and published to date.

3.5 Research for design methods

Every year more research for design methods are published in journals, books and via other media; more methods are being developed the whole time. At the time that the first set of questionnaires was submitted to respondents, the researcher had discovered 88 such methods in creditable sources. At the time of writing this report less than eighteen months later, this number had more than doubled. This time lapse accounts for the discrepancy between the methods listed in this chapter (see Figure 11) with those listed in the questionnaire submitted to respondents (see Appendix A). Even the list in Figure 11 is by no means exhaustive, but it does serve to demonstrate that there is not a dearth of methods available to communication designers who wish to conduct research projects that are appropriate specifically to a research for design context. The research methods in Figure 11 have not been grouped or clustered in ways other than what already existed in the literature consulted, except where different nomenclature was used for identical methods.[65] This is partly because of the inability to do so in a coherent manner, for the reasons explained in Joseph's (2010) PhD study.[66] It is chiefly because attempting to do so would turn this study into a PhD.

This chapter has engaged with the literature and discourse surrounding research for design to try and establish the state of the art. The state of research for design theory has been discussed and it has also been demonstrated that there are many methods that could potentially be employed in this field of research in an appropriate way (employing good scholarly research practices as were unpacked in the preceding chapter). In the following chapter the research method for this study is outlined, together with the researcher's stance and approach to addressing the study's research problem.

---

[65] For example 'constructive research' and 'generative research' are included under the same heading.
[66] See section 3.2.2.

Figure 11: *Current research for design methods*
(compiled from several sources)[67]

---

[67] Figure compiled using: Davis (2007), Drucker (2002), the IDEO method cards (2003), Heller (2013:49-53), Koskinen, Zimmerman, Binder, Redström and Wensveen (2011:51-108,125-164), Laurel (2003), Martin and Hanington (2012), Sanders (2002), Visocky o'Grady and Visocky o'Grady (2006:16-58) and Visser, Stappers and van der Lugt (2005).

CHAPTER 4: METHOD AND THEORETICAL PARADIGMS

In the previous chapter pains were taken to come to grips with the state of the art in research for design. Building on the understanding developed of what comprises legitimate research (and what does not) in the preceding chapter, chapter 3 went on to investigate what legitimate research for design would look like. There are many ideas and approaches proffered in the literature regarding research for design, some complementary and some irreconcilable. As was pointed out, there will not conceivably be a meta-theory of research for design that can successfully unite the many nuances of the various methods and approaches. What this leaves us with is the field, with each design researcher having to make discriminate choices within the field to establish their own particular habitus (just like communication design practitioners).

In like manner the choices made to position this dissertation need to be identified, unpacked, justified and explicitly stated.[68] This pertains to the position of the researcher (to the research and the object of inquiry), the position of the research, the logics of inquiry employed, the research method followed (and under which methodological guises), the research design (including sampling and data collection, management and analyses) and why the research is presented the way it is. According to Martyn Denscombe (2010:316-317) the research method needs to be *described* (how it was conceived, planned and implemented) and *justified* (how it was decided that the courses of action taken were the most appropriate for the study at hand). The *description* of the research method extends not only to procedural matters (Denscombe 2010:316) but also to the underlying convictions and biases of the researcher. The *justification* extends beyond defending the strengths of the research procedure and tactics followed, to including acknowledgement of their limitations (Denscombe 2010:317) and how these were minimised.

This chapter has been divided into three distinct sections. The first section (4.1) deals with the position of the *researcher*, discussing the research strategies, stance and paradigm. The second section (4.2) deals with the position of the *research* itself, in describing and justifying the research method and methodology (and emphasizing the distinctions between the two in the process). The

---

[68] In most research projects, the method and theoretical paradigms do not need to be explained in nearly as much as detail as what they are in this chapter. Given the nature of this study's line of inquiry (much of which revolves around distinguishing between acceptable and unacceptable research practices), it was deemed necessary to demonstrate that this project does not fall into any of the traps described in the preceding chapters.

last and most technical section (4.3) presents the manner of *implementation* of the selected research method in this particular study.

4.1 Positioning the researcher

As was pointed out in the previous chapter, it is essential for the researcher to declare their position, convictions and paradigms when embarking on a research project (Archer 1995:9; Blaikie 2007:12; Nelson & Stolterman 2012:25). This lends the research credibility in that it demonstrates that the researcher has taken their own biases[69] into consideration in formulating their research procedures, analyses and conclusions.

Identifying the position of the researcher is more than just identifying biases; describing the process of delineation followed in the framing of the research project itself is also necessary. According to Michel Foucault (1972), there are three directions in which the formation of research strategies causes the investigation to proceed (simultaneously). The first of these is the identification of the points at which different voices in the discourse depart, or diffract, from one another (Foucault 1972:65). These points of divergence are characterised as being completely equivalent[70] (in principle, if not in the particular research project at hand), but are at once also incompatible and can be so stated because of a (litmus) process of systematisation (Foucault 1972:65-66). This point of distinction, divergence and diffraction is clearly demonstrated in chapter 1 of this study in which the potential gap of conversance was identified between design theory and practice.

Another direction of formation Foucault (1972:66) identifies is a process of discrimination. This means that in positioning the research, there are potential compatible notions, groupings and

---

[69] According to Daniel Kahneman (2011:7,10-11) there are three defining characteristics of biases, namely that they are i) precursive to the object or subject they are applied to (in other words, they are *a priori* (see Howard 2013:3-6)), ii) systematic (because they rely on either prolonged practice or judgement heuristics) and therefore iii) predictable. He goes on to claim that biases are systematic errors, but the notion of error in biases is not presumed for the purposes of this dissertation, as attempting to prove so in qualitative research leads to infinite regress. Although the nature of bias could be argued to be inherently reductive and therefore erroneous (being a process of deliberately including certain considerations while simultaneously excluding others), this study takes a pragmatic approach with the implication that it is maintained that biases may or may not result in error.

[70] The points are equivalent in that no one perspective is inherently preferential or even more important than another. They are incompatible points arrived at on the basis of the same set of regulatory principles and appear under the same set of conditions. They are equivalent because they exist at the same level, and are not the result of defect or incoherence – ultimately emerging as legitimate alternative perspectives that can be stated as being one or the other (see Foucault 1972:65).

constructs that may conceivably have been included but are not. This is a result of the exercised volition of the researcher who embarks on a deliberated process of inclusion and exclusion in order to form the habitus (or locus of investigation) their particular research project will occupy. Foucault (1972:67) explains this by demonstrating that as a result of this process of selection (and therefore elimination) "a discursive formation… is essentially incomplete, owing to the system of formation of its strategic choices". In addressing a particular research gap, this dissertation is automatically modifying the principles of exclusion that have existed in the discourse up to this point and forming what Foucault (1972:69) calls "a new discursive constellation"; it is contributing a new voice to pre-existing discourse around research for design.

The last direction of strategy formation mentioned is that of dependence on external authority (Foucault 1972:67-68). This infers that because the research occupies a certain locus of investigation and is selected discriminately from competing (authoritarian) perspectives in the field of discourse, it is busy appealing to a body of non-discursive practices external to itself (Foucault 1972:68). In so doing the researcher is belying a position of desire of the research project in relation to its object of investigation (Foucault 1972:68). The very formation of a research project belies a position of desire to achieve one end or another. This desire is not a disruptive force that distracts away from the object of the research, but is an intrinsic part of its formation. Put more simply, the formation of a research project is an exercise in bias itself.

At this juncture, it is necessary to address two dangers in acceding to the existence of inherent biases in the research project. The first danger lies in developing an ill-founded sense of confidence in the findings of the research by virtue of the researcher having declared their position explicitly. Admitting to bias does not eliminate its effects. The research outcomes should be considered with equal scrutiny and skepticism whether the research biases are stated or not; stating them only serves as a good-faith gesture which facilitates the process of scrutiny. The second danger lies in discounting the research outcomes out of hand because of the inherence of certain biases.[71] Just as admittance of biases does not qualify the research outcomes, it also does not disqualify them. Research outcomes may be accurate in spite of biases, regardless whether they are explicitly stated (or even noticed).

---

[71] Bias is not necessarily a bad thing. Without the deliberate delimitation of studies, every research project would be impossible to complete due to sheer scope. Bias, like tacit knowledge, is deliberately incorporated to make everyday practices possible. Where bias does need to be carefully scrutinised is where it can potentially skew research outcomes in such a way that they are not reliable or valid.

It is also necessary to distinguish between biases of inherency (which have been described above) and biases of procedure. The former exist to help shape the formation of the research question and project and as such are considered to be a part of acceptable research practices. Biases of procedure however attempt to steer the research data gathering, analysis and outcomes in one direction or another (unreasonably) favoured by the researcher. Taking certain precautionary steps can control such biases. The minimisation of procedural biases is discussed in more detail in the various sections of part 4.3 in this chapter.

4.1.1 Research strategies

The various RSs were briefly described in chapter 2 (see Figure 5), and further discussed in the light of research for design in chapter 3. This study, using a mixed methods approach to data gathering and analysis, employs more than one of the RSs for several reasons. For one thing, it has been demonstrated that the various RSs are not mutually exclusive in terms of their logical operators and methods of reasoning. Using deduction for example means that the researcher is automatically overlapping with the domain of induction, retroduction and abduction to a greater or lesser extent (Blaikie 2007:79,104). It has also been demonstrated that although each of these logics of inquiry is suited to certain types of problems, they also each (in their classical forms) have severe shortcomings that cannot be internally resolved (Blaikie 2007:63-65,75-78). In revising the RSs they have been made to increasingly overlap. One of the strategies employed to counter the shortcomings is to introduce elements of other RSs at critical junctures in explanation building (Blaikie 2007:79,104). There is also already a well-established tradition of combining deduction with induction (Blaikie 2007:79-82; also see Figure 6) or retroduction with any of the other RSs (Blaikie 2007:104) within one research project. This existing convention helps guide the manner in which combination of RSs is conducted in this study.

Given the nature of the research problem and the fact that this is a research for design project, this dissertation employs primarily abductive reasoning (Augustin & Coleman 2012:2; Blaikie 2007:10; Crouch & Pearce 2012:21) in the data analyses that follow in chapter 5. This is at times appended with deductive reasoning (where untenable positions need to be refuted through falsification logic) and inductive reasoning (where explanation building is appropriate). Deduction is useful in deconstructing generic or sweeping notions, as it only takes one instance of (genuine and thorough) refutation to dismantle or soften an entire construct (Blaikie 2007:71; Popper 1959:9-10). Induction cannot state any of its findings with any level of confidence of certainty

(Popper 1959:3-7,134-139) unless if there is an overwhelmingly representative body of data within a given population, and even then certainty is not guaranteed (Taleb 2010:40-42). As such the employment of induction has been restricted to the analysis of numerical data and explanations are proffered merely as legitimate possibilities, not absolutes.

4.1.2 Researcher's stance

In determining the researcher's stance in a research project there are two key factors to take into consideration, namely where the researcher places themselves in relation to the object of inquiry (Blaikie 2007:11) and what it is that they plan to do in relation to said object (Friedman 2008:153; Yin 2009:35). The first of these considerations is particularly important in social sciences research, or where human subjects and activities are under investigation (Blaikie 2007:11). For this dissertation, the researcher is a distinct outsider to the objects of inquiry and to the cases being studied. Since the conversance (awareness, attitudes and aptitude) of communication design practitioners is being studied, it was not necessary to be immersed in the day-to-day working practices of these practitioners. The researcher comes in as an outsider using various methods of observation to collect data on each of the case companies (Blaikie 2007:11; Crouch & Pearce 2012:95).

In terms of the reliance on pre-existing knowledge, the researcher has to adopt a dual role as expert and as learner (see Blaikie 2007:11) to conduct this research project. Whilst it is necessary for the researcher to be knowledgeable in the area of existing literature surrounding research for design and the methods that have been developed for conducting it (see chapters 2,3 and Figure 11), which qualifies the researcher as an expert of sorts, there is also no set of pre-conceived notions as to what the level of conversance of the communication design practitioners have with these methods is. There is no substantial pre-existing literature on this for the South African context and is after all the research question of this study; in this regard the researcher is also a learner. It is crucial not to blur the lines between these two adopted stances in analysing the data collected: the expertise extends only to the existing theory and methods but not to the conversance of the practitioners. This also makes it abundantly clear that this research is conducted primarily *on* people, not *for* people or *with* people (Blaikie 2007:12).[72]

---

[72] In research *for* people, the researcher will typically investigate what effect knowledge they bring to the table has on the research participants, or how the participants appropriate and implement new skills that are brought in by the researcher or an associated third party (Blaikie 2007:12). In research *with* people, the researcher is an insider and conducts an experiment where they have a vested interest in the outcome – either in solving a problem,

What the researcher aims to do with the data collected through the various methods of observation is discussed in the next section (see 4.2.1), as it is inextricably tied up with the research paradigm of the study.

4.1.3 Research paradigm

The research paradigm is determined by two sets of assumptions made by the researcher: the ontological (convictions regarding the nature of reality and existence) and the epistemological (how one can come to know about reality and existence) (Blaikie 2007:13,18).[73] This has massive implications for how the research is conducted, since it is a product of what the researcher believes can credibly be done. For the purposes of this dissertation, an ontology has been adopted which incorporates elements of both depth realism and constrained perspective idealism.[74] In straddling these traditional ontological positions, the distinctions between empiricism and rationalism are not held in opposition to one another, but rather as legitimate alternatives. This makes it possible to deal with quantitative data in a falsificationist epistemology,[75] whilst drawing on neo-realist, constructionist and conventionalist modes of epistemology when regarding qualitative data.[76]

---

identifying necessary areas of change or evaluating some sort of programme (Blaikie 2007:12); action research is one example of this.

[73] Kerry Howell (2013:2) has also defined epistemology as being the relationship between the researcher and that which is researched.

[74] In brief, a depth realist ontology relies on an understanding of reality as being a dialectic between material and relational factors (Blaikie 2007:16). In an idealist ontology, the external world is the product of mental constructions of reality; this does not negate the existence of an underlying reality but speaks more to the reality one deals with (particularly) when addressing human subjects. This makes it compatible with a depth realist ontology. Acceding to this compatibility results in what is called a constrained perspective idealist ontology – where an underlying reality is acknowledged, but where people are autonomous in making sense of this (externally existent) reality (Blaikie 2007:16-17).

[75] In falsificationism, it is acknowledged that theories are invented to account for observations, and are not objectively derived from them (Blaikie 2007:21). This means that these theories can potentially be dismantled (or softened) if one demonstrates that they do not hold true in certain circumstances.

[76] A neo-realist claims that identifying patterns in data is not enough to give an account of causation. Rather, there are underlying mechanisms that cause the observed patterns, which need to be uncovered (Blaikie 2007:22). In other words, reality is not observed directly only, but is also the effect of underlying (masked) powers that are at work, resulting in interactions between facets of reality.

In a constructionist epistemology, the emphasis is on the fact that both social actors (the observed) and social scientists (the observing) construct explanations of reality (Blaikie 2007:22). The relationship between these two sets of constructs is of key concern.

Building onto constructionism, conventionalism claims that knowledge is not absolute (regardless whether the reality it seeks to understand is), but that it comprises constructs of convention (usually for the sake of convenience) (Blaikie 2007:23). These conventions are used as point of departure in understanding reality, and

Following on from these assumptions, a richer understanding can be formed of what the researcher attempts to do with the case study data (see 4.2.1).

4.2. Method and methodology

As with other concepts in research, there is semantic confusion when it comes to methods and methodologies[77]. Although the two terms are often used interchangeably, they should really be attributed to two distinct concepts. Methods refer to the tools of scientific investigation, whereas methodologies refer to the predetermined principles that govern how such tools are deployed and interpreted (American heritage dictionary 2012:530). Methodology therefore underpins the research method, identifying epistemological premises that set the course for how the method is applied in a given project. More simply, the methodology is the manner in which the research method (or methods) is (or are) applied (Howard 2013:ix). The method and methodology used in this study are explained in this section.

4.2.1 The case study method

There is some disagreement in literature as to whether Case Study can be regarded as a research method in its own right or not (Flyvberg 2011:302; Stake 1994:236; Yin 2014:3,14-16). For this reason it necessary to make a distinction between case studies (example cases that are selected to demonstrate some principle or set of principles within a research study) and the case study method (a research method which is formalised around investigating selected cases as its primary mode of investigation).[78] This study contains several case studies, but does so using the case study method as a primary driver for investigation, not only in a secondary and demonstrative fashion. As such this study makes use of the case study method, hereafter referred to as CSM.

---

their truthfulness or accuracy is of secondary importance. The primary concern is to come to an understanding of these conventions and their implications.

[77] Martin Denscombe (2010:3-4) describes what is most commonly understood to be 'methodology' when he uses the term 'research strategy'. This is not the same as the RSs (Research Strategies) described in this dissertation. To avoid confusion, Denscombe's nomenclature is substituted with the conventional in this study.

[78] The examples discussed in section 3.3. in the previous chapter are an example of 'case study', where cases (in this instance, of the case study method) are used to demonstrate the difference between acceptable and unacceptable research practices in research for design. This kind of use of case studies is discussed by Robert Stake (1994; 2005). The cases used in chapter 5 of this study constitute a primary driver in investigation the research problem and as such were approached using the case study method, a method explained in detail by Robert Yin (2014).

As has been pointed out already, CSM has a low regard in the eyes of many researchers, for various reasons (Breslin & Buchanan 2008:37; Stake 1994:239; Svengren 1993:446; Yin 2014:3), largely because of the lack of distinction made between case studies and CSM. Even so, it is challenging to implement CSM (Yin 2014:3) and consequently any study that makes use of this method has to take extra pains to ensure that:

1) its selection is appropriate to the research question at hand,
2) it is conducted in a way that leads to credible and useful outcomes, and
3) steps are taken to ensure that the shortcomings of the method are offset or minimised.

These concerns are addressed below.

According Robert Yin (2014:9), research questions can be categorised according to types, depending on the nature of the question. This study is formed around a 'what' question (i.e. *what* is the level of conversance of communication design practitioners with research for design methods), and due to the limited amount of literature currently available on the topic, constitutes an exploratory type question (see van der Merwe 1996:295). Yin (2014:9) states that for an exploratory 'what' question one of several methods could be selected, one of which is CSM (also Denscombe 2010:55). CSM was selected specifically because of its ability to examine contemporary phenomena in their real-life context, and where the researcher does not exercise any control over the course of events (Yin 2014:11-14). In short, CSM is defined as a study that: "tries to illuminate a *decision* or set of decisions: why they were taken, how they were implemented, and with what result" (in Yin 2014:17, emphasis in original. See also Leedy & Ormrod 2013:100). Lisbeth Svengren (1993:446-447) claims that CSM makes use of induction, but this is only the case when the method is combined with a grounded theory methodology (in which data is extrapolated and generalised to form new theories). That is not the case in this study, which is exploratory and makes no passes at attempting theory construction.

This particular study can further be classified as following an embedded multiple-case design, using a mixed methods approach.[79] An embedded design[80] is preferred to a holistic design, since

---

[79] An embedded case study is one in which there are several units of analysis (Yin 2014:55), the idea being to study the characteristics within a particular case, rather than assuming understanding of these characteristics and using them to generalize to other cases. Since this study focuses on four distinct cases, it is furthermore classified as a

the latter is better at building explanations for cases that are representative of a class of cases (Yin 2009:50) and therefore meets generisability criteria (see Denscombe 2010:60-62; Stake 1994:240-242), which are not desired for this study. Since not enough is enough known about the conversance of communication design practitioners to be able to identify characteristics of representative cases, an embedded design makes more sense (in other words, the same conditions that warrant exploratory research also favour embedded CSM research). Since the nature of this study is exploratory, a multiple case design was selected to collect as broad and heterogeneous a set of data as possible, to maximise the potential for discovery.

Finally Gavin Melles (2008:7) suggests a mixed methods approach in research for design as an outcome of a pragmatist approach to inquiry. This is because the broadest possible approach needs to be taken to ensure that the investigation is as rich and inclusive as possible, within a manageable scope (Teddlie & Tashakkori 2011:290). Four companies are investigated in the next chapter, each forming a case study in its own right. More case studies would be useful in building an even broader perspective of the object of inquiry, but the time and material constraints of this particular study do not permit for more than four.

Due to the loose definition of CSM and the many ways in which it can be implemented, it is necessary to design the study in such a manner that the research outcomes are credible (since they are rarely repeatable). The research must be conducted in a rigorous manner (Leedy & Ormrod 2013:162; Yin 2014:14) and satisfy the criterion of reliability, in addition to the first three forms of validity as described in Figure 4 (see Denscombe 2010:297-301; Leedy & Ormrod 2013:89-93,101-104; Neuman 2012:124-127; Yin 2009:40-45).

Although this study's research design has been constructed in such a way as to be best able to address the research problem, it is necessary to take cognisance of the limitations and shortcomings inherent in the chosen research method and design. To help address the reliability

---

multiple-case design (Yin 2014:56-57,61-63). The use of both qualitative and quantitative data means that the study follows a mixed methods approach (Melles 2008:7).

[80] The term 'embedded design' is here used differently to the way Leedy and Ormrod (2013:260) use it, except where indicated otherwise. The latter use it to describe a study in which both quantitative and qualitative data are collected, where one dominates and the other serves a secondary role, with each addressing distinct sub-questions. Since this study is embedded in both senses of the term (with qualitative data dominating), the additional signifier of 'mixed methods approach' (Melles 2008:7) is attached for further clarification. There are other types of mixed methods approaches, but these do not feature in this particular study.

and validity research criteria, several methods of data collection are used to enable convergence of data through triangulation (see 4.3.1. sections 1 through 5).

One of the dangers in mixed methods research is that qualitative and quantitative data are not equally suited to addressing all types of research questions (Creswell 2011:272-273).[81] For this reason an embedded,[80] rather than convergent, design has been selected (Leedy & Ormrod 2013:260), so that the two types of data can address different sub-questions (to which they are best suited) and in so doing both play to their strengths in helping to answer the central research question. It is also worth restating that since the purpose of the study is not to develop new theory, it serves a descriptive (rather than a prescriptive or evaluative) role. This means that the there is not as heavy a burden on the analyses to produce assertions and predictions, or to be able to state outcomes to a quantifiable level of certainty (see Denscombe 2010:63).

Using a multiple-case design can become challenging when correlations have to be made across the various data clusters (Yin 2014:57-61). Replication logic and correlation are considered strengths of this type of research, but both are double-edged swords in that it is extremely difficult to state either with any level of certainty. Both are waived in this study, where the concerns are mostly dealt with by deliberately selecting heterogeneous cases to get as broad a range of perspectives as possible. The aim of the research is not to distil the different data clusters into one case 'type' or to find homogeneity within the cases, but rather to gain insight into a range of practitioners' perspectives. The only exception that is permitted in this study is in the combination of quantitative data for statistical purposes where it is possible to do so (examples being: number of hours spent researching per week, or length of period of employment in a particular company).

Embedded case studies also have unique shortcomings. A major concern outlined by Yin (2014:55) is in focusing on data collection and analysis "only on the subunit level" without considering the larger case context as a whole. The concern is that if the researcher becomes too involved in the minutiae of the data, they will ultimately miss answering the research question they set out to address in the first place (Yin 2014:55). In this study it is important to focus on the subunits of investigation (namely the individual design practitioners) within each of the four distinct case studies to gain a perspective of the corporate context of that particular group of subjects'

---

[81] For this and other difficulties in implementing mixed-methods research, see Teddlie & Tashakkori (2011:289-294)

environment. It is equally important to cluster these subunits to gain a broader perspective of each the companies so that they can be compared and contrasted to each other.

The manner in which CSM has been structured in this particular study can better be understood in the context of the research methodology, explained hereafter.

4.2.2 Research methodology

Whereas the methodology of a study is most often used to determine the most appropriate research method, the order of discovery was reversed in this particular study. The justifications used for the research design (an embedded mixed-method multiple case study) are discussed in the previous section. The suggested motivators for conducting exploratory research (Creswell 2011; Teddlie & Tashakkori 2011) favour an embedded case study design, as was also demonstrated in the previous section. A mixed-methods study with an exploratory typology favours an imbalance in which qualitative data dominates and quantitative data plays a secondary role (Nastasi, Hitchcock & Brown 2010:316); it has already been stated that this study follows such a design. Also, the lack of existing literature on research for design methods implementation in the South African context,[82] and the consequent need to prioritise detailed understanding of the selected participant case companies, warrants exploratory-type research (see Phillips & Phillips 2009:163). Following the reasoning above it becomes clear that the study aim, objectives and design favour an exploratory methodology.[83] Put another way: the manner in which an exploratory methodology is justified here is in line with the conventions outlined in the literature consulted.

4.3 Implementation of CSM

Even within the CSM design selected for this study, there is room for various approaches to sampling, data gathering, analysis and presentation of research findings. These are discussed systematically below.

---

[82] See chapter 1, section 1.1.4.
[83] Although 'exploratory' studies are not methodologically framed in the same manner as others (such as grounded theory, ethnography and phenomenology – see Howell 2013), the dictates of the various components of the research design compensate for this.

4.3.1 Multiple data sources

Evidence used in case study research can potentially come from many different sources (Yin 2014:106). In fact, using multiple sources of evidence is advisable because it allows for corroboration of data through comparison (Denscombe 2010:54,62; Leedy & Ormrod 2013:142). This is achieved through triangulation of data (Denscombe 2010:62; Stake 2005:453), which facilitates convergence (Visocky O'grady & Visocky O'grady 2006:76). Several potential sources of evidence that are common to CSM were excluded from this study, for different reasons. These are briefly discussed below, followed by separate sections detailing the sources that were used.

Physical artefacts (Yin 2014:117) are not among the sources of data, since not all the participating communication design companies generate physical artefacts for their clients. Two of the companies generate only digitally based work, whereas the other two often deliver designs that are web-based, or are applied to physical artefacts by independent third parties. Direct observation (Yin 2014:113-115) was not actionable in this study, as there are nondisclosure agreements between the communication design companies and their clients that extend at least until the rolling out of the design projects that are developed. As a compromise, a request was made to the companies to allow the researcher to peruse documentation (Yin 2014:105-108) and archival records (Yin 2014:109) generated for projects that were completed in the past and where nondisclosure is no longer of concern.

Participant-observation is not appropriate for this particular study. Although influencing the research participants is inevitable,[84] participant-observation requires an active participation of the researcher in a set of practices under investigation (Yin 2014:115). The research problem speaks to awareness, attitudes and aptitudes and as such any participation of the researcher in the daily practices of the communication designers would result in unnecessarily skewed responses. Although participant-observation could potentially yield valuable insights into understanding the conversance of design practitioners with research for design methods, it requires a different approach of investigation to that designed for this study. Increasing the scope of this study to accommodate such differences is also not practicable. One of the hallmarks of CSM is that it is

---

[84] Human subjects are affected under observation by sole virtue of being aware that they are being observed (and this study requires full disclosure for participation). This affect introduces a bias called the observer bias or Hawthorne effect. For more on the Hawthorne effect, see Denscombe (2010:142-143), Hubbard (2010:136), Leedy and Ormrod (2013:101-102) and Neuman (2012:230-231).

well suited to small-scale research that delves deeply into a narrow area of focus (Denscombe 2010:62), a characteristic capitalised on in this study.

In addition to documentation and archival records, other forms of data collection included are in-depth interviews (Yin 2014:110-111) and questionnaires. A questionnaire is traditionally an option in surveying (Yin 2014:8,10), a separate research method altogether, but was included in this study because it is particularly suitable in helping to gather the kind of data necessary to address this study's research problem. This kind of cross-pollination between methods is an acceptable practice in research (Leedy & Ormrod 2013:258; Melles 2008:7), especially in case study research (Denscombe 2010:54), as long as it is justified.[85] Although surveying offers an useful technique for data gathering (namely the questionnaire), CSM was selected as the primary research method for this study because it offers a broader range of investigative tools (Denscombe 2010:62) that are deemed to be more useful in helping to conduct the kind of exploration warranted by the research problem.

Each of the sources of evidence used is discussed in more detail below (sections 1 through 3), how they were managed (section 4) and how they are converged through triangulation (section 5).

4.3.1.1 Questionnaire

The questionnaire comprises a predetermined uniform set of questions set in writing and submitted to individual participants for completion.[86] The questions relate directly to the concerns of the research problem (their intent is not intentionally veiled in any way and they are stated as unambiguously as possible) and were constructed in such a way as to permit analysis of the responses as research data.[87] Some of the questions were restricted to closed-end responses (through asking participants to select one or more options from a list of pre-worded responses), whilst others were left open-ended. Some questions combined open- and closed-ended elements by giving participants the opportunity to select pre-worded responses, but then asking them to

---

[85] This study meets three of the qualifying criteria for using a combination of research methods (Leedy & Ormrod 2013:258), namely completeness (a need to understand the object of inquiry more holistically), complementarity (when two methods can help compensate for each other's weaknesses) and triangulation (the credibility of convergence in data being strengthened by having a greater variety of data to converge). Meeting any one of these criteria would have been sufficient to justify the decision to combine research methods.

[86] See Appendix A for the questionnaire used.

[87] This falls within the standard parameters of questionnaire construction. See Denscombe (2010:155-156), Leedy and Ormrod (2013:196-198), Neuman (2012:173) and Visocky O'grady and Visocky O'grady (2006:48).

elaborate in their own words on the responses selected. There are many potential pitfalls and biases in using questionnaires and these have been well documented (see Hubbard 2010:204-218); steps taken to avoid such pitfalls in the structuring of the questionnaire are explained in the analyses in the following chapter.

4.3.1.2 Interviews

Given the nature of the research problem, the interviews conducted with communication design practitioners form the most important sources of data for this study.[88] The interviews were the only opportunity the researcher had to engage with the practitioners on an interpersonal level. Face-to-face interviews offer the advantages of longer sessions[89], observing nonverbal communication and the potential to probe respondents for clarification or elaboration (Neuman 2012:197). The approach to the interviews was semi-structured (or focused), meaning that there was a predetermined set of questions (which was submitted to participants prior to the interviews being conducted), but deviation was allowed within interviews (Yin 2014:111-112) to probe when responses that seemed unclear or intrinsically relevant to the research were given (Augustin & Coleman 2012:129; Neuman 2012:198), and to allow the interviewer to skip over areas of questioning that are far removed from the particular participant's work portfolio and experience.

Since it could not be assumed that respondents carry any awareness of the methods they were to be asked about (awareness being one of the areas under investigation), a laddering down approach (Augustin & Coleman 2012:131-132) was taken in the structuring of the content. The interview began with general questions about the respondents' qualifications, job descriptions and period of employment to gather qualitative data and to help the respondents ease into the interviewing process. This was followed up with general questions gauging the understanding the respondents carry of the various issues investigated in the interview, and then a systematic targeting of more focused responses.

Although participants were given the full set of scheduled interview questions prior to being interviewed, they were assured that there was no expectation of them to be knowledgeable of research for design methods. The time between the supplying of the questions and the execution

---

[88] See Appendix B for the interview question schedule used.

[89] The 20 interviews conducted lasted an average of 41 minutes each, with the shortest interview being 26 minutes and the longest lasting for 70 minutes. The interviews yielded 15 pages of transcribed responses (under standard formatting) each on average.

of the interviews was so short (typically 24-48 hours) that even if respondents had chosen to acquaint themselves with the concepts therein contained, they would not have been able to do so beyond the most superficial levels (consequently responses would not have been affected beyond the first two questions). The reason for disclosing the interview questions beforehand was in offering a good-faith gesture to encourage the open and willing participation of the respondents.

4.3.1.3 Documentation and archival records

Although external documentation about a case study can yield interesting insights and a useful (if not objective) external perspective of the phenomenon being studied (Yin 2014:107-108), it is not appropriate for this study where the perspectives of the practitioners themselves are under investigation. As a result the documentation requested was limited to that which was created internally and pertained directly to research for design aides, policies, procedures and practices (see Denscombe 2010:218; Heller 2012:49-50; Yin 2014:106).[90] Although such formal documents do not give the perspectives of individuals within an organisation, they still form a useful secondary set of supportive data. The documents offer insight into the environment and corporate culture in which the practitioners operate and how effectively and uniformly information regarding research for design is communicated (if at all). An additional set of documentation included pertains to the correspondence between the researcher and potential research participants to the study, although this constitutes a less significant set of data.

Archival records are also documentation of sorts, although they constitute documents generated purposely for long-term storage and potential retrieval (Yin 2014:109). In this study, the archival records requested pertain specifically to information gathered specifically within the context of (and for) past communication design projects, which was later compiled into some coherent format, and that was deliberately kept on file for future reference.

It is important to note that the documentation and archival records requested from participating companies is intended for secondary use. The documents and records are to be used to corroborate (or contradict) findings from the other sources of data (see Yin 2014:107) to

---

[90] Excluding externally produced and distributed content also made it possible to evade several areas of concern to using documentation, such as authentication of information, negotiation of access and intellectual property protection (see Denscombe 2010:220-223,230-231). It also ensured that documentation was restricted to primary sources, excluding secondary sources together with all the extra parameters and restrictions that need to be considered in their incorporation into research (see Heller 2012:50-53).

strengthen the credibility of the convergence of the data through triangulation. They are not used to build potential explanations in and of themselves for two reasons:

1) the context in which the documents and records were originally produced is not known

2) the purpose of the documents and records was (in most instances) not to keep a record of research practices themselves, but project outcomes and rejected solutions.

As agents of corroboration and contradiction, the documents and archival records are not used to support theories or hypotheses induced from the interviews and questionnaire (since the research is exploratory, not explanatory, in nature), but to compare the practitioners' own assertions of their attitudes and aptitudes with what is materially observable in practice.[91]

Since both the questionnaire and interviews constitute data wilfully (and selectively) volunteered by the participants, the perusal of documentation and archival records brings in less strictly controlled elements during the course of the research (in their composition and formation) (Heller 2012:53) and are thus useful in lending credibility to the process of converging data.[92]

4.3.1.4 Data management

Where there is a significant body of data collected for a study, it is important to store it in coherent and systematic way to facilitate later retrieval (Augustin & Coleman 2012:287; Huberman & Miles 1994:430; Yin 2009:123-126). It is also important to note that some processing of data is essential prior to analysis, since interpreting the data in its raw (captured) format can present an insurmountable task (Huberman & Miles 1994:30). To these ends it is here disclosed how data management (storage and retrieval) was implemented in this study.

The first questionnaire set was printed out in hard copy and submitted to participants to fill in by hand. Subsequent participants insisted that the questionnaire be made available to them in a

---

[91] Even this can only be done in a very limited capacity, since an absence of material records is by no means an indication of a lack of awareness, one or another perspective, or of ineptitude. Corroboration can only occur with information that is present, and contradiction can only be achieved with information that is absent where stated otherwise, or present and incongruous.

[92] Ironically, it was the strict control of practitioners over their documents and archives that limited the amount of perusing the researcher could do.

digital, internet-accessible format, so the same questionnaire was reconstructed on the Survey Monkey platform.[93] The researcher collated the hand-written responses into a single Excel spreadsheet workbook set, and the responses received on Survey Monkey were automatically clustered into their respective cases (in addition to the individual responses, which were kept separate).

The interviews were conducted by the researcher and recorded with a voice-recording device. These interviews were later transcribed to make their contents more easily accessible (see Denscombe 2012:187-188). The transcriptions were made available to respondents at their request.[94] The transcriptions form an already mediated (and less data-rich) source for analysis and are therefore used in conjunction with the recordings.[95]

Documentation and archival records were to be photographically recorded, censored of identifying information and some other signifiers, and submitted to the management of each of the participating companies for approval prior to data analysis.[96] The approved documents were to be collated and annotated to facilitate their retrieval (Yin 2014:124-126). As is shown in the following chapter however, there was no opportunity to implement this particular protocol. In order to maintain a chain of evidence (in order to help establish the validity and reliability of data collected), all correspondence between the researcher and participants was also recorded (Yin 2014:127-128). This correspondence comprised telephone conversations and email exchanges.

4.3.1.5 Triangulation

Three types of triangulation are employed in this study, namely between-methods methodological triangulation, within-methods methodological triangulation and data triangulation (Denscombe 2010:346-347), the latter of which is discussed first.

---

[93] Visit *www.surveymonkey.com* for a more thorough explanation of what the platform offers and how it operates. Although the change in medium undoubtedly impacted the way the questionnaire was experienced, interpreted and answered, there is no reason to believe that either of these methods is less accurate and -representative of the participants' views than the other. The responses are different in form and choice of wording perhaps, but not in their value of contribution to the study.

[94] No such requests were forthcoming. The checking of the transcriptions was recommended and requested by the researcher, but could not be enforced due to the voluntary nature of participation.

[95] Adobe Premiere Pro CS6 made it possible to automate the synchronization of recorded audio data with the transcribed material to facilitate ease of navigation through the interviews.

[96] See Appendix C for the letter of informed consent detailing the above.

The rationale for using several sources of data is to facilitate their triangulation (Yin 2014:119). Although CSM is of such a nature that the researcher invariably has to deal with ambiguity and a plurality of potential interpretations (Stake 1994:241), one of its chief aims in achieving any semblance of credibility, is in demonstrating its validity (see Figure 4; also Stake 1994:241; Visocky O'grady & Visocky O'grady 2006:76; Yin 2014:119). While converging the various lines of inquiry in the study (Yin 2014:120), namely awareness, attitudes and aptitude, it can also be seen whether the findings are supported by more than one type of evidence (Yin 2014:121). This addresses the potential problem of construct validity (see Figure 4), as more than one measurement is provided for a given point of inquiry (Yin 2014:122). Given that the inquiry is concerned with communication designers' perceptions and competencies on a certain topic, inevitably yielding subjective data, it is a priority to bring an aspect of objectivity to the evidence on the table. The objectivity lies not in any one of the sources of evidence, but in the fact that the subjectivities are different for each one; it is believed that collectively they yield more stable findings than what they do individually (Neuman 2012:122).

Contributing to the study findings on a smaller scale is between-methods triangulation, which is introduced by the use of a mixed-methods approach to the research. Although separate and distinct qualitative and quantitative responses are elicited in the various data collection techniques (given that the two methods are not equally adept at addressing all potential types of inquiry), these can still be corroborated for validity (Denscombe 2010:346).[97]

Used least of the three types of triangulation in this study, within-methods methodological triangulation (the use of similar methods to collect data from the same source) helped to refine the data collection tools (Denscombe 2010:347). The use of a pilot case in this study assisted in developing tools that were capable of collecting more useful data in subsequent cases (Yin 2014:96-97). The role of the study pilot is discussed in more detail in the following section.

---

[97] The notion of corroboration is offered very cautiously. Taleb (2010:58-60) highlights the predilection among humans to seek corroboration without trying to supply examples to discredit their hypothesis. This is called the confirmation bias. Corroborations are only offered in this study where there are no contradictions in the data. However the data was collected without preconceptions of what similarities may be uncovered and therefore without attempt to disrupt such correlations. Any convergence of data may be incidental (however using multiple sources makes some effort to forestall this) and must be tested (negatively) for validity subsequent to this study.

4.3.2 Study protocol, procedure and pilot

Introducing a formal study protocol is indispensable when a study is conducted by more than one researcher, in order to ensure uniformity in the execution of the research procedures (Yin 2014:84; Leedy & Ormrod 2013:92). This study is conducted by one researcher, but a study protocol was still developed to ensure that all participating companies and individual participants are addressed in a standardised fashion.[98] Capturing the standards in a formal document was especially helpful as the data capturing was executed over a period of seven months, with intervals as long as three months in between captures. The protocol determines the set of research procedures,[99] many of which were communicated to research participants in the informed letter of consent (see Stake 1994:244).[100] Maintaining consistency in the study's procedures by basing them on a predetermined set of protocols assists in ascertaining the validity of the data collected, which in turn makes validity of the research outcomes achievable (Leedy & Ormrod 2013:92).

Yin (2014:96-98) makes the recommendation to conduct a pilot case study to help discover what the selection criteria for sampling should be, as well as a process of refinement of the data capturing, analysis and reporting tools. Due to the limited resources available for this study, a decision was made not to do a pilot case study. However during the data capturing of the first case, it became apparent that the ordering of the questions during interviews is a vital factor. The initial ordering of questions left respondents confused and much time was needed to explain concepts that would have been apparent to the participant if other questions contained in the interview schedule had been asked first. An effective ordering of content was discovered through a process of trial and error. It also became clear that certain technical terms need to be changed (in deviation from nomenclature used in scholarly literature) for respondents to come to a common understanding of the themes under discussion. Rather than continue using the interview schedule as was initially envisaged, a decision was made to permit a reshuffling of its content, as well as to

---

[98] The fact that the research is conducted by one researcher makes it possible to waive several of the sections that would normally be included in a case study protocol, namely a list of relevant readings related to the subject of inquiry, table shells for specific sets of data arrays, and a guide for the compilation of the case study report (see Yin 2014:85-86).

[99] For example, since the researcher is equally competent in conducting an interview in English and Afrikaans, a protocol was established that the researcher should conduct an interview in the language the participant feels most comfortable communicating in. Procedurally, it meant that the researcher asked questions to evaluate what the language of preference of the respondent is. The interview was then carried out in the participant's language of choice.

[100] See Appendix C for the informed letter of consent sent to prospective research participants.

change certain terminologies in the questionnaire, tailored to the unique jargon used in the particular company being investigated.[101] These discoveries make the first case studied a de facto pilot case study.

4.3.3 Data Analyses

Huberman and Miles (1994:431) assert that qualitative studies are characteristically geared toward description and explanation, particularly in regard to pattern relationships. Which of these occurs and how is determined by the logics of inquiry used, which help predetermine the analytic categories in processing data (Huberman & Miles 1994:431). As such, identifying the RSs appropriate for this study (see section 4.1.1) means the constituents of the method of data analysis are simultaneously shaped. There are however additional considerations in data analysis.

Interim analysis describes the process of adjustment to the investigative instruments that occurred during the pilot study. It is worth addressing the potential misapprehension that the changing of interview schedules and introducing new protocols *vis-à-vis* the rolling out of the questionnaire compromises the internal validity of the study. It can however just as easily be maintained that identifying the need for the changes demonstrates an increased understanding of the research setting, and that this increases the study's internal validity, rather than diminishing it (Huberman & Miles 1994:431).

The process of analysis is also iterative, meaning that it is ongoing, cyclical and hermeneutic in nature (Huberman & Miles 1994:431). Through the process of revisiting and re-evaluating research findings with new sets of data, validity is strengthened. Part of the iteration also comes into play in the switching back and forth between RSs, especially between induction and deduction (Huberman & Miles 1994:431). What the one identifies, the other tests. Since the RSs help to iron out the creases in each other's blind spots, this too contributes to validity.[102]

---

[101] These peculiarities were discovered during the interviewing process. Questionnaires were distributed after completion of the interview sets.

[102] The way in which the certainty of the results (attained through these iterative mores) is expressed is of concern. Karl Popper (1959:133-141) reasons that stating certainty to any degree (whether quantified or expressed in generalities) leads to infinite logical regress. Even so, in the process of iteration the parameters of acceptable responses is narrowed which results in a reduction of uncertainty (see Hubbard 2010:146-147), in that something is known where before nothing was known. The contribution of the research lies not to which degree of certainty it can ascertain findings (since this cannot be adequately quantified, if at all). The contribution lies in its ability to help identify how subsequent research can be constructively guided.

70

Huberman and Miles (1994:432) delineate distinct steps and systematic tactics in data analysis to generate meaning, which are sequenced in Figure 12. What is important to note is that several of these tactics are secondary processes that do not work directly with data (they are second or third generation interpretations of the raw data). The tactics range from the descriptive and concrete to the explanatory and abstract (Huberman & Miles 1994:432), and are generative processes, either of discovery or construction.[103]
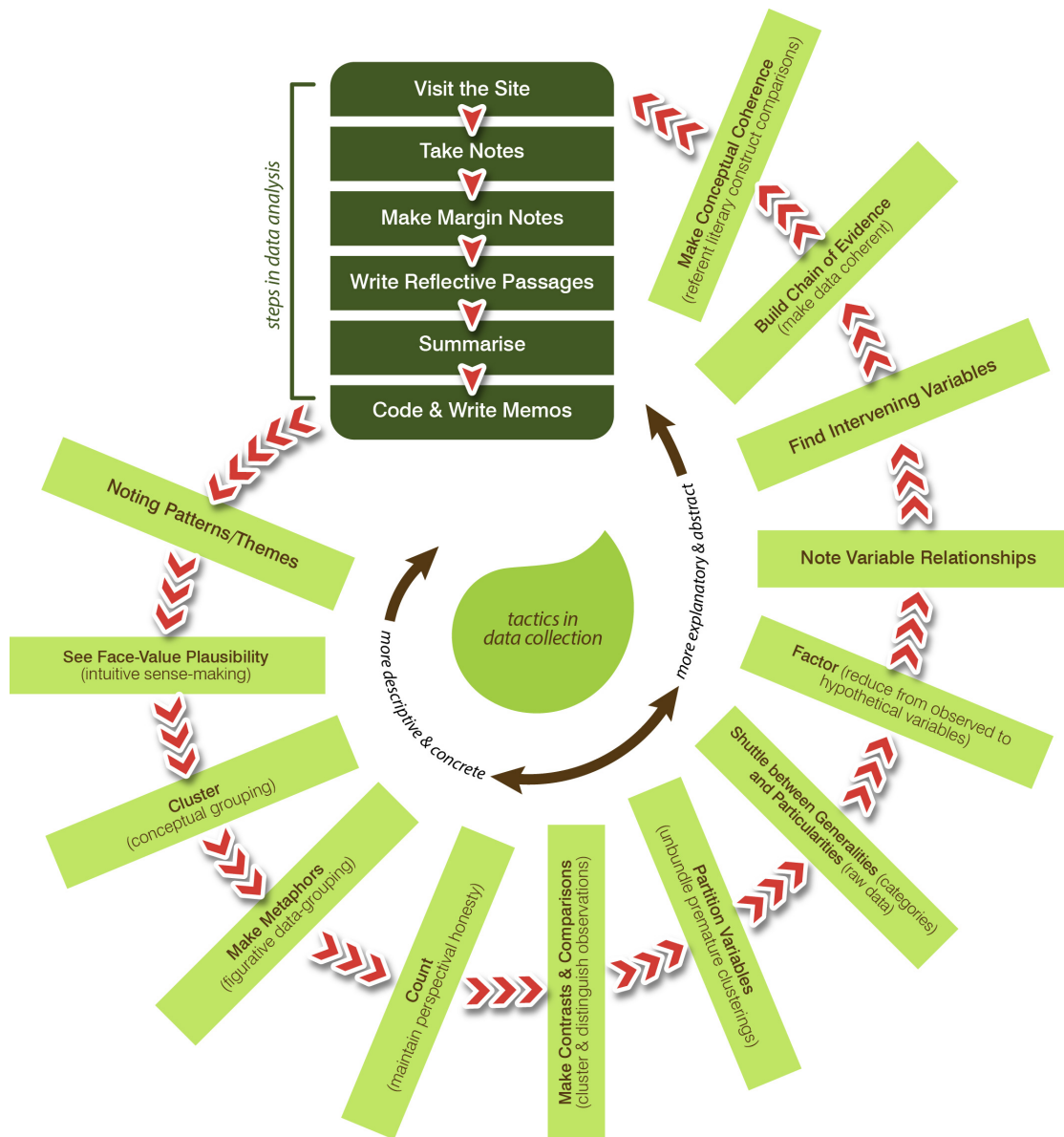
Figure 12 – *Steps and tactics used in qualitative and quantitative data analysis*
(derived from Huberman & Miles 1994:432)

---

[103] The report on the data analyses comes across as being deconstructivist in that it reflects critically on the data gathered for the study. It is therefore useful to keep in mind that in being deconstructive, the discussions are also at once constructions.

71

Given the exploratory nature of this research project, the main result of analysis is explanation, which "whether cast in 'purposive' or straightforwardly historical terms – is in effect a 'concatenated description' that puts one fact or law in relation to others, making the description intelligible" (Huberman & Miles 1994:432).[104] This accurately describes the mechanism underlying how explanation of findings is formulated and communicated. The data analysis starts with each participating case company independently, commencing with a 'within-case' analysis (Huberman & Miles 1994:432). The results of the analyses are stacked until a configuration of research findings for each case is identified (Huberman & Miles 1994:435). Each of these configured stacks is represented in a visual display, each of which represents a replication of the issues under investigation for the study (Huberman & Miles 1994:435). Figure 13 demonstrates the interactions between such visual displays and the analyses. Each stack, or replication, can then be subjected to cross-case analysis,[105] which comprises the second leg of the analyses. This process is also
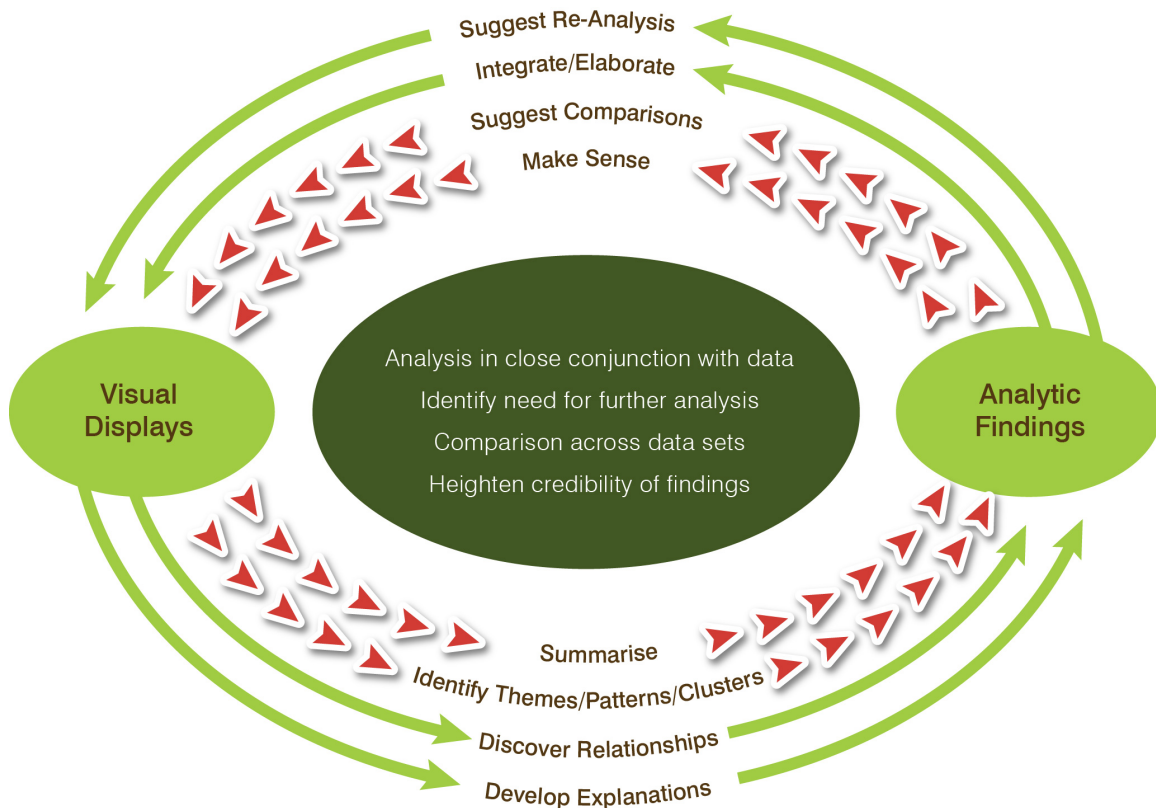
Figure 13 – *The interaction between visual display stacks and analytic findings*
(Huberman & Miles 1994:433, adapted)

---

[104] The pitfalls of the narrative fallacy must also be kept in mind in doing so. See Taleb (2010:62-84) and footnote 42.

[105] This cross-case analysis is conducted alongside the raw data to double-check whether convergences identified are anomalies of the interpretive process or true reflections of the data gathered.

called clustering (Huberman & Miles 1994:435).[106] It is important to note that the clustering is not effected for the sake of generalisation[107] of case findings, nor does it tend toward theory construction. This is avoided since aggregated findings resultant of such a process may end up being theoretical constructions that bear no relation to any particular case in praxis. The value of the clustering lies in acknowledging that although each case is unique, it is also partly a result of a shared historical context that shaped its development (Huberman & Miles 1994:435).

Once data analysis has been completed, it is necessary to make the results of the processes accessible. How this challenge is addressed is discussed in the following section, which deals with the presentation of research in a report.

4.3.4. Reporting findings

As has been mentioned in previous chapters, reporting findings is an integral part of research as it not only contributes knowledge to its field of discourse, but can also be subjected to the various processes of review necessary to be accepted into the scholarly fold of that discourse's community (Breslin & Buchanan 2008:36,38; Crouch & Pearce 2012:162; van der Merwe 1996:286). It needs to be pointed out that the formulation of the research report (this document), like the process of forming the research question and procedures, is a discriminate process of inclusion and exclusion (Denscombe 2010:309; Stake 2005:455-456). This places a burden of integrity on the researcher (to avoid deliberately misrepresenting the facts of the findings); nevertheless it is inevitable that less is discovered than pursued, and that less still is shared in the report (Stake 2005:456).

The composing of a research report determines that manner in which new knowledge can be structured in those not part of the research process. Stake (2005:455) opines that in CSM reports the knowledge that is shared is both propositional and experiential. This subjectivity adds another tier of mediation which precedes that implemented by the reader in their appropriation of the report's contents; Stake (2005:455) warns that the passage of knowledge from the writer to the

---

[106] Neither the visual display stacks, nor the subsequent replication stacks, are included in the research report since this would be overly tedious. The process is however described here for the sake of disclosing the approach taken to arrive at the research findings reported on in the following chapter.
[107] See Stake (1994:240-242) and Denscombe (2010:60-62) on establishing similarity and generisability in case studies.

reader is precarious. Whilst the researcher relies on cognitive flexibility of the reader to accommodate new learning, pains must be taken to ensure that the information is presented in as unambiguous and lucid a manner as possible (see Crouch & Pearce 2012:162; Heller 2012:66).

Besides the abovementioned general considerations in reporting on research, there are also some aspects that are particular to presenting CSM findings. A rationale for conducting the research is included in the first chapter and a description of the data collected has been given in this chapter (see Leedy & Ormrod 2013:142). What remains in the following chapter, is to give descriptions of the facts related to the cases and to discuss patterns discovered in the data collected from the various participants in as neutral a manner as possible, despite the subjectivity inherent in interpreting the data (Leedy & Ormrod 2013:142). The cases (and study) are also related back to the broader context of the field (see Leedy & Ormrod 2013:142).

To facilitate the process of communicating the research in a manner that makes it accessible to readers (in terms of giving coherent structure to the myriad components of the research project), Yin (2014:187-190) suggests several potential illustrative structures. Given the fact that this study comprises four separate case companies studied as data clusters, the findings are presented according to a linear-analytic structure[108] for the sake of simplicity.

In this chapter, the researcher's position towards the research was outlined, as was the research's stance in relation to the object of inquiry. The methodology and method employed in this study were carefully explained, together with how they were put into practice. The particularities of this study's design were delineated and some attempt was made to give insight into the researcher's approach to data capturing, analysis and how these are reported on. Although disclosure of method and methodology does not need to be as detailed in every research for design project as it is in this dissertation, one can see how neglect to address these issues at all results in reports that can simply not be scrutinised for validity, reliability, rigor and (ultimately) credibility.

In the following chapter, the results of the data analyses are presented, what is inferred from them and what the potential implications of the findings are.

---

[108] A linear-analytic structure has the following ordering and set of defining characteristics (Yin 2014:188):
1. It starts with the identification of the research problem and context.
2. A review of relevant literature is done prior to data analysis.
3. The research procedures are explained, followed by the presentation of the data collected and analysed.
4. The implications and findings of the data analysis are suggested.

Chapter 5: FOUR CASE COMPANIES

In the preceding chapter the various issues pertaining to the research method and theoretical paradigms of this study were expressly stated for the benefit of the reader. The chapter expanded on three fronts, namely the position of the researcher, the position of the research (methodology and method) and the manner in which the research method (CSM) is implemented. Part of the latter lay in describing the data capturing, handling and analysis in addition to how these are reported on.

Assuming that the reader now understands not only the approach taken by the researcher, but also why the study has been designed as it is, this chapter proceeds to discuss the results of the data analyses. The analysis is broken up into five distinct phases. The four communication design companies participating in the study are discussed one at a time in isolation, forming the first four phases. Responses from individuals from each of the companies (in both interviews and the questionnaire, where applicable) are discussed both separately and in relation to each other (where possible), as is the project research documentation accessed. In the fifth and final phase, the data is clustered and broad cross-comparison is conducted where appropriate. It is worth stating again emphatically that the purpose in conducting cross-case comparative analysis is not to determine generisability of the cases,[109] but to help guide future avenues of investigation and discussion.

Although each of the companies are described in more detail in each of the respective case analyses, their cities of occupation are disclosed separately here for the sake of honouring the confidentiality agreements made with them.[110] In the pursuit of diversity of participants, companies in different cities were approached. This was also to attempt to, in some measure, circumvent gathering responses that are so particularly rooted in the corporate social culture of one particular city that they are not relevant to the rest of the South African communication designscape. As such, two of the companies are based in Johannesburg, one is based in Pretoria and one is based in Cape Town. Some Durban-based companies were also approached, but none were both

---

[109] Bear in mind that the case companies were purposely selected for heterogeneity, and that no precautions were taken to forestall false correlative contingencies.

[110] Each of the participating companies was assured of non-disclosure of identity for both individuals and the company as a whole. To this end the companies have been allocated pseudonyms for the study, namely *P Theta B*, *J Beta B*, *C Lambda P* and *J Kappa K* respectively. The nomenclature is strange, but was implemented early on for the researcher's use. It incorporates reminders of the name, city of origin and typology of each company.

willing and able to participate in the study. Staff constituencies of the participating companies vary between five at the lower end to roughly thirty at the higher end.

5.1 P Theta B

As was explained in the previous chapter (see section 4.3.2), the first company investigated became a de facto pilot case. Certain discoveries were made during this first phase of research that led to certain research policies and procedures being revised and adjusted for the subsequent cases. The different types of data are discussed in isolation below, except where targeted triangulation helps with clarification. It also so happened (by no design of the researcher) that this first company yielded the most substantial data set, which is reflected in the length of the analysis that follows. P Theta B is the sole branch of a branding agency, and one partner in a cluster of companies that addresses the various design and web-communications needs of their clients.

5.1.1. Questionnaire responses

It was determined at the outset of the project that to get a fairly representative sample of responses from the companies, at least fifty percent of employees would need to complete and return the questionnaire. P Theta B agreed to complete fifteen questionnaires (in excess of the minimum number of respondents).[111] However eventually, after considerable back-and-forth, nine questionnaires were returned; this constitutes slightly less than the study protocol's quorum of responses but enough to analyse for the exploratory purposes of the study. The questionnaire structure remained consistent for all four companies, comprising five sections (A through E).[112] The responses from each of the sections of the questionnaire (for P Theta B) are respectively collated in Figures 14 through 18.

---

[111] Upon negotiation it was decided that employees would be given one week to complete the questionnaire. Upon failure to meet this deadline, an extension was negotiated and the employees were given an additional week to complete the questionnaire; then another extension, and another. The questionnaires were returned after four weeks.

[112] Section A deals with the participant's position within the company. Sections B through D deal with each of the three facets of conversance systematically in the order awareness (section B), then attitudes (section C) and finally aptitude (section D). The last section E, gauges the level of conversance of the participants with each of the research for design methods known to the researcher at the time the questionnaire data collection first started. The entire questionnaire can be seen in Appendix A.

Six of the nine respondents identified themselves as being designers, each of whom had received formal training in design at a tertiary level. Five of the six had completed a bachelor of arts degree, with the sixth having an advanced diploma (see Figure 14b). Two of the other staff, denying that they had received formal training, disclosed in interviews that although they had not studied design their bachelor of arts degrees had included some training in graphic design. All of the staff members at least work on design projects in collaboration with designers, even if they are not designers themselves (see Figure 14a). The average length of employment of current employees in the company was 24 months (see Figure 14c), with the average for designers being 17 months. Comparative length of employment indicates that design managers (such as creative directors) were not promoted to the position from within the company but recruited from outside.
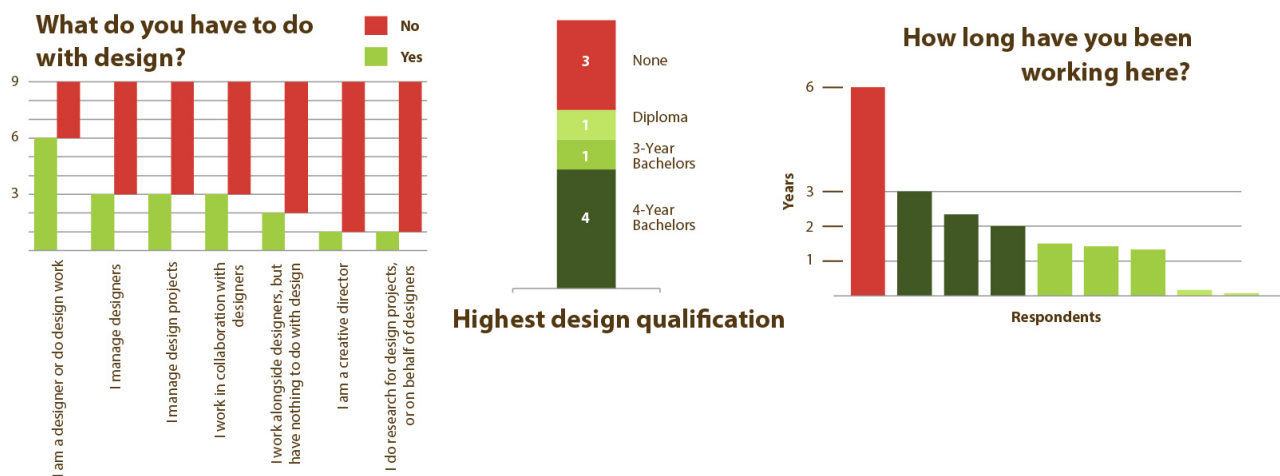
Figure 14a-c: *Collated responses for section A of the questionnaire at P Theta B*[113]

The respondents were equally divided between those who believe there is a distinct difference between research for design and other types of research,[114] and those who believe that all forms of research (research for design included) are essentially the same. One respondent asserted that formalised research would be the same, but that there would be differences in informal research

---

[113] In the figure, '4-Year Bachelors' refers to a 480-credit, NQF 8 level bachelors degree, whereas '3-Year Bachelors' refers to a 360-credit, NQF 7 level bachelors degree. These are according to the Council of Higher Education's (CHE's) classifications (see: Register of private higher education institutions 2014:3-4) and includes qualifications from all institutions accredited by the CHE, whether traditional universities or private institutions. Admittedly there may be some discrepancy in the level of engagement with theory and research methodology across these groups.

[114] Note that in disclosing the results of the data gathered during interviews, the word 'research' (unless otherwise stated) is used to denote that which the respondents consider to be research and is not necessarily truly reflective of research as delineated earlier in this study.

(implementation of tacit knowledge). Others divided research along the lines of quantitative (non-design) versus qualitative (design) research.[115] Four of the nine had heard of research for design prior to this study (see Figure 15a). The most common sources where this term had been encountered were during formal training, in print-based magazines, design books and on websites (see Figure 15b). The level at which these different sources had engaged with the notion of research for design was either to explain what research for design is, or to attempt to establish a theoretical framework for research for design (see Figure 15c). Only three respondents felt confident that they could identify research for design methods. Of these, two respondents included "own methods" in their response.
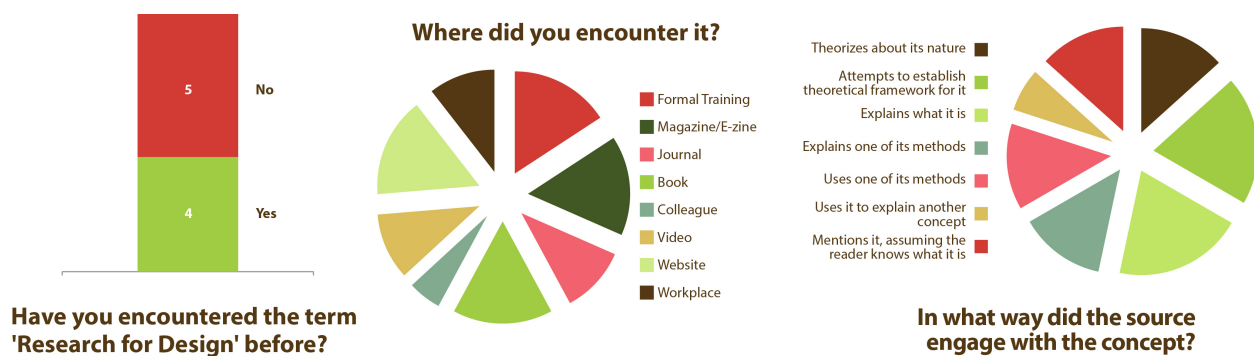
Figure 15a-c: *Collated responses related to awareness of research for design and its methods at P Theta B*

There was some consensus between the respondents when it came to expressing their attitudes regarding research for design. All respondents asserted that research for design is a necessary component of the design process. Their reasons for making this assertion can be grouped into roughly three groups: to address the design client's needs in an effective manner (most prevalent), to keep the designer current with developments in the field (second most prevalent) and to prevent duplicating and infringing on existing intellectual property (least prevalent). When it came to assigning responsibility for conducting research for design, all felt that professional design bodies (any government- or industry-mandated representative bodies) are included.[116] The rest of the responses are included in Figure 16a.

---

[115] It almost goes without saying that this is a false distinction. Some design research is quantitative in nature.
[116] It would be useful to investigate, in a subsequent study, if and how this perception relates to the notion of a g.o.d. or 'guarantor of design' (Nelson & Stolterman 2012:201-202; see section 3.2.3.)

78

When it came to deciding who should be primarily responsible for conducting the research, opinions were much more divided with only 'professional design bodies' getting two mentions (see Figure 16a). Most conspicuous was the elision of all government-owned and government-mandated institutions (other than universities) from this list. The general feeling seems to be that designers either have to do their own research, or that specialised research for design companies or institutions should be contracted in to do it (as opposed to a separate department within the same company). When asked whether they felt that they themselves should be doing research for design, those who responded in the affirmative (five out of nine) also expressed a desire to do so although lack of time often restricts them from doing so (see Figure 17b). Three gave ambiguous responses and only one (a designer) responded that she neither needs nor desires to conduct research for design.
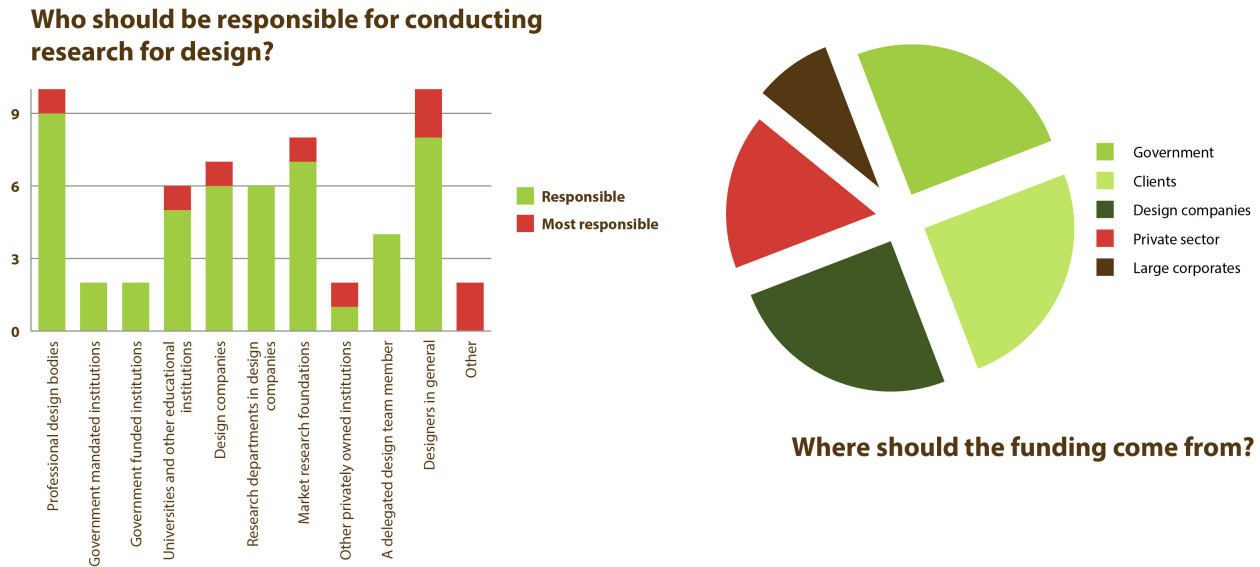
Figure 16a-b – *Collated responses regarding attitudes towards research for design responsibility and funding, at P Theta B*

Not surprisingly, expectations of what benefits research for design could yield matched the reasons given for why respondents felt research for design is necessary in the first place, however with some additions. These included: generation of new sources of information (books and websites), keeping the learning sector up to date, retention of existing clients and acquisition of new clients. In discussing where funding for research for design should come from (see Figure 16b), three suggested the government, three suggested that it should be generated within the

design company, three that the clients should foot the bill. One suggested larger corporations, presumably as an act of corporate social responsibility.

Only two respondents indicated that they make a conscious effort to stay in step with developments in the field of research for design. Two respondents had received formal training in research for design, both at the same institution. The one felt that the training was useful as it allows her to understand the research processes used when reading research reports. The other felt that the training was of minimal value since it was theoretical and not practical. However six of the respondents expressed a desire to be trained further in research for design methods.

Only one respondent indicated that she had encountered the notion of research for design at work, so it was not surprising that most of the respondents did not know if their personal views regarding research for design are in line with those of the company – because they did not know what others' views are. This would suggest that research is not often discussed formally or informally at the company, even though all nine respondents indicated that they engage in research for design at least once or twice a month, and most for several hours every week (see Figure 17a).[117]
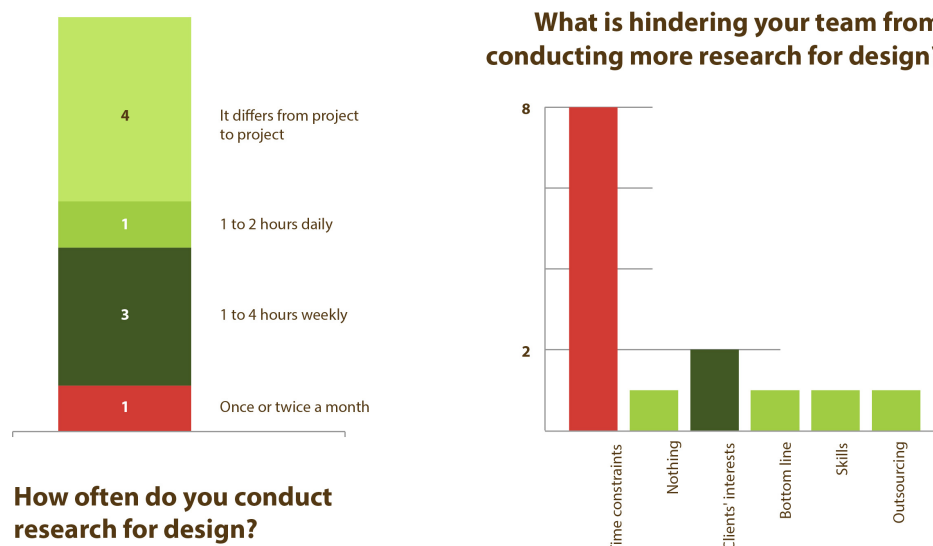
Figure 17a-b: Collated responses concerning frequency in applying research for design methods at P Theta B

---

[117] Taking into consideration the necessity of sharing research findings, this anomaly warrants deeper inquiry. Are research results only shared outside of the company, or not at all? Why do researchers keep results private, within the company?

Seven of the respondents indicated a desire for more opportunities to conduct research for design. When asked what was hindering them from doing more, eight responded that time was a limitation. Other reasons cited included lack of interest from clients and the fact that research is sometimes outsourced (see Figure 17b). It is also worth noting that the company has no formal policies or procedures relating to research for design.[118] When asked to list research for design methods they feel adept at implementing, responses were sparse with only three respondents offering names. Of these, one response was "Google" and the other methods listed were generic descriptors of types of research rather than methods themselves, except for "case studies".[119] Responses also indicated that there are only three instances where research for design would be offered as a service to clients, namely in compiling analytics reports, as a part of conversion optimisation on websites and when discovery[120] needs to be done for new clients and start-up companies.

The final section of the questionnaire, section E, required respondents to indicate on a numbered scale what their level of conversance with each of 88 different research for design methods is.[121] The results are collated in Figure 18.[122] It is worth mentioning that there is reason to question the validity of responses given for this section of the questionnaire. One respondent gave the same answer for the last 59 methods on the table. Another responded only with 1 (I've heard of it [the method]) or 6 (I've never heard of it)[123] all the way through, missing out on 5 of the methods altogether in the process. In Figure 18, the response sets were normalised in scalability, where 1 represents 'I've never heard of the method' and 6 represents 'I am experienced in using this method.' All the lines that terminate between the thresholds of experience (all the lines that creep into the area between the red upright dotted lines) represent methods that the designers at

---

[118] This is what was maintained in the questionnaire responses. It turns out that there are procedures for certain types of research done, post-implementation, on clients' websites; a fact which was mentioned only during one of the interviews.

[119] It was not clear whether this refers to CSM, a research for design method, or to the use of case studies as an explanatory tool as explained in chapter 4 (see section 4.2.1).

[120] This was later clarified in an interview as being a process that Leedy & Ormrod (2013) would classify as 'information discovery,' which is a component of research but not research in and of itself.

[121] See Appendix A.

[122] Unfortunately, only 7 of the 9 respondents completed this part of the questionnaire.

[123] To help avoid respondents from falling into a response set bias (see Hubbard 2010:205), the last option in the list of pre-worded responses was reversed in scalability. Instead of making 1 the 'least' conversant and gradually increasing this to make 6 the 'most' conversant, the 'least' conversant option was placed at number 6, with numbers 1 through 5 forming the subsequent options in increasing order. This mechanism was introduced to get respondents to read each option carefully before responding. This would have been more effective if the order of responses was also changed from time to time throughout the list; nevertheless the response patterns highlighted above indicate a lack of reading rather than conformation to the response set's format.
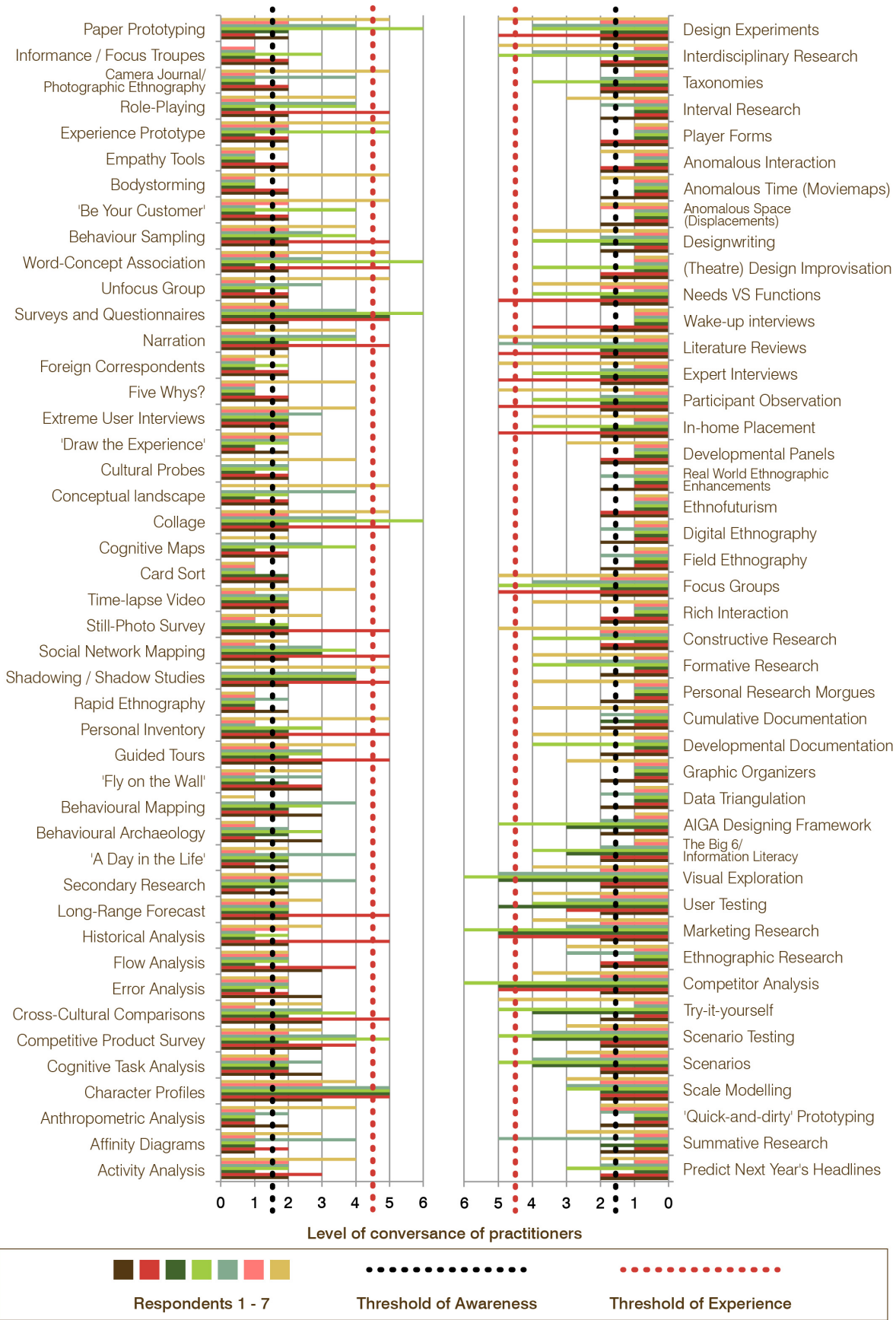
Figure 18: *Level of conversance with specific research for design methods at P Theta B*

P Theta B have used. All the lines that terminate between the thresholds of awareness (all the lines that creep into the area between the black upright dotted lines) are research for design methods that the designers are aware of. Those that lie to the left and the right of these thresholds are methods that the designers have never heard of. What is even more shocking than the number of research for design methods the respondents have not even heard of, is the how few of these methods have been used by the designers in practice.

5.1.2 Interviews

In addition to using the questionnaire, data was collected from P Theta B during the course of five in-depth interviews, with the view to get samples from the various departments and levels of management within the company. Interviews were conducted with the general manager of digital strategy, the production director, a creative (and art) director, a medium weight graphic designer and a sales director. The interview questions were divided into eight broad categories, namely:

1) Job description and work experience

2) Familiarity with the concepts of the study

3) Relating to the idea of 'research for design methods'

4) Research for design and its implementation in the real world

5) Research for design as it relates to the bottom line

6) Company policies and procedures related to research for design

7) Allocation of budget and resources to research for design

8) Documentation and recording of research for design

The ordering of the sections that was settled on by the end of the interviews at P Theta B is as above; a different ordering was used in a few of the interviews. The respondents became confused when concepts were introduced or discussed in a certain order and it was discovered, by trial and error, that the above ordering flowed the most naturally one into the next. This reordering by no means affected the quality of the responses; it was simply necessary to take more time to clarify questions in the earlier interviews which was not necessary in the reordered interviews. All eight sections were covered during the course of the interview, in every interview, at every company.

Two of the respondents had never heard of research for design. All respondents were asked to explain what they understood the term to mean, or what they would think it to mean. Four of the five interviewees stated that it is something preliminary, happening prior to any design work being executed, and that it consists of gathering two types of information: firstly, existing data on the client's industry and target market; secondly, what they termed 'visual research,' which consists of finding existing designs produced by other designers. The fifth respondent suggested that research is an ongoing process that happens before, during and even after implementation, specifically in the case of checking the activity on client's websites. All of the respondents felt very strongly that research is an essential component of the design process. Two reasons were given: to ensure that the design yields the intended results effectively and to empower the designer to defend their design decisions to the client.

As to what research for design actually entails, three of the five respondents focused on market research and business strategy. Three of the five suggested that research for design is unique in that it is visually based. One respondent felt that design functions similarly to other types of human-centred research in that it profiles people, but that it was also unique in that the profiling occurs along the lines of experiences rather than market segmentation and other factors.

Every staff member interviewed stated that they conduct research some of the time, although not necessarily for every project (the differentiating factor being the scope of the project, or whether the client has a type of business new to the company and its designers). Respondents were divided on whether forming research for design methods is necessary in principle; some felt that it is unwise to restrict creatives into the 'box' of methods, whereas others felt very strongly that there are certain types of research that yield better results than others (and should therefore be implemented in preference to designers using their own approaches). Two of the respondents had received tuition in research for design during their formal (academic) studies, but felt that it had been too theoretical and was therefore not relevant to the work environment. There was no consensus regarding who should be responsible for conducting research for design, although most felt that it should happen within the company's four walls. Three interviewees suggested that the client should be responsible for bringing some research to the table based on their knowledge of their own business and industry.

All respondents expressed an interest in learning more about research for design methods. Most did not elaborate on their preference regarding medium of instruction, but the two that did differed;

the one felt strongly that it would be necessary to do dedicated course work outside of business hours, the other was adamant that she would prefer it to happen in the work context as on-the-job training.

All respondents felt that the times they had done research it had been indispensable. Two went as far as to say that if they did not conduct research for design, they would miss their targets every time or most of the time. The general feeling was that the methods employed in the company are sufficient and respondents could not suggest ways for them to be improved; most however did lament the fact that time constraints prevented them from doing as much research as they would like. Two respondents suggested that simply taking greater pains to make practitioners aware of existing research for design methods would be a big contribution. The sales director felt that sufficient time was allocated to research for every project and the creative director felt strongly not only that her methods worked, but that there are no better ways to conduct research than how she is already doing it. A few established approaches to conducting (what respondents considered to be) research[124] were uncovered in the interview process, namely:

1) Gleaning information from clients through supplied documentation and consultation

2) Reading books themed around specific design applications

3) Ongoing data gathering on website-user habits on clients' websites

4) Internet-based market research

5) Internet-based visual research (i.e. collecting visual samples of existing work)

Respondents were also asked whether doing research for design could contribute to the communication design industry, as well as to their own company's bottom line. To the first question, there was consensus that the research could contribute to the industry and several ways were suggested in which this could happen, namely: that practitioners could be more informed about where the state of the art in the industry is at, that educational institutions could be better informed to prepare students for the reality of the industry, and that practitioners would be able to persuade clients to trust their judgement because they can support their creative decisions with facts. While most of the respondents also felt that implementing research for design methods could contribute to the company's bottom line (by empowering designers to arrive at effective solutions after fewer iterations, and in that they would receive fewer call-backs from clients as a

---

[124] Understanding the demands and nature of research as described in chapters 2 and 3 of this document, one can see that only the third approach in this list of five methods could actually be classified as being research. The other four approaches are different expressions of what Leedy and Ormrod (2013:1) call rummaging.

consequence), one felt that it should in theory but wouldn't in practice due to certain preconceptions held by clients. All of the respondents felt that they would be greater assets to any communications design company if they received further training in research for design methods, if it were the right kind of training.[125]

It emerged during the course of the interviews that the company has no formal policies or procedures related to research for design, except for the digital strategy department which has a diagram explaining how to test for conversion on websites. Most respondents felt that conventions within the company were well understood by all staff and that it would not be necessary to formalise these into policies. The projects director opined that it would be important to formulate policies regarding their research practices at some point, but that it was fairly low on their list of priorities to do so. Research for design is not a billable for clients within the company, other than for the ongoing analytics on websites and when market research is conducted for new clients. The cost for the other forms of research engaged in by the company (as listed above) is carried by the company. It is interesting to note that with the exception of the web analytics, the only research billed by the company is for the research which is conducted by the staff who set up the project budgets, namely the sales department. The resources staff have at their disposal to conduct research for design consists of internet access, their own visual research for past projects and a private collection of books.

The last section covered in the interviews relates to how research documentation produced during the course of projects is assembled, collated stored and accessed. All documentation is stored digitally on the company server and can be accessed by anyone within the company after the fact. The only exception to this is that mock-ups (a form of physical prototyping) are sometimes made of print-based projects before sending work to printers, to check the functionality and correctness of designs. Web analytics and conversion data is securely stored on a Google-owned platform.

Each staff member is responsible for assembling, collating and storing their own research in a manner of their choosing, deciding which research documentation to keep archived and in what format. Respondents indicated that research was done for new types of work only (and even then only when considered necessary); thereafter the company would rely on the tacit knowledge of their employees for subsequent work of a similar ilk. The sales director indicated that an effort was made to place people in the design team for a given project who had gained specialisation in

---

[125] They did not specify what they meant by 'the right kind' of training.

designing for that industry. It was indicated that past research was not referred back to unless it had to be cited for the sake of a new client in the same industry that past research had been conducted on.

5.1.3 Documentation

It has already been hinted in the previous chapter that the collection of documentation produced for research for design projects did not transpire as was anticipated during the planning of the research and negotiations with the participating companies. Given that there is no systematic way in which documentation is archived at P Theta B, each staff member would need to locate information for the researcher on his behalf using their knowledge of their own approach to filing. Hard copies of documentation are not kept in long term storage (even the mock-ups mentioned above) and digital content, although accessible in principle, was not deemed substantial enough by the staff members to show to the researcher. All that could be gleaned is that the only archived research without restricted access is in the form of visual samples of pre-existing designs used as inspiration by the designers, collected from a handful of repository websites. Since the only access to these documents was in the narrative, it was decided not to include them in the data comparison of this particular case study.

What caused the discrepancy between that which was negotiated between the researcher and what was available for perusal can only speculated. It may have been a misunderstanding of what was meant by "documentation generated for past design projects where a research for design method was implemented,"[126] or it may be that this part was missed altogether in the reading of the documents supplied to participants.

5.2 J Beta B

The second case company is a branding agency which operates as a local branch of a multinational organisation[127] and falls under one wing of a larger cluster of organisations spread over several continents. Although a fair number of questionnaires were completed at the first

---

[126] This was the wording used in the informed letter of consent distributed to all research participants (see Appendix C). In the preliminary letter used to approach research participants, it was referred to more loosely as 'documentation generated for some past design projects'.

[127] It does however have branches in other cities in this country, and serves clients throughout the continent.

company, only two questionnaires were returned among the combined subsequent companies.[128] As such the questionnaire data is not discussed for this or the remaining case studies.

5.2.1 Interviews

A total of six interviews were conducted at J Beta B over a period of three days. Participants were comprised of the managing director, design director, a junior graphic designer, junior strategist, senior strategic planner and a client manager. It was revealed through the interviews that research[129] is a standard billable item in the company's costing structure and that five of the six respondents conduct formal research as part of their job description. One of the participants is primarily a researcher, whereas two of the others conduct a significant amount of research. Three of the respondents had commissioned or been participants in conducting original, primary research and another had conducted secondary research only. All of this research activity had already been clocked, despite the fact that four of the participants had been working at the company for three months or less.[130] Research is apparently very much a part of J Beta B's corporate culture; the research conducted is geared towards helping the design and brand strategy projects achieve their aims, and representatives from inside or outside the company are scheduled to do presentations on new developments in the field on a weekly basis. Taking this into consideration, it seems unlikely that the company as a whole is uninformed about research practices. Nonetheless, all six interviewees were emphatic that they had never encountered the term 'research for design' prior to their involvement in this study.

When asked to make a comparison between research in general and research for design, five of the six interviewees opined that although the same basic principles of research would apply to the latter as to the former, research for design might diverge from traditional research in its approaches and aims. The sixth respondent articulated that although research for design is less

---

[128] Ironically, these companies insisted on questionnaires accessible online and such a facility was especially set up for them.

[129] At this company research is collated, processed, formally presented to clients and systematically filed away. Projects are also shared with sister companies on an intranet server, which means that research is also externally communicated. With the exception of 'visual research' (internet- and book-based picture searches), research at this company (as explained in the narrative) seems to adhere to all the requirements for scholarly research.

[130] One of these had conducted primary research at a prior design company where she had worked, but had not yet done so at this company at the time of her interview.

formal than 'academic research' she would still consider it to be research because it works.[131] When asked whether they believed there to be a method to conducting research for design, all respondents felt that although basic principles would be applied to all research for design projects, the delivery aims determine the execution (more so than the dictates of a prescribed method).[132]

Some interviewees felt that both universities and the industry should be responsible for conducting research for design, and that the two should work closer together to be better informed as to how to address the other's needs. All respondents felt that all design practitioners should be responsible for conducting research for design, although half felt that only certain types of research should be delegated to designers to free up their time for execution.

All the staff felt that they would benefit personally from being trained further in research for design methods. Some felt that they would be able to arrive at effective solutions faster; some felt that they would be able to identify relevant existing research faster and others felt they would be better equipped to train junior members of staff on-the-job. One respondent expressed that in her experience there is a higher regard held for people trained in conducting research and that receiving such training would not only up-skill her, but also increase her prestige in the workplace. When it came to discussing whether a company should be responsible for investing in staff in this way, all felt that it should be. Half softened this response by saying that ideally companies should be, but that in reality the company would not receive the return on investment, mainly due to the corporate social culture of their clients. The general manager expressed that the problem lies not only at the corporate level, but that there needs to be a bigger directive as a nation to identify areas of research for development to achieve excellence in. In a nutshell, it was felt that there would be little sense in training staff in research for design methods before there was a push from clients for this kind of service.[133] As it turns out, the organisation had already invested in setting up an unique intranet-based platform on which companies share project findings and results globally. Although all of the participants were aware of this facility, only one confirmed that she had ever attempted to make use of it.

---

[131] Although the efficacy of outcomes is not considered a criterion for classifying activity as research, this pragmatic approach to accepting the standard of delivery of approaches certainly echoes the justification used for many of the research design decisions made in this study.

[132] Given that all research methods are selected and implemented so as best to address the research problem at hand, this is a false dichotomy.

[133] It was expressed that although projects are 'loaded' (the way costs are segmented) differently, depending on the clients' particular preferences, the company always ensures that there is a budget to cover research expenses.

In discussing the relationship between tacit knowledge (or intuition, as some called it) and research, it was felt that both are equally important in communication design projects. Both senior and junior staff asserted that the more experienced a staff member was, the more likely their convictions were to be affirmed by research.[134] If the confusion had been known to the researcher at the time of the interviews, regarding tacit knowledge and the penchant many have for claiming that design practice is a form of research, the relationship between the two would have been explored further.[135]

All of the respondents felt that conducting research contributed to the company's bottom line in a significant way. All felt that research for design could help the industry as a whole to grow. One respondent suggested that this would only happen if it was accompanied by a wider shift in perception regarding the need for research on a national scale. One respondent felt that although many companies are hesitant to share research findings and project outcomes because they fear it will dent their competitive advantage, communication design project outcomes are by nature publicly accessible and that there should be no reason people should be afraid to disclose information more freely; she felt that competitive advantage should lie not in hoarding private information, but in competency in working with available information.

J Beta B did not have any formal policies and procedures regarding research for design; however the company was in a process of restructuring and the general manager expressed that developing such policies and procedures was on the cards. As it stands, research is a standard billable on projects and as such it was understood by all that they are required to conduct research (either formally or informally) of one kind or another. Documentation is also collated and administrated by a particular department within the company, who also assist other departments in assembling their research into a coherent form. Most staff claimed that they had referred to

---

[134] One respondent went as far as to say that her research output would be determined by her boss's intuition, and that it is unfortunately sometimes necessary to employ post rationalisation (finding research that will strengthen claims already made by the practitioner). Other staff further down the line on the project denied that post rationalisation takes place, because their claims are based on the preliminary research done for projects and that they only reintroduced justifications made for claims to refresh their clients' memories. This does not however negate the fact that the preliminary research they received may already have been the product of post rationalisation.

[135] One respondent however volunteered the following, which has been identified as a possible point of departure for future research into this area of discourse: "I think they [research and intuition] are completely interchangeable. Just through your own intuition and experience, say I have a feeling there is something [significant] over there. Go and research it a bit more formally and find that either there is or there isn't something. Or you may be conducting formal research and move into something more intuitive afterwards. I don't think there is really a beginning or an end to that."

archival documents for projects; either to re-use research that had been collated for a particular industry related to the project at hand (if the research was still new enough), or to get acquainted with past work done for a client.

Several resources available to staff to conduct research for design were mentioned during the interviews. This includes internet access, the intranet-based project sharing platform and the company's in-house library. One participant also stated that she had commissioned an outside company to conduct original research for a client on their behalf. Two of interviewees lamented the lack of time to conduct adequate research for projects and one stated that the single biggest contribution that could be made to improve the quality of her work is a reliable repository of documented research for design she can consult.

5.2.2 Documentation

Although it was uniformly stated in the interview process that research documentation for past design projects is available at J Beta B, the researcher was unable to make an appointment to peruse it (despite several attempts to do so). The only documentation that was accessed during the interaction with the company was the company library, which is prominently displayed in the waiting area. This library consisted of roughly 300 volumes, dealing predominantly with brand theory, brand development, brand architecture and brand development showcases.[136] A smattering of the books address ethnography, international affairs and economics.

5.3 C Lambda P

The third participating company in the study is a video production house which does its own scripting, production, and post production (including design) in-house. Although the majority of clients are design- and advertising agencies (on behalf of third parties), they do a certain amount of work directly with the companies the productions are created for. Data sampling at this company consisted primarily of interviews,[137] the findings of which are discussed below.

---

[136] The relative homogeneity of content is not surprising, given that J Beta B is a branding agency.

[137] During the interview process it was discovered that although many of the same concepts abound at this company as at others, a different set of terminologies is used. As such the wording of the questionnaire was adjusted accordingly to reflect the respondents' nomenclature and uses for certain concepts.

5.3.1 Interviews

Four in-depth interviews were conducted at C Lambda P. Several of the staff members have two or more job descriptions at the company, but the interviews included the managing director; editors and a graphic designer; a script writer, producer and director.

Two differences between this company and the others participating in the study emerged early on in the interview process, namely the length of employment of staff and the level of formal training. The four interviewees had been working at the company for 35 years, 14 years, 8 years and 22 years respectively. The participant who had been at the company for eight years had also done freelance work for the company for several years before joining their full-time staff. Only one of the respondents had received formal training in his line of work and two of the four had received no tertiary education at all.

Although none of the participants had encountered the term 'research for design' before participating in the study, all four felt that research was an essential component of the work the company does; all conduct research relevant to their own portfolio for some projects and see doing so as being absolutely indispensable. The research[138] conducted at C Lambda P falls into four categories:

1) Research into content, for the purposes of scripting and identifying appropriate stock footage from existing libraries.

2) Visually based research, to identify types of visual treatments to help establish the costing of projects.

3) Research into execution, for the purposes of discovering how to execute tasks to emulate certain visual outcomes identified in existing video productions.

4) Research into process, to identify developments and methods of practice that enable staff to identify relevant information more quickly, and to adapt to the demands of new technologies.

---

[138] As with P Theta B, the practices identified as 'research' at C Lambda P consist of tasks that are a part of acceptable research practice, but not research in and of themselves. Whereas P Theta B makes use of tasks classified as 'rummaging' (Leedy and Ormrod 2013:1), C Lambda P conducts primarily 'information discovery' (Leedy and Ormrod 2013:1) with some rummaging.

Three of the respondents indicated that research plays a minimal role in their daily practice, mainly because of severe budgetary constraints, but also because in the majority of projects they rely on research conducted at the agency level; they see themselves simply as those who carry a certain body of tacit knowledge (expertise) who use this knowledge to execute projects without the added expense of having to conduct research to do so. The accepted exception to this is the research done by the script-writer to aid them in penning the script for the production, and occasional travel costs incurred for scouting filming locations. With the exception of the aforementioned travel costs, no research is explicitly discussed, quoted for and billed to clients; rather the on-the-fly research conducted is absorbed into the overall number of hours quoted for production and post-production.

The managing director expressed that he prefers employing people capable of performing the tasks needed of them to investing in employees to be trained further (including in research for design methods). The three other respondents expressed an interest in receiving further training in research for design methods, but subject to certain conditions. The conditions included:

1) That the research methods help deliver non-subjective means of measuring the impact of the design decisions made during the project (specifically with reference to the return on investment of the final product).

2) That the methods aid the researcher in being better equipped to sift the overwhelming amount of information at their disposal, to identify that which is reliable, relevant and usable.

3) That the research methods help the company generate more income.

Although all the respondents felt strongly that the research they already conduct contributes to the company's bottom line, they were uncertain whether further training in research for design methods would do the same. One respondent felt that a sign of a competent designer lies in them demonstrating the desire to improve their competencies by forging their own skills through self-initiated on-the-job research (rather than in placing an expectation of the company to invest in their further training). All the respondents assumed responsibility for conducting all the research needed themselves and did not entertain the possibility of attributing the responsibility to anyone else, inside or outside the company.

When asked about the resources at their disposal to conduct their research, all respondents cited the internet and stated unequivocally that all the information they need can be found there. In addition to internet connection, the company also invests monthly in acquiring training videos targeted at specific areas of production competency, which employees consume on an at-will basis. C Lambda P has no formal policies or procedures related to their research practices, or research for design in general. Employees understand that their approach to gathering information is left to their own volition, and that the ends justify the means as long as the time spent on research does not compromise the lucrativeness of the project.[139] Finally, documentation processes are left up to the employees' preferences; all working files are stored permanently, but none of the documentation generated or identified during the research process is preserved. The working files are added sequentially as the project moves through the various departments (in a linear fashion) and are stored by the last post-production personnel who work on a project before it is handed over to the client.

5.4 J Kappa K

The fourth and final company participating in the study is J Kappa K. This company is a full service production house; working primarily in kinaesthetic design, incorporating motion picture, 2D- and 3D animation. Data at this company was also captured primarily through in-depth interviews. The staff constituency was such that all could participate in an interview. The only print-based documentation produced in-house at this company is administrative work; however the researcher was taken systematically through the digital filing system and shown examples of research conducted at the company. As such this was the only company where opportunity was given to peruse documentation at all.

5.4.1 Interviews

Interviews were conducted with the creative director, producer, 3D animator and both senior animators. As with some of the other companies, some staff members take on several roles within the company, meaning that portfolios also covered in the interviews included all three founders, marketing, finances and long-term planning. The company was just over three years old at the time of the interviews and no staff had left the company since its inception. Four of the five

---

[139] The adage 'time is money' was quoted in three of the four interviews. This was significant in the context of the interviews, as it was always cited as a reason for *not* conducting research for design.

participants had received formal training in design; three received bachelors degrees at a public university and one at a private institution. The fifth has a bachelors degree in a related field (motion picture, majoring in cinematography).

Three of the participants were familiar with the term 'research for design', although two of them had never encountered it outside of an academic context. The understanding of the term varied across the gamut of respondents. Two respondents felt that it entails creating a framework based on a desired design outcome, in order to discover how best to answer a project brief. Another felt that it should address coming to a comprehensive understanding of the subject addressed within a given design project before proceeding to executing the design. One respondent felt that research for design is not to aid designing at all, but to conduct research about design itself. Another felt that research for design comprises coming to an understanding of the under-girding principles on which design practice is built.

Most of the respondents felt that research for design would not be unique, in that it would have to subscribe to the same principles that govern all good research practices. As such these respondents felt that there must be established methods of conducting research for design, although none of them had encountered such methods particularly. One respondent felt that although each designer has their own unique, established approaches to conducting research for design, these cannot truly be classified as research methods. One respondent felt that an unique aspect to research for design is that it carries an acceptable element of subjectivity guided by the designer's tacit knowledge. The justification is pragmatism: even though the process is subjective, it can still yield an effective working solution.[140] The perception across the board seemed to be that whereas much research is centred around discovery, research for design is centred around effecting a particular outcome.

All of the participants claimed to conduct research that is relevant to their particular portfolio, but also that much of it is not formal research.[141] Unlike the other participating companies in this

---

[140] The respondent's framing of the ideas is clear, although the academic nomenclature was not used: "Research is research is research… I think it is unique in the sense that a portion of it, at least, is subjective; what the person doing the research feels is important… You can include anything you want and you can exclude anything you want, and at the end of it, you can still fashion a product. Which might or might not still be functional."

[141] It became clear that 'formal' research was considered project-based research in which findings are captured in a formal research report. It was also indicated that the majority of research (with exception of that conducted by the creative director, whose research is broader) focused on technological and stylistic developments in the field.

95

study, the majority of J Kappa K's research is not project based, but what they term 'reconnaissance'.[142] Participants indicated that they felt that the resources and methods available to them[143] are sufficient for conducting the research they need to do in-house, but most also indicated that further training in research for design methods would be useful if it helped them in two ways:

1) To educate (and communicate their process to) their clients, since many of the new practice methods they implement are sourced from overseas. Consequently they are generally not known to non-professionals in the South African corporate context; and

2) To identify repositories of creditable and relevant research that would help them to cut down on the number of hours needed to conduct 'reconnaissance' in the first place.

Keeping in mind the abovementioned potential contributions of knowledge of research for design methods, it is also worth noting that three of the participants indicated that research for design could help feed not only their own company's bottom line, but assist in the development of the industry as a whole. J Kappa K had a prior commitment to conducting research; they initially carried the costs for it but later added it as a line item to their quoting structure.[144] Their conviction organisationally was that clients should carry the costs for project-based research, but that they need to carry the cost for 'reconnaissance' themselves. In terms of who should carry the responsibility of conducting research, most felt that designers needed to do it for themselves; one participant opined that only designers with a particular passion for research should do it, as they are more likely to add value with such a service. More specialised research for design services were considered to belong to specialist agencies, one of which J Kappa K occasionally works with. University-based research was not highly regarded for industry use; one participant went as far as to say that industry could probably offer more to academic training institutions in this regard than vice versa.

---

[142] This would fall into the category of what Archer (1995:6) calls 'fundamental research', namely systematic enquiry with the acquisition of new knowledge as its primary aim, with no particular application in mind. What distinguishes this from 'rummaging' (Leedy & Ormrod 2013:1) is that the research results are presented to the other staff at the company once a possible application for them is identified.

[143] That is, the internet (specifically user forums and promotional platforms) and international television broadcast work.

[144] Across the spectrum of participants, estimates for the frequency with which this line item is included in quotes varied between 20% and 25% of projects.

Those participants that worked directly with clients noted that the latter were willing to pay for research services, but that it was always necessary to justify doing it first. Costing is calculated based on past projects and in consultation with the staff members responsible for conducting the various aspects of the research. The company is small enough that written procedures and protocols are not necessary, but there is a strict set of conventions that relate to the naming conventions and digital filing of work on the company server. This facilitates using existing work as reference for new projects, particularly in repeat work for clients and in being able to re-use rejected treatments on new projects.

5.4.2 Documentation and archiving

One of the most important aspects in making research (and past work) accessible for reference purposes, was the filing system and naming conventions developed within J Kappa K over the course of three years. Participants complained that the filing of early projects is so disorganised that they could not find what they were looking for at all, even with extended searching. By the time of participating in the study, a rigid set of conventions had been developed that the one participant described as 'a modern miracle'.[145] Project-based documentation is developed on-the-fly, and all staff members are responsible for feeding documentation into the same folder system, using standard notation (since they are often all working on the same project simultaneously). The creative director has a separate repository for 'reconnaissance' research.[146]

5.5 Cross-case comparison

Approaching companies, rather than individual design practitioners, to engage around the issue of conversance with research for design methods proved to be doubly beneficial. By phrasing enquiries in the questionnaire and interviews at both a corporate and personal level, insight was given on two levels. On the one hand, ideas could be gleaned of some typical approaches to structuring research practices in communication design companies, and what opportunities are afforded practitioners in this regard. On the other, individuals were given opportunity to distinguish their own awareness, attitudes and aptitudes, relating to research for design, against the dictates of their current working environment. After all, nearly all of the respondents had worked in other

---

[145] This affirms, in practice, the necessity of storing data in an organised and accessible way (see chapter 4, section 4.3.1.4)

[146] Although he is not the only person who conducts 'reconnaissance', it was not clear whether the other staff also have decentralised storage spaces for their research.

design companies prior to contributing to this study. Also, getting data that represents conversance on an individual, corporate and cross-corporate level enables the study to draw comparison between the habitussen and field of communication design as they exist in literature, as opposed to how it exists in industry.

The companies were found to strive towards creating environments that are united in their purposes and corporate culture; also, each of the companies caters primarily to one particular type of client service need or another. This accounts for some general congruencies that were found that distinguished one case company from another in the preceding sections. However the companies still operate in a way that embraces the heterogeneous contributions of their diversely skilled and specialised staff constituencies for the sake of being able to address their client's needs more holistically. In addition to this, the design practitioners come from different backgrounds in industry experience, project scope, types of design, training institutions and even nature of qualifications. For this reason, in addition to the reasons already stated elsewhere in this study, there is no attempt to reduce and simplify the data gathered across cases for the sake of generisability. Rather, significant areas of overlap are identified that, through sheer frequency of occurrence, suggest a need for further investigation in subsequent studies.The research findings can be divided into two broad categories: those anticipated by the reviews of literature, and those that were not. Findings anticipated by literature are discussed first.

One area for consideration is the apparent lack of awareness of research for design methods. It is understandable that the semantic diversity in research for design discourse makes it difficult to determine whether people are aware of the concept of research for design (even when practitioners claim they are not familiar with the term). Nevertheless the fact that not one respondent could mention a single research for design method in an interview, together with the apparent confusion over what is meant with 'research for design methods' in the questionnaire responses, demonstrates a lack of awareness of the methods; this despite the fact that the researcher was able to identify more than 180 such methods (see Figure 11). This apparent lack of awareness is not entirely unexpected; substantial literature on the South African context could not be found at the outset of the study.[147]

---

[147] See chapter 1, section 1.1.4.

In addition to the above, it has already been pointed out that the field of design is a contested discursive space in which some views are held to be more authoritative than others.[148] If leaders in the field demonstrate a disdain for theory and research (MacGarry 2008:135,143) and representative bodies within the local industry (such as Brand Council SA) do not promulgate, adhere to or demonstrate an understanding of scholarly research practices;[149] if these are indicative of views held in the industry, a general lack of awarenss of the methods among practitioners is to be expected. The lack of promulgation from authoritative figures and bodies could be symptomatic of the industry. Also, those looking to them for guidance are disempowered from contesting the importance of these issues; unawareness of what can or needs to be contested precludes contest, whether because of hegemonic concealment or pooled ignorance.

A second area of concern is the common perception that certain activities qualify as research when they do not, and that certain activities are not seen as legitimate research when they are. This ties in not only with what seems to be a general lack of understanding of what research is,[150] but also with the notion of tacit knowledge and intuition.[151] More than half of respondents engaged with the notion of intuition, experience, creative ability, knowledge, expertise and design skill in a way that indicated a tension between what designers already know, and what still needs to be discovered through research. Although the responses revealed many disparaging perspectives and different levels of engagement with the concept of tacit knowledge, its repeated spontaneous emergence when discussing research for design practices is significant. As was seen with the literature,[152] there is also confusion as to whether design practice itself constitutes a form of research.

A third area, which is indirectly anticipated in literature, is a phenomenon which may account in some measure for the apparent lack in available literature on the South African context (as it pertains to research for design practices). The partial non-participation of case companies (despite full disclosure up-front as to what participation in the study would entail) was disappointing, although the reasons for this can only be guessed at with the available data. What is also interesting to take note of is an incidental set of data which was collected by keeping a

---

[148] An explanation of the relationship between the habitus and field of design is given in chapter 3, section 3.2.4.
[149] See the Brand Council SA case study in chapter 3, section 3.3.
[150] This was explained throughout chapter 2.
[151] See Friedman's (2008) discussion of tacit knowledge in chapter 3, section 3.3
[152] See chapter 3, section 3.3.

record of the correspondence held with every company approached to participate in the study.[153] Each company was explicitly told that if they chose not to participate in the study, they would not be expected to provide reasons for their non-participation; nevertheless every company chose to volunteer such reasons. The three most common unsolicited reasons given are: lack of time (more than a third of non-participants), length of employment of staff,[154] and offices being in transit[155] (almost one third of non-participants, each).

In addition to the research outcomes described above, there were also unexpected discoveries; there were some results that were not anticipated by the literature at all. One such area, with apparent congruency between participants, lies in the concern with accessibility of existing research both within and external to the companies. Respondents at every company indicated that much time is wasted in locating existing (external) research and that their practice would be aided with knowledge of centralised repositories of specialised research.[156] Internally, although all respondents indicated that they refer back to old projects for reference purposes, the majority also indicated that lack of systematised storage of research made navigation through old projects difficult, especially if they were not a part of the teams executing those projects. This is a predictable dilemma, seeing that at least half of the respondents indicated that in their company, each designer has their own approach to conducting research and is also responsible for storing their own research documentation and other findings, in whatever manner they choose. The researching, storing and retrieval are all autonomous, unsupervised activities in most instances.

A final area of emerging interest identified concerns the grounds on which decisions are made regarding whether or not to conduct research in a given project, how to approach the research, and how to allocate resources (particularly personnel and time). In one company the decisions are made in consultation with participating team members within the company, in two instances the decisions are made at a managerial level on behalf of team members, and in the fourth company certain team members exercise full control over how much of their billed fee is used to conduct research. Information resources for conducting research are allocated, but these are not monitored or adapted at need, it seems.

---

[153] There were 13 companies who showed an initial interest, but who ended up not participating in the study.
[154] Each of these companies communicated that their staff constituency was so new, that they did not have staff who had participated in any research for design projects in their portfolio.
[155] In other words, these companies were in the process of moving to new offices.
[156] It would be beneficial to investigate what respondents have in mind when they think of such centralised repositories (if anything); what their needs would be in terms of access, navigation and interaction; and how best one would set up, administrate, maintain, categorise, index and store such information.

This chapter has then reported on the findings of the data analyses in five distinct phases. Each of the four participating companies' data were discussed in a separate case study. Thereafter a cross-case comparison was conducted, reflecting on research outcomes that were and were not anticipated by the literature reviewed for the study. With the outcomes of the data analyses in situ, what remains is to briefly recap what has been done in the study, what the research outcomes were, and what recommondations for further research can be made. These three steps are in the following chapter.

Chapter 6: SUMMARY, FINDINGS AND RECOMMENDATIONS

In the previous chapter, the findings of the field research conducted on the four communication design companies participating in the study were reported. Each of the four companies was discussed in isolation as a separate case study, and then the data was clustered into a cross-case analysis. The cross-case analysis comprised of findings pertaining to issues anticipated by the literature reviewed on the one hand, and findings that were unanticipated on the other. What remains then is to give a brief of summary of the study, highlight the most significant research findings and then use the latter to make recommendations for further research.

6.1. Summary of the research report

6.1.1. Introducing and contextualising the study

The first chapter of the report began by giving the introduction and background to the study. The first step was to give a brief etymology of design and design research, in so doing delineating the focus field of the study (communication design) within the broader scope of design fields. It was also seen that although there is some debate on this issue, there is general consensus among scholars that research for communication design as an academic discipline is considered to have only reached its fiftieth anniversary in 2013. However the first decades of the discipline were plagued with having to rely on research methods that were developed for other fields. This led to key authors spearheading a movement at the turn of the millennium to develop 'designerly ways of knowing', or research methods that are tailored specifically to the needs of design. The last fifteen years or so have therefore seen a proliferation of research publications developing and advocating such methods.

The first chapter then proceeded to identify a potential gap between research and practice in the communication design field, a gap comprised of the awareness, attitudes and aptitudes of practitioners regarding research for design methods. This gap was referred to throughout the study as 'conversance'. It was also demonstrated that there is very little literature on this domain of conversance in the South African context, changing the potential knowledge gap into an actual gap. In other words, at the outset of the study it was not clear whether practitioners are implementing the methods, whether the methods are suitable to the South African context or even whether practitioners are aware of the methods in the first place. Identifying this gap enabled the

© University of Pretoria

research aim to be formulated, namely: to explore the conversance of South African communication design practitioners with research for design methods. As the study progressed, more and more discoveries were made that may account for the existence of this gap. The remainder of the first chapter delineated the scope of the study and set out the research objectives that needed to be met in order to achieve the aim of the study, and how these objectives were used to determine the structure of the study and research report.

6.1.2. Literature reviewed

The review of literature for the study was split into two chapters, the first part of which was the second chapter. In that chapter, thorough explanations were given of what research is and what constitutes acceptable scholarly research practices. The review of foundational matters in scholarly research began by drawing distinctions between research and constituent activities that are often mistakenly considered to be forms of research, such as information discovery, rummaging (or information collation) and fact organisation. The key characteristics of research were unpacked (noting that not every research project necessarily subscribes to all eight characteristics) as well as how they contribute to the research project. It was pointed out that practice based research (PbR), such as research for design, may operate in contexts far removed from traditional academic research and as such certain characteristics (especially rigor) may need to be re-evaluated. Until such re-evaluation takes place however, simply waiving subscription to such standards cannot be accepted. Perhaps if more practitioners attempted to conduct research that embraces rather than ignores rigor, greater strides would have already been made towards resolving this tension.

The various criteria of validity and that of reliability were also discussed; how they operate, how they lend the research process credibility and how the research can be constructed to facilitate their operating. The chapter concluded by discussing the various forms of logic that operate in research, namely the four research strategies (RSs). Each of the RSs have experienced extensive modification since their inception, resulting in logical operators that increasingly overlap. Over time it has become difficult to state to a certainty whether certain logical steps in designing and executing research belong strictly to one RS or another. For this reason, it has become increasingly common to use more than one RS within the same research project deliberately; in this manner, the RSs can help compensate for each other's shortcomings.

The third chapter formed the second part of the literature review, establishing what the state of the art in research for design is and giving some idea of what good research for design practices look like, in the broader context of acceptable scholarly research practices (the latter as established in the second chapter). To help establish the state of the art in research for design theory, only a very brief overview was given of developments until the end of 2007 to favour investigating developments from the last six years. The developments since 2008 were discussed in the context of concerns about the state of the discipline stated by Kees Dorst in a 2008 article, *Design research: a revolution-waiting-to-happen*. Dorst (2008:6-7) highlighted 5 areas of concern in research for design:

1) Design research is process-oriented and prescriptive, but not explanatory.
2) Owing to an overwhelming emphasis on design practice, there is often a leap from description to prescription (whilst leaving out several logical intermediary steps).
3) There is an apparent lack of rigor in testing new research for design methods before implementing them.
4) Research for design methods generally lack quality criteria, so their efficacy cannot be evaluated.
5) Most research for design methods address design activity at only the most basic levels, leaving higher order design thinking (conducted by senior designers and design managers) to exist as tacit knowledge only.

Various areas in research for design theory were investigated to ascertain whether progress has been made in addressing Dorst's concerns. The first of these areas is theory building in design, which is currently represented in four dominant domains of discourse. These four domains are research into, through and for design (RiD, PbR and RfD respectively); research for design taxonomy; theory construction approaches; and the object, actors and context of design. Within research for design taxonomy, three classes of research (broadly basic, applied and clinical) were delineated and attempts to pair these with Rid, PbR and RfD respectively were discussed. These classes rely on the principle of generisability to distinguish between types of research. Other criteria of classification were also discussed, such as intentionality and content. With the disparate perspectives surrounding how research should be conducted and classified, Frances Joseph's (2010) PhD study came in useful to demonstrate that the field of discourse suffers from a condition of irreducible complexity, making the idea of an unifying research for design meta-theory an unattainable ideal.

In addition to the state of irreducible complexity in research for design taxonomy, there is also the problem of how such taxonomies and other aspects of design theory are to be constructed. A few key authors were consulted to paint the constellation of theory construction approaches in research for design namely Nelson and Stolterman's (2012) notion of design culture; also pragmatism (Melles 2008), and the role of tacit knowledge in design research and practice (Friedman 2008). The object, actors and context of design were considered in addition to the process of design, to see whether any inroads have been made into attaining Dorst's (2008:10-11) ideal of holistic design development. Several authors formed part of the investigation (Augustin & Coleman 2012; Cross 2011; Crouch & Pearce 2012; Dorst 2008; Kiskonen *et al* 2011; Mazé & Redström 2009). In positioning the design actors in the context of an irreducibly complex body of discourses, the notion of the habitus and field of design (namely the individual position of designers in relation to the broader discipline) were discussed.

An important area of confusion identified in the literature pertains to assertions that design practice is a form of exploratory research; this discussion was mapped within the body of literature and resolved by clearing up semantic confusion around the notions of tacit knowledge and case study publication. Two sets of case study examples were briefly contrasted to demonstrate the difference between what does and what does not constitute acceptable (scholarly) research for design practices. The literature review concluded by briefly considering how logics of inquiry (RSs) are implemented into research for design, followed by a listing of roughly 180 research for design methods that have been published to date.

6.1.3. Method and methodology

The fourth chapter of the study defined the research and researcher's stance in relation to the research topic and outlined the research method and methodology employed in the study. To assist in positioning the research and researcher, the chapter considered the nature of knowledge formation within research projects, in reference to Michel Foucault (1972). Building on from this, the RSs employed, the researcher's stance, and the research paradigms undergirding the study were explicitly stated.

The study employed a mixed methods approach, incorporating predominantly qualitative data, but also some quantitative. As such, the dominant RS employed is that of abductive reasoning, appended where deemed appropriate with deductive and inductive reasoning. The researcher assumed the role of an expert in relation to study participants when it came to matters of the

existing theory on research for design methods; however ignorance was assumed as to the conversance of practitioners with these methods (to facilitate discovery), which meant that the researcher had to adopt the role of learner in data capture and analysis. In straddling the science traditions of qualitative and quantitative research in a complementary manner, the research incorporated elements of depth realist and constrained perspective idealist ontologies, pairing these up with epistemologies of falsificationism (for quantitative data), neo-realism, constructionism and conventionalism (for qualitative data).

The study is exploratory in nature and this was adopted as its methodological approach. The method itself was the case study method (CSM), designed as an embedded multiple-case study using a mixed methods approach. The types of data sources used (namely questionnaires, in-depth interviews, documentation and archival records), the approaches taken to data management and data triangulation, were all explained in depth. The manner in which the study protocol and procedures were established was also outlined, together with how the first case study became a de facto pilot study for the research project. The approach to data analysis was carefully explained; the process was implemented separately for each of the four participating case companies, and then for a combined, cross-case clustered analysis at the end. Finally the design used to report on the research findings was stated and justified; this report follows a typical linear-analytic structure.

6.2. The research outcomes

The fifth chapter comprised the analysis of the data from the field research conducted for the study. The field research was designed to be: in-depth interviews with staff at every level of management in several communication design companies, questionnaire responses submitted by a representative sample of each of the same design companies, and perusal of residual documentation from research for design projects at each of the companies. These bundles of data for each company were discussed sequentially and (where necessary) in tandem.

The four companies participating in the study were selected purposely to be heterogeneous, to maximise the potential of discovery. As such no attempts were made at establishing the generisability of the research findings, and no passes were made at theory construction; the data cannot be assumed to be representative of the industry. The intention of the study was to build a

foundation on which further research questions could be based, rather than to attempt to determine data patterns to any level of absolute certainty.

Data-rich sets of responses were gleaned through in-depth interviews; however this was the only stable source of data. Only the first case company, P Theta B, returned enough questionnaires to warrant analysis. Conversely, only J Kappa K granted the researcher sufficient access to their documentation and archives for adequate analysis.

6.2.1. P Theta B

There was little consensus between respondents on the majority of issues discussed. There was a notable difference in awareness regarding research for design among the designers at this company, and even those who carried awareness did not agree on whether there is anything unique about research for design (as opposed to other forms of research), or even what research for design is. Where there was some consensus was in the attitudes of the respondents toward the idea of research for design. All were adamant that it is an essential component of the design process and several suggestions were made as to how it contributes to design praxis. Delegation of responsibility for conducting this research (in the minds of respondents) should be either to the designers themselves, or to specialist companies and organisations outside of P Theta B. Very few of the designers make a conscious effort to stay in step with developments in the field of research for design, and only one respondent indicated that she had encountered the notion of research for design in the workplace. This is not surprising, since there are no protocols, procedures or conventions that govern how documentation for research for design projects should be collated, stored or shared. Although each of the participants esteems research and has conducted it, it seems that the research findings are rarely discussed or disseminated within the company.

In terms of the aptitude of the participants with research for design methods, the data returned appeared to be unreliable (due to the manner in which participants completed the questionnaire). There did however appear to be at best only a passing awareness of the vast majority of research for design methods, a great number of unknown methods, and a shockingly low number of methods that have been implemented in practice . Only three of the respondents felt confident that they could positively identify research for design methods, and two of these offered 'own methods' as a response.

107

Of the five approaches to research implemented within the company, only one can genuinely be considered to be research. This one approach is also only applicable to one very specific application of design within the company, meaning that there are not creditable research practices for the vast majority of design applications offered by the company.

Although most of the respondents expressed an interest in receiving further instruction in research for design methods, almost all lamented that the reason they do not conduct more research for design in the first place is due to lack of time.

6.2.2. J Beta B and C Lambda P

As the cases with the least complete data sets (relying almost exclusively on the in-depth interviews), J Beta B and C Lambda P are discussed together here. J Beta B (unlike P Theta B and C Lambda P) offers research as a billable service. The company is structured in such a way that designated staff conduct research prior to the project being handed over to the communication designers (who in turn do research of their own). Although two thirds of the respondents had worked at the company for three months or less, almost all respondents had conducted research for design (most secondary, but some primary research was also mentioned). Research is very much a part of the corporate culture at J Beta B, with presentations on developments in the field scheduled on a weekly basis. In spite of this, none of the respondents were familiar with the terminologies associated with research for design in scholarly literature, including the term 'research for design' itself.

Although the majority of respondents felt that research for design should subscribe to the same dictates as other types of research, there was simultaneously also a hesitancy to accept that research for design should be conducted using predetermined methods. It may be that this hesitancy stems from an unclear position in the practitioners' minds regarding the relationship between tacit knowledge (intuition) and research on the one hand, and between research rigor and design practice on the other (this explanation is certainly compatible with the data collected, and is anticipated by the literature consulted for the study).[157]

---

[157] This may legitimately be a case of 'to a man with a hammer, every problem looks like a nail.' Just because this literature anticipated this disconnect, it does not necessarily mean that the literature also provides the correct explanation for it.

Although systems, staff and procedures are in place to facilitate conducting research for design at J Beta B, it also became apparent through the interviews that there is a real danger of reverse ratiocination taking place, meaning that research outcomes are determined prior to the research being conducted. If this is the case, it renders the efficacy of the research conducted null, and also presents some major ethical dilemmas. In addition to this, although the company has a sophisticated internal communication system between itself and sister companies (to facilitate dissemination of research projects), almost none of the participants had ever attempted to use it.

C Lambda P lay on the other end of the spectrum in terms of being geared towards conducting research for design. Although the staff at this company were generally much more experienced and had worked in the company for many years, they were inexperienced in conducting research for design. Not one of the four categories of research offered by the company qualifies as research in an academic sense. The research-related activities that are conducted are not specifically billed to clients, and staff members are left to their own discretion to determine how much of their time spent on a project should be allocated to conducting said activities. Although steps are taken to keep staff updated with developments in the field, this is done through provision of materials that are consulted on an at-will basis by staff. Most of the respondents expressed an interest in receiving further training in the use of research for design methods, but subject to particular conditions related to: quantifiable impact, reduction of time, and demonstrable generation of more income.

6.2.3. J Kappa K

Although the staff at J Kappa K has the youngest (and least experienced) constituency as well as the smallest team, they were better equipped and positioned to conduct research for design than two of the other participating companies. Research is offered as a billable service to clients (most often at the company's own insistence). Although project-based research is billed to clients, the company also conducts what it terms 'reconnaissance' at it's own expense in an effort to remain in step with the state of the art in the field. Although the participants were unsure whether their research activities would qualify as creditable research, it did appear at face value is if they would.

Respondents opined that further training in use of research for design methods would be useful if it helped them to communicate their (cutting edge) work processes better to the clients, and if it could help them to identify repositories of creditable research (so that they can cut down on the

109

number of hours spent doing 'reconnaissance'). This was also the only company that gave the researcher opportunity to scrutinise their documentation and archiving system. All respondents maintained that the optimisation of this system had been instrumental in increasing the efficacy of their design praxis.

6.2.4. Cross-case comparison

The outcomes of the cross-case data analysis were discussed under two broad headings, namely those issues anticipated by the literature reviewed in the first three chapters of the study, and those that were not anticipated. There is an apparent lack of awareness of research for design methods and of the scholarly discourse surrounding research for design. Although this lack of awareness was foreshadowed in the preliminary literature survey (pertaining to the South African industry), it is still disconcerting considering that the researcher was able to identify more than 180 such methods in only a handful of sources. Some potential explanations for this lack of awareness are offered in chapter 5. As was demonstrated throughout the study, the unwillingness or inability of industry leaders and representative bodies to engage with and adhere to creditable research practices is inexcusable.

A second issue that was anticipated is a perception among communication design practitioners that certain activities are legitimate research when they do not conform to the characteristics of research, or demands of good research practices. This confusion relates not only to research for design projects, but also on a deeper level to perceptions of what research is and the relationship between tacit knowledge, research for design and design practice.

A third area identified offers an alternative potential explanation for the lack of literature on research for design practices in the South African communication design industry. This relates to the unwillingness of full participation in the study (as agreed at the outset of negotiating with participants), and the reluctance to share information about research practices within given companies even though their participation is anonymous; there seems to be a protection of what is considered to be intellectual property (this despite the public nature of the communication design work). As an aside, it was also interesting to note that all companies that elected not to participate in the study volunteered reasons for non-participation, even though it was explicitly stated that not such explanations were needed or expected by the researcher.

As mentioned above, there were also some research findings not anticipated by the reviewed literature. One area identified (which seemed congruent across cases) is a concern with access to the outcomes of research for design projects, both within the companies and externally. It was felt that a lot of time is wasted locating and identifying research outcomes from in-house projects, as well as from publically accessible sources. Another discussion of interest that emerged regards the grounds on which practitioners decide whether or not to conduct research for design in a given communication design assignment. Even when a decision is made to conduct research, there is also indecision as to how to approach the research, and how to allocate resources. In many instances the companies defaulted to allowing employees to make these kinds of decisions for themselves, even though the time spent, resources utilised, documentation and archiving of the outcomes of such activities are also autonomous and unsupervised. Given that a lot of time, money and human resources are being spent on research activities, and that the latter are billed to clients as part of an expert service, the apparent lack of understanding and structure is baffling.[158]

6.3 Recommendations for further research

Having given a brief overview of the study and its findings, it remains to address potential areas of research that were identified during the course of the project. At the outset of the study, several research questions were identified that existing literature is in no position to answer because of a lack of intermediary information. Some of these questions were:

- Are South African communication designers implementing research for design methods in industry?
- What are design practitioners' perceptions regarding research for design?
- Are the existing research for design methods suited to the South African context of practice?

This study has placed the discourse in a marginally better position to begin answering these big questions. However this is not the most important contribution of this study. The value in the study lies in the fact that it has identified tentative avenues that can help guide the focus and design of

---

[158] This has serious implications for the integrity of the research procedures and findings, which have a knock-on effect on all subsequent procedures. It can also therefore be argued that there is an ethical dilemma here which needs to be resolved.

future research for design projects that aim to build a foundation to answer the abovementioned and more abstract questions. For example, it would be extremely beneficial to explore the notion of a guarantor of design (Nelson & Stolterman 2012:201-202), specifically in the context of how practitioners view the contribution of research for design projects to design outcomes. Related to this would be investigations of the possible use of post rationalisation in implementing research, and the relationship between intuition (tacit knowledge), industry experience and research for design. The notion of the habitus of each design practitioner within the broader scope of the design field was noted, and indeed the data revealed a wide discrepancy in views on even the most basic concepts of research, methods and process. Studying the manner in which designers form their habitus from among the contesting views within the field would make an invaluable contribution to understanding the perceptions and attitudes practitioners have toward research for design and its methods.

Most of the activities proffered as research activities in the companies investigated turned out to be only constituent steps of genuine research.[159] Where many of the processes fell short was in terms of the documenting, archiving and communication of research outcomes. Investigating the processes in research for design subsequent to data analysis and discovery, within the locus of industry-based research projects (perhaps through action research studies), would help raise the level of research activity in such companies. A lot of time was spent in the tailoring of the data collection tools to overcome semantic inconsistencies between industry jargon (which changed from company to company) and common terminologies in research for design scholarship. This disconnect in terminologies and jargon can also been seen as a barrier to design practitioners engaging with, understanding and keeping up to date with the state of the art in academic research. Designing research projects to help overcome this barrier alone could very well help a large constituency of practitioners to unlock a vast treasure of beneficial theoretical material. Respondents of the study were also adamant that they would be interested in receiving further training in using research for design methods only if the training was offered in certain ways, and if it could be demonstrated to be beneficial on very particular frontiers. It may very well be necessary to reappraise the manner in which the relevance of research for design methods is established, and how the methods are developed, investigated and reported on.

Many of the respondents expressed a desire for centralised repositories of creditable research that are easily and speedily accessible. A logical next step would be to investigate what

---

[159] To put it bluntly: most of these activities are *not* research.

respondents have in mind when they think of such centralised repositories (if anything); what their needs would be in terms of access, navigation and interaction; and how best one would set up, administrate, maintain, categorise, index and store such information.

Broader based investigations than this study could be conducted to glean information that is more clearly representative of the industry (or pockets of the industry) as a whole. Although the research needs of practitioners with regard to research for design and its methods could not be stated to a numerical certainty even then, having larger representative bodies of data would identify where the greatest needs are. This would facilitate determining the best areas for investment and effort to shape the tools that will help communication designers to improve their research and praxis in future.

In conclusion, the importance of answering the questions listed at the beginning of this section will be restated as they were at the beginning of the study. Arm's-length or non-specific knowledge of research for design methods is insufficient for best practices. An unwillingness to acknowledge or engage with theory in praxis, a reluctance to improve practice through rigorous research practices, a failure to keep up to date with latest developments in research for design; all these will likely result in design work that is stagnant, unable to significantly improve or account for its worth, and that is unable to justify its contribution to the business of clients. For design to truly come into its own; to work effectively and contribute in substantial ways at all the levels of society, economy and humanity it engages, a desire for the highest possible quality of research for design is required. If South African communication design practitioners do not keep up with the myriad developments that are happening in the broader field, it is inconceivable that they will be able to meet the needs of those they claim to serve (themselves included). It is also inconceivable that they will be able to compete in an increasingly competitive global economy.

LIST OF SOURCES CONSULTED

Archer, B. 1995. The nature of research. *Co-design* 2(1):6-13.

Augustin, S & Coleman, C. 2012. *The designer's guide to doing research: applying knowledge to inform design*. Hoboken: Wiley.

Bærenholdt, J, Büscher, M, Scheuer, J & Simonsen, J. 2010. Perspectives on design research in *Design research: synergies from interdisciplinary perspectives,* edited by J Simonsen, J Bærenholdt, M Büscher & J Scheuer. Florence: Routledge.

Bayazit, N. 2004. Investigating design: a review of forty years of design research. *Design Issues* 20(1):16-29.

Bierut, M. 2007. *Seventy-nine short essays on design*. New York: Princeton Architectural Press.

Bierut, M, Drenttel, W & Heller, S (eds). 2002. *Looking closer 4.* New York: Allworth.

Biggs, M & Büchler, D. 2007. Rigor and practice-based research. *Design Issues* 23(3):62-69.

Blaikie, N. 2007. *Approaches to social enquiry*, 2nd edition. Cambridge: Polity.

Bowers, J. 2011. *Introduction to graphic design methodologies and processes*. Hoboken: Wiley.

Brown, T. 2009. *Change by design*. New York: Harper Collins.

Breslin, M & Buchanan, R. 2007. On the case study method of research and teaching in design. *Design Issues* 24(1):36-40.

Buchanan, R. 1996. Branzi's dilemma: design in contemporary culture. *Design Issues* 12(1):3-20.

Buchanan, R. 2001a. Design research and the new learning. *Design Issues* 17(4):3-23.

Buchanan, R. 2001b. Human dignity and human rights: thoughts on the principles of human-centred design. *Design Issues* 17(3):35-39.

Byrne, D & Ragin, C (eds). 2009. *The Sage handbook of case-based methods*. London: Sage.

Creswell, J. 2011. Controversies in mixed methods research in *The SAGE handbook of qualitative research*, edited by N Denzin and Y Lincoln. Thousand Oaks: Sage.

Crisp, D. 2009. Discourse this! Designers and alternative critical writing. *Design and Culture* 1(1):105-120.

Cross, N. 1999. Design research: a disciplined conversation. *Design Issues* 15(2):5-10.

Cross, N. 2006. *Designerly ways of knowing*. Basel: Birkhäuser.

Cross, N. 2011. *Design thinking*. Oxford: Berg.

Crouch, C & Pearce, J. 2012. *Doing research in design*. London: Berg.

Davis, S. 2007. A schema for depiction. *Visible Language* 41(3):280-300.

De Vaus, D. 2014. *Surveys in social research*, 6th edition. New York: Routledge.

Defining the Profession. [sa]. [O] Available:
http://www.icograda.org/about/about/articles836.htm
Accessed 11 June 2013.

Denscombe, M. 2010. *The good research guide for small-scale social research projects*, 4th edition. Berkshire: McGraw-Hill.

Denzin, N & Lincoln, Y (eds). 1994. *Handbook of qualitative research*. Thousand Oaks: Sage.

Denzin, N & Lincoln, Y (eds). 2005. *The SAGE handbook of qualitative research*, 3rd edition. Thousand Oaks: Sage.

Denzin, N & Lincoln, Y (eds). 2011. *The SAGE handbook of qualitative research*, 4th edition. Thousand Oaks: Sage.

Dorst, K. 2008. Design research: a revolution-waiting-to-happen. *Design Studies* 29(1):4-11.

Drucker, J. 2002. The critical "languages" of graphic design in *Looking closer 4*, edited by M Bierut, W Drenttel and S Heller. New York: Allworth.

Findeli, A. 2001. Rethinking design education for the 21st century: theoretical, methodological and ethical discussion. *Design Issues* 17(1):5-17.

Flyvberg, B. 2011. Case study in *The SAGE handbook of qualitative research*, edited by N Denzin and Y Lincoln. Thousand Oaks: Sage.

Foucault, M. 1972. *The archaeology of knowledge* and *The discourse on language*. New York: Vintage.

Frankel, L & Racine, M. 2010. The complex field of research: for design, through design, and about design in *DRS Montreal 2010 conference proceedings*, edited by D Durling, L Chen, P Gauthier, T Poldma, S Roworth-Stokes and E Stolterman. Montreal: DRSIC.

Frascara, J (ed). 2002. *Design and the social sciences*. [sl]:Taylor & Francis.

Friedman, K. 2002. Theory construction in design research. Criteria, approaches, and methods, in *Design research society international 2002 conference proceedings*, edited by J Shackleton & D Durling. London:DRS.

Friedman, K. 2003. Theory construction in design research: criteria: approaches, and methods. *Design Studies* 24:507-522.

Friedman, K. 2008. Research into, by and for design. *Journal of Visual Arts Practice* 7(2):153-160.

Garbers, J. 1996. *Doeltreffende geesteswetenskaplike navorsing*. Pretoria: JL van Schaik.

Gomez-Palacio, B & Vit, A. 2009. *Graphic design referenced: a visual guide to the language, applications and history of graphic design*. Beverly: Rockport.

Heller, S. 2012. *Writing and research for graphic designers: a designer's manual to strategic communication and presentation*. Beverly: Rockport.

Hollis, R. 2001. *Graphic design: a concise history*, 2nd edition. London: Thames & Hudson.

Howell, K. 2013. *An introduction to the philosophy of methodology*. London: Sage.

Hubbard, D. 2010. *How to measure anything: finding the value of "intangibles" in business*, 2nd edition. Hoboken: Wiley.

Huberman, M & Miles, M. 1994. Data management and analysis methods in *Handbook of qualitative research*, edited by N Denzin and Y Lincoln. Thousand Oaks: Sage.

IDA world design survey pilot project: South African findings. 2008. Pretoria: SABS Design Institute.

IDEO method cards: 51 ways to inspire design. 2003. [sl]: William Stout.

Ingemann, B. 2010. Designing an exhibition in *Design research: synergies from interdisciplinary perspectives,* edited by J Simonsen, J Bærenholdt, M Büscher & J Scheuer. Florence: Routledge.

International journal of design. 2013. [O]. Available:
    http://www.ijdesign.org/ojs/index.php/IJDesign/
    Accessed 20 October 2014.

Joseph, F. 2010. *Mnemotechne of design – ontology and design research theories*. PhD thesis, Auckland University of Technology, Auckland.

Julier, G. 2008. *The culture of design*, 2nd edition. London: Sage.

Kahneman, D. 2011. *Thinking, fast and slow*. London: Penguin.

Koskinen, I, Zimmerman, J, Binder, T, Redström, J & Wensveen, S (eds). 2011. *Design research through practice: from the lab, field and showroom*. Waltham: Elsevier.

Latest case studies. 2014. [O]. Available:
    http://www.brandcouncilsa.org/case-studies.aspx
    Accessed 20 October 2014*.*

Laurel, B (ed). 2003. *Design research: methods and perspectives*. Cambridge: MIT Press.

Leedy, P & Ormrod, J. 2013. *Practical research planning and design*, 10th edition. Upper Saddle River: Pearson.

Lunenfeld, P. 2003. The design cluster in *Design research: methods and perspectives*, edited by B Laurel. Cambridge: MIT Press.

MacGarry, M. 2008. *Skill set 1 – graphic design: a primer in South African graphic design*. Parkwood: David Krut.

Martin, B & Hanington, B. 2012. *Universal methods of design: 100 ways to research complex problems, develop innovative ideas, and design effective solutions*. Beverly: Rockport.

Mazé, R & Redström, J. 2009. Difficult forms: critical practices of design and research. *Research Design Journal* 2009(1):28-39.[160]

Melles, G. 2008. An enlarged pragmatist inquiry paradigm for methodological pluralism in academic design research. *Artifact* 2(1):3-11.

Narváez, L. 2000. Design's own knowledge. *Design Issues* 16(1):36-51.

---

[160] Although *Research design journal* was a Swedish design journal at the time, this article was printed in its original English wording.

Nastasi, B, Hitchcock, J & Brown, L. 2010. An inclusive framework for conceptualizing mixed methods design typologies in *The Sage handbook of mixed methods in social and behavioural research*, edited by A Tashakkori & C Teddlie. Thousand Oaks: Sage.

Nelson, G & Stolterman, E. 2012. *The design way: intentional change in an unpredictable world*, 2nd ed. Cambridge: MIT Press.

Neuman, W. 2012. *Basics of social research: qualitative and quantitative approaches*, 3rd edition. Upper Saddle River: Pearson.

Olsen, P & Heaton, L. 2010. Knowing through design in *Design research: synergies from interdisciplinary perspectives,* edited by J Simonsen, J Bærenholdt, M Büscher & J Scheuer. Florence: Routledge.

Pedgeley, O, & Wormald, P. 2007. Integration of design projects within a Ph.D. *Design Issues* 23(3):70-85.

Phillips, D & Phillips, J. 2009. Visualising types: the potential of correspondence analysis in *The Sage handbook of case-based methods*, edited by D Byrne & C Ragin. London: Sage.

Polotti, P, & Lemaitre, G. (2013). Rhetorical strategies for sound design and auditory display: a case study, *International Journal of Design* 7(2):67-82.

Popper, K. 1959. *The logic of scientific discovery*. Oxon: Routledge.

Register of private higher education institutions. 2014. [O] Available:
http://www.dhet.gov.za/Registers_DocLib/Register%20of%20Private%20Higher%20Education%20Institutions%2020%20October%202014.pdf
Accessed 28 October 2014.

Sanders, E. 2002. From user-centred to participatory design approaches in *Design and the social sciences*, edited by J Frascara. [sl]: Taylor & Francis.

Simonsen, J, Bærenholdt, J, Büscher, M & Scheuer, J (eds). 2010. *Design research: synergies from interdisciplinary perspectives*. Florence: Routledge.

Simonsen, J & Hertzum, M. 2010. Iterative participatory design in *Design research: synergies from interdisciplinary perspectives,* edited by J Simonsen, J Bærenholdt, M Büscher & J Scheuer. Florence: Routledge.

Stake, R. 1994. Case studies in *Handbook of qualitative research*, edited by N Denzin and Y Lincoln. Thousand Oaks: Sage.

Stake, R. 2005. Qualitative case studies in *The Sage handbook of qualitative research*, edited by N Denzin and Y Lincoln. Thousand Oaks: Sage.

Taleb, N. 2010. *The black swan: the impact of the highly improbable*. London: Penguin.

Tashakkori, A & Teddlie, C (eds). 2010. *The Sage ook of mixed methods in social and behavioural research*, 2nd edition. Thousand Oaks: Sage.

Teddlie, C & Tashakkori, A. 2011. Mixed methods research in *The Sage handbook of qualitative research*, edited by N Denzin and Y Lincoln. Thousand Oaks: Sage.

The American heritage dictionary, 5th edition. 2012. Boston: Houghton Mifflin.

van der Merwe, H. 1996. Die navorsingsproses: probleemstelling en navorsingsontwerp, in *Doeltreffende geesteswetenskaplike navorsing*, edited by J Garbers. Pretoria: JL van Schaik.

Visocky O'Grady, J & Visocky O'Grady, K. 2006. *A design research manual; succeed in design by knowing your clients and what they really need*. Beverly: Rockport.

Visser, F, Stappers, P & van der Lugt, R. 2005. Contextmapping: experiences from practice. *Co-design: International Journal of Cocreation in Design and the Arts* 1(2):1-30.

Yin, R. 2009. *Case study research: design and methods (applied social research methods)*, 4th edition. Thousand Oaks: Sage.

Yin, R. 2014. *Case study research: design and methods,* 5th edition. Thousand Oaks: Sage.

Zhao, T & Siu, K. 2014. The boundaries of public space: a case study of Hong Kong's mass transit railway. *International Journal of Design* 8(2):43-60.

APPENDICES

Appendix A: Quesionnaire submitted to respondents

Research for Design
Questionnaire

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Department of Visual Arts

Principal Investigator
Marno Kirstein
073 1488 504
marno.kirstein@gmail.com

Study Leader
Duncan Reyburn
084 878 5118
duncan.reyburn@up.ac.za

Head of Department
Jeanne van Eeden
012 420 2353
jeanne.vaneeden@up.ac.za

Please make sure that you have read, understood and signed the attached letter of informed consent submitted with this document before you proceed with the following questionnaire.

This questionnaire should take roughly 45-60 minutes to complete. Kindly take the time to read questions thoroughly and consider your answers carefully before writing them down. Make sure that you answer all parts, **A** through to **E**.

If at any time you feel that a questions is too personal, or if it make you feel otherwise uncomfortable, do not feel obligated to answer it. Simply continue with the next question. If a question is vague, or you do not feel qualified to give an accurate response, please answer it to the best of your ability. This study is not testing your knowledge, but is an inquiry into your personal attitudes and experiences. Any response, as long as it is forthright, will be valuable.

Thank you very much for taking the time to participate in this research study. Your time and input is highly valued and will contribute to the successful completion of the research.

Part A

1. What do you, in your professional capacity, have to do with design? Please tick the appropriate box(es):

   ☐ I manage designers

   ☐ I manage design projects

   ☐ I am a creative director

   ☐ I do research for design projects, or on behalf of designers

   ☐ I am a designer or do design work

   ☐ I work in collaboration with designers

   ☐ I work alongside designers, but have nothing to do with design

   ☐ Other (please elaborate) _____

   _____
   _____
   _____

2. Do you have any formal training in design? If so please elaborate, including all formal training you have had in design. This may or may not include being enrolled at a tertiary institution for a certain number of years, completing a shourt course offered at a private institution or others.

   _____
   _____
   _____
   _____

3. How long have you been working at this company?

   _____

end of part A

120

Part B

1. Consider the phrase 'research for design' for a moment. Do you think research for design would differ from research in general? How do you think it would be the same or different?

    _____
    _____
    _____
    _____

2. Have you ever come across literature or any other source that in any way engages with the notion of 're search for design'? If not, please skip to question 5.

3. Where did you encounter this notion (what kind of source was it)? Please tick as many as are applicable and elaborate.

    ☐ During formal training _____
    _____

    ☐ Magazine/E-zine article _____
    _____

    ☐ Journal/E-journal article _____
    _____

    ☐ Book _____
    _____

    ☐ A colleague _____
    _____

    ☐ A video presentation _____
    _____

    ☐ On a website / online article / blog _____
    _____

    ☐ In the workplace _____
    _____

    ☐ Other _____
    _____

    ☐ I can't recall

4. What kind of engagement did the source(s) have with the notion of 'research for design'? Please tick as many as are appropriate and feel free to elaborate.

    ☐ Theorizes about the nature of research for design
    ☐ Attempts to establish a theoretical framework for research for design
    ☐ Explains what research for design is
    ☐ Explains a method for research for design
    ☐ Makes use of a method for research for design
    ☐ Uses research for design to explain some other concept
    ☐ Mentions research for design in passing, not explaining what it means
    ☐ Mentions research for design, assuming that the reader knows what it is
    ☐ Criticizes/deconstructs the idea of research for design
    ☐ Classifies research for design
    ☐ Other (please elaborate) _____
    _____

121

5.   Do you know about any methods used in research for design? Please list any that you can think of or have heard of.

_____
_____
_____
_____
_____
_____

end of Part B

Part C

1.   Do you think that research is a necessary component of the design field in general? Please motivate your answer. If your answer is no, please skip to question 7 next.

_____
_____
_____
_____

2.   Who do you think should be responsible for doing research for design? Please tick as many boxes as you feel are appropriate:

☐ Professional design bodies
☐ Government mandated institutions
☐ Government funded institutions
☐ Universities and other educational institutions
☐ Design companies
☐ Research departments in design companies
☐ Market research foundations
☐ Other privately owned institutions (please elaborate)
☐ A delegated design team member
☐ Designers in general
☐ Other (please elaborate) _____

_____

3.   Who do you feel should be most responsible for conducting research for design and why?

_____
_____
_____
_____

4.   Do you feel that you yourself should be conducting formal research for design as a part of your daily practice? Do you feel any desire to do so?

_____

5.   What possible uses do you envisage for research generated through research for design?

_____
_____
_____

122

6.   Where do you think funding for research for design should come from? Alternatively, who do you think should be responsible for funding research for design? Why do you say so?

_____
_____
_____
_____

7.   Do you attempt to stay in step with developments in research for design? If so, please explain why and how. If not, please explain why.

_____
_____
_____

8.   Have you ever received any formal training for conducting any kind of research for design? If not, proceed to question 11.

9.   Where did you receive this training?

_____
_____
_____

10.   Do you feel that the training was useful? Please elaborate.

_____
_____
_____

11.   Do you desire to be trained (further) in research for design methods?

_____

12.   Do you feel that your views regarding research for design are in line with those of the company you are in? Please elaborate if you feel comfortable doing so.

_____
_____
_____
_____

end of Part C

Part D

1.   Have you ever been required to conduct research for design? Alternatively, have you ever been a part of a team in which research for design was conducted? If so, please elaborate.

_____
_____
_____
_____
_____
_____

2.   How much time do you or your team spend on research for design? Please mark the appropriate box(es):

☐ I never do research for design
☐ I rarely do research for design
☐ I engage in research for design once or twice a month
☐ I do research for design 1 to 4 hours a week
☐ I do research for design on average 1 to 2 hours a day
☐ I do research for design up to half of my working day
☐ Most of my working day is spent in engaging with research for design
☐ My time is spent almost exclusively in conducting research for design
☐ My primary job function is to conduct research for design.
☐ Other (please elaborate) _____

3.   Do you desire to have more opportunity to conduct research for design? Alternatively, do you desire to see more research for design conducted in projects you are involved in?

_____

4.   What, in your opinion, is hindering you/your team from conducting more research for design?

_____
_____
_____

5.   As far as you are aware, does your company have any policies or procedures in place specifically geared toward research for design? Alternatively, as far as you are aware, are there any systems in place at your company that regulate research for design? If so, please elaborate. If not, proceed to question 8.

_____
_____

6.   Do you feel that these policies/procedures/systems are being adhered to? Please elaborate.

_____
_____
_____

7.   Do you feel that these policies/procedures/systems are adequate? Please elaborate.

_____
_____
_____

8.   Please list any research for design methods you feel adept at conducting (leave blank if none).

_____
_____
_____
_____

9.   Do you ever offer research for design as a service to clients (or prospective clients)? If so, please elaborate.

_____
_____
_____

end of part D

Please spend some time completing the chart in part E of this questionnaire (following page).

124

Part E Please mark the boxes that best reflect your knowledge of the following research methods

KEY

1 ☐ I've *heard* of it
2 ☐ I know what it's about
3 ☐ I would know how to use it
4 ☐ I have applied this method in practice
5 ☐ I am experienced in using this method
6 ☐ I have *never* heard of it

1 2 3 4 5 6

☐☐☐☐☐☐ Activity Analysis
☐☐☐☐☐☐ Affinity Diagrams
☐☐☐☐☐☐ Anthropometric Analysis
☐☐☐☐☐☐ Character Profiles
☐☐☐☐☐☐ Cognitive Task Analysis
☐☐☐☐☐☐ Competitive Product Survey
☐☐☐☐☐☐ Cross-Cultural Comparisons
☐☐☐☐☐☐ Error Analysis
☐☐☐☐☐☐ Flow Analysis
☐☐☐☐☐☐ Historical Analysis
☐☐☐☐☐☐ Long-Range Forecasts
☐☐☐☐☐☐ Secondary Research
☐☐☐☐☐☐ 'A day in the life'
☐☐☐☐☐☐ Behavioural Archaeology
☐☐☐☐☐☐ Behavioural Mapping
☐☐☐☐☐☐ 'Fly on the wall'
☐☐☐☐☐☐ Guided Tours
☐☐☐☐☐☐ Personal Inventory
☐☐☐☐☐☐ Rapid Ethnography
☐☐☐☐☐☐ Shadowing / Shadow Studies
☐☐☐☐☐☐ Social Network Mapping
☐☐☐☐☐☐ Still-Photo Survey
☐☐☐☐☐☐ Time-Lapse Video
☐☐☐☐☐☐ Card Sort
☐☐☐☐☐☐ Cognitive Maps
☐☐☐☐☐☐ Collage
☐☐☐☐☐☐ Conceptual Landscape
☐☐☐☐☐☐ Cultural Probes
☐☐☐☐☐☐ 'Draw the experience'
☐☐☐☐☐☐ Extreme User Interviews
☐☐☐☐☐☐ Five Whys?
☐☐☐☐☐☐ Foreign Correspondents
☐☐☐☐☐☐ Narration
☐☐☐☐☐☐ Surveys and Questionnaires
☐☐☐☐☐☐ Unfocus Group
☐☐☐☐☐☐ Word-Concept Association
☐☐☐☐☐☐ Behaviour Sampling
☐☐☐☐☐☐ 'Be Your Customer'
☐☐☐☐☐☐ Bodystorming
☐☐☐☐☐☐ Empathy Tools
☐☐☐☐☐☐ Experience Prototype
☐☐☐☐☐☐ Role-Playing

1 2 3 4 5 6

☐☐☐☐☐☐ Camera Journal / Photographic Ethnography
☐☐☐☐☐☐ Informance / Focus Troupes
☐☐☐☐☐☐ Paper Prototyping
☐☐☐☐☐☐ Predict Next Year's Headlines
☐☐☐☐☐☐ Summative Research
☐☐☐☐☐☐ 'Quick-and-dirty' Prototyping
☐☐☐☐☐☐ Scale Modelling
☐☐☐☐☐☐ Scenarios
☐☐☐☐☐☐ Scenario Testing
☐☐☐☐☐☐ Try-it-yourself
☐☐☐☐☐☐ Competitor Analysis
☐☐☐☐☐☐ Ethnographic Research
☐☐☐☐☐☐ Marketing Research
☐☐☐☐☐☐ User Testing
☐☐☐☐☐☐ Visual Exploration
☐☐☐☐☐☐ The Big 6 / Information Literacy
☐☐☐☐☐☐ AIGA Designing Framework
☐☐☐☐☐☐ Data Triangulation
☐☐☐☐☐☐ Graphic Organizers
☐☐☐☐☐☐ Developmental Documentation
☐☐☐☐☐☐ Cumulative Documentation
☐☐☐☐☐☐ Personal Research Morgues
☐☐☐☐☐☐ Formative Research
☐☐☐☐☐☐ Constructive Research
☐☐☐☐☐☐ Rich Interaction
☐☐☐☐☐☐ Focus groups
☐☐☐☐☐☐ Field Ethnography
☐☐☐☐☐☐ Digital Ethnography
☐☐☐☐☐☐ Ethnofuturism
☐☐☐☐☐☐ Real World Ethnographic enactments
☐☐☐☐☐☐ Developmental Panels
☐☐☐☐☐☐ In-home Placement
☐☐☐☐☐☐ Participant Observation
☐☐☐☐☐☐ Expert Interviews
☐☐☐☐☐☐ Literature Review
☐☐☐☐☐☐ Wake-Up Interviews
☐☐☐☐☐☐ Needs VS Functions
☐☐☐☐☐☐ (Theatre) Design Improvisation
☐☐☐☐☐☐ Designwriting
☐☐☐☐☐☐ Anomalous Space (Displacements)
☐☐☐☐☐☐ Anomalous Time (Moviemaps)
☐☐☐☐☐☐ Anomalous Interaction
☐☐☐☐☐☐ Player Forms
☐☐☐☐☐☐ Interval research
☐☐☐☐☐☐ Taxonomies
☐☐☐☐☐☐ Interdisciplinary Research
☐☐☐☐☐☐ Design Experiments
☐☐☐☐☐☐ _____
☐☐☐☐☐☐ _____   other
☐☐☐☐☐☐ _____
☐☐☐☐☐☐ _____

Appendix B: Interview question schedule used

Faculty of Humanities
Department of Visual Arts

General Framework for
Interview Questions

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

17 September 2012

The following framework is being sent to you to help you understand what kind of questions to expect during your interview and to assist you in mentally preparing yourself for the questions.

The framework gives only a general overview as to the nature of the line of inquiry to be followed. These questions will not be asked exactly as stated here, *verbatim*. The interview process is fluid and dynamic, and questions will need to be continually adapted and re-evaluated during the course of the interview, depending on the answers given. Some questions may become irrelevant, others may need to be explored in more detail. Depending on the job description/requirements of the person being interviewed, some sections will be left out altogether.

Do not be concerned about the number of questions – your interview should not take longer than one hour (60 minutes).

Please do not feel any pressure to read up about any of the areas of inquiry in the following framework. There is no prior expectation from the researcher as to your level of knowledge, attitude towards or familiarity with the concepts that will be discussed. The aim of the inquiry is to establish these very things.

Regarding Job Description and Work Experience

1.1.   What is your job title? Can you briefly explain what your job description is?
1.2.   (If applicable) Would you consider your job to be related to design in any way?
1.3.   Is this the first time you have held a position of this nature at a company?
1.4.   (If applicable) What other kinds of positions have you been employed in that are related to design, at this company or others? How long have you been doing this for?
1.5.   How long have you been in this company and in your current position?
1.6.   Do you have any formal training in design? (If applicable) Have you had any formal training in your current position?

Regarding the Topic of this Research Study
(conversance of design practitioners with 'research for design' methods)

2.1.   Are you familiar with the term 'Research for Design'? If so, where have you encountered it before?
2.2   Do you think that research for design is different to other types of research? If so, why?
2.3   Is research for design of any particular interest/importance to you?

Regarding the Idea of 'Research for Design Methods'

3.1.   Do you believe that there is a 'method' to doing research for design?
3.2.   What is your personal opinion about the relationship between theory (academics) and practice (industry)? Should they work closely together? Is the one relevant to the other? Do you think they can help each other?
3.3.   Do you know of any research for design methods? If so, how did you come to hear about them?
3.4.   Do you think research for design is necessary? Why or why not?
3.5.   If so, who do you think should be responsible for doing it?
3.6.   (If applicable) Do you think that there is a place for research for design in this company?
3.7.   (If applicable) Are you interested in learning more about research for design?

Regarding Research for Design and the Real World

4.1.   Have you ever tried to do research for design? If so, when and where? What was your part in it?
4.2.   (If applicable) Did you think that doing research for design was useful? Was it worthwhile?
4.3.   (If applicable) Of the research for design methods you have encountered, do you think they are suited to the industry? More particularly, do you think they are suited to the part of the industry you work in?
4.4.   Do you ever try to get/keep up to date with what's happening in the world of design academia and/or research? Why and how, or why not?
4.5.   (If applicable) How do you think research for design can be improved?

Regarding Research for Design and the Bottom Line

4.1.   Do you think that research for design can help the communication design industry as a whole to grow/develop?
4.2.   Do you think that research for design (wherever it is done, and by whoever) can contribute to your company's bottom line?
4.3.   (If applicable) Do you think it's possible for this company to do research for design in a way that will benefit the company in any way? If so, in what ways?
4.4.   (If applicable) Do you think it would be worthwhile for design companies to invest in training employees in conducting research for design? What about this company?
4.5.   Do you feel that you would be a greater asset to this or other companies if you had more training in/experience in/ exposure to research for design?

Regarding Research for Design and Company Policies/Procedures

5.1.   To your knowledge, does this company have any policies, procedures or systems in place that address the issue of research for design?
5.2.   (If applicable) If not, has this ever been considered? Has it been discussed in any formal way? If not, why do you think this is?
5.3.   (If applicable) If so:
5.3.1.   Why were they implemented?
5.3.2.   When were they implemented?
5.3.3.   How were/are they implemented?
5.3.4.   Do you think the staff in the company are generally aware of these policies/procedures/systems?
5.3.5.   Do you think they are sufficient/relevant/up-to-date/meeting their requirements?
5.3.6.   Do you think they are being effectively implemented?
5.3.7.   Do you think they need to be in place at all?

Regarding Budgeting and Resources for Research for Design

6.1.   Is Research for Design ever offered as a part of your services to clients?
6.2.   If not, why do you think that is?
6.3.   If so:
6.3.1.   How/when is it offered to clients?
6.3.2.   Do they ever take you up on the offer?
6.3.3.   Do you find that clients are willing to pay for research? If so, how much and in which instances? If not, do you have to carry the costs yourselves?
6.3.4.   Do clients ever ask for research of their own accord?
6.3.5.   Do you think offering this service benefits the company in any way?
6.3.6.   How is budgeting for research done? By whom? How is it billed?
6.4.   Have you ever applied for funding for research? If not, why do you think that is? If so, where did you apply? Were you successful?
6.5.   (If applicable) Do you think your company has the resources (human resources, time, equipment, expertise etc.) to engage in research for design?
6.6.   What resources do staff have available to them to do research for design?

Regarding Documentation during / Records of Research for Design

7.1. Are there, to your knowledge, any policies/procedures/systems in place at this company about how research for design should be documented?
7.2. (If applicable) Is research documented/recorded in any way?
7.3. If so:
7.3.1. who is responsible for documenting the research?
7.3.2. when and how is the documenting done? Is there a paper trail?
7.3.3. is the documentation stored or discarded upon completion of projects?
7.3.4. do you ever refer back to earlier projects as reference (secondary research)?
7.4. If not, is any kind of trace left of the design process that was followed during a project? And if so, is it ever used as reference for subsequent projects?
7.5. Do you have any records/douments of research conducted for/during past design projects?

Appendix C: Letter of informed consent submitted to potential participants

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Humanities
Department of Visual Arts

17 September 2012

To Whom It May Concern:

Informed letter of consent

Title of Study: Exploring conversance with 'research for design' methods in communication design companies

Principal Investigator:
Name: Marno Kirstein
Department of Visual Arts, University of Pretoria
See contact details at the bottom of this page.

Background:
You are being invited to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please take the time to read the following information carefully. Please ask me if there is anything that is not clear or if you need more information. For more information about the research topic, please read the attached summary.

Study Procedure:
It is expected that your company will be involved in the study for a period of up to one working week.
On the first day, questionnaires will be handed to all designers and design related researchers in the company. Participants can complete these at their leisure throughout the week and the questionnaires will be collected at the end of the week. It is estimated that the questionnaire should take 45-60 minutes to complete.
One full working day will be spent interviewing relevant staff members, agreed upon by the company and the researcher (maximum of 5). The interviews will be conducted one-on-one and will be recorded with a voice recorder. All questions in the questionnaire and interviews will be in aid of establishing participants' awareness of, attitudes toward and aptitude in applying research for design methods in practice.
One full working will be spent (circumstances allowing) perusing documentation generated for past design projects where a research for design method was implemented. Photographs will be taken of relevant pieces of documentation with the permission of the company. Blotting out or censoring any identifiable visual elements in the documentation will assure confidentiality of the design clients as well as study participants.
If necessary, one additional working day will be spent catching up missed interviews and perusing project documentation.

Risks:
The risks of this study are minimal. These risks are similar to those you experience when disclosing work-related information to others. It is highly unlikely that the questions in the questionnaires and interviews will upset any respondents. You may decline to answer any or all questions and you may terminate your involvement in the study at any time if you choose.

Benefits:
I believe that participation in this study can be beneficial to your company and to you as an individual. My research findings regarding your company will be made available to you at your request and I will be available to discuss these research findings with you, should you wish to do so. In addition, a digital copy of the dissertation can be made available to you if you would like to have one. Finally, it is believed that your participation in this study will be beneficial to understanding of research for design in practice and may contribute to the future development of the field.

Visual Arts Building
University van Pretoria
PRETORIA 0002
Republic of South Africa

Cell: 073 1488 504

marno.kirstein@gmail.com
www.up.ac.za

Alternative Procedures:
If you do not want to be in the study, you may choose not to participate in an interview or answer a questionnaire. You are at your leisure to refuse to answer any questions in the questionnaire or interview (should you participate in either). If the company cannot allow me to peruse **any** of the documentation generated for past projects, additional in-depth interviews may need to be done to help establish how research for design was implemented in past projects (if at all).

Confidentiality:
Please do not write any identifying information on your questionnaire. Your responses will be anonymous.
Every effort will be made by the researcher to preserve your confidentiality including the following:

- Assigning code names/numbers for participants that will be used on all researcher notes and documents.
- Notes, interview recordings and transcriptions, and transcribed notes and any other identifying participant information will be kept in the personal possession of the researcher until all identifying information has been blotted out.
- If at any time during the study or in future, you wish to withdraw your participation, all documentation involving you will be destroyed without question. Once the study is complete, it will be stored in a sealed container at the Department of Visual Arts at the University of Pretoria for 15 years after which it will be destroyed. Any request to use it in future studies will be required to be formally requested as done here.
- Information from this research will be used solely for the purpose of this study and any publications that may result from this study. In the event of a publication resulting from this study, it will do so only with the expressed consent of all participants in the study.
- Should the company wish to remain anonymous in its entirety, similar steps will be taken to ensure that this is achieved.

Interviewed participants should tell the researcher if a copy of the interview is desired.

Persons To Contact:
Should you have any questions about the research or any related matters, please contact me at any time. My contact details are at the bottom of the first page of this letter. If problems arise which you do not feel you can discuss with me, please feel free contact my study leader or head of department.
Study leader: Duncan Reyburn
Email: Duncan.reyburn@up.ac.za
Cell: 084 878 5118
Head of Department: Jeanne van Eeden
Email: Jeanne.vaneeden@up.ac.za
Tel: 012 420 2353

Voluntary Participation:
Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you do decide to take part in this study, you will need to sign this letter of consent. If you decide to take part in this study, you are still free to withdraw at any time and without giving a reason. You are free to not answer any question or questions if you choose. This will not affect the relationship you have with the researcher.

Cost and compensation:
There is no cost for you to participate in this study, nor will you be compensated for your participation in any way other than that explained under the '**Benefits**' section of this letter.

Consent:
By signing this consent form, you confirm that you have read and understood the information and have had the opportunity to ask questions. You understand that your participation is voluntary and that you are free to withdraw at any time, without giving a reason and without cost. You understand that you will be given a copy of this consent form. You voluntarily agree to take part in this study.

Signature_____   Date_____