

# **A conceptual analysis of conceptualisation as first phase in the development of a psychological measurement**

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Dissertation submitted in partial fulfilment of the requirements for the degree *Master of Arts* in *Research Psychology* at the North-West University

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November 2017

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## ACKNOWLEDGEMENTS

Undertaking this conceptual analysis as a mode of inquiry has changed my life in so many ways, and without the invaluable guidance, support and, above all, patience and understanding from the following people, I would not have been able to complete this study. My deepest expression of appreciation and gratitude is not limited to the following names mentioned, but also extended to every person, creature, circumstance and event that has crossed my path and helped shaped and (trans)form me into the person who I am today. All praise and honour to God, Son and Holy Spirit for this journey. My life, and this inquiry, is ultimately devoted to the Creator and Knower of all. Above all, I want to dedicate this study and what I have achieved to God Almighty. You have granted me the character, endurance, time, wisdom, health, capability, and strength to undertake this journey. You brought me to it and ultimately through it.

It gives me great joy to also dedicate this inquiry to my precious mother and my safe haven, Hannetjie du Preez; my brother in shining armour, Kobus du Preez; my always motivating guardian parent, Louise Veldman; my insightful mentor, Lelia Weber; and my always encouraging and ever supportive significant other, Wessel Burger, for making it possible to continue this journey. You always reminded me of my purpose in life and helped me (re)focus in those times I wanted to look back and bellow over my situation and circumstances. How blessed can one women be to have three such precious and dynamic mothers, as well as a terrific brother and a significant other in her life!

I want to thank my treasured and valuable colleagues from diverse universities: Prof Andries Baardt, Prof Ferdinand Potgieter, Prof Jan Heystek, Prof Ina Joubert, Prof Jan Niewenhuis, Prof Kobus Mentz, Dr Bronwyne Coetzee, Dr Carolien Botha, Dr Julialet Rens, Dr Judy van Heerden, Dr Surette van Statden, Mrs Andri Schoonen, Mrs Anja Human, Mrs Jeannine Keating, Miss Adri du Toit, Mrs Anienie Veldsman, and Miss Nadia Swanepoel, thank you for your unconditional support, guidance, and encouragement, always!

To my language editor, Dr Lariza Hoffman, thank you for dedicating your precious time and energy to linguistically edit and proofread my dissertation and to make sure that it meets the requirements of academic publishing.

To my supporting friends who always kept a watchful eye that I do not neglect my “normal life” and who reminded me to sustain a balanced life and to not miss out on pivotal events, I express my deep indebtedness to these friends for their support and encouragement always: Dr Aninda Adam, Mr Albert Prinsloo, Mrs Annelize Barkhuizen, Mrs Annelene Edelbacher, Mrs Genie Conradie, Mr Johan Le Grange, Mrs Marisa Greyling, Mrs Lorainne Geldenhuys, Miss Nadia Esterhyuse, Mr Pieter Vermaak, Miss Sonet dos Santos, and Miss Yolanda Koekemoer.

It is an enormous pleasure to thank my supervisor, Dr Werner de Klerk. Thank you for your patience, guidance and leadership. Above all, thank you for introducing me to diverse and bounteous fields of knowledge I came to love and treasure. I cannot thank you enough for your role in my life and your companionship on this journey and those still to come.

## SUMMARY

A conceptual analysis of conceptualisation as first phase in the development of a psychological measure

*Keywords:* conceptual analysis, conceptualisation, integrated personality positioning, nomothetic positioning, psychological measure development, teleological positioning, transcendental positioning.

The assumption of psychological measurement scholars is that the *conceptualisation phase*, when developing such a measure, is not as important as the operationalization thereof. Although the development of a psychological measure encapsulates both a scientific method and a scientific reality or phenomenon, more attention is given to the experimentation and the mathematisation that are involved in operationalizing such a measure in comparison to the clarification of concepts, constructs, and terminology, which is a conceptual matter. Philosophical scholarly work has depicted that the conceptualisation phase is not only the pivot of a psychological measure, but also for the entire research inquiry, and careful attention should be given, as it has far-reaching effects on humans if not properly developed.

The purpose of this conceptual research inquiry was to explore the term *conceptualisation* from a psycho-philosophical point of view in order to gain greater understanding of the complex meaning and processes that are associated with this term. A conceptual research inquiry, classified as a qualitative mode of inquiry, enabled the researchers to conduct an extensive investigation into conceptualisation as the first phase in the development of a psychological measurement to convey the precise meaning to the community of scholars, according to six phases. A purposive sample approach was utilised to generate a customised knowledge base by systematically selecting appropriate scientific renowned non-empirical or typographical text under the guidance of an information specialist. Phenomenology, as metatheory, enabled the researchers to clarify *conceptualisation*, since the centrality of human consciousness and mental

metaphors is hermeneutic, symbolic, and analytical in nature. This metatheory draws on the premises that humans are continuously and consciously engaged with concepts. The philosophically inspired pre-scientific provisions included in the *a priori* framework were integrated personality positioning, transcendental positioning, teleological positioning, and nomothetic positioning. By applying conceptual analysis and a philosophically enthused *a priori* conceptual framework, the generated scientific typographical knowledge base was inductively and deductively analysed and interpreted according to the *a priori* categories of the meaning of conceptualisation.

The significance of introducing a psycho-philosophical viewpoint to understand conceptualisation disclosed that psychometric literature relating to the development of a psychological measure depicts the conceptualisation phase as trivial and generic. According to the inductive and deductive analysis, it became evident that test developers and researchers give greater attention to developing the scientific method (epistemology) of a psychological measure, while the scientific reality (ontology) is almost implied and viewed as obvious, and the human positioning of the test developer (anthropology) is almost entirely omitted. It is therefore argued that a serious lacuna exists in scholarly work, which advises the process of developing a psychological measurement because the human factor is negated. It is essential to incorporate philosophical predispositions when conceptualising a measurement to enhance the integrity of such an instrument. Through an initial clarification of the term *conceptualisation*, a probable psycho-philosophical working definition was proposed, yet future dialogues concerning the advancement of this particular phase are beckoned and commended.



## OPSOMMING

'n Konseptuele analise van konseptualisering as die eerste fase vir die ontwikkeling van 'n psigologiese meetinstrument

*Sleuteltermes:* konseptuele analise, konseptualisering, geïntegreerde persoonlikheidsposisionering, nomotetiese posisionering, ontwikkeling van sielkundige meetinstrumente, teleologiese posisionering, transendentale posisionering

Die aanname gemaak deur psigologiese kundiges is dat die *konseptualiseringsfase* tydens die ontwikkeling van 'n psigologiese meetinstrument nie so belangrik is soos die operasionalisering daarvan nie. Alhoewel die ontwikkeling van 'n psigologiese meetinstrument beide 'n wetenskaplike metode en 'n wetenskaplike realiteit of fenomeen omsluit, word meer aandag geskenk aan die eksperimentering en berekeninge wat betrokke is by die operasionalisering van so 'n meetinstrument vergeleke met die verduideliking van konsepte, konstruksie en terminologie, wat 'n konseptuele saak is. Filosofiese kundiges vanuit dié uitgangspunt redeneer dat *konseptualisering* nie slegs die spilpunt van 'n psigologiese meetinstrument is nie, maar ook betrokke is by die algehele navorsingsproses om die psigologiese meetinstrument te ontwerp; deeglike aandag moet hieraan geskenk word aangesien dit vërreikende gevolge vir mense inhou as dit nie behoorlik ontwikkel is nie.

Die doel van hierdie studie was om die konsep van konseptualisering vanuit 'n psigofilosofiese siening te verken om sodoende 'n beter begrip te ontwikkel van wat die betekenis daarvan is, asook die geassosieerde prosesse wat daaraan toegeskryf word. 'n Konseptuele navorsingsondersoek, geklassifiseer as 'n kwalitatiewe modus van ondersoek, het die navorsers in staat gestel om 'n uitgebreide studie volgens ses fases te onderneem om uiteindelik met duidelikheid en presiese betekenis die konseptualisering van die eerste fase van 'n psigologiese meetinstrument aan die gemeenskap van kundiges bekend te stel. 'n Doelgerigte steekproefbenadering is aangewend om 'n persoonlike kennisbasis te genereer deur, op 'n

sistematiese wyse, gepaste wetenskaplik erkende nie-empiriese of tipografiese teks te bekom onder die leiding van 'n inligtingspesialis. Fenomologie, as metateorie, het die navorsers in staat gestel om konseptualisering te verduidelik, aangesien die kern van die menslike bewussyn en verstandelike metafore hermeneuties, simbolies en analities van aard is. Die metateorie is gebaseer op die uitgangspunt dat mense deurlopend en bewustelik met konsepte omgaan. Die filosofies geïnspireerde bepalinge wat in die *a priori* raamwerk ingesluit is, is geïntegreerde persoonlikheidsposisionering, nomotetiese posisionering, die ontwikkeling van sielkundige meetinstrumente, teleologiese posisionering, transendentale posisionering en nomotetiese posisionering. Deur die toepassing van konseptuele ontleding en 'n filosofies geïnspireerde *a priori* konseptuele raamwerk is die wetenskaplike tekstuele kennisbasis induktief en deduktief ontleed en geïnterpreteer na aanleiding van die *a priori* kategorieë vir die betekenis van konseptualisering.

Die belang van die bekendstelling van 'n psigo-filosofiese uitgangspunt om konseptualisering te verstaan, openbaar dat psigometriese literatuur wat verband hou met die ontwikkeling van 'n psigologiese meetinstrument die konseptualiseringsfase as onbeduidend en generies beskou. Volgens die induktiewe en deduktiewe ontleding het dit duidelik geword dat toetsontwikkelaars en navorsers meer aandag skenk en voorkeur gee aan die wetenskaplike metode (epistemologie) van 'n psigologiese meetinstrument, terwyl die wetenskaplike werklikheid (ontologie) byna geïmpliseer en as voor die hand liggend beskou word, en menslike posisionering (antropologie) bykans heeltemal weggelaat word. Daar word dus aangevoer dat daar 'n ernstige gaping in die korpus wetenskaplike werk is en daar word aanbeveel dat die ontwikkelingsproses van 'n psigologiese meetinstrument filosofiese neigings behoort te inkorporeer om die integriteit van sodanige meetinstrument te bevorder. Op grond van die aanvanklike verduideliking van die term *konseptualisering* word 'n waarskynlike psigo-

filosofiese werkende definisie voorgelê, terwyl toekomstige dialoë oor die bevordering van hierdie fase aangemoedig en aanbeveel word.

## PREFACE

According to Rule A 4.4.2.9 of the North-West University, this mini-dissertation adheres to the predetermined rules and regulations for utilising the article model. Furthermore, the entire mini-dissertation adheres to the established guidelines provided by the American Psychological Association (APA: 6th edition), while Section 2 of the mini-dissertation adheres to the author guidelines of the identified journal. In relation to the latter statement, the aim of this mini-dissertation is to submit the conceptualised article to *Theory and Psychology*, an accredited and peer-reviewed journal, with the potential to be published therein. As indicated in the table of contents, the entire mini-dissertation exhibits chronological page numbers – Section 1 starts on page 1 and it continues chronologically to the bibliography at the end.

Dr Lariza Hoffman is an adept language and technical editor, registered at the South African Translators' Institute (SATI), who assured that the quality of the language and the layout adhere to the expectancies of the North-West University. The researchers obtained ethical clearance (reference number NWU-00087-16-A1) from the Health Research Ethics Committee (HREC) of the Faculty of Health Sciences Ethics Office for Research, Training and Support of the North-West University for conducting a concept analysis. They purposively and systematically generated data in fulfilment of the requirements for the Masters' Degree in Research Psychology. The entire mini-dissertation was furthermore submitted to "Turn-it-in" to determine, establish and provide the North-West University researchers with a report stating the similarities that were detected in the mini-dissertation in relation to international databases, where it was determined that it falls within the norms of acceptable similarities (Index: 3%).

## PERMISSION LETTER FROM SUPERVISOR

Permission is hereby granted for the submission by the first author, Dr Hannelie du Preez, of the following article for examination purposes towards the obtainment of a Master's degree in Research Psychology:

*A conceptual analysis of conceptualisation as first phase in the development of a psychological measure*

The role of the co-author was as follow: Dr W. de Klerk acted as supervisor and project head of this research inquiry and assisted in the peer review of this mini-dissertation.

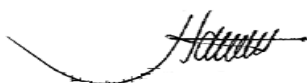


Dr Werner de Klerk

## DECLARATION

To whom it may concern

I, Dr Hannelie du Preez (student number 23583487), the undersigned, hereby declare that the content contained in this mini-dissertation is my own original work and that I have not previously, in its entirety or in part, submitted it to any other institution for higher education for the fulfilment of a degree.

A handwritten signature in black ink, appearing to read 'Hannelie', with a long horizontal flourish extending to the right.

Dr Hannelie du Preez

## SECTION 1: INTRODUCTION

### Reading Guidelines

In order to commence a research inquiry, it is important to impart the anticipated structure of both the research and the three respective sections of which this mini-dissertation consist to the community of scholars. The holistic structure of the research inquiry represents a way of reasoning and serves as a vehicle for transferring accumulated knowledge systems with one's unique inferences, as a sense-making framework.

The outline of the first section (see page 1) enabled the researchers to engender the focus, importance, and significance of this research inquiry to the community of scholars (reader). Aspects such as the phenomenon under investigation were reported, as well as the justification for conducting this research inquiry as depicted through the Three Worlds Framework. The stage for this research inquiry was set to introduce the silences and to affirm the problem, rationale, and research questions of this research inquiry.

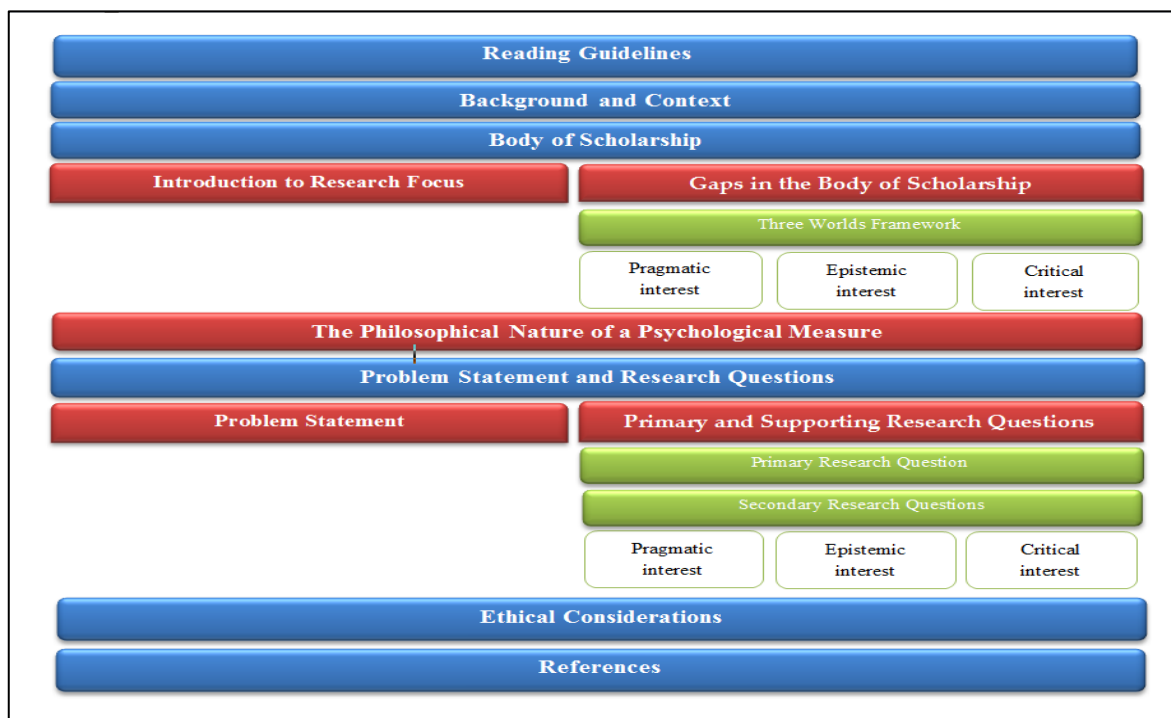


Figure 1. Visual presentation of the structure of Section 1

The second section (see page 22) encapsulates the entire research inquiry by means of constructing a scientific article (manuscript) that adheres to the guidelines and procedures as presented by the identified accredited journal.

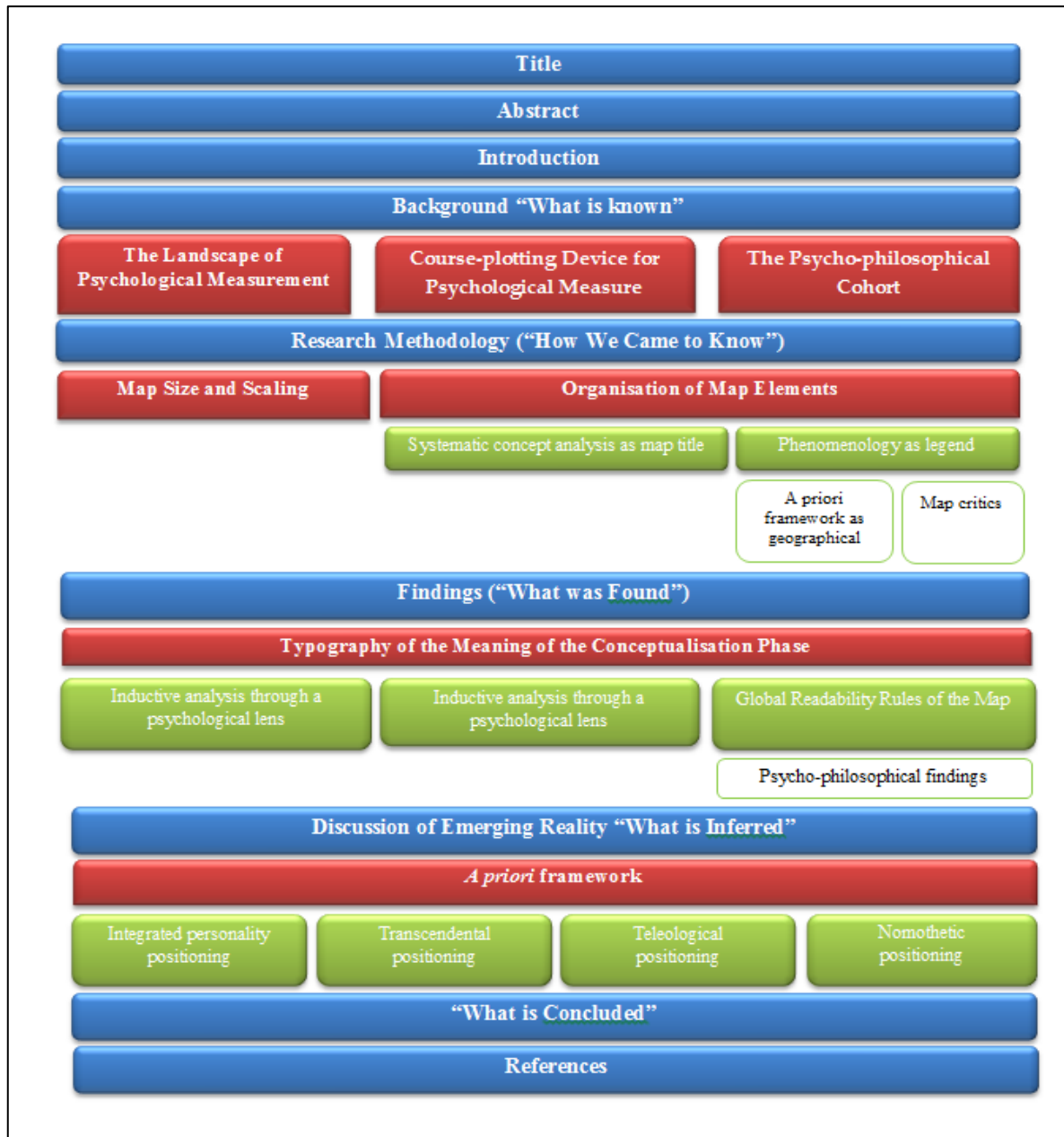


Figure 2. Visual presentation of the structure of Section 2

The final section (see page 59) poses the researcher the opportunity to critically reflect on the entire research inquiry and to voice how this research inquiry has contributed to personal growth and, hopefully, to the scientific body of scholarship.



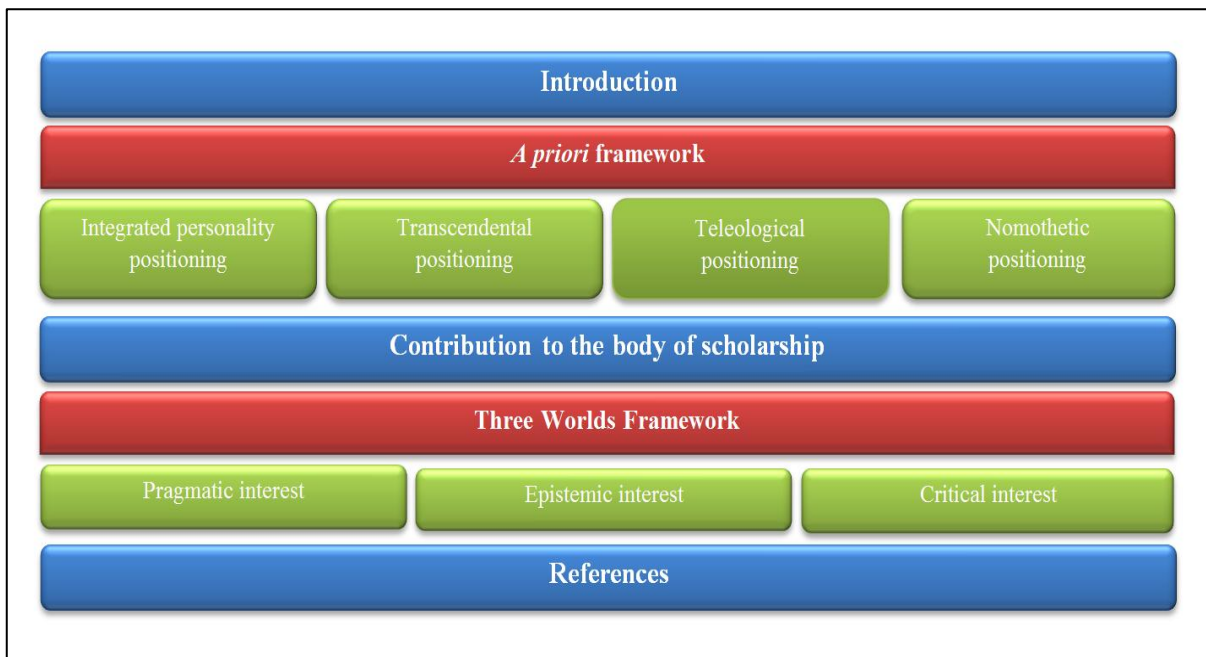


Figure 3. Visual presentation of the structure of Section 3

The specific structure of these respective sections serves the purpose of guiding the researchers to disseminate to the community of scholars how the motivation for this research inquiry came into existence, how this notion has developed and evolved, and, finally, how the research focus is articulated through the justification of a gap in the body of scholarship and its formulated research question.

### **Background and Context**

The study of psychology, as assumed by scholars, refers to the establishment of the scientific and academic investigations about the mind, behaviour, characteristics, and relations of humans and other organisms (Colman, 2015; Pawlik & Rosenzweig, 2000). Psychology is dedicated to miscellaneous fields of inquiry to disseminate how humans and other organisms for example, learn, perceive, feel, act, interact and understand themselves (Pawlik & Rosenzweig, 2000; Rust, Golombok, Kosinski, & Stillwell, 2014; Sternberg, 2001). Psychology has demonstrated a historical focus and vision to generate and develop laws, methods and theories that enable scholars to understand, measure and even predict the nature of the mind (e.g.

thoughts, feelings, and behaviour) within and among humans and organisms (Barlow & Durand, 2011; Sternberg, 2001).

With this particular research inquiry, the subdomain investigated within the broader field of psychology was psychometrics. A core element of psychometrics is the understanding of the scientific research procedures applied to scientifically measuring a psychological phenomenon (Foxcroft & Roodt, 2006, 2013; Kaplan & Saccuzzo, 2012; Rust et al., 2014). Psychological assessment measures have been displayed historically as a significant and prominent field of scholarship within plentiful and unique subfields of specialisation (Foxcroft & Roodt, 2006; 2013; Moerdyk, 2009).

The field of psychometrics enables scholars and researchers to design psychological measures according to scientific research procedures that could potentially shed light on the complex nature of humans (*ibid*). The utilisation of such psychological measures proposes a possible way to investigate the mind, behaviour, characteristics and relations of humans and other organisms in their natural and daily environment (Braun, Jackson, & Wiley, 2001; Jones & Thissen, 2006; Rust et al., 2014). Psychometrics is thus considered a privileged scientific method or tool for acquiring information and the understanding of psychological constructs (Mari, Carbone, & Petri, 2012; Maul, Iribarra, & Wilson, 2016).

As with any scientific field of knowledge, psychometry necessitates research endeavours to promote its knowledge base. Evidence of the advancement of psychological measures elucidates the need for scholars to continuously better describe, understand, predict and control complex phenomena that could potentially measure the internal and external worlds of human beings (Braun et al., 2001; Foxcroft & Roodt, 2006, 2013; Jones & Thissen, 2006; Kaplan & Saccuzzo, 2012; Rust et al., 2014). In order to reiterate this need, the following extract of Moerdyk (2009, p. 27) can be quoted: “The basic premise of assessment is simply this: Everything that exists, exists in some quantity and can therefore be measured (therefore) the challenge lies in finding

ways of measuring things.” As derived from this quote, the development of a psychological assessment measure requires adept and specialised knowledge, skills and value orientations about the phenomenon, as well as precise and explicit vocabulary by the test developer (Babbie & Mouton, 1998a; Kaplan & Saccuzzo, 2012; Mouton, 1998).

### **Body of Scholarship<sup>1</sup>**

In light of this brief introduction to the background and context of this research inquiry, the derived research interest of this inquiry relates to the conceptualisation of a psychological measurement as the first phase. This inquiry focuses on the thinking, knowledge and reasoning that are required by the test developer about the phenomenon (ontology) and its scientific methods (epistemology) when conceptualising a psychological measurement. The research inquiry investigates cross-disciplinary and trans-disciplinary knowledge systems that contribute to constituting a just conceptual framework of the phenomenon for the development of a psychological measure (Braun et al., 2001; Foxcroft & Roodt, 2006, 2013; Maul et al., 2016). In other words, this research inquiry enabled the researchers to explore the acts that contribute to the conceptualisation of a psychological measure – theorising, describing and arriving at the precise textual definitions of the underlying concepts pertaining to the phenomenon and the underlying relationships of these concepts (conceptual framework) that can be scientifically measured (Babbie & Mouton, 1998a; Kaplan & Saccuzzo, 2012; Mouton, 1998).

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<sup>1</sup> The contribution of knowledge to an existing body of scholarship has a recognisable identity. Such scholarly work usually consists of a typical structure of knowledge, has a rationale and orientation for the research inquiry and a theoretical and conceptual framework (Trafford & Leshem, 2008). A clear methodology for data generation and/or selection strategies is communicated as well as how data were analysed and interpreted (Trafford & Leshem, 2008). This refers to the accessible collection of knowledge, skills and values regarding a particular phenomenon that is investigated and disseminated to advance knowledge, skills and values within diverse communities for diverse purposes.

## Gaps in the Body of Scholarship

The most appropriate and fascinating justification for a research inquiry is to identify and communicate the gaps, stillnesses, inconsistencies, silences or challenges evident in the body of knowledge (Maree & van der Westhuizen, 2009, 2016). Thus, when a researcher identifies a research problem, he or she is in the process of translating a “real-life” problem into an intellectual research problem, which can be scientifically investigated (Babbie & Mouton, 1998a, 1998b; Mouton, 2001). The process for intellectualising the conceptualisation phase in the development of a psychological measure can be reasoned by utilising the original concept of Karl Popper about the Three Worlds Framework, which was further refined by Johann Mouton (2001).

The Three Worlds Framework represents the notion that different levels of thinking are involved when investigating a phenomenon (Babbie & Mouton, 1998a, 1998b; Mouton, 2001). The different categories of the gaps in the body of scholarship require different levels of thinking, reasoning, and analyses, which in turn indicate the strong interplay between scientific research and everyday life (Babbie & Mouton, 1998a, 1998b; Mouton, 2001). Thus, an acute awareness of these levels of thinking reiterates the interdependence of a perceptible research problem in a physical world with abstract or intellectual thinking (Babbie & Mouton, 1998a, 1998b; Mouton, 2001). The Three Words Framework can be visually depicted as follows:

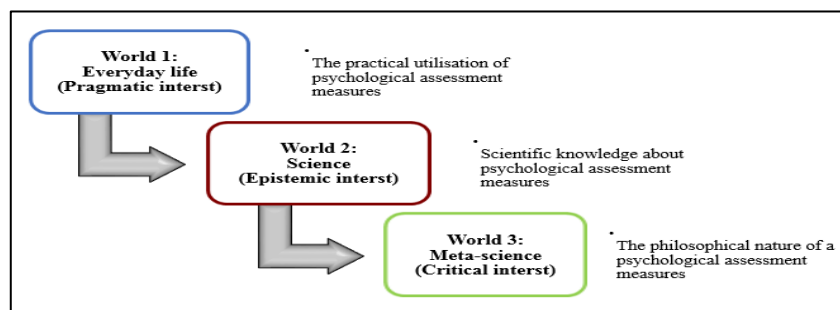


Figure 4. Gaps in the body of scholarship as presented through the Three Worlds Framework (adapted from Mouton, 2001, p. 139)

For any field of knowledge to advance or progress, evidence of thinking and inquiry on each level is required (Babbie & Mouton, 1998a, 1998b; Mouton, 2001). Indicating an acute mindfulness of the diverse worlds and their corresponding gaps also conveys that there is an opportunity for the advancement and transference of knowledge, skills, and values. For this reason an observable research problem in World 1 can be intellectually conveyed and reflected on in World 2 and 3, and reverted back to World 1 (Babbie & Mouton, 1998a, 1998b; Mouton, 2001). Each of these discussions of the gaps in the body of scholarship will assist with preparing the stage for the research inquiry.

**Pragmatic interest (World 1) signifying a contextual gap.** World 1 refers to everyday life and is given the label ‘world of pragmatics’ (Audi, 2015; Blackburn, 2005; Law, 2007). The word *pragmatism* is derived from the Greek word (πραγματιστική) *pragma*, which means ‘action, affair, practice or practical’ (Audi, 2015; Blackburn, 2005; Law, 2007). In other words, humans and organisms in the real world are part of everyday life and relate to one another on a cognitive, emotional, social, moral, psychological and physical level (Audi, 2015; Blackburn, 2005; Law, 2007). The knowledge used to address everyday crises or problems can be resolved by drawing on mere lay knowledge (Babbie & Mouton, 1998, 1998b; Mouton, 2001). Whenever a crisis or problem cannot be resolved with lay knowledge or with information available from everyday life, further research is required (Mouton, 2001).

***The practical utilisation of psychological measures.*** The use of a measure can be traced back to ancient times from which the need to assess human characteristics and attributes, as portrayed in daily ordinary life, originated (Foxcroft & Roodt, 2006, 2013). The act of measurement played a central role in the effort to acquire information about the physical and social world in which people lived (Jones & Thissen, 2006; Rust et. al., 2014). Humans were no longer satisfied with merely observing and being aware of how other humans and organisms learn, perceive, feel, act, interact and understand themselves (Barlow & Durand, 2011; Pawlik &

Rosenzweig, 2000; Sternberg, 2001), but rather the need for a more informed understanding of superiors' lay knowledge was necessary. Thus, the historical need for measuring a psychological phenomenon in a scientific manner emerged (Foxcroft & Roodt, 2006, 2013; Maul et al., 2016; Moerdyk, 2009).

Some of the historical tools and methods that were documented to study the mind, behaviour, characteristics and relations of humans and other organisms over the years were astrology (study of the planets), physiognomy (study of external features of the body and face), humorology (study of human humours or fluids), phrenology (study of organs and the head), chiromancy (study of the palm creases) and graphology (systematic study of handwriting) to name a few (Foxcroft & Roodt, 2006, 2013). These fields of study were all ways of studying humans and organisms, although graphology was the only approach that adopted a systematic method. (Foxcroft & Roodt, 2006, 2013). Through the years, the evolution of knowledge, technology and cultural tools have led to scientific and social progress and resulted in the development of several plausible assessment techniques (Rust et al., 2014). In retrospect, the pragmatic interest of the origination of psychological assessment measures indicates that there was a need to develop and improve society's lay knowledge by developing scientific evidence and methods to better understand psychological phenomena (Mouton, 1998, 2001).

Maul et al. (2016) and Petocz and Newbery (2010) affirm that the pragmatic need for measuring a psychological construct requires scientific research. The afore-mentioned measures to study the mind, behaviour, characteristics and relations of humans require rigorous, functional, valid, reliable and scientific methods, thus psychological measures had to be demystified, reconceptualised and rediscovered (Kaplan & Saccuzzo, 2012; Moerdyk, 2009; Pawlik & Rosenzweig, 2000). In light of the latter statement, it is still relevant in contemporary times to revisit how psychological measures are developed for the future, seeing that humans are not stagnant beings and, therefore, their psychological profile has changed over decades

(Humphry, 2013; Maul et al., 2016; Petocz & Newbery, 2010). The considerations of how to improve the real world indicate an advancement in knowledge and the application of various modes of inquiry and thinking, as illustrated by the Three Worlds Framework.

**Epistemic interest (World 2) signifying a conceptual gap.** The epistemic interest, as a gap in the body of scholarship, can be described as an abstract world of scientific knowledge and scientific disciplines. The word *epistemology* is derived from Greek (επιστημολογία) and can be broken up into two parts, namely *episteme* (ἐπιστήμη), which means ‘knowledge’ and *logos* (λόγος), which means ‘logical discourse’ (Audi, 2015; Blackburn, 2005; Law, 2007). Epistemology is a branch of philosophy concerned with the theory of knowledge (Scotland, 2012). In order to address an epistemic interest, the researcher needs to draw on knowledge systems, skills and values that are disseminated by the scientific and renowned community of scholars who have contributed to the world of science, as presented in World 2 (Babbie & Mouton, 1998a, 1998b; Mouton, 2001). A researcher can only progress to the level of analysis and reasoning of World 2 after identifying a pragmatic problem from everyday life, as presented by World 1. The knowledge system under investigation in this inquiry pertains to psychometrics.

Psychometrics has historically been described as a branch of psychology because it deals with measurable factors and properties of a phenomenon that involves humans and organisms (Rust et al., 2014). However, the understanding of the phenomenon requires a test developer to draw on the bodies of knowledge from different fields of specialisation, such as statistics, philosophy, physiology and physics, to name a few (Maul et al., 2016). Scholars who have historically contributed to the origination of psychological measures were scholars who had attained an adept knowledge of and skills in more than one field of specialisation. Accessing knowledge systems, skills and values from inter- and trans-disciplinary fields was and still is a crucial requirement for the advancement and transference of knowledge systems across times and for the 21<sup>st</sup> century (Kaku, 1999, 2011, 2014). Thus, it can be assumed that psychometrics

has evolved due to historical and social revolutions, which have been integrated into knowledge systems to advance the current knowledge (Kaku, 1999, 2011, 2014).

In order to justify the latterly mentioned statements, the historical overview of Jones and Thissen (2006) and Kaplan and Saccuzzo (2012) about the origin of psychological assessment measures can be introduced. The first socio-historical trend that contributed to the formation of psychometrics was inspired by Charles Darwin (evolutionary biologist, naturalist and geologist), established by Francis Galton (eugenicist, behavioural geneticist and statistician) and further advanced by Raymond Cattell (psychologist and psychometrist). These renowned scholars were determined to numerically indicate individual differences and, more importantly, to measure such differences (Jones & Thissen, 2006; Kaplan & Saccuzzo, 2012; Rust et al., 2014). The majority of the investigations were undertaken to measure intelligence by developing psychological measures (Jones & Thissen, 2006; Kaplan & Saccuzzo, 2012; Rust et al., 2014).

Around the same time of the discoveries made by Darwin, Galton, and Cattell, a second socio-historical trend was introduced. According to Kaplan and Saccuzzo (2012) and Rust et al. (2014), the goal of measuring human consciousness through scientific methods and conveying the outcome in a mathematical way was undertaken by Johann Friedrich Herbart (metaphysicist and aestheticist) and further developed by Ernst Heinrich Weber (physician and psychologist), Gustav Fechner (physicist and psychologist) and Wilhelm Wundt (mediciner, biologist, and psychologist). Hereafter, more scholars explored the inclusion of the development, standardisation, and emergence of new approaches to developing a scientific method that guides the development of a psychological measure (Kaplan & Saccuzzo, 2012; Rust et al., 2014). Each phase in the development, thus from conceptualising to operationalizing and implementing the psychological measurement draws on scientific methods and previous knowledge systems. Both of these socio-historical trends consider complex and crucial aspects to establish and advance psychometrics.



**Critical interest (World 3) signifying a methodological gap.** The critical interest as a gap in the body of scholarship can be described as a reflective action and intellectual consideration of the pragmatic and epistemic nature of the phenomenon (Mouton, 2001; Mouton & Marais, 1988). The word *meta* within the word *meta-science* is derived from the Greek preposition or prefix *meta* (μετά-), which in essence means ‘after or beyond’, indicating a reflective action. In other words, a prefix indicates that there is an abstraction of the concept, which requires action at a later stage (Audi, 2015; Blackburn, 2005). World 3 is concerned with meta-science, which emphasises the act of scholars and test developers to reflect on the systematic investigation of scientific endeavours, in other words, the use of scientific knowledge and methodology to study the fundamental nature of psychological measures and the world it encompasses. Such reflective actions can be located in domains such as a) the philosophy of the science about the phenomenon, b) the scientific methods involved in investigating the phenomenon, c) all the ethical and value-driven decisions about the phenomenon, and d) the historical and social trends that have influenced the phenomenon (Babbie & Mouton, 1998a; Mouton, 2001; Scotland, 2012). Therefore, to address a critical interest in this particular inquiry, the researchers reverted to reflecting on the philosophy of the science. This notion implicates that a test is developed to draw on philosophy and psychology knowledge systems to delineate and explicate what conceptualisation pertains to as the first phase in the development of a psychological assessment measure.

A researcher can only progress to this level of analysis and reasoning after identifying a pragmatic problem from everyday life, as presented by World 1, as well as evaluating the scientific knowledge that has been conducted on the phenomenon, as presented by World 2.

## The Philosophical Nature of a Psychological Measure

It was of importance to develop specific terminology<sup>2</sup> and a vocabulary that describes and arrives at precise textual definitions of a psychological measure. As would be expected over the years diverse scholars have specified synonyms in the literature that were used when referring to psychological measures, for instance psychological tools, psychometrics, psychological tests, measures, assessment measures, instruments, scales, procedures and techniques (Braun et al., 2001; Foxcroft & Roodt, 2006, 2013; Jones & Thissen, 2006; Kaplan & Saccuzzo, 2012; Moerdyk, 2009; Rust et al., 2014). According to Petocz and Newbery (2010), psychological assessment measurement as a scientific method can be described as follows:

Scientific method, they say, has always included three discernible subsets or clusters of activity: experimentation (performing controlled experiments, systematic observations and correlational studies); mathematisation (framing mathematical or statistical laws and models on the basis of data collected via experimentation); and conceptual analysis (clarifying concepts, exposing conceptual problems in models, revealing unacknowledged assumptions and steps in arguments, evaluating the consistency of theoretical accounts). (p. 126)

In essence, the term, *psychological assessment measurement*, refers to the process-orientated activity by which a wide array of information is gathered about a psychological phenomenon by means of using a measure that can quantify and categorise (attach a value or number) the inherent characteristics of a phenomenon according to predetermined symbols and criteria (Foxcroft & Roodt, 2006, 2013; Moerdyk, 2009). The quantification and categorisation

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<sup>2</sup> Terminology is typically defined as a study that is devoted to developing a system for a field or discipline to which specific terms belong. Reference to ‘terminology’ emphasises the researchers’ acute awareness that terms can be studied for meaning and applicability across contexts. The utilisation of terms is context-bound and often results in different meanings.

of the phenomenon adhere to predetermined and acknowledged scientific measurement principles that are accepted by the scholarly community. The evaluation, integration and interpretation of the findings enable one to reach a conclusion or make a decision about the individual's enactment of the phenomenon (Foxcroft & Roodt, 2006, 2013; Moerdyk, 2009).

However, looking again at the generic and genetic explanation of a scientific method (De Vos, Strydom, Fouché, & Delpont, 2011; Scotland, 2012), one could perhaps ask what is the purpose of conceptualising a psychological assessment measure? This is precisely the purpose of this particular inquiry which aims to delineate and explicate what the psycho-philosophical meaning is of the term *conceptualisation* as the first phase in the development of a psychological assessment measure. The two respective fields, namely psychology and philosophy interpret the meaning of the word *conceptualisation* differently, which reiterates the urgent need to solicit a critical and reflective dialogue to generate a psycho-philosophical interpretation thereof (Audi, 2015; Babbie & Mouton, 1998a; Cocchiarella, 2007; Colman, 2015; Pawlik & Rosenzweig, 2000). Thus, if the term *conceptualisation* cannot be interpreted and understood acceptably, it not only will influence and jeopardise the outcome of the psychological assessment measure, but may have far-reaching ethical implications (Moerdyk, 2009; Petocz & Newbery, 2010).

It therefore becomes evident that the field of psychometrics incorporates four aspects, namely: specific symbolic text; a particular corpus(es) of knowledge; and the acknowledgement of drawing on different disciplines of knowledge, skills and values; and the existence of expertise in isolation is rejected (Foxcroft & Roodt, 2006, 2013; Kaplan & Saccuzzo, 2012; Maul et. al, 2016; Moerdyk, 2009; Rust et al., 2014). The importance of the diverse knowledge systems and cultural tools that are shared and integrated into other fields of knowledge is accentuated (Trafford & Leshem, 2002, 2008). Conceptualisation as the first phase of the development of a psychological assessment measure becomes a matter of ethical concern, as contradictions or ambiguities in scholars' vocabulary might have far-reaching effects on the

development of a psychological measurement (Foxcroft & Roodt, 2006, 2013; Kaplan & Saccuzzo, 2012; Maul et. al, 2016; Moerdyk, 2009; Rust et al., 2014). Ambiguity in the scholarly vocabulary in the context of psychological measurement can result in a disparity between the description and understanding of the phenomenon and the substantiation of measuring the phenomenon in a reliable and valid manner (Maul et al., 2016).

Thus, the concern that can be inferred is whether the complexity of the meaning of conceptualisation and the conceptualisation phase may be underestimated or not fully explored. A simplistic, implicit, or oblivious description of the conceptualisation phase of a measurement might lead to serious developmental flaws in the measurement of a phenomenon, which has great ethical consequences.

### **Problem Statement**

The importance of this research inquiry has been suggested by utilising the Three Worlds Framework to argue a gap in the body of scholarship. In this particular section the problem statement and the implied research questions are conveyed.

The explicit and consistent meaning of vocabulary and terminology in psychology is sometimes overlooked – neither studied, nor questioned – because it is assumed that it is obvious or an apparent part of a field of knowledge (Babbie & Mouton, 1998b; Cocchiarella, 2007; Petocz & Newbery, 2010). That is why it is important to utilise knowledge systems from cross-disciplinary and trans-disciplinary domains to ensure a sound generic and genetic meaning of a term used by scholars. Considering the latter statement, it is hazardous to assume that all scholars and test developers of psychometrics share a common understanding of what the word *conceptualisation* as the first phase in the development of a psychological assessment measure exactly demarcates and explicates.

In order to investigate the meaning of the word *conceptualisation*, one is required to consult cross-disciplinary and trans-disciplinary knowledge bases. As stated by Maul et al. (2016, p. 311), the knowledge domain of psychological sciences “refers here to all scientific disciplines and activities concerned with gaining knowledge of the human mind and behaviour, including not only psychology, but also sociology, philosophy, anthropology and disciplines of research concerned with particular human activities”. After conducting a preliminary search on what conceptualisation pertains to from a psychological stance and, thereafter, from a philosophical stance, some of the delineations of the term overlap, while others indicate profound differences.

Learning this from the body of scholarship served as an impetus to conduct an in-depth inquiry into the psychology and philosophy knowledge systems to develop an informed understanding of what conceptualisation constitutes. Furthermore, it aims at developing a conglomerated definition thereof which can be reintroduced to the body of scholarship and contribute to the scientific method for developing a psychological assessment measure.

### **Primary and Supporting Research Questions**

The construction of research questions requires thorough consideration as these questions serve the purpose of guiding the researchers towards attaining a particular and specific research outcome (Mouton, 2001). According to Mouton (2001), Trafford and Leshem (2002, 2008), and Vithal and Jansen (2012) various principles should be considered when constructing a research question: A researcher’s question should be a) feasible and authentic, b) justified and verified by a preliminary literature review of the body of knowledge, c) directly linked to the statement of purpose, d) conceptually linked by keywords, e) stating the adopted methodological approach, f) sequential and logical and g) self-explanatory and apparent, to name but a few. The research questions for this inquiry are formulated as follows, taking into consideration the recommendations from the mentioned scholars:

## Primary Research Question

What is the psycho-philosophical<sup>3</sup> meaning of conceptualisation as the first phase during the development of a psychological measurement?

## Secondary Research Questions

The subsequent reference to the secondary research questions adopts the notion of three categories of gaps identified in the body of scholarship, as justified in the previous section (see page 6). The three categories, with their aligned questions, signify the Three Worlds Framework interest and what each interest signifies:

**Pragmatic research question signifying a contextual gap.** How does the *practical utilisation* of psychological measures contribute to delineating the meaning of conceptualisation as the first phase of the development of such a tool?

**Epistemic research question signifying a conceptual gap.** How does the *scientific knowledge* about psychological measures contribute to delineating the meaning of conceptualisation as the first phase of the development of such a tool?

**Critical research question signifying a contextual gap.** How does the *philosophical nature* of psychological measures contribute to delineating the meaning of conceptualisation as the first phase of the development of such a tool?

In light of the identified primary and secondary research questions, this section concludes the brief overview of what this research inquiry pertains to. The justification of this research

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<sup>3</sup> *Psycho-philosophical* draws on the knowledge bases of both psychology and philosophy in order to promote the delineation and explication of the term *conceptualisation* as the first phase in the development of a psychological assessment measure. By hybridising these two fields of disciplines, the researchers are enabled to apply scientific and moral reasoning to a real-world situation, as justified by the Three Worlds Framework. This research inquiry aims to show the effectiveness in increasing scholars' and test developers' understanding of psychometrics when developing psychological assessment measures for various contexts, argumentation skills, empathy and moral reasoning.

inquiry is addressed in the following section and draws on the aforementioned three categories of the gaps in the body of scholarship.

### **Ethical Consideration**

In addition to intellectualising a research inquiry, it is of crucial importance to also anticipate ethical matters that may arise while such research is conducted (Creswell, 2003, 2009). It was crucial to study the North-West University's policy on conducting a research inquiry, as well as the scholarly work of knowledgeable scholars (Creswell, 2003, 2009; Israel & Hay, 2006) in order to be considerate and to conduct ethically sound research throughout this process.

Owing to the nature of this research inquiry, it was not necessary for the researchers to collaborate with human participants to generate data which reduced the likelihood of performing research misconduct. Although the research inquiry did not directly involve human participants, but rather utilised published scientific studies, this research inquiry still obtained ethical clearance (NWU-00087-16-A1) which enforces the notion of responsible and just research practice to ensure integrity and avoid transgression.

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## SECTION 2: ARTICLE

This article will be submitted for possible publication in *Theory & Psychology*.

### Author Guidelines

#### Guidelines for authors: *Theory & Psychology*

It is envisioned to submit this article for possible publication in *Theory & Psychology*. In the next section, the guidelines for authors will be discussed and followed by the conceptualised article. All the following information was obtained from the *Theory & Psychology* website, which can be visited at <http://psych.ucalgary.ca/thpsyc/default.html>. The most relevant information for authors was alphabetically tabulated as follows (please note that some of the descriptions are directly quoted from the website):

**Table 1**

*Author Guidelines for publishing in Theory & Psychology*

Categories	Description
About and audience	<i>Theory &amp; Psychology</i> is a fully bi-monthly peer-reviewed forum devoted to scholarship with a broad meta-theoretical and theoretical analysis intent. Research pertaining to the historical underpinnings, methodological commitments, conceptual frameworks and foundations of psychology, its relevance to other human sciences, any ideological assumptions, and its political and institutional contexts are beckoned. These may include (but are not limited to) the philosophy of science and psychology, cognition and intentionality, forms of explanation in psychology, criteria of theory evaluation, the social basis of psychological knowledge, the history of psychological theories and methods, the utilisation of psychological knowledge, critical theory and methods in psychology, feminist

	<p>theory and methods in psychology, and rhetoric and argumentation in psychological theory. This journal serves as a platform to foster dialogue among psychologists and social scientists from other disciplines and welcomes emergent themes at the centre of contemporary psychological debate. Its principal aim is to foster theoretical dialogue and innovation within the discipline, serving an integrative role for a wide psychological audience.</p>			
Abstracting, index and impact factor	Impact factor	JCR® category	Rank in category	Quartile category
	0.646 1.064 (2015) (5 years)	Psychology, multidisciplinary	92 of 129	Q3
	Data from the 2015 edition of <i>Journal Citation Report</i> ®			
	Publisher: SAGE PUBLICATIONS LTD			
Conflict of interest	<p>Before submitting a manuscript, the author(s) is/are requested to disclose any actual or potential conflict of interest, including any personal, relational with other people or organizations, and financial, or declare any inappropriate influence, or what could be perceived to be an influence.</p>			
Language and editing services	<p>It is strongly advisable to write the manuscript in proper English (American or British) and the author should be guarded against mixing the two. It is strongly advised to submit your manuscript for language and technical editing to conform to correct scientific use of language prior to submitting it for consideration.</p>			
Length and layout	<p>Submitted manuscripts are between 5,000 and 8,000 words, but manuscripts of more than 10,000 words are allowed (including abstract, footnotes and references) depending on the subject matter. <i>Theory &amp; Psychology</i> has no strict formatting requirements, although it should contain the essential elements to convey the</p>			

	<p>argument of the manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, Conclusions, Artwork and Tables with Captions. In the event where the manuscript makes use of videos and/or other supplementary material, this should be included in your initial submission for peer review purposes.</p>
<p>Manuscript preparation</p>	<p><b>MANUSCRIPT OUTLINE</b></p> <ul style="list-style-type: none"> <li>• Abstract of 100-150 words.</li> <li>• A biographical note of about 100 words, listing current affiliation, research interests and recent publications.</li> </ul> <p><b>TYPE OF DOCUMENT</b></p> <ul style="list-style-type: none"> <li>• Use a recent version of MS Word.</li> </ul> <p><b>TECHNICAL AND TYPOGRAPHICAL ASPECTS</b></p> <ul style="list-style-type: none"> <li>• Type double-spaced, including notes and references, and without justification.</li> <li>• Do not insert hyphen breaks or any other hard returns, except to indicate the end of a paragraph.</li> <li>• Use double quote marks for</li> </ul> <ul style="list-style-type: none"> <li>• 5-10 key words that describe your paper.</li> <li>• Contact address/email address or phone/fax number for the next 12 months.</li> <li>• Avoid embedded fonts or any dedicated Notes programmes.</li> <li>• Do not use smaller type for the notes or references.</li> <li>• Follow the "Guidelines to Reduce Bias in Language" as required by the APA Publication Manual, 6th edition.</li> <li>• Indent paragraph starts by five</li> </ul>

	<p>quotations; single for quotations within quotations. Quotations of 40 words or longer should be typed indented on the left, without quote marks, with an extra space before and after.</p> <ul style="list-style-type: none"> <li>• Notes should appear as endnotes, not footnotes. If possible do not use notes, and if you must have them, then minimize their use.</li> <li>• When typing numbers remember to use the keys for 1 and 0, not lower case 'l' and upper-case 'O'.</li> <li>• Leave only one space after any item of punctuation – full stops, commas, semi-colons, etc.</li> <li>• The following abbreviations should NOT be used outside parenthetical comments: cf. [use compare]; e.g. [use for example]; etc. [use and so forth]; i.e. [use that is]; viz. [use namely]; vs. [use versus].</li> </ul>	<p>characters (except the first paragraph after a heading). Do not insert extra spaces between paragraphs, except before a new heading (two extra spaces) and after a new heading (one extra space).</p> <ul style="list-style-type: none"> <li>• Headings: follow journal style, or if you are uncertain, follow APA Manual.</li> <li>• Using hyphens, please use one dash [-] and no space either side; for en rules use two dashes [--].</li> <li>• Avoid abbreviations (acronyms) except for long, familiar terms (MMPI). Explain what an abbreviation means the first time it occurs.</li> <li>• Use periods when making an abbreviation within a reference (Vol. 3, p. 6, 2nd ed.). Do not use periods within degree titles and organization titles (PhD, APA).</li> </ul>
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- Capitalize formal names of tests and major words and all other words of four letters or more, in headings, titles, and subtitles outside reference lists. Capitalize specific course and department titles, but not generic names of tests.

### **FIGURES AND TABLES**

- Figures should be attached as TIF or JPG/JPEG files (but never as GIF files). Do not compress JPG/JPEG files because it may cause blurring.
- You are responsible for obtaining permission for any copyright material which you may use (text, tables, figures, poetry, or song lyrics).
- Tables and Figures should be presented separately from the text, clearly titled and numbered. Identify their location with 'Table/Figure X about here' on a separate line in the text.
- Please use tabs (not the space bar) for formatting columns and note that vertical rules and internal horizontals are usually deleted from Tables.

### **REFERENCES**

- Bibliographic references should use the author+date system and please follow the APA Publication Manual, 6th edition.
- Please also double-check that all references in the text are identified in the reference list, that all works listed in the references are mentioned in the



	text, and that publication dates and author spellings are consistent throughout.
New submission procedures	All new manuscript submissions are done via the ScholarOne® platform, which is a fully web-based peer review and submission system. To submit a manuscript please visit <a href="http://mc.manuscriptcentral.com/thpsyc">http://mc.manuscriptcentral.com/thpsyc</a> and follow the instructions.
Submission declaration	Any manuscript submitted, should not have been published previously or under consideration for publication elsewhere. The manuscript under revision should be approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out. In the event of the article being accepted, it will not be published elsewhere, including electronically. It may also not be translated into any other language, without the written consent of the copyright holder. The author(s) of the manuscript is/are furthermore requested to declare if this manuscript has been peer-reviewed previously, and in the event of it being so, it is encouraged to provide such responses and comments on the review.

Please note that although the author guidelines for *Theory & Psychology* is primarily based on the principles of the APA Publication Manual, 6th edition, there are some aspects that are altered within this journal. It has been decided for this article to “divert” from these unique aspects and to keep to the original APA Publication Manual, 6th edition, not only to make the reading easier, but also to promote a consistency in the overall layout as illustrated in the rest of the mini-dissertation. Some of these mentioned aspects are that, firstly, the figures and tables are not excluded from the text and therefore not included as separate addenda and, secondly, the suggestion made to include extra spacing before and after headings is also omitted.

Running Head: CONCEPTUALISING CONCEPTUALISATION – A CRITICAL  
REFLECTION

A conceptual analysis of conceptualisation as first phase in the development of a psychological  
measure

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## Abstract

Psychometric literature postulates *conceptualisation* as a mere phase or point of departure for the development of a psychological measure, while philosophical literature depicts *conceptualisation* as the pivot of an entire research inquiry. Exploring the psycho-philosophical view that scholars ascribe to conceptualisation is the focus of this article in order to gain a greater understanding of the meaning of psychological measure development. A systematic and purposive sample of existing knowledge bases was identified and scientific literature was analysed and interpreted by means of conceptual analysis and a philosophically enthused *a priori* conceptual framework. Using psycho-philosophical lenses reveals that psychometric literature portrays the conceptualisation phase in a compounded and generic manner, which gives preference to the scientific method (epistemology) over the scientific reality (ontology), whereas human positioning (anthropology) is almost entirely omitted. A probable description of what the conceptualisation phase should encapsulate, is proposed. Yet, future dialogues concerned with advancing this phase are beckoned and commended.

*Keywords:* conceptual analysis, conceptualisation, integrated personality positioning, nomothetic positioning, psychological measure development, psychometrics, teleological positioning, transcendental positioning

## Introduction

Psychological measures are a conceptual tool that comprises constructs that enable the measure developer to explain or enlighten particular dimensions of human interaction and/or being and to measure such constructs (Finkelstein, 2003; Michell, 1997). The development of a psychological measure encapsulates both a scientific reality and a scientific method (Chadha, 2009; Coaley, 2014; Cohen & Swerdlik, 2009; Foxcroft & Roodt, 2013; Goldstein & Beers, 2004; Kingston, Scheuring, & Kramer, 2013; Moerdyk, 2009; Murphy & Davidshofer, 2014; Ryan, Lopez, & Sumerall, 2001; Wright, 1999). Although mentioned fundamentals include rigorous experimentation and mathematisation, they also require meticulous clarification of terminology, concepts and constructs as well as acknowledging the importance of philosophical inclinations (Borsboom, 2005, 2006; Maul, 2013; Maul, Torres Irribarra, & Wilson, 2016; Michell, 1997; Petocz & Newbery, 2010). One group of researchers has devoted considerable attention to posing both scientific plausible theories and frameworks for the development of psychological measures, while another group acknowledges the important role philosophy plays in measure development. Hybridising these renowned scholarly works and refocusing it on the advancement of the *conceptualisation phase* is the postulated contribution.

Words, concepts, terms and symbols are the only mediums available for conveying meaning. However, the challenge faced by serious measure developers is that these words, concepts and symbols are found and loaded with sociocontemporal and sociolinguistic interpretations. As a result the precise meaning and understanding become vague and manifold (Cocchiarella, 2007; Hutto, 2013; Kuusela, 2013). In the event of studying the frameworks posed for the development of a psychological measure a particular “term” surfaced, presenting itself as an unexplored conceptual domain in the psychometric body of scholarship -- this term is “conceptualisation”. The meaning of the conceptualisation phase is not obvious and sometimes compounds the operationalization phases, which makes it precariously open for unguided

interpretation. We have derived that the application of a scientific phenomenon or reality by means of a scientific method rests on a clear, explicit and sound conceptualisation. Furthermore, any insinuations, inclinations, assumptions or biases that measure developers have about the scientific reality and the scientific method should be made clear prior to the development of a psychological measure. In our opinion, improper and hasty conceptualisation of psychological measures will have far-reaching upshots and ethical consequences on the lives of humans when implemented and administered. The latter consequences may ripple on for decades.

Based on the work of Cocchiarella (2007) we have adopted the understanding that the expression of one's thinking (via words, concepts, terms and symbols) entices one's predication in language. Therefore, the conceptualisation of a serious measure developer should represent his or her structure of thought, experiences and rule-following cognitive and linguistic capacities within a given socio-historical cultural context (*ibid*). Our derived understanding of conceptualisation refers to an iterative, continuous and intentional process enacted by the serious measure developer to abstract, simplify and categorise impressions, experiences or perceptions which are gathered about a phenomenon or reality, and then give meaning, purpose, or expression through clear and descriptive language (Babbie & Mouton, 2001; Cocchiarella, 2007; De Vos & Strydom, 2011). Henceforth, the utilisation of conceptualisation and the conceptualisation phase will be viewed from mentioned understanding.

Based on the aforementioned understanding of the term "conceptualisation", we set out to explore how serious measure developers within psychology generally approach the conceptualisation phase in their scholarly work. We premised our project on the assumption that conceptualisation includes both a scientific reality-methodological domain and a philosophical domain.

## **Background (“What is Known?”)**

Reviewing the scientific knowledge bases on measures of reality used by a researchers not only demonstrates their explicit and reflective awareness of the scientific methodological and ontological nature of science but also reveals the research ethics, anthropology, philosophy as well as the sociology and history of science employed (Audi, 2015; Babbie & Mouton, 2001; Mouton, 2001). In other words, scientific knowledge comprises statements and approximations about reality (ontological-epistemological criterion) that are in accordance with the evidence that alludes application of rigorous techniques and methods (objectivity criterion) that are scrutinised and accepted or rejected by a scientific community (rational criterion) (Babbie & Mouton, 2001).

## **The Landscape of Psychological Measurement**

Research endeavours in psychometrics hallmark evidence of and mainstay for measure development, utilisation and advancement in the pursuit of esteemed psychometric modelling (Borsboom, 2005, 2006; Goldstein & Beers, 2004). A general understanding of what psychometry and psychological measures constitute can be described as a process-orientated activity that uses psychometric tool(s) to objectively and systematically gather information about aspect(s) of humans’ psychological behaviour and being, from which inferences are drawn to base decisions or recommendations on (Anastasi & Urbina, 1997; Cohen & Swerdlik, 2009; Colman, 2015; Foxcroft & Roodt, 2013; Goldstein & Beers, 2004; Moerdyk, 2009; Murphy & Davidshofer, 2014; Schweizer & DiStefano, 2016; Stuart-Hamilton, 2007). Measurement will always be considered a significant mode for inquiring about humans’ psychological behaviour and being in the world.

The origination of measurement can be traced back to physical sciences (Finkelstein, 2003), which have since been applied to diverse other fields of discipline and achieved prominence in psychology and social sciences (Humphry, 2013; Jones & Thissen, 2006). In an effort to denote the historicity of measurement, the following important milestones can be

highlighted. There are four major physical science and mathematical eras that contributed to and served as an important impetus in the establishment of psychometrics as a disciplinary field, namely the syncopated era (500 BC–1000 AD), the middle ages or symbolic era (1000–1500 AD), the modern era (1500–1900 AD), and the contemporary era (1900 AD–present). Each of these eras and their respective renowned scholars revolutionised how the foundations of measurement tools were invented, practised and revised from philosophical and mathematical viewpoints (Finkelstein, 2003). The innovative works of Galileo contributed to the nexus of the theory-praxis dichotomy – he quantified observations of the physical world through mathematics (Finkelstein, 2003). Continuous discoveries charted the quest for closing the theory-praxis gap by quantifying humans’ psychological behaviour and being: Newton and Maxwell’s mathematical theories culminated in how to denote the physical world; Helmholtz’s contribution to modern theory of measurement; Campbell’s work on physical quantities for empirical operation; the nature of measurement in psychology by Stevens and philosophically analysed by Ellis and the leap forward in proposing the representational theory of measurement by Tarski, Suppes, Zinnes, Luce, and Krantz (Finkelstein, 2003; Humphry, 2013; Jones & Thissen, 2006; Michell, 1997). The historicity of psychometrics shows how philosophical inclinations on the observations about human psychological behaviour and being necessitated a physical sciences and mathematical intellectual detour and then rerouted, through philosophy, back to be applied to the behavioural and social sciences. It seems like philosophy reopens closed circles to help advance existing knowledge bases.

As elucidated in the above paragraph, the origins of psychometrics as a scientific knowledge base can be historically traced back and beckon important transitions and revolutions such as hybridising trans- and cross-disciplinary fields of knowledge, incorporating innovative views on reality and joining scholarly communities (Borsboom, 2006; Finkelstein, 2003; Jones & Thissen, 2006). Impetuses for definite psychometric knowledge were instituted by scholarly

journals (*Psychometrika* and *Psychometric Methods*) and the Psychometric Society, which have, respectively, been pioneered by psycho-physicist Thurstone and psychologist Guildford based on the works of physicist-philosopher Fechner, psycho-physicist Helmholtz and psychologist Wundt (Jones & Thissen, 2006; Michell, 1997). As with any discipline psychometrics also has manifold measurement models and theories which is founded in the works of particular serious scientists operating from very specific paradigmatic orientations. The latter is not the focus of the article; however, it is important to make mention of the prevalent tenets, namely the test for *individual differences* is associated with Gauss, Bessel, Galton and Catell, whilst *factor analysis* was pioneered by Spearman, Thomson, Binet, Goddard and Terman. In addition to these fields, *psychological measurement* and multidimensional *scaling* were influenced by Thurstone, Luce, Yukey, Guttman, Tucker and Messick, to name a but a few (Humphry, 2013; Jones & Thissen, 2006). The latter scholarly works are however of cardinal importance in our understanding of the conceptualisation of measurement.

According to Finkelstein (2003, p. 44), a convincing definition of measurement encapsulates “the mapping of an empirical relational system into a well-defined theory in a mathematical language”. Therefore, it comes as no surprise that descriptions such as “process-orientated”, “systematic”, “scientific”, “standardise”, “norms”, “categories”, “scales” and, of course, “quantify” are included in working definitions of psychological measurement. Where serious measure developers adopt a well-defined “generic” definition of measurement, they should be able to ascertain for what they want to measure (ontology) and how to do so (epistemology). However, there are vital philosophical pre-scientific provisions missing from the “generic” working definition. In other words, how will a serious measure developer assure the following aspects? His or her own integration in the measure (integrated personality positioning) and their understanding of the meaning of psychological behaviour and being. Also being cognizant of integrating trans- and cross-disciplinary knowledge bases and remaining ethical



(transcendental positioning). Partaking in the continuous process of reflecting and refining the measure (teleological positioning) by being cognizant for whom the measure is intended, how it will affect participants, and which scholars will be included in which phases and why (nomothetic positioning). Thus, the accepted working definition has far-reaching influences on the conceptualisation of a psychological measure, especially if it only focuses on scientific reality and method and not on pre-scientific philosophical provisions.

Upon further exploration of another group of scholars' understanding of psychological measurement (Bickhard, 2011; Borsboom, 2006; Finkelstein, 2003; Humphry, 2013; Jones & Thissen, 2006; Maul, 2013; Michell, 1997, 2005), the notion of the importance of an underlying fundamental philosophical predisposition is also emphasised. If one closely analyses various definitions in the literature occasionally the preferred psychometric theory or model, which also indicates to some extent the adopted paradigmatic framework, is made apparent. Other times scholars appeal to include one or more knowledge bases or even to hybridise more than one; however in rare incidences the historical and social context of the development of the measure is mentioned. Our research was aimed at exploring this hiatus.

### **Course-plotting Device for Psychological Measure Development**

In reference to the landscape on psychological measure, the development of such a measure necessitates a scientific reality and a scientific method (Michell, 1997, 2005). According to Petocz and Newbery (2010), the scientific method evidently includes experimentation, mathematisation and meticulous concept analysis. Psychometrics is, moreover, considered a scientific reality and has scientific methods on psychological measure development. Putative frameworks are disseminated in literature, stipulating specific stages, phases or steps to utilise when developing a psychological measure (see Figure 5). Although a universally accepted exact sequential and descriptive model on measure development has not been agreed upon, this serves

as a brief illustration of the approximately seven sequential phases and tasks involved in developing a measure:

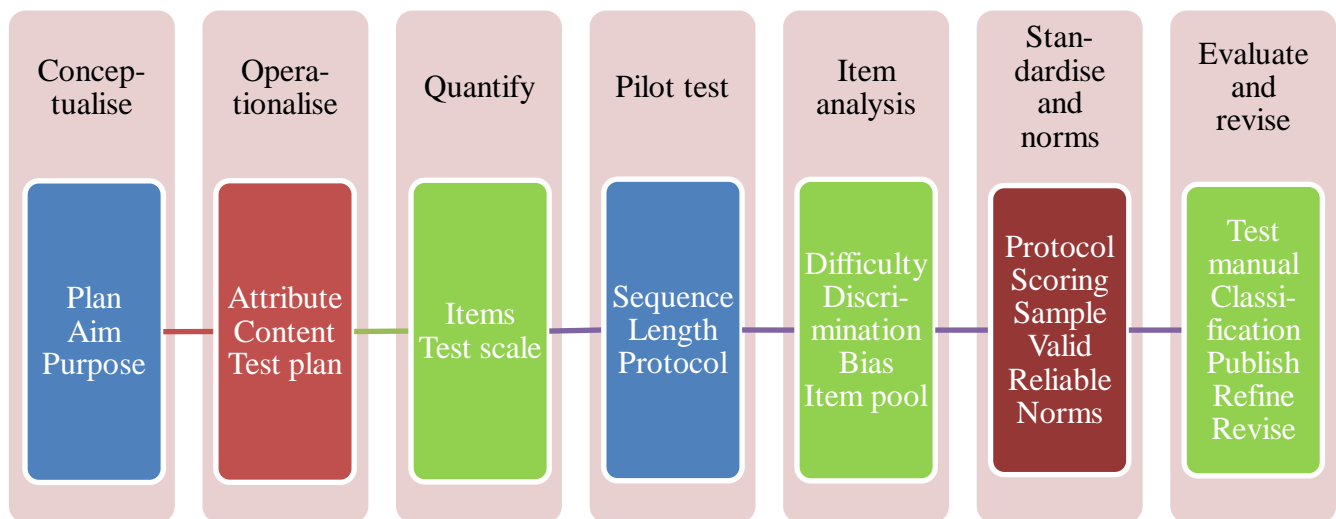


Figure 5. Outline of phases involved in psychological measure development (Chadha, 2009, pp. 87-90; Coaley, 2010, pp. 52–53; Cohen & Swerdlik, 2009, pp. 245–252; Foxcroft & Roodt, 2013, pp. 70–74; Kingston et al., 2013, pp. 165–182; Moerdyk, 2009, pp. 27–28; Murphy & Davidshofer, 2014, pp. 227–238; Ryan et al., 2001, pp. 1–4; Wright, 1999, pp. 65–101)

Literature that deals with the conceptualisation phase of the development process reveals a number of very peculiar trends, which gives rise to certain concerns: Firstly, the working “generic” definition of what constitutes measurement only includes the ontological and epistemological premises and excludes pre-scientific philosophical provisions, that is integrated personality positioning, transcendental positioning, teleological positioning and nomothetic positioning. Moreover, pollination with trans- and cross-disciplinary knowledge bases is uncertain. Secondly, *most* of the phases are described in meticulous detail and justified by a large body of scholarship; however the very first phase of the development receives minimal attention and is ambiguously delineated and sometimes overlaps with tasks mentioned in the operationalization and quantification phases. This potentially discloses the perception that measure developers and scholars have on the stature of operationalization as being superior to the conceptualisation phase. Thirdly, an unjustified confidence that conceptualisation needs no

explication and can be intentionally left open for interpretation, seeing that it is assumed to be a clear-cut term that has achieved communal consensus on its meaning by the community of scholars.

### **The Psycho-philosophical Cohort**

Interesting and vigilant observations are conveyed by Cocchiarella (2007) and Petocz and Newbery (2010) about the use of terminology in psychology as it is commonly overlooked, not studied, not questioned and frequently accepted as being self-explanatory, obvious or apparent. Therefore, research that is dedicated to advancing psychological measures also includes the clarification of concepts, disclosing conceptual anomalies in theories and models, questioning unsound assumptions and arguments, as well as evaluating the reliability of procedural methods (Borsboom, 2006; Mari, Carbone, & Petri, 2012; Petocz & Newbery, 2010). In the event of conducting a research inquiry to clarify terminology, Hacker (2013), Kuusela (2013) as well as Margolis and Laurence (2007) state that the particular use of language cannot be studied for pure interpretation because language can be understood in more than one manner. As soon as language alludes signs, index, description or register philosophical scrutiny is necessitated (Hacker, 2013; Kuusela, 2013). Thus, the notion to hybridise knowledge bases and to collaborate with cross-disciplinary scholars enabled us to best consider the intricate relationship that exists between language and thinking.

The existence of psychological measures necessitates both science and philosophy (Anderson, 1962; Maul et al., 2016; Michell, 1997, 2005). Philosophy has always been concerned with the fundamental question of what it means to be human and its corollaries of what truth is and how we can know it. The question that Galileo asked, “What has philosophy got to do with measuring?” (Drake, 1999, p. 266) and its teased obverse “What has measuring got to do with philosophy?” (Michell, 2005, p. 285) indicate a historical dichotomy – a division that measure developers have to *choose* between science and philosophy. The quest to advance

measurement has however started uniting philosophy and science (Mari et al., 2012; Maul et al., 2016; Michell, 1997, 2005). Truthfully, the practice of measurement has fundamental philosophical implications as it is concerned with the very nature, historicity and sociology of a scientific knowledge base (Anderson, 1962; Bickhard, 2011; Borsboom, 2006; Drake, 1999; Maul et al., 2016; Michell, 1997). Phrased differently, any measure of a particular human behaviour, action or light being shed on what it means to be human and the meanings revealed should inform future measurement development that is a dialectical relationship between philosophy and the praxis of measurement. In the event of dismissing philosophical principles when developing a psychological measure, it will result in confusion and inconsistency (Anderson, 1962; Maul, 2013; Michell, 1997, 2005). According to Audi (2015), the philosophy of science introduces the principles of ontology, epistemology, axiology, ethics and methodology to a discipline which can be regarded as *fundamental*.

Welcoming a companion from philosophy to escort the psychology scientist does not suggest a dichotomy or “their-our” advices from one to the other on which research inquiries “they” should conduct, what theories “they” should develop or utilise or whether the theories “they” have developed, are true (Hacker, 2013). Rather, a collaborative and judicious companionship was envisioned and adopted. “The license that philosophy possesses to intervene in scientific debates is a critical one, but the licit criticism is not empirical. It is purely conceptual” (Hacker, 2013, p. 20). Therefore, our invitation to receive a philosopher as co-traveller on this research inquiry was not to appoint a conceptual “police officer” who aims to prohibit the psychology scientist to develop psychological measures. To the contrary, we envisioned their unity in becoming a conceptual tribunal and a collaborative dialectical ingenuity that assures that through proper conceptualisation the outcome of a psychological measure can be regarded as relevant, conceptually clear, meaningful, mindful and ethical towards humankind.

## **Research Methodology (“How We Came to Know”)**

Alfred Wittgenstein (1965), a philosopher-psychologist, studied the philosophy of psychology, mathematics and language as he regarded it important to understand the meaning, intent, thinking, understanding, interpreting and knowing of psychological attributes and their internal relation to linguistic representation (Hacker, 2013). Wittgenstein (1965) emphasised that the use of explicit, meaningful and clearly expressive language when explaining a term is important, the reason being that although the use of synonymous expressions and word substitutions for defining a term is common practice, it is crucial that the intent and understanding of the term should never be risked or misconstrued. The quest is therefore to discover true, significant and correct expression of a term and to apply it.

### **Map Size and Scaling**

This study entailed a non-empirical study by means of using existing textual or typographical sources of data (Babbie & Mouton, 2001; Mouton, 2001). Constructing a particular textual knowledge base for analysis entails more than merely reviewing literature. Rather, the integral and central part of our research endeavour was to continuously scan, scope, gather and select the most suitable textual sources for analysis and interpretation in a systematic and purposive manner. We accessed only scientific books and peer-reviewed journal articles in a computerised (virtual) and/or non-computerised (physical) format within physical and/or online libraries. We gained access to humanities and social sciences databases including Google Scholar, ISI Web of Knowledge, NEXUS of the NRF, NISC of SA, Philosopher’s Index, EbscoHost (PsycARTICLES [APA], PsycINFO [APA]), SACat (Sabinet), Science Direct, SocINDEX, and WorldCAT. In order to commence searching for appropriate sources we generated search terminology that was used in various combinations. Please note that the databases automatically made provision for lowercase letters to match capitalised letters and spelling, although the utilisation of the character “?” accounts for variances in spelling and also

matches portions of the words. These search terms, their combinations and examples of replacing characters are as follows: “conceptuali?e” and/or “conceptuali?e phase” and “plan? phase” in “measure?”, and/or “assess?”, and/or “test” in “psychometric”, and/or “psychological” in and/or “measure?”, and/or “assess?”, and/or “test”. For the sake of ease of readability, above indicators are excluded from the below paragraph.

A feasibility test was conducted with the assistance of an information specialist at a specific organisation for higher education and its associated database. We have determined that this research inquiry is feasible after obtaining approximately 10 309 textual sources by entering “conceptualisation” in all text fields and refining the search by entering AND “psychological measurement” OR “psychological assessment” OR “psychological test” OR “psychometric” in the advanced fields. In an attempt to conduct a search for “conceptualisation” in all texts related to psychology as discipline with a further advanced search option utilising AND “psychological measurement” OR “psychological assessment” OR “psychological test” OR “psychometric” AND “conceptualisation phase” OR “planning phase”, we found approximately 2007 textual sources. We next systematically refined the search for appropriate text by using the different combinations of the search terminology within the explicit field of psychology of which the terms “conceptualisation” AND “psychological measurement” OR “psychological assessment” OR “psychological test” OR “psychometric” AND “conceptualisation phase” OR “planning phase” were only captured in the title and/or the abstract of the text and found approximately 18 sources. From the sample of sources that met the criteria we were then able to locate and obtain access to nine scientific sources, both international and national, which specifically address the conceptualisation phase in the development of a psychological assessment measure (*ibid*). Herewith we acknowledge that the likelihood of more scientific sources that fit the exact inclusion and exclusion criteria probably exist and we declare that we utilised nine sources that were available and accessible to us through an institutionalised and legal information centre.

The entire search was also guided by establishing inclusion and exclusion criteria prior to systematically searching for texts. We decided that the inclusion criteria for selecting textual sources should adhere to the following conditions: include our predetermine terminology or keywords; represent the work of renowned scholars within psychology; be accessible in its full electronic or printed format through an official and authorised library; represent both international and national text and be written in or translated into English. In relation to the exclusion criteria, we discarded texts that did not adhere to the following conditions: text on psychological measurement development not located in psychology; text reporting on phases other than conceptualisation and/or planning; scholarly work that accounts on actual measuring or assessing of specific psychological constructs and text published in a language other than English.

### **Organisation of Map Elements**

Qualitative social research endeavours ordinarily serve diverse purposes, amongst which are exploring, describing and explaining scientific knowledge bases while it also includes the clarification of terminology (Babbie & Mouton, 2001). Utilising a concept analysis, conceptual analysis – also known as “concept research” – as research approach, from a phenomenological stance, enabled us to explore the understanding, meaning or intention scholars ascribe to conceptualisation. According to Oono (2012, p. v), the investigation of realities to convey clarity and precise meaning is important research because researchers ought to make “intuitively grasped concepts clear”.

**Systematic concept analysis as map title.** In considering the landscape, the course-plotting device, the cohort, map size and scale and the map elements we decided to adopt the “systematic concept analysis of terminology” as approach which was pioneered by Heribert Picht and continued by Draskau (Picht & Draskau, 1985) and Nuopponen (2010a, 2010b, 2011). This particular research approach aligns with the ultimate purpose of this research inquiry,

namely to explore terminology within science by means of specifically focusing on systematic phases to analyse terminology without jeopardising the general scientific research inquiry process (Nuopponen, 2010b). Within this particular approach, the authors deployed six generic phases according to which one's own research inquiry was executed (Nuopponen, 2010b; Picht & Draskau, 1985). It can be visually depicted as follows in Figure 6:

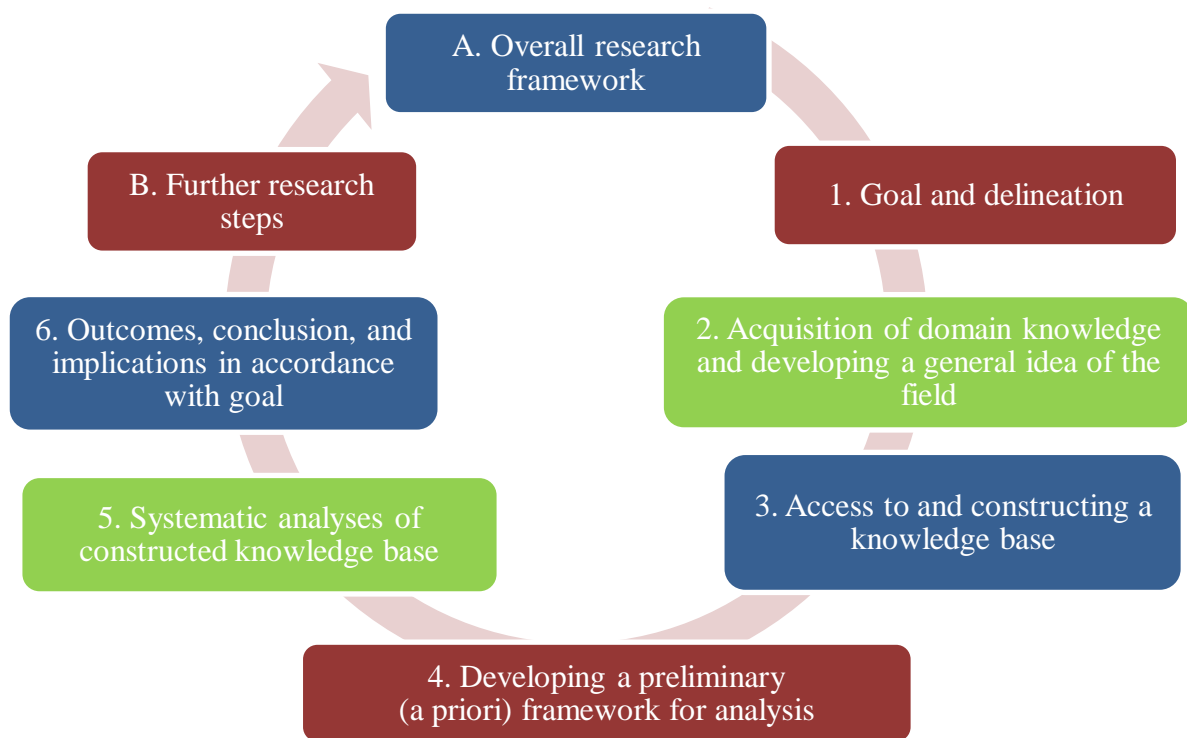


Figure 6. Outline of the systematic concept analysis of terminology (adapted from Nuopponen, 2010b, p. 6)

According to Nuopponen (2010b), a systematic concept analysis can be utilised by a researchers in two ways: individually or holistically. Put differently: as sole research method (see Figure 6, Phases 1–6) or as part of a wider, overall research process – thus, preceding phases, then the conceptual analysis of terminology and then utilising the findings and utilising it in phases thereafter (see Figure 6, Phases A & B). For this research inquiry the individual approach is utilised to systematically and purposively explore the meaning of conceptualisation as the first phase.



In the first two phases the purpose, scope and knowledge domains for the analysis of the term are delineated. Utilising a systematic conceptual analysis of terminology as sole research approach indicates that to clarify or give meaning to a term cannot be sufficiently addressed by a mere literature review, but rather requires a research investigation. Phase 3 consists of identifying, attaining and constructing a textual knowledge foundation from which an informed mind about the discipline is formed (Nuopponen, 2010b). As discussed before, an existing textual literature was collated and customised as a restricted knowledge base. As we were commencing into the process of analysis, Phase 4 required that we utilise a meaning-making framework that aligns with the goal of a study. Declaring our chosen pre-scientific provisions or a priori framework before analysis helped to guide our thinking, reasoning, understanding and decision-making inclinations during analysis and interpretation (Van der Walt & Potgieter, 2012). The fifth phase represents the phase of interpretation. We utilised our constructed textual database and our a priori framework to make sense of the conceptualisation through iterative steps of analyses, comparisons, interpretations and reflection. The final phase is the metaphorical stretch before we reached the destiny of the journey. When we reached our destination we obtained a panoramic view of the journey and concluded our findings and contributions as well as future endeavours to clarify the term “conceptualisation”. Using the systematic concept analysis of terminology as research approach enhanced our understanding of the meaning or intention scholars ascribe to conceptualisation as the first phase and our developing a clarification of the term.

**Phenomenology as a legend.** The value of adopting a phenomenological metatheory to clarify terminology is because mental metaphors and the centrality of human consciousness are emphasised and inquired by traditions of hermeneutics, symbolic interactionism and analytical tradition (Babbie & Mouton, 2001; Smith, 2003; Sokolowski, 2000; Wilson, 2002).

Wittgenstein’s notion on phenomenology is that it enables researchers to understand the

continuous and conscious engagements of humans to construct, change, create, define, develop, give, interpret, justify, make and/or rationalise their actions or processes when attempting to make sense of the world (Babbie & Mouton, 2001; Smith, 2003; Sokolowski, 2000; Wilson, 2002). Wittgenstein reiterates the veracity that the purpose of exploring a phenomenon is not to merely reduce it to a definition, but rather for one to describe it for clearer understanding to derive accurate interpretations (Hutto, 2013). Upon exploring Wittgenstein's general methodological principles and Kant's theoretical philosophy principles on the purpose of integrating philosophy in a research inquiry is the contribution to understanding, to be descriptive and sincere about one's a priori provision and to acquire conceptual clarification for insight and not for causativeness (Hacker, 2013; Hutto, 2013; Kuusela, 2013).

**A priori framework as geographical areas.** We decided to utilise conceptual analysis as research approach, phenomenology as our metatheory and philosophical inclinations to develop pre-theoretical or pre-scientific provisions to guide our research inquiry. The philosophically inspired pre-scientific provisions included in the a priori framework for this research inquiry are that of integrated personality positioning, transcendental positioning, teleological positioning, and nomothetic positioning (Audi, 2015; Blackburn, 2005; Van der Walt & Potgieter, 2012). Before clarifying our selected pre-scientific provisions, we also acknowledge that tapping into an a priori framework signals caution (Guarino, 1995; Margolis & Laurence, 2007; Nuopponen, 2010b; Picht & Draskau, 1985). We were aware that diverse views on developing a psychological measure exist and influence conceptualisation because scholars have choices in which psychometric theory, model or paradigm they select as well as their inclination towards fields of discipline and the role context and history play. Therefore, caution was taken to not cherish an all-confounding illusion to "define" the conceptualisation as a phase. Rather we analysed, compared and interpreted the literature to develop a clearer understanding of conceptualisation and to linguistically express it and raise the implications this phase entails. In

the preceding sections reference has been made to prior pre-scientific provisions which will explicitly convey our understanding of the selected pre-scientific provisions and we will describe each of them separately.

Integrated personality positioning, as the first pre-scientific provision, we see as the intentional choice of a researcher as holistic individual being, to unify or connect with his or her choice of research inquiry and ideological preferences (Audi, 2015; Blackburn, 2005; Van der Walt & Potgieter, 2012). Furthermore, it is expected that a researcher should demonstrate qualities such as integrity, moral reflectiveness, authenticity, trustworthiness and dedication to serve others when conducting research (Van der Walt & Potgieter, 2012). The second pre-scientific provision – transcendental positioning – denotes the intentional and theoretical deductions that a researcher cherishes about the research topic, such as his or her own assumptions, values, predispositions and intuitive thinking (Audi, 2015; Blackburn, 2005; Van der Walt & Potgieter, 2012). Although the latter account could be considered as being an “opinion”, rather than a scientific fact, it remains likely that a researcher’s underlying ontology will ultimately guide his or her research conduct pertaining to choice of epistemology, cosmology, anthropology, methodology, axiology and ethics (Cocchiarella, 2007; Guarino, 1995; Van der Walt & Potgieter, 2012). Teleological positioning, as the third pre-scientific provision acknowledges the importance of envisioning the outcome or reflecting on the purpose of a research inquiry and, therefore, what the researchers aims to attain (Audi, 2015; Blackburn, 2005; Van der Walt & Potgieter, 2012). The intentional reflection on the outcome of the research inquiry should resonate his or her integrated and transcendental orientation and serve not only as an encouraging driving force to complete such an inquiry, but also to warrant a trustworthy and authentic outcome that mirrors quality and excellence in every aspect of the entire research process (Van der Walt & Potgieter, 2012). The fundamental responsibility of the researchers is to endorse assured ends and, moreover, consider its resonance to its association with the whole. The

final pre-scientific provision is nomothetic positioning, which refers to a researcher's informed decision to consider an audience whom the outcome can affect and contribute to (Van der Walt & Potgieter, 2012). Given the importance of establishing community of scholars, such an audience can be derived on premises of ontological, epistemological and anthropological choices.

**Map critics.** The importance of denoting the rigor, trustworthiness and representativeness of a research inquiry to the scientific community of scholars is imperative (Mouton, 2001; Nieuwenhuis, 2016). We aimed in demonstrating all efforts taken to promote the internal validity of the findings (Merriam, 1998) and the internal-literature consistency together with the internal-theoretical consistency (Trafford & Leshem, 2008) in the preceding sections. That includes the construction of a purposive and restricted knowledge base, a systematic conceptual analysis approach to interpreting terminology from a phenomenology perspective and philosophically inspired pre-scientific provisions as an a priori *framework*. We approached cross-disciplinary critical reviewers and considered their valuable input by means of informal discussions, meetings, corroboration on analyses and reviewing findings as well as possible contributions we hope to have made which are primarily conceptual.

### **Findings (“What was Found”)**

#### **Typography of the Meaning of the Conceptualisation Phase**

**Inductive analysis through a psychological lens.** An inductive (emerging) analytical approach of the existing and restricted knowledge base was adopted to explicate how measure developers and scholars of measurement express their understanding of the conceptualisation phase when developing a psychological measure. For the sake of clarity we identified our samples nine scientific sources that met the criteria, namely: Chadha (2009, pp. 87–90), Coaley (2010, pp. 52–53), Cohen and Swerdlik (2009, pp. 245–252), Foxcroft and Roodt (2013, pp. 70–

74), Kingston et al. (2013, pp. 165–182), Moerdyk, 2009 (pp. 27–28), Murphy and Davidshofer. (2014, pp. 227–238), Ryan et al. (2001, pp. 1–4), and Wright (1999, pp. 65–101).

We started by documenting single captions from each scholar’s descriptions in an effort to elaborate on the terminology; thereafter we clarified the relationships between the descriptions by means of sorting similar captions together that helped us to elaborate on the captions. We critically relooked at the preliminary grouped captions and compared them with one another to validate that the grouped captions are related. Hereafter, we incorporated different views by only looking at the captions’ synonyms, polysemy and equivalences as another validation process to assure the corresponding captions are grouped together. The grouped and relational captions were then categorised into themes and labelled according to the predominant trends and patterns of the captions. The following table represents the latter mentioned process of inductive (emerging) analysis.

**Table 2**

*Exploring the Captions of Scholars (ibid) Ascribed to Conceptualisation as the First Phase in Psychological Measure Development within Psychology Literature*

			Chadha, 2009	Coaley, 2010	Cohen et al., 2009	Foxcroft et al., 2013	Kingston et al., 2013	Murphy et al., 2014	Moerdyk, 2009	Ryan et al., 2001	Wright, 1999
Measure developer	1	Training: specialised knowledge; expertise, experience			x						
	2	Development process: continuous; iterative			x						
	3	Development process: time-consuming; people-intensive			x						
Rationale	4	Reality: hypothesis; attribute; construct; behaviour						x			x
	5	General aim: screening; diagnosis; competency; training		X	x	x	x			x	
	6	Measure plan: blueprint; strategy; test plan		X	x		x				

	7	Interpretation: theoretical (deductive); inductive						x	x	x
	8	Evidence of results: inferences; decision		X		x	x		x	
Construction of test items	9	Dimension: observe; attributes; behaviours						x	x	
	10	Type: construct; attribute; content; characteristic			X		x		x	x
	11	Content domain: theoretical; atheoretical	x		X				x	x
	12	Approach: theoretical review or rational method; criterion-keying or empirical scale; combination					x		x	x
	13	Influence: society; history; trans-disciplinary domains	x			x		x		
	14	Qualitative map: content; definitions; constructs	x		X		x	x		x
	15	Quantitative map: Peirce's semiotics; numeric; variables					x			x
	16	Psychometric theory: Stevens; Thurstone; Thorndike; Guttman; Campbell; Fischer; Rasch				x		x		x
Audience	17	Population and sample: multicultural; multilingual; homogeneous; heterogeneous, age, socio-economic	x		X		x	x		x
	18	Administration: group; individual	x				x	x		
Format of test items	19	Medium: paper; computer; objects; verbal	x				x	x		
	20	Test response: essay, short answer; demonstrate; select	x					x		x
	21	Stimulus formats: open-ended; forced-choice; sentence completion			X		x	x	x	x
	22	Response outcome: objective; subjective; projective	x		X		x	x	x	x
	23	Rate of performance: speed; time limit; power	x		X		x	x		
	24	Mode of interpretation: normative; ipsative; criterion-referenced	x			x	x	x		x
Item scoring	25	Scoring: labour-intensity; time; cost; self; hand; expert; machine			X			x		x
	26	Item scoring approach: answer key; latent semantic						x		
	27	Accumulate and analysis: difficulty; discrimination; item response theory	x					x		x
Reliability & Validity	28	Bias: test method, response bias, language bias, response pattern/style; length; time; discriminating language	x				x	x		x
	29	Representative: reliable; valid; generalisable						x		x
	30	Error: social desirability; random sampling; dissimulation						x		x
	31	Scoring: reliable, valid						x		x

Pilot test	32	Experimental version: sequence, length; sample	x		x		x		x	x	
	33	Item pool: level; vocabulary; structure; ambiguity	x	X			x		x	x	
	34	Protocols: manual; specifics; administer; score; report	x	X		x	x				

The thirty-four captions are categorised as eight themes. The majority of scholars consider eleven activities (22, 21, 14, 24, 5, 11, 12, 17, 28, 32, 33) as predominant descriptors for the conceptualisation phase which encompasses six of the eight themes of which “piloting the measure”, “format of the test items” and “audience” is the most prevalent themes. A moderate number of scholars consider fourteen activities (8, 10, 13, 20, 23, 34, 6, 7, 15, 16, 18, 19, 25, 27) as typical descriptors for the conceptualisation phase which encompasses seven of the eight themes, of which the “rationale”, “construction, format, and scaling of items” as well as the “audience” are the most prevalent themes. The least number of scholars consider nine activities (4, 9, 29, 30, 31, 1, 2, 3, 26) as typical descriptors for the conceptualisation phase which encompasses seven of the eight themes, of which “measure developer”, “reliability and validity”, and “item scoring” is the least prevalent themes.

Given that the captions were categorised into themes it would also be of importance to convey the most prevalent items. Scholars consider the four activities, 22, 21, 14, and 24, as the most prevalent descriptors for the conceptualisation phase which encompasses the measure “type” (objective, subjective or projective), “format” (open-ended; forced-choice; sentence completion), “description of constructs” and finally “interpretation” (normative; ipsative; criterion-referenced). Scholars consider the four activities, 1, 2, 3 and 26 as the least prevalent descriptors for the conceptualisation phase, which encompasses the “knowledge, skills and dispositions” of the measure developer and the “approach to scoring” the measure (answer key; latent semantic).

**Deductive analysis through a philosophical lens.** A deductive (a priori) analytical approach of the existing and restricted knowledge base was adopted to detect evidence of

structured thought, experiences and rule-following activities by the nine scholars when describing the conceptualisation phase. Put differently, indications that those authors were continuously and intentionally aware of the entire development process, which also required abstraction, simplification, categorisation and inclusion of dispositions in descriptive and clear language. The nine identified scholarly works were re-analysed for a second time to next determine if the pre-scientific provisions are included in their descriptions of what constitutes the conceptualisation phase. We then started with the already a priori themes and itemised them into specific descriptions following which we critically relooked at the existing and restricted knowledge base that only refers to the conceptualisation phase and allocated those sources that conveyed the pre-scientific provisions in their descriptions. The following table represents the latter mentioned process of deductive (a priori) analysis.

**Table 3**

*Exploring the Pre-scientific Provisions within the Captions of Scholars (ibid) Ascribed to Conceptualisation as the First Phase in Psychological Measure Development within Psychology Literature*

			Chadha, 2009	Coaley, 2010	Cohen et al., 2009	Foxcroft et al., 2013	Kingston et al., 2013	Murphy et al., 2014	Moerdyk, 2009	Ryan et al., 2001	Wright, 1999
Integrated personality positioning	1	Intentionally expresses his/her ideological preferences			x						
	2	Intentionally expresses his/her own sociohistorical-cultural predispositions and thinking									
	3	Intentionally reflects on how to unify ideological preferences with measure development									
	4	Research qualities (integrity, moral reflectiveness, authenticity, trustworthiness, and social responsiveness)			x		x				



Transcendental positioning	5	Intentionally expresses his/her theoretical deductions about the scientific reality as constructs and content	x	x	x	x	x	x	x	x
	6	Intentionally expresses his/her theoretical deductions about the scientific method	x	X	x	x	x	x	x	x
	7	Intentionally reflects on his/her choice to incorporate trans- and cross-disciplinary knowledge bases and the historicity of measurement				x	x		x	x
	8	Intentionally expresses his/her understanding of the meaning of psychological behaviour and of being in the world, or being human								
	9	Declares own assumptions, values, predispositions, and intuitive thinking			x		x			
Teleological positioning	10	Intentionally expresses the outcome/purpose/aim of measure	x	X	x	x	x	x	x	x
	11	Intentionally reflects on the repercussions/consequences of the measurement			x	x	x			
	12	Intentionally reflects on the continuous process of reflecting and refining the measure			x	x	x			
	13	Intentionally reflects on the trustworthiness and authenticity of the measure		X	x	x	x	x	x	x
Nomothetic positioning	14	Intentionally a justification for audience for whom measure is intended	x	x	x	x	x	x	x	x
	15	Intentionally a justification for scholars who are involved in the measure development			x		x			
	16	Intentionally reports on your entire development process (audit trail)					x			

The sixteen captions are categorised as four a priori pre-scientific provisions. The majority of scholars incorporate five pre-scientific provisions (14, 10, 13, 6, 5) as predominant descriptors when conceptualising a psychological measure which is categorised under three of the four most prevalent themes – “transcendental”, “teleological” and “nomothetic” positioning. A moderate number of scholars incorporate six pre-scientific provisions (7, 12, 11, 15, 9, 4) as predominant descriptors when conceptualising a psychological measure which is categorised under three of the four most prevalent themes – “transcendental”, “teleological” and “nomothetic” positioning. The least number of scholars incorporate five pre-scientific provisions (1, 16, 2, 3, 8) as

predominant descriptors when conceptualising a psychological measure which is categorised under two of the four most prevalent – “integrated personality” and “nomothetic” positioning.

Given that the descriptions was a priori categorised into pre-scientific provisions it would also be of importance to convey the most prevalent inclinations. Scholars consider three of the four pre-scientific provisions as predominant and the three associating descriptors (10, 13, 14) when conceptualising a psychological measure which encompasses “intentional expression of his/her understanding of the outcome/purpose/aim of measure”, “trustworthiness of the measure” and the “justification of audience” for whom the measure is intended. Scholars did not consider one of the four pre-scientific provisions as important and omitted three associating descriptors (2, 3, 8) when conceptualising a psychological measure – “intentional expression of his/her own sociohistorical-cultural predispositions and thinking and its influence on the measure development” as well as “his/her understanding of the meaning of psychological behaviour and of being in the world, or being human”.

### **Global Readability Rules of the Map**

Utilising phenomenology as metatheory enabled us to systematically clarify conceptualisation as the first phase from a psycho-philosophical perspective and emphasised the importance of language, mental metaphors and the centrality of human consciousness.

**Psycho-philosophical findings.** In light of the inductive and deductive analytical processes as well as the putative frameworks developed for psychological measure development (Figure 5), it is noticeable that the authors have elucidated on all seven phases and some of the pre-scientific provisions. The nine authors demonstrated an aerial view of the entire development process and indicated intentional awareness of the entire development process. However, Phases 2 to 7, namely operationalisation through to evaluation and revision (see Figure 5) seem to receive more attention than the first conceptualisation phase. Moreover, the continuous, intentional and reflective conceptualisation of the entire development process is not as obvious.

It was interesting to explore the authors' inductive viewpoints when considering the activities and associated themes as being predominant or partial when conceptualising a measure. The authors considered the "piloting of the measure" as theme and the "type of measure" as prevalent conceptualisation phase outcomes, but "knowledge, skills and dispositions" of the measure developer as trivial because of the little evidence presented on this item. Furthermore, from a deductive point of view, the prevalence of "understanding the psychological scientific reality as constructs and content" as well as the "outcome of the measure" is emphasised, whilst the test developer's "presence and influence" on the entire development process (abstraction, simplification, categorisation, dispositions, language) and "awareness of what it means to be a human in the world" are excluded.

### **Discussion of Emerging Reality ("What is Inferred")**

From the research conducted it seems that the transition from the conceptualisation of the scientific reality (ontology) and the scientific method (epistemology) to the operationalization thereof is often rapidly introduced, whereas the human positioning (anthropology) is minutely conceptualised and operationalized. It is argued that this is a serious lacuna in the work of the developers of psychological measurements as it is essential to address these philosophical predispositions to enhance the integrity of an instrument. Therefore, the inference on the importance of the human positioning in the conceptualisation of a psychological measure and the working definition of measure will be explicated according to the a priori framework.

### **Integrated Personality Positioning**

Although there is no fixed rule on how to interpret conceptualisation, it has become clear that descriptive, clear and intentional language as well as the presence of the measure developer and another specialist is emphasised. Clear and descriptive language contributes to the quality and standardisation of the measure, his or her research qualities and the utilisation thereof by various scholars (Coaley, 2014). A well-defined measure is free of vagueness and ambiguity

while clearly conceptualising the aim of a measure (Finkelstein, 2003). The broader context, both conceptual and socio-historical cultural predispositions should also be declared by the measure developer and contributing scholars prior to developing the measure. Proper contextualisation on the scientific reality (ontology), the scientific method (epistemology) and the human positioning (anthropology) affects the entire development process (Michell, 1997; Petocz & Newbery, 2010). The latter is also accentuated by Maul et al. (2016) because any scientific reality is socially, culturally and historically constructed and affects how a theory of understanding is applied. In other words, the interpretation, conceptualisation and application of a reality by means of a measure need intentional and deep reflection on socio-historical cultural predispositions.

### **Transcendental Positioning**

Developing a measure necessitates a clear understanding and conceptualisation of the scientific reality and the scientific method (Finkelstein, 2003) and also the human positioning as indicated. As with any inquiry, the aspect of validity and reliability is always of concern, as the internal and external structure of the measure necessitate intentional consideration of both the purpose and use of the measure (Coaley, 2014; Finkelstein, 2003). The ideological and theoretical assumptions regarding the ontology and epistemology, together with the anthropology of the measure, should also convey the presence of the measure developer in the conceptualisation phase (Maul et al., 2016; Michell, 1997, 2005). Becoming intentionally aware of the importance of conceptualisation requires explicit and explicated claims of one's inclinations and understanding of terminology (Maul et al., 2016). In terms of the scientific reality that is being measured by means of a scientific method, caution is announced that not all realities are the same, but are viewed differently given the field of discipline and, therefore, the scientific method cannot be rigidly applied to all situations (Maul et al., 2016; Petocz & Newbery, 2010). Although the diversity of ideology is acknowledged, there does exist, at a

minimum, certain shared systems of human understanding and its influence on how one views and applies a scientific phenomenon is accentuated (e.g. the principle that no harm should be done) (Burgess & Plunkett, 2013; Michell, 1997, 2005). The scholars' own positioning and approach to the measure development are an intrinsic and important part of the process (Michell, 1997, 2005; Petocz & Newbery, 2010). Proper conceptualisation can help scholars move beyond an epistemological focus and achieve an ontological essence (Maul et al., 2016; Petocz & Newbery, 2010).

### **Teleological Positioning**

The continuous and conscious engagement of scholars to construct, change, create, define, develop, give, interpret, justify, make and/or rationalise the use and applicability of a measure is of importance. Thus, the conceptualisation of a measure serves as an impetus to intentionally reflect on the purpose of the measure and to assure the internal and external structure contribute towards the aim as a measure has both a descriptive and explanatory component built into the purpose (Coaley, 2014). The value of both the audience for whom the measure is intended and the community of scholars involved in every aspect of the development process cannot be emphasised enough (Petocz & Newbery, 2010). The validity and reliability of the measure is dependent on not only the presence of the measure developers in the entire process, but also valuing the contributions others have in each phase, especially in conceptualising the foundation on which the measure will rest (Michell, 1997, 2005; Petocz & Newbery, 2010).

### **Nomothetic Positioning**

This is an extremely complicated process as the role and/or the presence of the participants and the panel introduce their own integrated personality, transcendental and teleological orientations to the process. Nonetheless, this remains a crucial element to develop multiple views on the measure and increases its reliability and validity. We have an obligation to construct clear

expression to distinguish between the contributing voices and to anticipate the echoes that expressions have thereafter. The conceptual vocabulary is inconsistent because of the different views on the scientific reality and scientific method (Humphry, 2013; Maul et al., 2016). Therefore, a clear and well-integrated conceptualisation of this first phase is of essence. Overemphasising and fixating only on the quantifiable scientific aspect of a measure has far-reaching influences on the constructs, structure, interpretation and outcome of the measure as the purpose, aim and the participants of the measure are considered as unimportant (Maul et al., 2016; Petocz & Newbery, 2010). The engagement of conceptualisation with all the operational phases can coexist (Petocz & Newbery, 2010) and, in turn, promote the outcomes and trustworthiness of the measure that will serve humankind.

### **“What is Concluded and Recommended”**

From our research conducted into the development of psychological measures it became apparent that the conceptualisation phase of an instrument is oftentimes inadequately carried out. It was also established that thorough conceptualisation entails a number of aspects, however not all of these aspects receive the desired attention. Conceptualisation entails both a philosophical and ontological engagement with the terms, concepts and constructs for which an instrument is to be developed as it necessitates a process of methodological rigour to ensure scientific credibility. To conceptualise a measure effectively implies that the measure developer and/or developers ought to become intentionally aware of the value that his or her integrated personality, transcendental, teleological and nomothetic positioning may have on the development of the psychological measure. As such it is recommended that responsible psychological measure developers require an acute awareness and acknowledgement of the pivotal and continuous role conceptualisation plays and how it affects the operationalization of a psychological measurement. By integrating a philosophical stance when developing a psychological measure the measure developer can be enabled to obtain a clearer view on the

scientific reality and the scientific method throughout the process. “The greater the field of our awareness and understanding, the more we can transform from mute followers of rigid authoritarian prescriptions into authentic and willing embracers of aporia and enlightened ignorance” (Petocz & Newbery, 2010, p. 141).

The terms, concepts and constructs to be included in the measure furthermore require a considerable understanding of the conceptualisation of a psychological measure. The conceptualisation of a psychological measure necessitates a serious measure developer who intentionally shows awareness of the intricate relationship that exists between language and thinking as well as the social, cultural and historical nature of infused scientific knowledge bases about reality, method and being. The serious measure developer furthermore intentionally needs to reflect on his or her own structure of thought, experiences, rule-following cognitive and linguistic capacities about reality, method and being as the meaning and understanding of the latter are loaded with socio-contemporaneity and sociolinguistic interpretations.

Conceptualising a psychological measure is considered to be an iterative, continuous and intentional process of abstracting, simplifying, categorising and conceptually mapping the ontological scientific reality and its epistemological scientific method. Furthermore, considering that the anthropological scientific understanding of human behaviour and being, as a relational system, and clearly expresses his or her understanding into a well-defined theory in a mathematical and linguistic language.

### **Acknowledgement**

We, as authors, herewith express our gratitude to Professors Jan Niewenhuis, Ferdinand Potgieter, Jan Heystek, and Andries Baart as well as Dr Surette van Staden for sharing their scholarly contributions through their undisputable insight, continuous guidance and reviewing the conceptualised and final drafts of this paper.

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## SECTION 3: CRITICAL REFLECTION

### Introduction

The act of critical reflection has become an integral part of my research process seeing that I required continuous and intentional time to think, reason and reflect on what my research was about with specific reference to what, when, where, how and why I would conduct this particular inquiry. Answering the latter questions shaped my cognisance of the importance of *conceptualising* my own research inquiry and critically reflecting on the entire research process as it did not follow a sequential process with predetermined steps. Critical reflection has instilled within me the routine of recapitulating the decision, analysis and interpretation I have made prior, during and at the end of the research inquiry.

We as researchers have an obligation to contribute not only to the body of scholarship, but also to the real world. I also found it complex to identify a real-life problem (World 1) and to then find an appropriate methodological framework (World 2) before abstracting the phenomenon to fit into a theoretical and ethical framework (World 3). One would think that to revert this process back to the real world would be less complex, but to the contrary it can become exceptionally complex. Hence the reason why scholars frequently refer to a “theory praxis split” and an inherent need to reconnect the three worlds and to establish nexus. In my opinion disciplines such as psychology, education and philosophy are important knowledge systems to acquire, but I found it difficult to transcend what I had learned to the real world – a theory praxis split existed for me and therefore an inherent need was ignited in me to attempt to reconnect the Three Worlds.

In order to critically reflect how I will reintroduce what was found in World 2 and 3 back to World 1, it is imperative to answer the research questions as they were constructed to signify the gaps in the body of scholarship. My entire research inquiry was based on these research

questions<sup>4</sup> and it is important to attain this outcome through expressing my thinking and reasoning about the pragmatic, epistemic and critical interest I have developed about the phenomenon. In order for me to answer the research questions it is necessary to first reflect on the *a priori* framework as a specific structure and then merge it into the Three Worlds Framework as a general structure of my research inquiry.

### ***A Priori* Framework**

My understanding of the function of the *a priori* framework is that it not only enabled me to explicitly decide beforehand how to generate the data and conduct the analysis and interpretations, but it also guided me in structuring my thinking and reasoning through selecting philosophically inclined pre-scientific propositions that best describe the nature of this phenomenon. To develop an *a priori* framework was a challenging and daunting task, not only because I was a novice researcher, but also because a huge responsibility rested on my shoulders to develop an appropriate framework that would truthfully guide me to understanding the chosen phenomenon.

I must further admit to the fact that deductive reasoning and theoretically guided research practices came more naturally to me than inductive reasoning, partly due to my love for theories and paradigms. The way my mind was shaped in my undergraduate studies and the way I applied my educational background to postgraduate research endeavours relied predominantly on *a*

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<sup>4</sup> **Primary research question:** What is the psycho-philosophical meaning of conceptualisation as the first phase during the development of a psychological measurement?

**Pragmatic research question signifying a contextual gap.** How does the practical utilisation of psychological measures contribute to delineating the meaning of conceptualisation as the first phase of the development of such a tool?

**Epistemic research question signifying a conceptual gap.** How does the scientific knowledge about psychological measures contribute to delineating the meaning of conceptualisation as the first phase of the development of such a tool?

**Critical research question signifying a contextual gap.** How does the philosophical nature of psychological measures contribute to delineating the meaning of conceptualisation as the first phase of the development of such a tool?

*priori* and/or theoretical frameworks that guided my entire research inquiry. I also admit to having a deductive preference when it comes to thinking, reasoning and interpretation and therefore the opportunity for growth becomes evident.

As a result I will strive to intentionally equip myself to conduct research inquiries utilising inductive premises to acknowledge that theories and paradigms are all temporary, as well as specific and not always representative of human functioning on every domain. I further wish to be able to incorporate both reasoning premises in my future endeavours. This does not mean that theories and paradigms should not be incorporated; to the contrary, omitting theories and paradigms from one's own inquiry is a matter of concern to me.

No researcher can ever be truly objective, a "blank canvas" or "neutral" when he or she is conducting research as all observation and experience is subjective. This is as everyone has predispositions as to the way they see and explore the world and their unique worldview is shaped by cultural-historical and socio-economic lived experiences. In short, I admit to the fact that *a priori* frameworks guide my thinking and reasoning about a phenomenon and the way I conduct inquiries. The knowledge I gain, how I gain it and what it means to me to know something are deductively grounded and *conceptualised* prior to my research inquiry. I will now discuss each of the four pre-scientific inclinations that I utilised in the research inquiry and apply it to this critical review section.

Integrated personality positioning. During my research endeavour I became cognisant of the importance of being equipped and knowledgeable. As such it became necessary to reflect on my own competencies and to develop confidence in my ability to conduct this particular research inquiry. As mentioned before my undergraduate and postgraduate educational experiences have equipped me with the knowledge, skills, values and a curious mind to conduct this enquiry. My knowledge system is shaped through completing my Honours Degree in Educational Psychology specialising in psychometrics and registering at the Health Professions Council of South Africa.

Furthermore I was privileged to be selected for extensive training through the Research Capacity Initiative Programme sponsored by SANPAD on qualitative, quantitative, and mixed-method research designs as well as diverse approaches, techniques and software programmes. I subsequently also completed a PhD which mainly utilised a hybrid of theories and necessitated establishing a comprehensive *a priori* framework while applying deductive analysis. Through these diverse postgraduate studies I developed a worldview that is founded in socio-constructivism and phenomenology. My own biographical and cultural-historical identity influences my work together with my passion for European and ancient knowledge systems. Based on these revelations I do admit that I would like to become more cognisant of the value of diverse research approaches to explore diverse worldviews and to value indigenous and African knowledge systems, especially when adapting or constructing psychological measures for the South African context.

Transcendental positioning. The generation of an appropriate, well-consolidated, specialised and specific database through systematic analysis is always exigent for me, not because it cannot be executed, but rather because of the huge responsibility that comes with identifying and selecting representative, contextual and reliable sources. In this respect I was, once again challenged as I had to refine my existing set of skills and the art of scanning, scoping and critically reading sources that fit the inclusion and exclusion criteria of the research inquiry. I came to realise the indescribable importance of my research question. Manifold times I found myself wandering off into the other phases of developing a psychological measure, which I then had to undo what I had just read as it influenced my thinking, reasoning, analysis and interpretation in some way – the human mind is a peculiar tool, too much and too little reading can quickly leave one in a place of chaos where nothing and everything make sense. It dawned on me how great a responsibility researchers have when they are conducting research – they have to obey methods, rules and criteria when constructing data; they need to be creative but still



conservative, alert to the danger of deviating or becoming distracted and report on what they have found in an ethical and moral manner. This is probably why I feel comfortable with an *a priori* framework as it guides my search and guiding principles to not look for answers elsewhere other than in the database I have constructed. Thus, the construction of my database served a crucial role in my research process.

Teleological positioning. My preference for deductive reasoning in that it is significantly dependent on a theoretical and/or conceptual framework has driven this entire research process. My thinking, reasoning and actions were easily synchronised with a pre-determined framework because I believe my framework is coherent, well-conceptualised and topical. I spent significant time on constructing the *a priori* framework and consulted international and national experts in philosophy before implementing this framework to the context of psychometrics. My *a priori* framework which is embedded in the phenomenology paradigm is most definitely not absolute, but always has room for change and advancement. However, for this study within this period of time, and with these knowledge systems available to me to inquire into this gap in the body of scholarship, I believe that I have made a novice contribution to developing a working definition of conceptualisation as the first phase in the development of a psychological measure.

Nomothetic positioning. As for the nomothetic positioning the aforementioned particular inclinations made me realise how important it is to always keep one's audience in mind when one develops a psychological measure which also includes oneself. One needs to recognise who one is before one can become aware of how someone else will administer, score and interpret the developed measure. While conducting the analysis according to an *a priori* framework I reflected back to the time I had administered diverse psychological measures and realised how few of them indicated explicit detail about the rationale of the measure, who the developer(s) was/were, what theoretical frameworks had influenced their thinking and reasoning and on what literature or knowledge systems the test items had been based. This became one reason for

investigating this particular research inquiry – to make all the voices prominent in a psychological measure.

### **Contributions to the Body of Scholarship**

In this section, I will critically engage with the research questions, as they have been identified as the gaps in the body of scholarship. I utilised the Three Worlds Framework, with its respective interests and gaps, to guide my thinking.

#### **Three Worlds Framework**

The contribution of this inquiry into the gaps in the body of scholarship will be justified according to the secondary questions. A probable answer to the primary research question, “What is the psycho-philosophical meaning of *conceptualisation* as the first phase during the development of a psychological measurement?”, can be stated as follows:

Conceptualising a psychological measure is considered to be an iterative, continuous and intentional process of abstracting, simplifying, categorising and conceptually mapping the ontological scientific reality and its epistemological scientific method. Furthermore, considering that the anthropological scientific understanding of human behaviour and being as a relational system and clearly expresses his or her understanding into a well-defined theory in a mathematical and linguistic language (see pages 56-57).

**Pragmatic interest (World 1).** In light of the primary research question, I am of the opinion that the practical utilisation of psychological measures contributes significantly to how I would conceptualise a psychological measure. Psychological measures are used in the real world by psychometrists and psychologists to better understand the holistic functioning of individuals. A well-conceptualised psychological measure (methodological) should enable me as test developer to come to understand what it means to be human and to relate to others in this world

(ontology-epistemology), in other words to understand the human functioning and to see the reconnection or nexus between me-you-world (anthropology).

This research inquiry challenged my own understanding of conceptualisation, especially to develop an *a priori* framework that can represent the complexity of philosophically inclined pre-scientific premises (integrated personality positioning, transcendental positioning, teleological positioning and nomothetic positioning) and to apply it to the field of psychometrics. To intentionally incorporate the four philosophically inclined pre-scientific premises were difficult; however, regular interactions with philosophical experts enabled me to rethink the nature of the conceptualisation phase and find a way to incorporate the ontological-epistemological and anthropological premises in the analysis and interpretation of the knowledge systems.

**Epistemic interest (World 2).** Based on the body of scholarship, regarding the development of a psychological measure it became evident that psychometrics has evolved over many decades to finally become a scientific knowledge system. Throughout history, evidence has been generated that diverse trans- and cross-disciplinary knowledge systems have merged to understand the phenomenon or reality (ontology-epistemology) and to measure the phenomenon or reality (methodology). Scientific knowledge systems and cultural tools enabled scholars to transmute what can be observed in the real world about human functioning into quantifiable language and symbols. In order to measure a conceptualised phenomenon necessitated operationalization, quantification, pilot testing, item analysis, standardisation, evaluation and revision.

The systematic and purposive identification of suitable knowledge systems that I needed to consolidate as a typographical and restricted database for analysis was an exciting task. To work with an information specialist to perform a feasibility test and to learn how to develop the searches and tapering them down to find customised sources was a wonderful learning experience. Merely having a hunch about the meaning of the conceptualisation phase of a

psychological measure was not sufficient and, therefore, seeing how this inquest unfolded and gradually became a scientifically justifiable inquiry contributed to my personal development as a novice researcher. To collaborate with my supervisor, respective experts in philosophy and psychometrics as well as the information specialist instilled within me the knowledge, skills and value of the body of scholarship and contributing to it through sound research.

**Critical interest (World 3).** From the argument and the outcome of the research article it became clear that the philosophical knowledge system, in collaboration with the *a priori* framework contributed significantly to how conceptualisation is defined and what the implication for the development of a psychological measure could be. The invitation of a philosophical cohort as a critical friend to assist in clarifying the definition of conceptualisation was vital, seeing that scholars have expressed their concern that some psychology terminology is vague, implied and not studied.

Being able to see how the research problem, the carefully designed research process in the presence of the psycho-philosophical cohort and the findings finally enabled me to contribute to the understanding of the phenomenon felt like a liberating and profound moment in my academic career. The Three Worlds Framework enabled me to ultimately reach the critical view (World 3) and to humbly contribute to the scientific knowledge system (World 2) which could hopefully reach test developers and their intentional cognisance when conceptualising a psychological measure (World 1). I will conclude my critical reflection by the following quotation:

...if the work of inquiry is to be carried on, it must be at once scientific and philosophical, that if, in particular, the scientist is not philosophic, he will fall into confusion, he will rebuff philosophical criticism – he will lack theory of categories, of sorts of problem, of ‘method’ – especially he will be carried away by practical interest, by interest in producing something or implementing a programme instead of in finding something out. (Anderson, 1962, p. 183)

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