Pre-service teacher self-efficacy and teacher efficacy in a challenged education context

by

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at the

UNIVERSITY OF PRETORIA

Supervisor: Prof. Liesel Ebersöhn
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Co-supervisor: Prof. Surette van Staden

SEPTEMBER 2021

Declaration

I, Carine Jonker (student number 04363655), hereby declare that this thesis titled: *Pre-service teacher resilience and efficacy in a challenged education context,* which I hereby submit for the degree Philosophiae Doctor in Educational Psychology at the University of Pretoria, is my own work and has not been previously submitted by me for a degree at this or any other tertiary institution. All resources, quotations and citations from literature have been acknowledged in-text and referenced in full.

Carine Jonker

September 2021

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DEGREE AND PROJECT	PhD Pre-service teacher self-efficacy and teacher efficacy in a challenged education context
INVESTIGATOR	Ms Carine-Mari Jonker
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Ethics Statement

The author, whose name appears on the title page of this thesis, has obtained, for the research described in this work, the applicable research ethics approval. The author declares that she has observed the ethical standards required in terms of the University of Pretoria's *Code of ethics for researchers and the Policy guidelines for responsible research*.

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Dedication

AAN MY PAPPA …

MY HERO, ROLMODEL EN STANDVASTIGE ROTS

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Abstract

Pre-service teacher self-efficacy and teacher efficacy in a challenged education context

Given the significant gaps in quantitative teacher resilience knowledge, specifically pre-service teachers, in a challenged context the need for an evidence-based theoretical framework for teacher resilience in spaces of high challenge is evident. Thus, the purpose of this comparative secondary analysis study was to inform knowledge on teacher resilience in challenged contexts. Intrapersonal resilience-enabling pathways (i.e., self-efficacy and teacher efficacy) of pre-service teachers were compared by employing the Social Cognitive Theory as theoretical framework.

I adopted a post-positivist, quantitative research approach with a comparative case study design to compare pre-service teachers' self-efficacy and teacher efficacy beliefs as intrapersonal resilience-enabling pathways to teacher resilience. The study purposively selected extant data from the FIRE project (2015–2017). The FIRE Project included pre-service teachers (N = 1,193) in their final teacher training year at the University of Pretoria. The extant data (completed FIRE Teacher Resilience Measure) was analysed to quantitatively compare the self-efficacy and teacher efficacy beliefs of pre-service teachers within a challenged context. A further objective was to analyse the self-efficacy and teacher efficacy beliefs of pre-service teachers based on demographic information. Finally, statistical procedures were performed on data to compare the relationship between self-efficacy and teacher efficacy beliefs among pre-service teachers in a challenged context. Data was analysed using SPSS by establishing reliability, validity, and statistical computing power, descriptive and inferential statistics.

The within-case and cross-case results indicated the presence of high intrapersonal resilience-enabling pathways in pre-service teachers despite contextual constraints, with a statistically significant relationship between the self-efficacy and teacher efficacy of final year pre-service teachers. Varied results were obtained for gender and enrolled pre-service teaching programmes.

This study advanced knowledge on teacher resilience in a challenged context. Self-efficacy and teacher efficacy may enable pre-service teachers to resile despite chronic and cumulative risk factors. This study (i) contributed quality, quantitatively derived teacher resilience findings from an often-under-represented Global South perspective; (ii) validated the use of a globally used teacher resilience measure in South Africa; and (iii) culminated in results that may be compared to that of others worldwide measured with the same instrument.

Key Words:

Teacher resilience, intrapersonal protective resources, resilience-enabling, self-efficacy, teacher efficacy, Global South, challenged context, Teacher Resilience Measurement, quantitative methodology, comparative, secondary data analysis, instrument validation.

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13 September 2021

TO WHOM IT MAY CONCERN

The thesis titled " Pre-service teacher self-efficacy and teacher efficacy in a challenged education context" by Carine Jonker has been proofread and edited for language by me.

I verify that it is ready for publication or public viewing in respect of language and style, and it has been formatted as per the institution's prescribed style.

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Kind regards

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List of Abbreviations

α	Alpha (level of significance)
ALTC	Australian Learning and Teaching Council Limited
ANA	Annual National Assessment
APA	American Psychological Association
BEd	Baccalaureus Educationis
BRiTE	Building Resilience in Teacher Education
CDE	Centre for Development and Enterprise
CFA	Confirmatory factor analysis
CSR	Centre for the Study of Resilience
DBE	Department of Basic Education
DHET	Department of Higher Education and Training
diff	Difference
ECD	Early childhood development
ENTREE	ENhancing Teacher REsilience in Europe
FET	Further education and training
FIRE	Fourth Year Intervention in Research
FIT-Choice	Factors Influencing Teaching Choice
FP	Foundation phase
GDP	Gross domestic product
GEMS	Government Employees Medical Scheme
GET	General education and training
GNP	Gross national product
Grade R	Reception year or year prior to Grade 1
H_0	Null hypothesis
H_a	Alternative hypothesis
HE	Higher education
HEDA	Higher Education Data Analyzer
HEI	Higher Education Institution
HIV	Human immunodeficiency virus
IEA	International Association for the Evaluation of Educational Achievement
IMF	International Monetary Fund
IP	Intermediate phase
IQMS	Integrated Quality Management System

ISCED	International Standard Classification of Education
KW	Kruskal-Wallis test
LOC	Locus of Control
M	Mean
Max	Maximum
Mdn	Median
Min	Minimum
MTRS	Multidimensional Teacher Resilience Scale
MW	Mann-Whitney
n	Sample size (subsample)
N	Total sample size
NCES	National Center for Education Statistics
NQF	National Qualifications Framework
NSC	National Senior Certificate
OECD	Organisation for Economic Co-operation and Development
p	*p*-value
PGCE	Postgraduate Certificate in Education
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
RCT	Relational-cultural theory
RRR	Relationship-Resourced Resilience
r_s	Spearman rank-order correlation
RSA	Republic of South Africa
SA	South Africa
SACE	South African Council for Educators
SAQA	South African Qualifications Authority
SASA	South African Schools Act
SCCT	Social Cognitive Career Theory
SCT	Social Cognitive Theory
SD	Standard deviation
SDGs	Sustainable Developmental Goals
SOC	Sense of coherence
SP	Senior phase
SPSS	Statistical Package for the Social Sciences
SSA	Sub-Saharan African

Stats SA	Statistics South Africa
TALIS	Teaching and Learning International Survey
TeachEff	Teacher Efficacy
TIMSS	Trends in International Mathematics and Science Study
TR-Emot	Teacher Emotion
TR-Mot	Teacher Motivation
TR-Prof	Teacher Professionalism
TR-Soc	Teacher Social Capacity
U	Mann-Whitney test statistic
UIS	UNESCO Institute for Statistics
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UP	University of Pretoria
Wits	University of the Witwatersrand
WSR	Wilcoxon signed-rank test

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Chapter 1
Introduction and Overview of the Study

1.1 INTRODUCTION

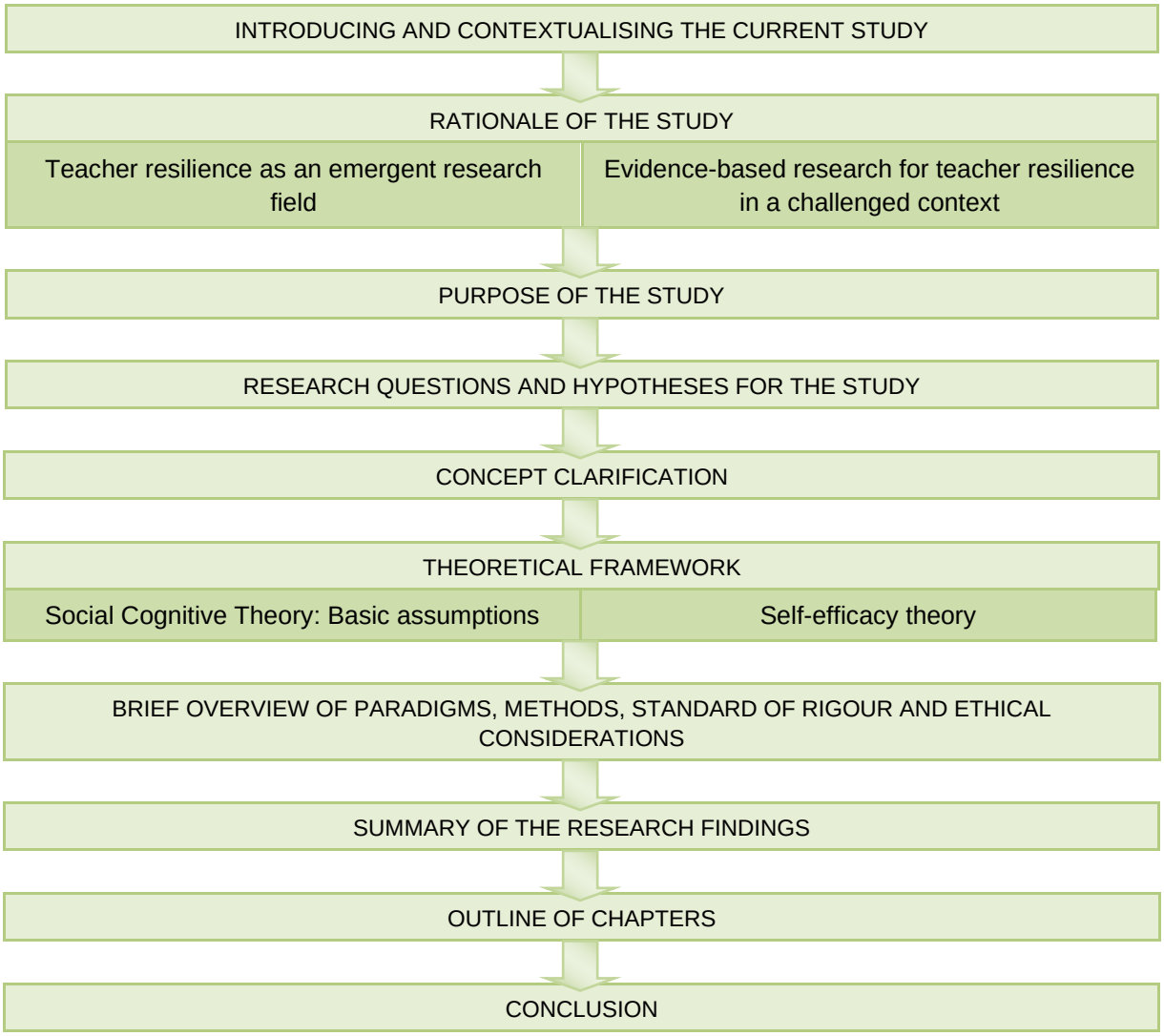
The purpose of the current research study was to expand knowledge on teacher resilience in challenged contexts by comparing the self-efficacy and teacher efficacy beliefs (intrapersonal[1], trait[2] resilience-enabling pathways) of final year pre-service teachers in South Africa. The current study used quantitative statistical procedures to compare (within-case and cross-case) the relationship, if any, between the self-efficacy and teacher efficacy of pre-service teachers to contribute to the knowledge base of teacher resilience in spaces where structural disparity and inequality prevail. It follows that understanding self-efficacy and teacher efficacy of pre-service teachers may inform policy, theory and practice in teacher preparation and professional development within similarly challenged contexts. In addition, not only can findings from this study indicate the utility of existing teacher resilience scales (from ENhancing Teacher REsilience in Europe [ENTREE] and the Factors Influencing Teaching Choice [FIT-Choice])[3] to measure intrapersonal pathways to teacher resilience in a challenged context but also pave the way for comparison of these results with comparable results on the scale elsewhere worldwide.

Chapter 1 provides an overview of the current study. To this end, I introduce the contextual background of this study. I further outline the rationale for and purpose of the current study considering the research questions and hypotheses. Subsequently, I clarify key concepts, foreground the theoretical framework, and précis the paradigmatic perspective, methodological decisions and the standards of rigour employed, and the ethical considerations that informed the current study. Lastly, I briefly summarise the results and outline the succeeding chapters of the thesis. Figure 1.1 presents a flow chart showing the organisational overview of Chapter 1.

[1] Intrapersonal factors denote constructs occurring within an individual including for example attitudes or self-concept (American Psychological Association [APA], 2020a).
[2] Traits signify personality characteristic that governs a person's behaviour across situations (APA, 2020a).
[3] The FIRE Teacher Resilience Measure included scales from ENTREE (Mansfield & Wosnitza, 2015; Peixoto et al., 2018; Wosnitza et al., 2014) (see Section 1.6.7 and Appendix A for ENTREE background information) including the *Teacher Resilience scale* (Morgan, 2011) and the *Teacher Efficacy scale* (Morgan, 2011; Peixoto et al., 2018) The FIRE Teacher Resilience Measure also included the Factors Influencing Teaching Choice (FIT-Choice) scale (Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012). See Appendix B for the complete FIRE Teacher Resilience Measure.

Figure 1.1

Flow Chart Showing the Organisation of Chapter 1



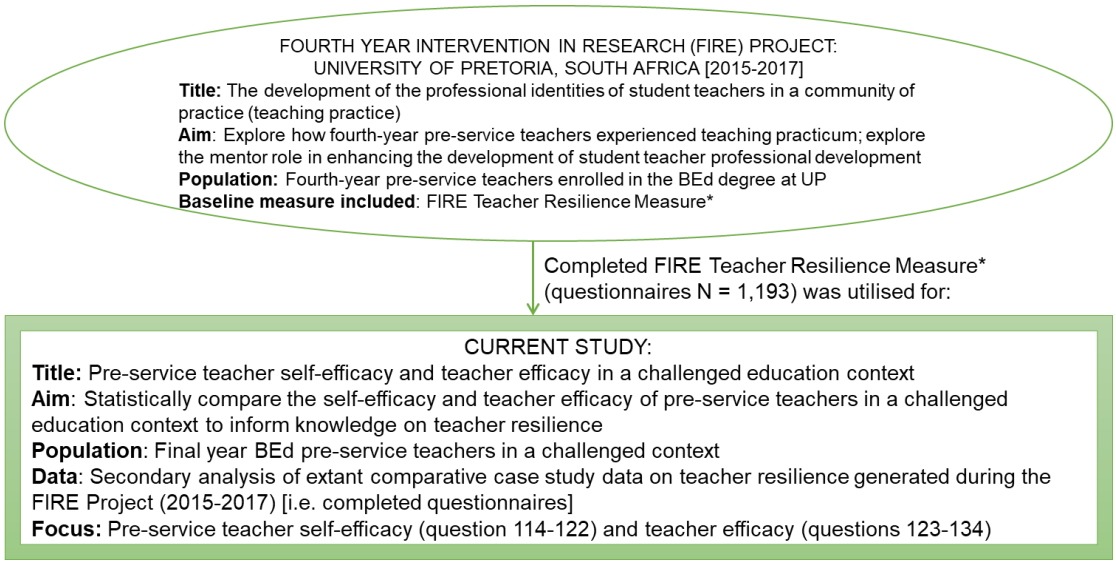
1.2 INTRODUCING AND CONTEXTUALISING THE CURRENT STUDY

The current study formed part of an existing project (Centre for the Study of Resilience [CSR], University of Pretoria [UP]), namely The *Fourth Year Intervention in Research (FIRE)*[4] *project*. The CSR generates knowledge on resilience in a Global South space, such as South Africa. To contextualise the present study, I provide a brief background as depicted in Figure 1.2.

[4] FIRE project ethical approval: University of Pretoria (UP) 14 03 01. See Appendix C for ethical approval information and additional information on the FIRE project.

Figure 1.2

Background to the Current Study



The FIRE project was implemented at the University of Pretoria between 2015 and 2017 with three final year pre-service teacher cohorts. The FIRE project was conducted with a pre-service teacher in their final undergraduate teacher training year. At the University of Pretoria, Faculty of Education, the Baccalaureus Educationis (BEd) Programme is a 4-year degree with teaching practice (see Section 1.6.9) as core modules (Faculty of Education, University of Pretoria, 2016)[5]. The FIRE project aimed to explore how fourth-year pre-service teachers experienced the teaching practicum and the mentor role in enhancing student-teacher professional development. Pertinent to the current study is that the FIRE Teacher Resilience Measure was piloted in the FIRE project as one of the baseline data generation questionnaires. A total of 1,193 pre-service teachers, between the age ranges of 20 years to 32 years, completed the FIRE Teacher Resilience Measure from 2015 to 2017. Of the total questionnaires completed, 223 (18.7%) of the respondents included male pre-service teachers and 929 (77.9%) female pre-service teachers.

In the current study, I adopted a post-positivist (meta-theory), quantitative research approach with a comparative case study design (i.e., within-case and cross-case comparison of final year pre-service teacher cohorts) to investigate the *self-efficacy* (see Section 1.6.5) and *teacher efficacy beliefs* (see Section 1.6.6) *as intrapersonal resilience-enabling pathways to resilience* (see Section 1.6.4) *for pre-service teachers* (see Section 1.6.9) *in a challenged context* (see Section 1.6.10). I used nonparametric statistical procedures on purposively selected cross-sectional extant data (i.e., completed FIRE Teacher Resilience Measure, *N* = 1,193) to compare the self-efficacy and teacher efficacy of pre-service teachers in a challenged context while following ethical and rigorous research guidelines.

[5] See Appendix C for the University of Pretoria BEd Programme Information (Faculty of Education, University of Pretoria, 2016).

1.3 RATIONALE OF THE STUDY

1.3.1 INTRODUCTION

Although research on resilience, in particular psychological resilience, has a rich, replete, complex and prolific history (Cassidy, 2015; Shean, 2015; Windle, 2010), *teacher resilience* as a scholarly domain is an emergent research field. Furthermore, the literature highlights *the limited empirical research* on resilience in teachers (Beltman et al., 2011, 2018; Gu, 2018; Gu & Day, 2013), markedly from a *quantitative perspective* (Ainsworth & Oldfield, 2019; Kidger et al., 2016). The lack of teacher resilience research is also evident *in low- and middle-income countries*[6] with severely challenged contexts (Ebersöhn, 2015, 2016, 2017; Ebersöhn et al., 2020; Theron, 2016).

Teacher resilience, including *pre-service* teacher resilience, have increasingly received attention given teacher shortages, workforce issues and quality teaching worldwide (Duffin et al., 2012; Wosnitza et al., 2014), as well as in the Global South (Ebersöhn, 2016, 2017). To quantify factors (including traits such as self-efficacy and teacher efficacy beliefs) influencing teachers' ability to resile despite the challenging profession is needed (Ainsworth & Oldfield, 2019). This need for quantitative methodology in teacher resilience research is especially needed in Global South spaces given the limited studies on resilience and pre-service teacher resilience (Beltman et al., 2011, 2018; Ebersöhn et al., 2020; Gu, 2018; Gu & Day, 2013; Mansfield et al., 2016; Morgan, 2011; Peixoto et al., 2020). The paucity of teacher resilience measures (Beltman et al., 2011; Peixoto et al., 2020) further highlights the demand for robust teacher resilience scales for comparable results.

In Section 1.6.2 and Section 2.2, I acknowledge the current conceptualisation of resilience as a socio-ecological process. I situate the current study within one resilience-enabling pathway, namely that of intrapersonal, teacher traits as enabling pathway. Therefore, the current study aimed to quantitatively compare (within-case and cross-case) the self-efficacy[7] and teacher efficacy[8] of pre-service teachers[9] in a challenged context[10] to inform knowledge on teacher resilience in a severely disparate space (i.e., Global South context).

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[6] Countries are grouped based on income (gross national product [GNP]) by the World Bank classification system (Fantom & Serajuddin, 2016).
[7] 'Resilience' (FIRE Teacher Resilience Measure) is operationalised as pre-service teachers' confidence in recovery from setbacks in school (i.e., self-efficacy).
[8] 'TeachEff' (FIRE Teacher Resilience Measure) is operationalised as pre-service teachers' confidence in teaching and behaviour management (i.e., teacher efficacy).
[9] The focus of the current study is on self-efficacy (questions 114–122) and teacher efficacy (questions 123–134). Thus, pre-service teachers' self-perception regarding their confidence in recovery from setbacks in schools (Morgan, 2011), and their confidence in teaching and behaviour management (Morgan, 2011; Peixoto et al., 2018).
[10] A challenged educational context denotes the education system in a low- and medium-income (World Bank, 2021) space with cumulative and chronic adversity – as associated with a Global South place in an emerging economy (high adversity and structural disparity due to a post-colonial history) (Dados & Connell, 2012; Ebersöhn, 2014, 2017).

This study hopes to contribute to systematic teacher resilience knowledge by identifying important intrapersonal protective traits pre-service teachers may employ in challenged settings (such as South Africa) to resile in the profession despite chronic and cumulative challenges, while recognising the current socio-ecological process discourse of resilience (Ungar, 2008, 2010, 2011, 2012a, 2012b; Ungar et al., 2013). To this extent, the next sections justify teacher resilience as an emergent research field and the need for evidence-based research on teacher resilience within the Global South context.

1.3.2 TEACHER RESILIENCE AS AN EMERGENT RESEARCH FIELD

Internationally, teaching is highlighted as one of the most demanding professions and the trials teachers face daily are evident (Brunetti, 2006; Castro et al., 2010; Ebersöhn & Ferreira, 2012; Gu & Day, 2007; Kyriacou, 2001; Thieman et al., 2014; Wosnitza et al., 2014). The negative impact on teacher health (e.g., stress and burnout) and well-being because of the teaching conditions necessitate the development of teacher resilience (Day & Gu, 2013; Ebersöhn, 2014; Gu & Day, 2013). Research that reports on how teachers positively adapted, notwithstanding risks and change in the profession, is needed (Day & Gu, 2013; Ebersöhn, 2017; Peixoto et al., 2018). It, therefore, comes as no surprise that, during the last decade, teacher resilience research has escalated worldwide (Gu, 2018).

As a developing research field, teacher resilience continues to evolve (Beltman et al*.,* 2011; Ebersöhn, 2014; Gu, 2018; Gu & Day, 2013) with a shift away from studies focusing on stress, burnout, attrition, and ineffectiveness in teaching (Coetzee, 2013; Hong, 2012; Mansfield et al., 2012; Peixoto et al., 2018; Wosnitza et al., 2014). There have been teacher resilience studies in **high-income** global regions, including *Australia* (Beltman, 2020; Beltman et al*.,* 2011, 2018; Beltman & Mansfield, 2018; Fischer et al., 2018; Johnson & Down, 2013; Knight, 2007; Le Cornu, 2009, 2013; Mansfield et al., 2012, 2014, 2016, 2018; Nolan et al., 2014; Papatraianou & Le Cornu, 2014; Peters & Pearce, 2012); *Canada* (Tait, 2008); *Europe* (Bouillet et al., 2014; Brouskeli et al., 2018; Daniilidou et al., 2020; Fletcher & Sarkar, 2013; Lohbeck, 2018; Kunnari et al., 2018; Morgan, 2011; Olsen, 2017; O'Sullivan, 2006; Peixoto et al., 2018, 2020; Wosnitza et al., 2014, 2018; Yada et al., 2021); *Singapore* (Ee & Chang, 2010); *United Kingdom* (Ainsworth & Oldfield, 2019; Gibbs & Miller, 2014; Gu, 2014, 2018; Gu & Day, 2007, 2013; Hewitt et al., 2017; Kirk & Wall, 2010; Mackenzie, 2012; Morgan et al., 2010; Price et al., 2012) and the *United States* (Bobek, 2002; Brunetti, 2006; Easterly & Myers, 2018; Fleming et al., 2013; Jennings et al., 2013; Muller et al., 2014; Sosa & Gomez, 2012; J. L. Taylor, 2013[11]; Thieman et al., 2014; Yonezawa et al., 2011).

[11] In-text citations of first authors with the same surname include the initials of the first author (APA, 2020b, p. 306).

Teacher resilience studies in **low- and medium-income countries** are limited and include, for example studies in *China* (Gu & Li, 2013; Hong, 2012) and *Turkey* (Çelik et al., 2018; Polat & İskender, 2018; Yokus, 2015), as well as **Global South countries** such as *South-Africa* (Coetzee, 2013; Coetzee et al., 2017; Ebersöhn, 2012, 2014, 2015, 2016, 2017, 2019a, 2019b; Ebersöhn & Ferreira, 2012; Ebersöhn et al., 2020; Ebersöhn & Loots, 2017; Ferreira & Ebersöhn, 2012; Mansfield et al., 2018), and *Uganda* (Wabule, 2020).

It appears that there are significant gaps in teacher resilience knowledge given a severely challenged context (Ebersöhn, 2014, 2016, 2017; Ebersöhn & Ferreira, 2012; Ebersöhn & Loots, 2017; Mansfield et al., 2018; Ngidi & Ngidi, 2019). Therefore, the significance of the current study is to gain insight into intrapersonal resilience-enabling pathways to teacher resilience (i.e., self-efficacy and teacher efficacy of pre-service teacher) in a Global South setting, including the African context. Lan et al. (2014) noted that, although increasing, Africa generates only approximately 1% of worldwide scientific knowledge.

Quantification of resilience (Ainsworth & Oldfield, 2019) may provide knowledge on how teachers adapt to adversity through capacity-based (Masten, 2018; Masten et al., 1990) or social-ecological resilience pathways (Beltman et al., 2011; Ebersöhn, 2014; Ungar, 2008, 2010, 2011, 2012a, 2012b; Ungar et al., 2013). Such insight may be important to attract, retain and support the teaching profession and enable quality teaching (Morgan, 2011; Salifu et al., 2018). By assessing teachers' level of resilience, evidence of positive adaptation, despite challenging circumstances, may be revealed (Ainsworth & Oldfield, 2019).

Teacher resilience measurement requires investigation (Beltman et al., 2018). The current study thus employed scales from an existing resilience measure. Reliability and validity of the instrument, for the current study, were established using Cronbach's alpha and construct validity, respectively. The results on the scales can be utilised for comparative studies worldwide. A variable-based view can investigate a quantifiable association between adaptation measures and intrapersonal factors (Masten, 2001).

Papatraianou and Le Cornu (2014) also argued for further research in gender differences in resilience and the development of gender nuanced elements in teacher education programmes. Peixoto et al. (2020) further identified the need for teacher resilience studies involving a greater and more diversified sample. Ebersöhn (2014) emphasised the need for teacher developmental agendas to include knowledge of teacher resilience traits as pathways to sustain adaptation processes in spaces of high challenge. *Accordingly, it is worthwhile exploring enabling intrapersonal factors, such as the self-efficacy and teacher efficacy of pre-service teachers, as important indicators of why teachers resile despite hardship in, say, a Global South setting*.

Intrapersonal traits are a signature element of resources from which teachers can draw (if present) during extreme and continuous hardship to resile. Thus, notwithstanding a challenged context, individual capacity (and systemic resources) may serve as capital to

mitigate against adversity (Ebersöhn, 2014, 2017; Ebersöhn et al., 2020). The presence or absence (see Figure 2.6) of intrapersonal traits (e.g., self-efficacy and teacher efficacy) may enable or constrain pre-service teachers' resilience for the monumental teaching task given disparities in a challenged context.

Systematic knowledge on the presence or absence of such traits may guide adaptation and enhancement of pre-service teacher programmes to assist pre-service teachers with the acquisition and development of necessary resilience traits. Knowledge on teacher resilience can also create awareness for pre-service teachers regarding traits they possess and can mobilise to buffer against adversity to thrive in the teaching profession to retain quality teachers in a challenged context. The next section explores the need for evidence-based research about teacher resilience within a Global South context.

1.3.3 EVIDENCE-BASED RESEARCH FOR TEACHER RESILIENCE IN A CHALLENGED CONTEXT

This section explores South Africa as an exemplar of a Global South place to locate the current study within a challenged context. I start my discussion by highlighting the nuances between a Global South and a Global North setting, focusing on the characteristics inherent in a Global South context. I conclude the discussion by elaborating on literature depicting South Africa as a severely challenged high-risk setting and the need for evidence-based teacher resilience knowledge within a desperate placed-based context.

The historical and current expanding disparity in and between countries generated a Global North ("context of privilege") and Global South debate ("pockets of poverty") (Trefzer et al., 2014, p. 4) as an alternative notion to a global village or globalisation (De Jong, 2010). Global South can refer to regions outside Western Europe and North America (i.e., First World, industrialised countries, developed countries or Global North), such as Latin America, Oceana, South and South-East Asia, as well as Africa (i.e., Third world or developing countries) (Dados & Connell, 2012; Montiel, 2018). However, mere geographic separation cannot address the complexities of the Global North and Global South divide since these regions are at times entwined or even within one another (Dirlik, 2007; Trefzer et al., 2014). The presence of in-country socioeconomic variance highlight the possible heterogenous context within the Global South, which is an important research consideration when exploring variations within and across individuals and school settings (Fackler & Malmberg, 2016; OECD, 2019a, 2019c).

The Global South encapsulates an amalgamating and symbolic designation applied to societies with a history of colonisation, inequality, repression, social origin of risk, resource constraints, disparate low-income economic conditions, widespread psychosocial problems and cultural as well as political marginalisation (Dados & Connell, 2012; Ebersöhn, 2016; Grovogui, 2011; Montiel, 2018). In a less equal society, with a legacy of disparity,

disproportionate outcomes and adversity, socioeconomic problems and psychosocial challenges may lead to chronic (i.e., ongoing persistent) adversity over time.

As is evident in Table 1.1, cumulative (i.e., multiple stressors in various domains) risks due to a lack of accessible resources and fragmented services also contribute to skewed opportunities and adversity (Bennell et al., 2002; Dados & Connell, 2012; Ebersöhn, 2015, 2016, 2017; Mampane & Bouwer, 2006). *Enablers*, as well as constraints, vary in degree and scale, so in an unequal and transformative ecology, higher risks are experienced by those with limited resources due to an inequitable distribution of available sources. Consequently, on the scale of individual, family, school, institutions, communities, and society, variability exists regarding resource limitations (Ebersöhn, 2017). Individuals, families, and communities embedded in a challenged context are confronted daily with various enduring and unrelenting risk factors (Ebersöhn, 2016, 2017). These risk factors include poverty, disease, hunger, malnutrition, crime, violence, a lack of essential public services (e.g., healthcare, water, transport, sanitation, and electricity), poor service delivery as well as a dysfunctional education system (Ebersöhn, 2016; Nkoana, 2017; Statistics South Africa [Stats SA], 2020a). The risks may contribute to an incapacity to develop human and social capital leading to detrimental consequences for the entire micro-, meso-, exo- and macrosystem (i.e., individuals, families, households, schools, institutions, communities, and the wider society as well as policy development and implementation) over time (chronosystem) (Bronfenbrenner, 1979; Diale et al., 2014; Ebersöhn, 2015, 2016, 2017). Evidence from the Programme for International Student Assessment (PISA) and Teaching and Learning International Survey (TALIS)[12] supports recommendations to improve school and teacher quality to reduce cross-country variances, the gap in educational outcomes and differences between learners at the top and bottom of the socioeconomic distribution (Mammadov & Çimen, 2019; Nieto & Ramos, 2015).

Ebersöhn (2015) argued for place-based (e.g., Global South) research through contextual lenses to support emerging democracies (such as South Africa) that is diverse and in transition. The purpose of the research would be to change the fundamental discourse of excessive power domination, the delegitimation of non-western values and the structural inequality chronically evident in a challenged context. The concept of "place" (Ebersöhn, 2015) and geopolitical characteristics as worldviews demonstrate variability in how high-adversity and high need-barriers, as well as support and adaptation, is conceptualised and operationalised (Ebersöhn, 2015). The continuing uneven gradient of global development necessitates cognisance of pluriversality rather than universality within geopolitical variance to transpose possible assumptions of a non-normative Global South place (Ebersöhn, 2015).

[12] The International Organisation for Economic Co-operation and Development (OECD) TALIS datasets includes representative teaching and learning data (OECD, 2019c). The data provides an opulent source of comparative international data (Fackler & Malmberg, 2016).

As an exemplar of a Global South context, South Africa's infrastructure was constructed by its ubiquitous colonial nascent (Coovadia et al., 2009; Dunn, 2020) and recent political democratisation (Montiel, 2018), resulting in accrescent systemic disparities and disruptions (Ebersöhn, 2016, 2017; Montiel, 2018). Mlachila and Moeletsi (2019) underlined that the causes of South Africa's mediocre quality of education are complex with the legacy of post-colonial outcomes playing a significant part in the problem. Given the Global South place argument, transforming post-colonial societies, such as South Africa, with vast socioeconomic, health and education challenges and poor economic, social, health, welfare and education outcomes should be anticipated (Ebersöhn, 2019a). Due to past inequalities and enduring historical privilege, individuals and communities may continue to experience challenges in accessing systemic opportunities negating policy implementation (DHET, RSA, 2018a; Ebersöhn, 2019a). Power and structural forces sustain the inequalities in resources, living standards, service distribution, high poverty levels and unemployment, among a large proportion of marginalised people (Ebersöhn, 2015, 2016, 2017, 2019a; Francis & Webster, 2019; Montiel, 2018). Unemployment rates continue to rise as economic growth stagnates with inadequate income generation, elevating poverty (Ebersöhn, 2019a; Francis & Webster, 2019) and civil unrest with violent protest action. The unemployment rate of 29.1%, determined for 2019 (Stats SA, 2020a, 2020b), perpetuate concerns regarding the poverty increase and well-being of South-African populations.

If a place-based (e.g., Global South context) (Ebersöhn, 2015) discourse is meaningful in gauging the relevance and intensity of chronic and cumulative barriers (see Table 1.1), poverty is indubitably a constraint in any setting (Ebersöhn, 2014, 2017). According to the International Monetary Fund (IMF, 2004), poverty encapsulated various compounding dimensions leading to insufficient resources to sustain a suitable minimum standard of living in societal structures. In a country such as South Africa, inequity and poverty are interconnected (Francis & Webster, 2019), while educational disparity amplifies other forms of systemic incongruence (McKeever, 2017). Hence, people in a challenged context may experience low quality of life, discontentment, and pessimism due to the escalating unemployment, decreased social support, negatively biased resource supply, limited health services as well as disproportionate quality education opportunities (Ebersöhn, 2016, 2017; Wissing et al., 2013). Therefore, economic welfare for all is unlikely in the foreseeable future, emphasising enabling pathways to adapt positively to existing inequality (Ebersöhn, 2017). The Global South context provides a larger place in which a challenged education space is embedded. As a result, the barriers inherent to a post-colonial, Global South context can affect the education system, teachers, learners and communities. Table 1.1 depicts an overview of the numerous systemic challenges in a Global South space due to an emerging economy, high adversity and structural disparity leading to chronic and cumulative risk factors in the daily lives of South African teachers (Ebersöhn, 2014, 2017).

Table 1.1

Challenges Teachers Face in a Global South Educational Space Constraining Resilience

Challenges / strains / risks / barriers / stressors / adversity / disturbances / disparities / disenabling / threats in the Global South (i.e., inhibit, constrain, disenable or challenge resilience)
Macrosystem (Culture, policy, education, health, and welfare systems)
Culture • Government bureaucracy and corruption with imposed regulations • Historical context (e.g., post-colonial society in transformation) • Political context and demoralising political demands • Racism and discrimination • Violence • Civil protest actions and strikes Policy • International trends and policy influence • National and governmental policy change and haphazard policy implementation Education • A dysfunctional education system with poor outcomes • Low public image with the education system criticised for failing • Continuous changing education system including curriculum adaptation and policy reform, differentiation in expectations, standards and behaviours • Socioeconomic status of the school (e.g., no-fee schools; dysfunctional schools) • Insufficient or lack of education infrastructure (e.g., not enough schools) • Limited health and safety at schools • Poor funding application • Higher and basic education access and attainment (e.g., poor pass rates and throughput rates, inadequate performance on international and national large-scale assessments • Lack of status of the profession with inadequate incentives and uncompetitive salaries • Adverse working conditions (e.g., personnel and/or learner strikes, inadequate school safety, heavy workload and lack of time) • Inadequate teacher quality and teacher training leading to unqualified and/or under-qualified teachers • Shortage of teachers and skilled personal or poor-quality teachers • Teacher absenteeism • Multilingual classrooms • Migration and influence of traditional leaders, especially in rural and challenged contexts Health • Poor public health system and health challenges (e.g., Human immunodeficiency virus [HIV][13]) • Deficient or a lack of health infrastructure • Excessive distances to clinics (if any) Welfare • Limited access to welfare • Crime, specifically violent crime • Socioeconomic challenges and economic disparity including intergenerational poverty and fiscal constraints • Low-income households • High level of unemployment • Child headed households, the prevalence of orphans and teenage pregnancy Infrastructure • Inadequate or lack of infrastructure and facilities (e.g., housing) • Inadequate and unreliable service delivery or limited access to services (including electricity [i.e., loadshedding], sanitation and water) • Poor and unreliable transport services
Exosystem (Physical infrastructure, location, resources)
• Inadequate facilities and infrastructure (e.g., lack of classrooms, restricted teaching facilities, problematic water supply to schools and poor sanitation [e.g., 'pit latrines'], no, limited or frequent power shortages ['load-shedding'] influencing teaching and assessments • Resource-constrained schools (e.g., an insufficient supply of textbooks, teaching materials and teacher aid • Remote or isolated (distance) context • Transportation challenges (i.e., unsatisfactory or unreliable transportation to and from school e.g., bus and taxi strikes) • Overcrowded classrooms

[13] The overall HIV prevalence rate is approximated at 13.5% among the South African population (Republic of South Africa [RSA], 2020b).

Mesosystem (Relationships between learners, parents, colleagues, school and support networks)
School context *Teacher* • Lack or limited access to health and support services • Feeling unsupported or unsafe at school • Experiencing low fiscal income or uncompetitive salaries • Limited professional developmental opportunities • Heavy workload and demanding extra-mural responsibilities or duties not directly related to teaching • High teacher turnover and attrition rates • Unable to meet the needs of disadvantaged learners • Poor relationships with leaders and colleagues • Lack of relationship or scrutiny of learners, peers, parents and/or principals • Unmet personal needs • Stressful classroom management and curriculum delivery • Teachers' own financial constraints and low-income household *Learner level* • High learner-teacher ratios • Demotivated learners and learner misbehaviour • Ineffective classroom management and disruptive discipline challenges (e.g., learners interrupting lessons) • Challenging, deteriorating or antisocial learner behaviour (e.g., criminal activities, intimidation or bullying, drugs or alcohol abuse, learner boycotts and drop-out) *Management and administrative level* • Inadequate management, leadership or mismanagement • Lack of support and resources from management • Unsupportive leadership staff • Hostile school cultures created by school leadership *Parental/guardian and community level* • Low levels of parental education or illiteracy • Limited or inadequate parental participation, involvement and communication • Absence of parent support • Lack of community support • Curbed school-community participation and scarce community support systems
Microsystem (Personal attributes, traits or capacities)
Social • Avoid asking for assistance or difficulty in help-seeking (i.e., difficulty asking for help) • Family pressure • Unexpected events in personal lives Emotional • Overwhelmed by multiple demands, roles and responsibilities • Burnout, stress and/or depression • Failure to experience personal fulfilment Professional • Conflict between personal ideologies and implemented practices • Lack of teaching skills and training or insufficient professional competence • Lack of content knowledge • Limited or no job satisfaction Motivational • Lack of motivation and commitment • High extrinsic motivation (e.g., job security, career status, career change, job conditions; workload, salary, politics) with low intrinsic motivation (e.g., working with children, perceived ability, view of intrinsic value of teaching; self-efficacy, utility) Beliefs • Limited or negative self-beliefs or lack of confidence concerning classroom management and discipline • Lack of confidence or efficacy (negative self-beliefs) in teaching ability • Experiencing a conflict between practices in the school and personal beliefs Behavioural dispositions (e.g., coping strategies) • Inadequate coping strategies like unhealthy lifestyle, 'saving the world' attitude (altruism)

(Beltman et al., 2011; Bronfenbrenner, 1979; Coetzee et al., 2017; Ebersöhn, 2012, 2014, 2016, 2017; Ebersöhn et al., 2020; Ebersöhn & Loots, 2017; Gu & Day, 2013; Harber & Mncube, 2011; Jackson & Rothmann, 2005; Mansfield et al., 2016, 2018; Maphalala & Mpofu, 2019; Milner & Khoza, 2008; Mlachila & Moeletsi, 2019; Ngidi & Ngidi, 2019; Stats SA, 2012b, 2020a, 2020b; UNESCO, 2019a; Wabule, 2020; Zuma et al., 2016)

Within a challenged education system, disparities can be characterised on each level (i.e., macro-, meso- and microsystems) as illustrated in Table 1.1. The current study acknowledges the caution needed when analysing the challenges noted in Table 1.1. Challenges, with multiple contributing factors, may not be mutually exclusive or unique to a Global South context and constraints are evident within the teaching profession worldwide (see Section 2.3.4.1) However, the concomitant need to build a collective body of research on teacher resilience (Gu & Day, 2013; Thieman et al., 2012) to enable positive education outcomes and counter structural disparity and inequality, in a post-colonial space, therefore, should be emphasised. As such, the current study provides a plausible (expanding) sphere of research within teacher resilience studies in a challenged context.

Research through a resilience paradigm may offer alternative narratives, leading to evidence on enabling pathways (including traits) of well-being and innovative adaptation (i.e., succeeding despite considerable risk) needed in a Global South context rather than an emphasis on inequality, disparities and challenges which highlight a disaster perspective (Ebersöhn, 2014, 2016, 2017). Focusing on teacher resilience rather than emphasising barriers, attrition, burnout, teacher and teaching ineffectiveness seems essential (Coetzee, 2013). Given the rationale, the following section emphasises the purpose of the current study.

1.4 PURPOSE OF THE STUDY

The nature of this study was comparative (Babbie, 2021; L. Cohen et al., 2018; Creswell, 2014; Creswell & Creswell, 2018) since the Teacher Resilience Measure (including the Teacher Resilience [Morgan, 2011] and Teacher Efficacy scale [Morgan, 2011; Peixoto et al., 2018]) was employed at multiple cross-sectional (2015, 2016 and 2017) points with final year pre-service teachers at the University of Pretoria to see whether similar, different, or complementary results would be obtained. In countries such as *Australia* (Beltman et al., 2018; Mansfield & Wosnitza, 2015), the *Czech Republic* (Wosnitza et al., 2018), *Germany* (Peixoto et al., 2018; Wosnitza et al., 2018), *Ireland* (Morgan, 2011; Peixoto et al., 2018; Wosnitza et al., 2018), *Malta* (Peixoto et al., 2018; Wosnitza et al., 2018) and *Portugal* (Peixoto et al., 2018, 2020; Wosnitza et al., 2018) studies employed the teacher resilience (Morgan, 2011) and teacher efficacy (Morgan, 2011; Peixoto et al., 2018) scales also utilised in the current study. Given the currently available literature, the questionnaire has not been utilised with pre-service teachers on a large scale in South Africa but has been employed in a recent South African study with teachers in challenged context (Ebersöhn et al., 2020). The current study, therefore, also reported on the piloting of ENTREE scales for pre-service teachers during the FIRE project. Reporting on the piloting of the scales aimed to contribute to recommendations of the scales for the South African context.

Results from studies applying similar ENTREE[14] (Beltman et al., 2018; Peixoto et al., 2018; Wosnitza et al., 2018) and FIT-Choice[15] (Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012) scales as employed in the current study noted the importance of pre-service teachers' confidence in both recovery from setbacks and teaching and behaviour management. Morgan (2011), as well as Peixoto and colleagues (2018), found that teacher efficacy appeared to be a main predictor of teachers' confidence in recovery from setbacks in all countries. In *Ireland* and *Germany*, teacher efficacy was the only or strongest significant predictor for teacher recovery from setbacks, respectively, in comparison with social, emotional, professional and motivational capacities (Peixoto et al., 2018). A recent South African study (Ebersöhn et al., 2020), applying similar FIRE scales, also highlighted recovery from setbacks (high reliability) and teaching and behaviour management abilities (high reliability) as important resilience traits for teachers in a challenged context. Furthermore, the reliability analysis of the relevant ENTREE scales in previous international studies (Beltman et al., 2018; Peixoto et al., 2018; Wosnitza et al., 2018) was higher (ranging from high reliability to excellent reliability) than the social, emotional, professional and motivational measurement scales. Based on these findings, I opted for a focus on self-efficacy (i.e., recovery from setbacks) and teacher efficacy (i.e., teaching and behaviour management) as intrapersonal resilience-enabling pathways to teacher resilience.

Comparative research entails the identification, gathering occurrences and disconfirming occurrences of a phenomenon (i.e., teacher resilience) to reach conclusions (Dion, 2003; Esser & Vliegenthart, 2017). Comparison is therefore useful for understanding the scope and significance of psychological phenomena (Zartman, 2012) and is employed to determine what characteristics are singular or collective to objects of analysis (i.e., self-efficacy and teacher efficacy beliefs) (Dion, 2003; Esser & Vliegenthart, 2017). Such comparisons drawn from quantitative data in the current study, ensured the rigour of it and allowed knowledge generation on intrapersonal resilience-enabling pathways for pre-service teachers in a challenged context. Furthermore, a comparison may prevent researchers from over-generalising (Esser & Vliegenthart, 2017). In this case, the transferability of the findings can be limited (Hays & Singh, 2011) to contexts similar to final year pre-service teachers at the University of Pretoria. Afdal (2019) argued the importance of contextualisation within comparative research. Nonetheless, the systematic and holistic comparative element in the

[14] "ENTREE is a project partly funded by the European Commission's Lifelong Learning Programme and is supported by an international team of experts from five European countries and Australia" (Wosnitza et al., 2014, p. 3). ENTREE aim to advance professional training modules for pre-service and in-service teachers to enable teacher resilience (Wosnitza et al., 2014). To this end survey measures were employed to explore the relationship between a global scale of resilience (Morgan, 2011) and associated capacities among different countries (Mansfield & Wosnitza, 2015; Peixoto et al., 2018). See Appendix A for an overview and background of the ENTREE project and all measures included in the latter.

[15] The FIT-Choice questionnaire is an integrative, compressive and theoretical framework exploring the choice of teaching as profession (Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012).

current study promoted a deeper understanding with robust data and confidence in findings (Yin, 2018; Zartman, 2012) comparing the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context. Therefore, the current study's potential significance is that within-case and cross-case comparison between the self-efficacy and teacher efficacy of pre-service teachers can be illuminated against objective measures in a challenged context.

Given the challenged Global South context of the current study (see Section 1.3.3), the intrapersonal traits (self-efficacy and teacher efficacy) are resources from which teachers can draw to resile despite spaces of severe challenge. Therefore, the current study aimed to add to the growing sphere of research on teacher resilience in a challenged context and generate global teacher resilience discourses from Africa to create new insights into the relationship between the self-efficacy and teacher efficacy of pre-service teachers within a strained Global South context. Following the current study's rationale and purpose, I pose the research questions and hypotheses for this study in the next section.

1.5 RESEARCH QUESTIONS AND HYPOTHESES FOR THE STUDY

In accordance with the rationale and purpose statement, the following primary research question guided the current study:

How can insight into the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged education context inform knowledge on teacher resilience?

To address the primary research question, I explored secondary research questions including:

- How do self-efficacy and teacher efficacy beliefs of final year pre-service teachers within a challenged education context (within-case and cross-case) compare?
- What are the self-efficacy and teacher efficacy beliefs of pre-service teachers within a challenged education context based on demographic information (within-case and cross-case)?
- To what extent is there a relationship between self-efficacy and teacher efficacy beliefs among pre-service teachers in a challenged education context (within-case and cross-case)?

The quantitative statistical hypotheses under consideration (Field, 2018; Pietersen & Maree, 2019d), based on the population difference, for the current study, were as follows:

- H_0: $\text{Median}_{dif} = 0$ (median population difference between self-efficacy and teacher efficacy beliefs [within-case and cross-case] does not differ significantly from zero).
- H_a: $\text{Median}_{dif} \neq 0$ (median population difference between self-efficacy and teacher efficacy beliefs [within-case and cross-case] differs significantly from zero).

The statistical null hypothesis (H_0) of the population difference stated that there was no statistically significant difference (Creswell & Creswell, 2018; López et al., 2015; Pietersen &

Maree, 2019d; Sauro & Lewis, 2016) between the self-efficacy and teacher efficacy of pre-service teachers in a challenged context. In contrast, the alternative hypothesis should align with what is expected by the research and refute the null hypothesis (L. Cohen et al., 2018; Creswell & Creswell, 2018; Pietersen & Maree, 2019d; Sauro & Lewis, 2016). Thus, the alternative hypothesis indicates that not all the population medians are equal, and will differ from one another statistically (Field, 2018). In addition, the quantitative statistical hypotheses under consideration, based on the population correlation coefficient, for the current study included:

- H_0: There is no statistically significant correlation between self-efficacy and teacher efficacy beliefs.
- H_a: There is a statistically significant correlation between self-efficacy and teacher efficacy beliefs.

The given null hypothesis (H_0) of the population correlation coefficient stated that there was no statistically significant correlation (Field, 2018) between the self-efficacy and teacher efficacy beliefs of final year pre-service teachers. On the other hand, the alternative hypothesis (H_a) stated that there was a statistically significant correlation (Field, 2018) between the self-efficacy and teacher efficacy beliefs of pre-service teachers within a challenged education context. According to López et al. (2015), a hypothesis should be testable, exact, and informed by the purpose of the research. If the *p*-value is less than .05, the null hypothesis (H_0) is rejected, and there is a statistically significant correlation (Field, 2018). On the other hand, if the *p*-value is greater than .05, the null hypothesis (H_0) is not rejected, and there is no statistically significant correlation (Field, 2018). The research questions and hypotheses for this study are explored in detail in Section 3.2 of Chapter 3. The following section provides clarification on key concepts within the current study.

1.6 CONCEPT CLARIFICATION

1.6.1 INTRODUCTION

In this section, I describe the core concepts and terminologies within the context of my focus area to ensure a collective understanding of the key underpinnings of the current study. The concepts (and theories) defined in this section are underlying contentions of the current study. Chapter 2 of this thesis presents a more detailed discussion of the concepts listed below.

1.6.2 RESILIENCE

Debates and definitions on resilience appear diverse (see Section 2.2). However, researchers (Cassidy, 2015; Fletcher & Sarkar, 2013) agree that for resilience, adversity (i.e., threat, risk or challenge) and positive adaptation (i.e., resourceful and innovative enabling responses or

outcomes) must be evident. Therefore, within the current study, resilience will be conceptualised as the adaptive response pre-service teachers may demonstrate to different adversities within a challenged context (i.e., a Global South educational space).

Resilience is considered as a trait in literature (Block & Kremen, 1996; Connor & Davidson, 2003; Letzring et al., 2005; Masten, 2018; Masten et al., 1990). Within the current study, teacher resilience is measured by the FIRE Teacher Resilience Measure, as self-efficacy ('Resilience') and teacher efficacy ('TeachEff') (see Appendix B). Thus, the current study operationalised resilience measurement within trait discourses in resilience, denoting resilience as intrapersonal qualities (e.g., self-efficacy and teacher efficacy) that enable people to thrive despite severe challenges (Anthony, 1987; Block & Block, 1980; Brunetti, 2006; Connor & Davidson, 2003; Ee & Chang, 2010; Masten et al., 1990; Roth & Von Collani, 2007; Tait, 2008). Therefore, the presence of teacher resilience traits is viewed as individual or internal pathways to enable positive outcomes despite challenges (see Section 1.6.4) as depicted in Figure 2.6. Nonetheless, the current study acknowledged the process (Coetzee, 2013; Fletcher & Sarkar, 2013; Gu, 2014; Masten, 2018; Nolan et al., 2014) and socio-ecological (Ungar, 2008, 2010, 2011, 2012a, 2012b; Ungar et al., 2013) discourses within recent resilience theory and the conceptualisation of the current study as illuminated in Section 2.2.

Researchers (Beltman et al., 2018; Day & Gu, 2010; Ebersöhn, 2012; Masten & Reed, 2005; Masten & Wright, 2010; Rutter, 2006; Theron, 2011; Ungar, 2008; Ungar et al., 2013) have recently conceived resilience as a dynamic, multifaceted, multidimensional, socially constructed, developmental and interactive process between the individual and the environment. Resilience denotes positive adaptation despite high challenge which leads to unexpected, unpredicted or better than expected outcomes over time. Outcomes can include relatively good outcomes despite risk. Outcomes may also involve navigating environmental risk experiences, which suggests positive health, well-being, and fluid outcomes, even in adverse conditions (Day et al., 2006; Masten, 2001, 2011; Rutter, 2006, 2012). Therefore, given the acknowledgement of socio-ecological discourses in resilience, I view intrapersonal resilience-enabling traits as one pathway to teacher resilience within a challenged context.

1.6.3 TEACHER RESILIENCE AND PRE-SERVICE TEACHER RESILIENCE

Teacher resilience refers to the "process of, capacity for, and outcome of positive adaptation and ongoing professional commitment and growth in the face of challenging circumstances" (Wosnitza et al., 2014, p. 2) and recurring setbacks (Brunetti, 2006; Gu & Day, 2013; Gu & Li, 2013; Mansfield et al., 2016; Peixoto et al., 2018; Wosnitza et al., 2018). Individual and contextual characteristics dynamically interact to constrain (challenge) or enable (promote) resilience in teachers (Beltman et al., 2011; Ebersöhn, 2014; Mansfield et al., 2014). Demonstrating teacher resilience means navigating capacities, behaviour dispositions and

contextual resources to appraise and adapt to (potentially) stressful situations for better than expected outcomes (Ebersöhn, 2014; Wosnitza et al., 2014).

Teachers, drawing on enabling assets, and coping strategies not only "bounce back" but also foster job satisfaction, self-efficacy, well-being, enthusiasm, engagement, motivation, and commitment (Beltman et al., 2011; Mansfield et al., 2014, 2016; Wosnitza et al., 2014). Furthermore, teachers that resile appear to contribute positively to learner[16] achievement and the school community (Day, 2012; Sammons et al., 2007; Wosnitza et al., 2014). Accordingly, teacher resilience is a shared, dynamic process between a teacher and the environment with protective resources and risk factors originating in either or both the ecology and teachers themselves over time (Coetzee, 2013; Ebersöhn, 2014; Johnson & Down, 2013; Mansfield et al., 2012, 2016; Peixoto et al., 2018; Wosnitza et al., 2014). Teacher resilience enables positive unpredicted or unexpected outcomes, including high levels of well-being, job satisfaction, commitment, retention and quality education (Castro et al., 2010; Cefai & Cavioni, 2014; Ebersöhn, 2014; Mansfield et al., 2012; Peixoto et al., 2018; Wosnitza et al., 2018).

Within the current study, teacher resilience was operationalised as the ability of teachers to employ protective resources and coping strategies to facilitate positive adaptation (Beltman et al., 2011; Coetzee et al., 2017; Mansfield et al., 2016). Teacher resilience may support teachers to remain in teaching and resile despite adverse conditions (Ebersöhn, 2014). Therefore, the presence of self-efficacy (confidence in recovery from setbacks) and teacher efficacy (confidence in teaching and behaviour management) may act as individual enablers within the micro-system of pre-service teachers. Within the current study, teacher resilience is measured in terms of self-efficacy and teacher efficacy of pre-service teachers in a challenged educational context, as indicated in the FIRE Teacher Resilience Measure. Early career teachers may experience continuous and numerous challenges but also have both personal and contextual resources sustaining them during the initial teaching year(s). Contextual resources indicate the important role of relationships (including family, friends and colleagues) in the resilience process (Mansfield et al., 2014).

Pre-service teacher resilience can be defined as managing the emotional challenges and inevitable uncertainties (Gu, 2018), inherent in the realities of becoming a teacher, driven by professional commitment (Gu & Day, 2013). The current study will conceptualise pre-service teacher resilience as the confidence pre-service teachers demonstrate in dealing with setbacks in schools (i.e., self-efficacy) (Morgan, 2011) within a challenged context. The sample of pre-service teachers in the current study was N = 1,193[17], with 77.9% female pre-service teacher respondents and 18.7% male pre-service teacher respondents.

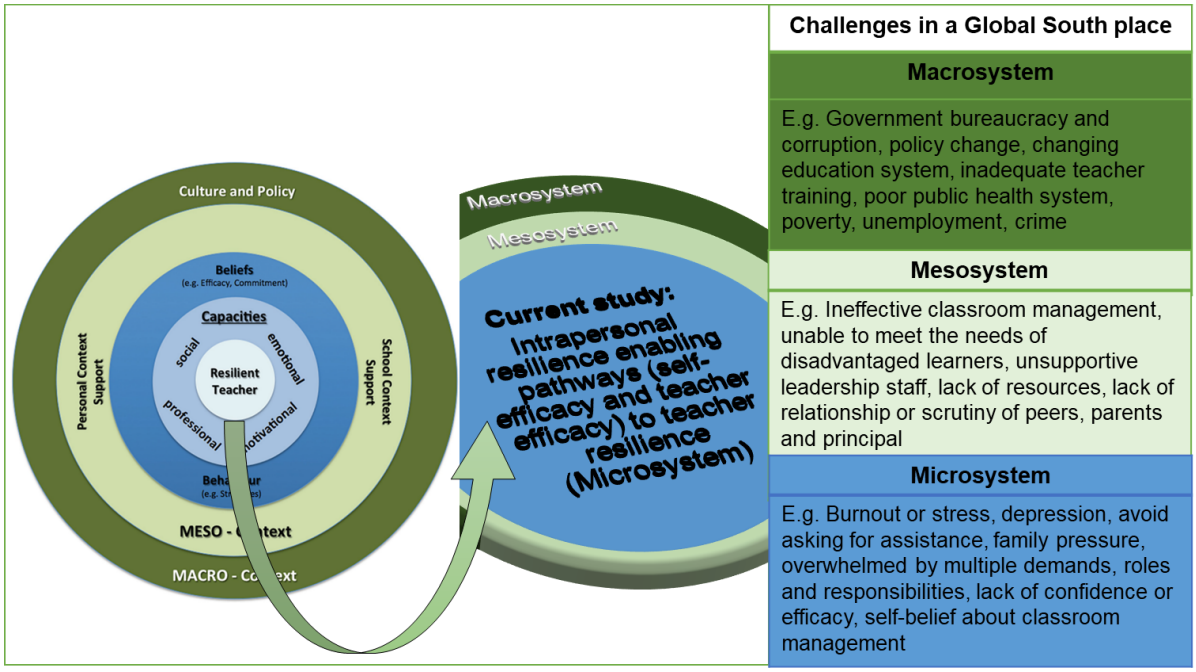
[16] Within the current study, "learner" refers to any "pupil or student at an early learning site, school, further education and training institution or adult learning centre" (SACE, 2017, p.3).
[17] According to the APA (2020b, p. 155) guidelines, "a comma is used to separate groups of three digits in most numbers of 1,000 or more".

1.6.4 INTRAPERSONAL RESILIENCE-ENABLING PATHWAYS

The research endeavoured to foreground the investigation of intrapersonal resilience-enabling pathways to teacher resilience in a challenged context.

Figure 1.3

The Multi-Level Teacher Resilience Model and Challenges in a Global South Context



(Bronfenbrenner, 1979; Ebersöhn, 2014; Mansfield et al., 2018; Stats SA, 2012a, 2012b, 2020a, 2020b; Wosnitza et al., 2014)

The current study focussed on intrapersonal resilience-enabling pathways to teacher resilience (i.e., microsystem as theorised by Bronfenbrenner [1979]) in a severely challenged Global South education system. As depicted above in Figure 1.3, teachers may experience challenges such as burnout or stress, depression, avoiding asking for assistance, lack of confidence or self-efficacy, a conflict between beliefs and implemented practices, family pressure, overwhelming responsibilities as well as a lack of self-belief about classroom management on the microsystem (personal level). However, chronic poverty and the resulting compounded psychosocial problems are evident at every level of the South African ecosystem (Mansfield et al., 2018; Stats SA, 2020a). On the other hand, there are assets within the teachers' microsystem (i.e., personal protective resources) whose presence or absence could enable or constrain resilience.

These enablers may include self-efficacy, teacher efficacy beliefs, social, emotional, professional, and motivational capacities, coping behaviours and strategies, personal resources, vocational purpose and intrinsic value as well as self-care (Ainsworth & Oldfield, 2019; Beltman, 2020; Beltman et al., 2011, 2018; Cook et al., 2017; Day & Gu, 2013; Gu &

Day, 2007; Hong, 2012; Peixoto et al., 2018; Price et al., 2012; Sammons et al., 2007). A resilience lens, rather than stress and burnout, may lead to positive education outcomes through collective agency to generate knowledge on adaptive functionality despite adversity (Ebersöhn, 2017). It is, therefore, essential to attend to constructs, such as teacher resilience of pre-service teachers as important indicators of why teachers prevail despite hardship.

Self-efficacy and teacher efficacy is thus protective factors that may be mobilised as resilience-enabling intrapersonal pathways to support teachers to resile. In the current study, self-efficacy is operationalised as recovery from setbacks and teacher efficacy as confidence in teaching and behaviour management of teachers (Bobek, 2002; Castro et al., 2010; Day & Gu, 2013; Ee & Chang, 2010; Gu & Day, 2007; Peters & Pearce, 2012; Sammons et al., 2007; Tait, 2008).

1.6.5 SELF-EFFICACY

Self-efficacy is an intrapersonal resilience-enabling pathway to teacher resilience as discussed in Section 1.6.4. Therefore, the presence or absence of self-efficacy may enable or constrain resilience in a challenged context. As such, the concept is clarified in this section within the boundaries of the current study.

Self-efficacy is the belief the individual demonstrates to organise and achieve a required action to accomplish tasks (Bandura, 1977). Self-efficacy has correlating elements relating to required skills for performance and personal appraisal of competence to perceive a sense of control over events (Bandura, 1989a, 1989b; Schunk, 2008). As a future-oriented belief, self-efficacy influences thinking and feeling patterns which can support or hinder actions prediction of expected performance or competence (Bandura, 1997; Gavora, 2010; Snowman & McCown, 2013).

Bandura (1997) also stipulated that self-efficacy is a universal construct with a similar function across cultures. As literature (Gu & Li, 2013) postulates, the early definition of a resilient teacher as the capacity of the teacher to “bounce back from adversity” is inadequate to conceptualise the full complexity of teacher resilience. Therefore, the current study operationalised the resilience scale (Morgan, 2011) as self-efficacy. The use of extant data required that I modify goals in light of measurement constraints and definitions. Thus, self-efficacy, within the current study, is operationalised as the confidence final year pre-service teachers demonstrate in recovery from setbacks in a school setting (Morgan, 2011) as depicted by the item indicators displayed in Table 1.2. The level of measurement was ordinal and options on the Likert scale was *one (absolutely not confident to seven)* to *seven (strongly confident*).

Table 1.2

FIRE Teacher Resilience Measure: Self-Efficacy (Resilience) of Pre-Service Teachers

Self-efficacy *(Resilience)*	
Measure	Question
"How confident are pre-service teachers to deal with setbacks in school?"	Getting over setbacks in school
"How confident are pre-service teachers to deal with setbacks in school?"	Bouncing back, when things upset me
"How confident are pre-service teachers to deal with setbacks in school?"	Carrying on with my school work when things go wrong
"How confident are pre-service teachers to deal with setbacks in school?"	Carrying on in school when events upset me
"How confident are pre-service teachers to deal with setbacks in school?"	Feeling certain that things will come right even if there are serious problems in school
"How confident are pre-service teachers to deal with setbacks in school?"	Managing negative events in school when I try
"How confident are pre-service teachers to deal with setbacks in school?"	Coping with most problems on any school day
"How confident are pre-service teachers to deal with setbacks in school?"	Some negative things that have happened in school have made me better able to deal with problems
"How confident are pre-service teachers to deal with setbacks in school?"	Not getting disheartened even when children's circumstances make it difficult

Table 1.2 presents the self-efficacy (i.e., confidence in recovery from setbacks) variables measured by the Teacher Resilience scale (Morgan, 2011) from the FIRE Teacher Resilience Measure. These variables may have a likely relationship with teacher resilience and are included for analysis purposes in the current study.

1.6.6 TEACHER EFFICACY AND PRE-SERVICE TEACHER EFFICACY

As with self-efficacy (i.e., confidence in recovery from setbacks), teacher efficacy is an intrapersonal resilience-enabling pathway to teacher resilience as discussed in Section 1.6.4. Therefore, the presence or absence of teacher efficacy may enable or constrain resilience.

Teacher efficacy is not an objective measure of actual competence. Rather, it is the self-perceived belief a teacher demonstrates in their skills to accomplish a particular teaching task (Raath & Hay, 2016; Tschannen-Moran & Woolfolk Hoy, 2001). Therefore, teacher efficacy is a teachers' context-specific judgement or belief on how they will adapt, given the acquired skills or situation, to effectively accomplish a particular teaching task (Bandura, 1986, 1993, 1997; Tschannen-Moran et al., 1998). For the current study, teacher efficacy denoted final year pre-service teachers' confidence in teaching and behaviour management (Morgan, 2011; Peixoto et al., 2018) in a challenged context. Item indicators are displayed in Table 1.3.

Table 1.3

FIRE Teacher Resilience Measure: Teacher Efficacy of Pre-Service Teachers

Teacher Efficacy (TeachEff)	
Measure	Question
"Teacher-efficacy for teaching"	Teaching all the subjects on the curriculum effectively
"Teacher-efficacy for teaching"	Explaining difficult material in ways that the children will understand it
"Teacher-efficacy for teaching"	Suggesting suitable examples when the children are having difficulty understanding
"Teacher-efficacy for teaching"	Teaching in a way that my students[18] will remember important information
"Teacher-efficacy for teaching"	Applying the new developments in the curriculum into my teaching
"Teacher-efficacy for teaching"	Helping children focus on learning tasks and avoid distractions
"Teacher-efficacy for behaviour management"	Managing inappropriate behaviour
"Teacher-efficacy for behaviour management"	Encouraging students to take responsibility for their behaviour
"Teacher-efficacy for behaviour management"	Dealing with the diverse learning needs of the students in my class
"Teacher-efficacy for behaviour management"	Teaching students positive behaviour
"Teacher-efficacy for behaviour management"	Providing students with clear specific behaviour expectations
"Teacher-efficacy for behaviour management"	Communicating effectively with parents[19]

Table 1.3 presents the teacher efficacy variables (measured by the Teacher Efficacy scale [Morgan, 2011; Peixoto et al., 2018]) from the FIRE Teacher Resilience Measure. These variables, which may have a likely relationship with teacher efficacy, are included for analysis purposes in the current study. The level of measurement was ordinal and options on the Likert scale was one *(absolutely not confident)* to seven *(strongly confident*).

Examining the teacher efficacy beliefs of pre-service teachers is important since beliefs seem pliable in the beginning teaching years (Bandura, 1977, 1997) and may be resistant to change once established (Lemon & Garvis, 2016). Hence, it is necessary to explore the efficacy beliefs of pre-service teachers while in training (Lemon & Garvis, 2016). The current study will operationalise pre-service teacher efficacy as the self-perceived confidence final year pre-service teachers report in their teaching and behaviour management (Mansfield & Wosnitza, 2015; Morgan, 2011; Peixoto et al., 2018) within a challenged context. The sample of pre-service teachers in the current study was *N* = 1,193, with 77.9% female pre-service teacher respondents and 18.7% male pre-service teacher respondents.

[18] The term "student", as used in the original ENTREE resilience questionnaire (Mansfield & Wosnitza, 2015; Peixoto et al., 2018; Wosnitza et al., 2014), was depicted in the FIRE Teacher Resilience Measure despite the convention in South Africa to make reference to "learners" within the basic education field.
[19] In South Africa, parent denotes any "natural of legally entitled custodian, parent or guardian of a learner" (SACE, 2017, p. 3).

1.6.7 THE FIRE TEACHER RESILIENCE MEASURE

The FIRE Teacher Resilience Measure was piloted as one of the baseline data generation questionnaires in the FIRE project. The FIRE Teacher Resilience Measure (structured, self-report pen and paper questionnaire) includes items from the measures used in the FIT-Choice scale (Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012), ENTREE project (Mansfield & Wosnitza, 2015; Peixoto et al., 2018; Wosnitza et al., 2014) and contextual resilience questions (Coetzee, 2013). The contextual resilience questions (Coetzee, 2013) were included for adaptation of the ENTREE scales given the South African context.

The FIRE Teacher Resilience Measure encompasses domains on (i) teacher professionalism (TR-Prof), (ii) teacher emotion (TR-Emot), (iii) teacher motivation (TR-Mot), (iv) teacher social capacity (TR-Soc), (v) resilience (Resilience) and (vi) teacher efficacy (TeachEff) as well as (vii) contextual resilience questions (Coetzee, 2013; Morgan, 2011; Peixoto et al., 2018; Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012)[20]. Respondents rate their responses to questions on a seven-point Likert scale ranging from one (i.e., *do not agree at all* or *absolutely not confident*) to seven (i.e., *strongly agree* or *strongly confident*).

1.6.8 INITIAL TEACHER EDUCATION AND SOUTH AFRICAN PROGRAMME PHASES[21]

Initial teacher education, preparation, development, or training programmes denote the procedures, policies, structures and processes established to prepare new teachers with information, behaviours and abilities required to perform teaching tasks in the classroom, school and society (DBE, RSA, 2019; OECD, 2019a; RSA, 2000; W. Taylor, 2016). Teacher education includes formal programmes that have been established by institutions for the preparation of future teachers at the early childhood development (ECD), primary/elementary or secondary school levels (W. Taylor, 2016).

The United Nations Educational, Scientific and Cultural Organization (UNESCO) developed the International Standard Classification of Education (ISCED). The ISCED (Level 1-8) is the official framework used to facilitate transnational comparisons of education systems (UNESCO Institute for Statistics (UIS), 2012; World Bank, 2020a). Within the current study, initial teacher education is operationalised as the 4-year BEd programme degree pre-service teachers are enrolled in at the University of Pretoria (public Higher Education Institution [HEI] in South Africa). The BEd teaching degree will be equivalent to the ISCED level 6 (i.e., Bachelors degree or equivalent tertiary education level) internationally and National Qualifications Framework (NQF) level 8 (Professional 4-year Bachelor degree) nationally. The fulfilment of degree requirements will lead to registration at the South African Council of

[20] The current study focused on the Teacher Resilience scale (operationalised as self-efficacy as explained in Section 1.6.5) and the Teacher Efficacy scale on the FIRE Teacher Resilience Measure.
[21] Phase depicts the level of schooling or teacher specialisation in South Africa (DBE, RSA, 2019).

Educators (SACE) (DBE, RSA, 2019; RSA, 2000). In South Africa, the South African Qualifications Authority (SAQA), governed by the South African Qualifications Authority Act (No. 58 of 1995), started operations in May 1996 and was tasked with the establishment of the NQF. Level descriptors provide a category of 10 levels on the NQF achievement unit standard or qualification.

The role of the oversight body SAQA, as stipulated in the NQF Act (No. 67 of 2008), is fundamentally to advance the development and implementation of the NQF by acting as custodian of its values and quality character to ensure that standards and qualifications are comparable worldwide (SAQA, 2020). Furthermore, in South Africa, the Education Labour Relations Council (Resolution 8 of 2003) governs teacher accountability (Shalem & Hoadley, 2009). The Education Labour Relations Council introduced the Integrated Quality Management System (IQMS) (Shalem & Hoadley, 2009) regulating teachers' daily work, quarterly schedules, curriculum management systems as well as formal assessment undertakings (Shalem & Hoadley, 2009). Nationally, the Department of Basic Education (DBE) (i.e., schools from Grade R-12 and adult literacy) and the Department of Higher Education and Training (DHET) (i.e., higher education including universities and post-school training) shares the responsibility for education (DBE, RSA, 2018a; DHET, RSA, 2018b; RSA, 2019).

Enrolled pre-service teaching programmes within the BEd degree are conceptualised as the *Foundation phase/Early childhood development FP/ECD* (i.e., Grade R–3), *Intermediate phase* (IP) (i.e., Grade 4–6), *Senior phase* (SP) (i.e., Grade 7–9) or *Further education and training phase* (FET) (i.e., Grade 10–12). The sample of enrolled teaching programmes for the current study was FP/ECD *n* = 311, IP *n* = 157, SP *n* = 101, FET *n* = 436 and not specified/other category *n* = 136. The SA teaching phases (i.e., FP/ECD, IP, SP and FET) within the basic education sector (DBE, RSA, 2019) compare as follows to the NQF and ISCED levels:

Table 1.4

Comparison of ISCED Levels with South African (SA) Teaching Phases

ISCED level	ISCED classification	SA teaching phase[22]	SA teaching grades	Learner enrolment 2019[23]	SA teaching age[24]	SA NQF
General education and training (GET) band[25]						
ISCED 0	Early childhood education	Foundation phase (FP)	Grade R[26]-3	3,958,809	±5 – 9-years	NA
ISCED 1	Primary education	Foundation phase (FP)	Grade R-3			NA

[22] Phase depicts the level of schooling or teacher specialisation in South Africa (DBE, RSA, 2019).
[23] Number of leaners by phase in public ordinary schools in South Africa (DBE, RSA, 2020).
[24] Age ranges are clustered into phases as guidelines (DBE, RSA, 2020).
[25] Programmes that lead to a Level 1 (NQF) which include Grades R to Grade 9 (i.e., FP, IP and SP) (DBE, RSA, 2018c).
[26] Year preceding Grade 1 (DBE, RSA, 2018c).

ISCED level	ISCED classification	SA teaching phase[22]	SA teaching grades	Learner enrolment 2019[23]	SA teaching age[24]	SA NQF
General education and training (GET) band[25]						
		Intermediate phase (IP)	Grade 4-6	3,127,319	±10 – 12-years	NA
ISCED 2	Lower secondary education	Senior phase (SP)	Grade 7-9	2,874,651	±13 – 15-years	NQF 1: Gr 9
Further education and training (FET) band[27]						
ISCED 3	Upper secondary education	Further education and training phase (FET)	Grade 10-12	2,437,719	±16 – 18-years	NQF 2: Gr 10 NQF 3: Gr 11 NQF 4: Gr 12

(DBE, RSA, 2018a, 2018c, 2020; UIS, 2012; World Bank, 2020a)

As indicated in Table 1.4, the GET band with a total of 9,960,779 learners had a higher learner count than the FET band. In addition, the FP had the highest proportion of learners with the succeeding levels within the schooling system, showing a proportional decrease in learners (i.e., FET phase with the lowest enrolment number) (DBE, RSA, 2018a, 2018c, 2020).

1.6.9 OPERATIONALISING PRE-SERVICE TEACHERS

A teacher denotes a professional individual who conveys information by assisting, intervening, and directing learners in an educational process (Fraser, 2006; OECD, 2017b). Within the South African context, a teacher is an individual registered or conditionally registered with the SACE (RSA, 2000). Pre-service teachers, also known globally as teacher candidates, novice teachers or student teachers (Le Cornu, 2009), describe students who are enrolled in initial teacher education, training or preparation programmes working towards teacher qualification or certification (DBE, RSA, 2019; RSA, 2000; W. Taylor, 2016) to become a qualified teacher.

Pre-service teachers complete supervised teaching practice (i.e., field-based teaching, field-based practical; field experience, field placement, professional experiences, school experience, student teaching or practicum), as an integral stringent component of teacher training, with the support and mentorship of the enrolled education faculty or teaching institution and cooperating or mentor teachers in a placement school (Beltman et al., 2018; Faculty of Education, University of Pretoria, 2016; Hewitt et al., 2017; IGI Global, 2020; Le Cornu, 2009; Lieberman & Darling-Hammond, 2012; Moulding et al., 2014; W. Taylor, 2016; Thieman et al., 2014).

Within the current study, the construct of a pre-service teacher will be operationalised as a final fourth-year teacher in training at the University of Pretoria, Faculty of Education, South

[27] Programmes leading that lead to Levels 2 to 4 (NQF) which represents Grades 10 to Grade 12 at ordinary schools (DBE, RSA, 2018c).

Africa, enrolled in the BEd programme between 2015–2017 (Faculty of Education, University of Pretoria, 2016). At the University of Pretoria, the graduation numbers for the BEd programme, illustrated by Higher Education Data Analyzer (HEDA, n.d.) data, for 2015 to 2018 were *n* = 679 (2015); *n* = 751 (2016); *n* = 794 (2017) *and n* = 898 (2018) respectively. The BEd programme includes four[28] official teaching practice modules. The practice modules enable BEd-students to complete their work-integrated learning hours and provide practical experience in professional school environments which enables pre-service teachers to be work-ready and employable upon completion of their degree.

Teaching practice modules entail a period of work-integrated learning hours at school placements to provide practical experiences (e.g., observations, school administration, extra-mural activities (second year), preparation and facilitation of lessons (third and fourth year). Both second-year and third-year students spent 3 weeks at school placements, while fourth-year students spent 16 weeks (8 weeks in the second school term and 8 weeks in the third school term). Mentor teachers (school placement) mentor lecturers (university) assess the students. The teaching practice modules aim to address the fissure between theory and practical aspects of education training. In Table 1.5, I provide a summary of the pre-service teacher sample (based on information from the demographic questionnaire) that generated the extant FIRE teacher resilience data.

[28] Teaching practice 280 is a 3-week observational placement in schools for second-year BEd-students. Teaching practice 380 is a 3-week supervised teaching placement for third-year BEd-students. Teaching practice 452 and teaching practice 453 are an 8-week teaching placement each for fourth-year BEd students.

Table 1.5

Overview (Statistics) of Demographic Information of Extant Data

YEAR		2015	2016	2017	Total
DESCRIPTORS					
Total questionnaires completed by final year pre-service teachers		313 (26.2%)	169 (14.2%)	711 (59.6%)	1,193 (100%)
Age between (years)		21–30	20–29	20–32	20–32
Gender	Gender male (indicated)	61 (19.5%)	21 (12.4%)	141 (19.8%)	223 (18.7%)
	Gender female (indicated)	250 (79.9%)	140 (82.8%)	539 (75.8%)	929 (77.9%)
Languages fluent in[29]	Afrikaans	200 (63.9%)	98 (58.0%)	327 (46.0%)	625 (52.4%)
	English	297 (94.9%)	153 (90.5%)	653 (97.8%)	1,103 (92.5%)
	isiNdebele	18 (5.8%)	5 (3.0%)	32 (4.5%)	55 (4.6%)
	isiXhosa	8 (2.6%)	1 (0.6%)	30 (4.2%)	39 (3.3%)
	isiZulu	75 (24.0%)	21 (12.4%)	197 (27.7%)	293 (24.6%)
	Sepedi	34 (10.9%)	14 (8.3%)	113 (15.9%)	161 (13.5%)
	Sesotho	20 (6.4%)	4 (2.4%)	58 (8.2%)	82 (6.9%)
	Setswana	29 (9.3%)	8 (4.7%)	80 (11.3%)	117 (9.8%)
	SiSwati	20 (6.4%)	3 (1.8%)	56 (7.9%)	79 (6.6%)
	Tshivenda	3 (1.0%)	0 (0.0%)	7 (1.0%)	10 (0.8%)
	Xitsonga	5 (1.6%)	2 (1.2%)	18 (2.5%)	25 (2.1%)
	Other	7 (2.2%)	8 (4.7%)	19 (2.7%)	34 (2.8%)
Enrolled pre-service teaching programmes	Foundation phase (FP)/Early childhood development (ECD)	105 (33.5%)	45 (26.6%)	161 (22.6%)	311 (26.1%)
	Intermediate phase (IP)	32 (10.2%)	17 (10.1%)	108 (15.2%)	157 (13.2%)
	Senior phase (SP)	30 (9.6%)	14 (8.3%)	57 (8.0%)	101 (8.5%)
	Further education and training (FET) phase	110 (35.1%)	60 (35.5%)	266 (37.4%)	436 (36.5%)
	Not specified/Other	25 (8.0%)	20 (11.8%)	91 (12.8%)	136 (11.4%)

[29] 11 Official language distribution in South Africa: Afrikaans (12.1%), English (8.3%), isiNdebele (1.6%), isiXhosa (17.0%), isiZulu (24.6%), Sepedi (9.5%), Sesotho (8.0%), Setswana (8.8%), SiSwati (2.6%), Tshivenda (2.4%) and Xitsonga (4.2%). Languages are listed alphabetically.

As illustrated in Table 1.5, a total of 1,193 pre-service teachers, between the age ranges of 20 years to 32 years, completed the FIRE Teacher Resilience Measure from 2015 to 2017. Of the total questionnaires completed, 223 (18.7%) of the respondents included male pre-service teachers and 929 (77.9%) female pre-service teachers. The cohort (2015–2017) final year pre-service teachers indicated their language of proficiency[30] as follows: English *n* = 1,103; Afrikaans *n* = 625; isiZulu *n* = 293; Sepedi *n* = 161; Setswana *n* = 117; Sesotho *n* = 82; siSwati *n* = 79; isiNdebele *n* = 55; isiXhosa *n* = 39; Xitsonga *n* = 25 Tshivenda *n* = 10; and "other" *n* = 34. Based on the statistics, English (*n* = 1,103) is seemingly indicated as the language most final year pre-service teachers feel proficient in, with Tshivenda (*n* = 10) being the smallest group regarding language fluency. With regards to the enrolled pre-service teaching programmes of teacher training, the largest group of respondents was the FET phase (*n* = 436), with the FP/ECD phase (*n* = 311) as the second-largest group. The IP included *n* = 157 respondents with the SP as the smallest group (*n* = 101), while 136 respondents did not indicate a specific programme phase (i.e., phase not specified/other *n* = 136).

1.6.10 CHALLENGED EDUCATION CONTEXT

In the current study, a challenged educational context denotes a space where teachers' working circumstances are complicated by systemic chronic and cumulative risk factors such as poverty, crime, health problems, poor infrastructure, inadequate teacher training, a continuously changing education system as well as inadequate service delivery. Risk encapsulates challenges, strains, barriers, and stressors that pose a substantial threat to development (Clement, 2017; Masten, 2001) and can be characterised as either internal (i.e., intrapersonal or traits) or external (i.e., interpersonal and ecology) (Ebersöhn, 2014; Mansfield et al., 2018). In a challenged education context, negative outcomes are expected or predicted. Such educational outcomes include teacher stress, teacher burnout, teacher attrition and low-quality education (Clement, 2017; Ebersöhn, 2017).

Although such circumstances and risks may be universal, the focus of a place-based discourse in the current study is on South Africa as an exemplar of a Global South context (i.e., a country outside Europe and the privileged Global North, developing or low- and middle-income countries) (Dados & Connell, 2012; Grovogui, 2011; Montiel, 2018; Trefzer et al., 2014). Challenged Global South countries share a history of colonial occupation and, as a result, had to adapt to marginalisation, disparities in living standards and limited access to resources (Dados & Connell, 2012; Ebersöhn, 2017; Ebersöhn & Loots, 2017; Grovogui, 2011;

[30] Respondents could indicate numerous languages in the demographic question pertaining to language fluency since it was an open-ended question (see Appendix B for the FIRE Teacher Resilience Measure). South Africa has 11 official languages with most of the South African population speaking at least two of the official languages (RSA, 2019; Stats SA, 2018). General language fluency can be defined as the ability, proficiency, ease, confidence or accuracy with which communicative language (oral, reading and writing) is used (Chambers, 1997; González, 2008).

Montiel, 2018). In addition, a challenged context can encapsulate various compounding dimensions like poverty, environmental degradation, rural communities, inner-city or ghetto areas, illiteracy, inequality, gender discrimination, social dislocation or displacement, vulnerability, limited educational opportunities and poor health care systems (Ansfield, 2018; Dados & Connell, 2012; Ebersöhn, 2016; Francis & Webster, 2019; Grovogui, 2011; IMF, 2004; Montiel, 2018; Sayed & Badroodien, 2016; Stats SA, 2020a; Wilson, 2012; Wissing et al., 2013). Within the current study, South Africa is thus operationalised as a challenged education space within a Global South setting denoting an emerging economy in transition, high adversity and inequality as well as inherited structural disparity due to a post-colonial history (Dados & Connell, 2012; Ebersöhn, 2014, 2017).

1.7 THEORETICAL FRAMEWORK

1.7.1 INTRODUCTION

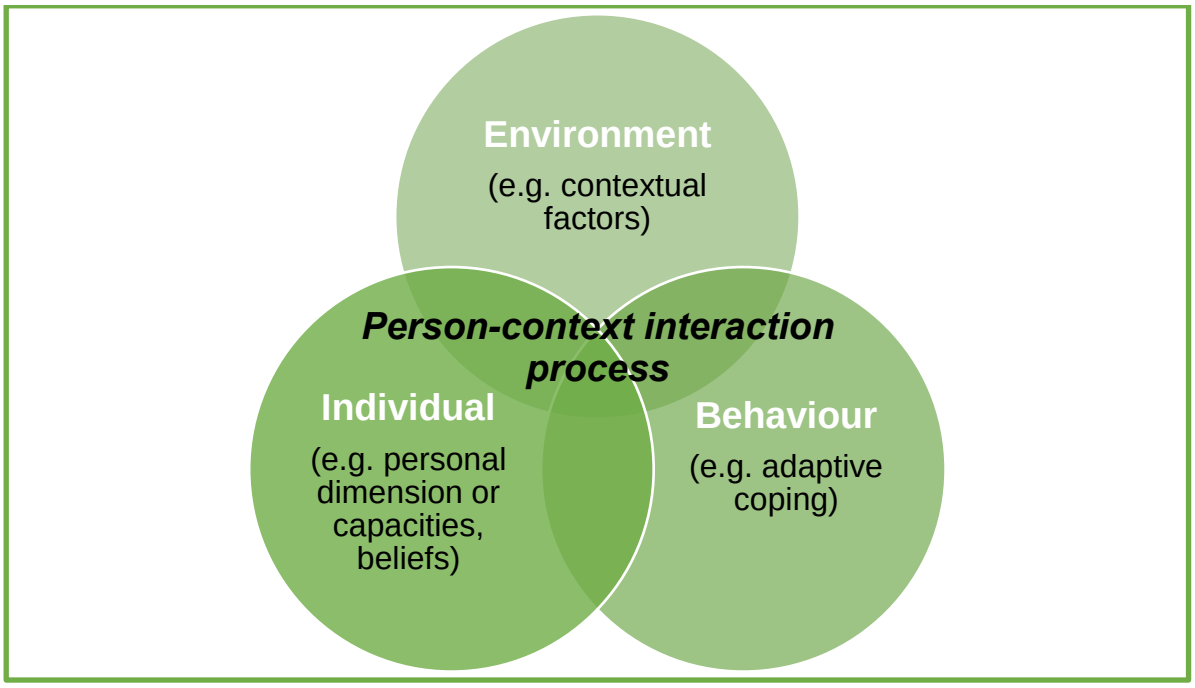
Given the extant data available, the current study used a Social Cognitive Theoretical (i.e., Bandura, 1986) framework to compare the self-efficacy and teacher efficacy of final year pre-service teachers in a challenged context to highlight intrapersonal resilience-enabling pathways to teacher resilience. The FIRE Teacher Resilience Measure scales used in the current study are grounded in the conceptual underpinning of the self-efficacy theory of Bandura (1977). Therefore, the Social Cognitive Theory seemed well suited to understand pre-service teachers' personal development and adaptation to investigate the current study's potential contribution to the phenomenon of teacher resilience. Framed within Bandura's (1986) Social Cognitive Theory, research on pre-service teachers has provided the scholarly field with various theoretical predictors (Legrain et al., 2019; McClellan, 2017; Meaney et al., 2008; Rubenstein et al., 2018). Consequently, the next sections discuss the basic assumptions of the Social Cognitive Theory and the view on self-efficacy.

1.7.2 SOCIAL COGNITIVE THEORY: BASIC ASSUMPTIONS

The current study embraced the Social Cognitive Theory (SCT) (Bandura, 1986), as a theoretical framework to gain insight into pre-service teachers' reality construction regarding self-efficacy and teacher efficacy as protective resources enabling teacher resilience. In this regard, pre-service teachers participating in the FIRE project, as discussed in Section 1.2, entered the FIRE project with unique determinative factors (e.g., history, background, world views, gender, and culture) (Bandura, 2002). The Social Cognitive Theory, postulated by Albert Bandura (1986, 1989a, 1989b), an eminent psychologist (Diener et al., 2014), underlined the notion that adaptation occurs in a reciprocal manner between the individual, ecology, and behaviour. (Bandura, 1986, 1989a, 1989b; Schunk, 2008) as depicted in Figure 1.4.

Figure 1.4

System of Triadic Reciprocal Causation Interaction in SCT



Adapted from Bandura (1986)

The interrelationship between three sets of cooperating determinants (i.e., environment, individual and behaviour) actively shape each other. The bidirectional interaction is demonstrated in Figure 1.4 (Bandura, 1986, 1989a, 1989b; Schunk, 2008). However, according to Bandura (1997), this process of triadic reciprocality is not indicative of an interrelationship strength equality since the interacting elements (i.e., environmental, interdependent behaviours and personal factors) can vary (Bandura, 1997). In this transactional stance, the relationship between the self and society, is not seen as independent but rather reciprocally determined (Bandura, 1986, 1989a, 1989b). Bandura (1997) therefore argued for a dualistic integrated causal perspective with influencing co-factors. Consequently, contributing determinants develop over time, enabling perception of the reciprocal nature (Bandura, 1997).

From the social cognitive view, human potential is directed, within biological limits, through various enactive as well as observational experiences (Bandura, 2002; Schunk, 2008) not only driven by inner forces or controlled by external stimuli (Bandura, 1986). Furthermore, previous experiences shape new experiences to create future behaviours. Behaviours providing effective outcomes are maintained while unsuccessful behavioural consequences are changed or discarded (Bandura, 2002; Schunk, 2008). Therefore, individuals are seen as pro-active, self-influencing, self-reflecting as well as self-regulating agents (Bandura, 1977, 1989a, 1989b, 1997).

Self-efficacy is a dominant component in the Social Cognitive Theory since Bandura considered the construct as the foundation of individual agency (i.e., potential control individuals have over their behaviour) and asserted that the feelings of personal efficacy are important in behaviour (Bandura, 1977, 1986, 1997; Bandura et al., 1977; Snowman & McCown, 2013; Yost, 2016). The sense of efficacy influences "whether people think optimistically or pessimistically, act in ways that are beneficial or detrimental to achieving goals, approach or avoid tasks, engage tasks with a high or low level of motivation, persevere for a short or lengthy period when tasks are difficult, and are motivated or demoralized by failure" (Snowman & McCown, 2013, pp. 188–189). Therefore, the following section explores the construct of self-efficacy as part of the Social Cognitive Theory.

1.7.3 SELF-EFFICACY THEORY

The self-efficacy theory (Bandura, 1977, 1986, 2001) is constructed as a central feature within the Social Cognitive Theory (SCT). Bandura in 1986 (p. 391) introduced the concept of self-efficacy as "one's capability to accomplish a given level of performance". He defined the construct as "beliefs in one's capabilities to organise and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3) or the "conviction that one can successfully execute the behaviour required to produce a given outcome" (Bandura, 2006, p. 193). This belief is based on the reciprocal nature (i.e., Figure 1.4) of individual, socio-ecological and enactive as well as vicarious courses of behavioural change (Bandura, 1986).

Within the social cognitive paradigm, self-efficacy is thus characterised as an individuals' conviction, judgment and appraisal of competence or ability to initiate, manage, perform, or employ necessary courses of actions or behaviour needed to maintain or produce an anticipated specific outcome (Bandura, 1977, 1997). Bandura (2006) did not consider self-efficacy as a static attribute, but as an active changing socio-structural belief embedded in thinking, feeling, motivational and selection states. According to Bandura (1997), self-efficacy is a universal construct with a similar function across cultures. Studies (Bandura & Adams, 1977; Bandura et al., 1977, 1980; Eastman & Marzillier, 1984) support the notion that self-efficacy ratings are predictors of behavioural competence on subsequent tasks.

When an individual accurately recognises their abilities, it may be possible to obtain a valid self-efficacy appraisal (Chesnut, 2017). Furthermore, Bandura (1986) made a distinction between self-efficacy (i.e., belief that an action can be successfully performed) and outcome expectations (i.e., that an action may lead to a positive result) that motivate action. As a result, sense of efficacy can influence goal or task selection, perseverance the expected outcome and the attribution assigned to success or failure to establish perceived competence (Bandura 1977, 1997; Gonzalez-DeHass & Willems, 2016; Lemon & Garvis, 2016; Snowman & McCown, 2013; Wang et al., 2015).

Bandura (1977, p. 191) claimed that “expectations of personal efficacy determine whether coping behaviour will be initiated, how much effort will be expended, and how long it will be sustained in the face of obstacles and aversive experiences”. Therefore, according to Bandura (1986, 1993, 1996, 1997, 2006), the sense of efficacy is a powerful predictor of behaviour, regulating action and self-organisation, to guide self-reflection and to rebound from setbacks. Self-efficacy can impact performance, the ability to cope with potentially aversive events or the optimism demonstrated when faced with obstacles (Bandura, 1977, 2006; Hewitt et al., 2017).

Perceived self-efficacy, as a cognitive mechanism, enable direct or intentional control over environmental opportunities, impediments or (stressful) events that may influence action (Bandura, 1986, 1993, 1996, 1997; Lemon & Garvis, 2016). As a result, it is important to acknowledge that it is the perception that governs self-efficacy beliefs and not reality (Hewitt et al., 2017). Bandura’s theory (1997) outlined self-efficacy as a personal belief in competence ability interpreted from specific sources. Individuals gain important information from these efficacy sources that influences the development of their competency convictions (Tschannen-Moran & Woolfolk Hoy, 2001). In this regard, Bandura (1977, p. 195) identified four sources of efficacy beliefs, including “performance accomplishments, vicarious experiences, verbal persuasion, and physiological states”. Among the sources of efficacy, performance accomplishments or enactive mastery experiences are argued to have the strongest weight on the formation of self-efficacy as an authentic indicator of individual ability (Bandura, 1997; Pfitzner-Eden, 2016a).

Through everyday behaviours, individuals obtain information and attribute success or failure outcomes (Bandura, 1977, 1986, 1997, 2006; Lent & Brown, 2006). Successful outcomes may strengthen their self-efficacy beliefs and aid expectations in future competencies (Bandura, 1977, 1986, 1997). Efficacious individuals often expect a positive controllable outcome and tend to employ more complex skills to persevere in challenging tasks (Bandura, 1997; Snowman & McCown, 2013). On the other hand, failures are likely to reduce expectations about competency and self-efficacy (Bandura, 1977, 1986, 1997). However, weak efficacy beliefs may be negated by disconfirming experiences regarding a task or in a particular environment (Bandura, 1997).

Self-efficacy and the perceived competency may not be affected by increased stress if the individual believes that they can succeed (Gonzalez-DeHass & Willems, 2016; Klassen et al., 2011). So, even if there is adversity, self-efficacy can act as a “protective factor” or buffer (Hewitt et al., 2017) that “counteract” adversity or lead to resilience. Therefore, the Social Cognitive Theory seemed applicable to this study since it provided a lens to investigate protective factors that enable intrapersonal pathways to teacher resilience in a challenged context.

Critics (Biglan, 1987; Borkovec, 1978; Eastman & Marzillier, 1984; Kazdin, 1978; Teasdale, 1978; Tryon, 1981) however, adduced limitations in Bandura's self-efficacy theory including ambiguous definitions, methodological deficiency and inadequate evaluation or methods to substantiate conclusions. Scholars (Borkovec, 1978; Eastman & Marzillier, 1984; Kazdin, 1978; Teasdale, 1978) argued that conceptually efficacy expectations and outcome expectations, as described by Bandura (1977, p. 193) as "the conviction that one can successfully execute the behaviour to produce the outcomes" cannot be differentiated in the application of the theory. The behaviour-analytic alternative, although not denying the empirical relationships presented in support of self-efficacy, explains the association in terms of various variables (Biglan, 1987). Eastman and Marzillier (1984) noted that empirical findings might be less impressive if the circumscribed nature of the behavioural tasks is recognised, since self-efficacy theory may over-simplify the variables involved in behaviour change. As a result, the correlations between self-efficacy rating behaviour and other behaviour may be due to behavioural reinforcement (Biglan, 1987).

Tryon (1981) furthermore implied that Bandura's conclusions could likely be accounted for by social contingencies operating within highly structured behavioural approach situations, which may highlight methodological deficiencies in Bandura's centrality of self-efficacy in the process of behaviour change. Furthermore, the scale and methods for assessing self-efficacy in Bandura's experimental studies were subject to criticism (Biglan, 1987; Eastman & Marzillier, 1984) since the evidence consisted of associations between self-efficacy ratings and other behaviours which did not determine causation. Therefore, the scale seemed abstruse and could be misinterpreted based on theoretical association (Eastman & Marzillier, 1984). The literature (Eastman & Marzillier, 1984) thus caution against the elevation of self-efficacy to a grandiose status but support the construct as one likely factor in the explanation of human behaviour and the assessment of personal competence as a determinant of future behaviour.

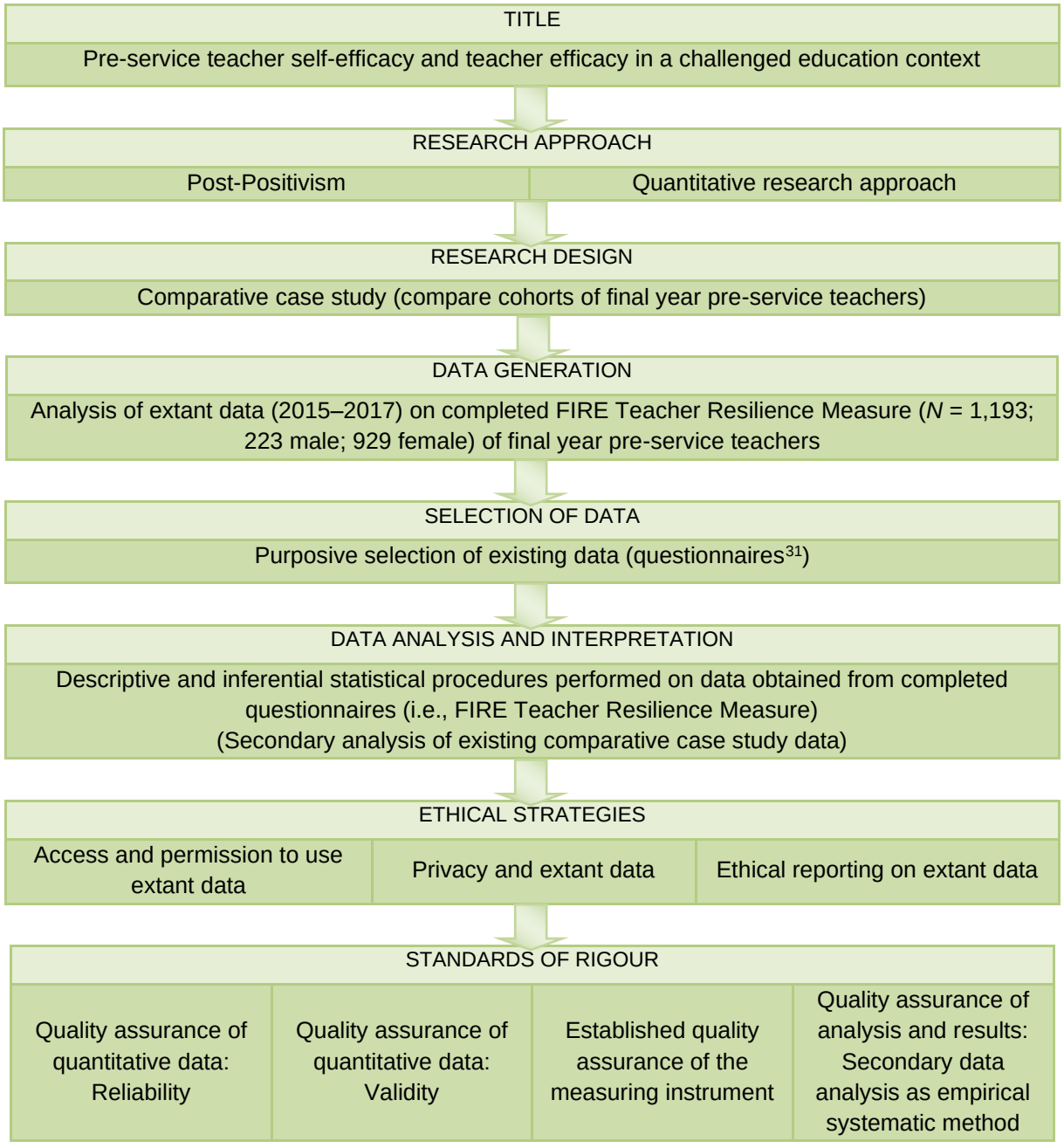
Within the current study, the construct of self-efficacy was therefore clearly operationalised (see Section 1.6.5) given limited outcomes to pre-service teacher confidence of recovery from setbacks as well as confidence in teaching and behaviour management to address the limitations noted by scholars, given precise definitions and outcome expectations. Furthermore, the FIRE Teacher Resilience Measure, based on the conceptual premise of self-efficacy (Morgan, 2011), has been validated through numerous studies within the teaching landscape. As a result, the Social Cognitive Theory was utilised in this study to compare the self-efficacy and teacher efficacy of pre-service teachers in challenged contexts to recognise traits as possible intrapersonal resilience-enabling pathways to teacher resilience, which allow pre-service teachers to navigate a challenged context. The next section provides a brief overview of the paradigms, methodologies, standard of rigour and ethical considerations for this study.

1.8 BRIEF OVERVIEW OF PARADIGMS, METHODS, STANDARD OF RIGOUR AND ETHICAL CONSIDERATIONS

In this section, I present a summary of the research design, paradigmatic assumptions, methods, standards of rigour and ethical strategies relating to the current study. I substantiate methodological decisions in Chapter 3. Figure 1.5 provides an overview of the research process based on methodological decisions employed.

Figure 1.5

Overview of the Current Study



[31] The FIRE Teacher Resilience Measure included items from FIT-Choice (Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012), ENTREE (Mansfield & Wosnitza, 2015; Peixoto et al., 2018; Wosnitza et al., 2014) and contextual resilience questions (Coetzee, 2013).

The comparative analysis of *quantitative* extant data is framed as a *post-positivist* study (Creswell, 2014). This choice was appropriate since quantitative research abides by measurable aspects of respondents' (i.e., pre-service teachers) behaviour (Van Rensburg et al., 2010) to determine and address inquiries about the relationships between the variables under investigation (Leedy & Ormrod, 2015; Van Rensburg et al., 2010) through statistical analysis (Ary et al., 2019; Creswell & Creswell, 2018).

I used a *comparative case study design* (Babbie, 2021; Mills et al., 2006; G. Thomas, 2011; Yin, 2018; Zartman, 2012) to compare cohorts (Case 1 [2015], Case 2 [2016] and Case 3 [2017]) of final year pre-service teachers through secondary data analysis (Babbie, 2021; Johnston, 2017; Widaman et al., 2011). Extant data was purposively selected (Babbie, 2021) to perform nonparametric descriptive and inferential statistical procedures on data obtained from completed (N = 1,193) questionnaires (i.e., FIRE Teacher Resilience Measure) (Corder & Foreman, 2014; Leedy & Ormrod, 2015).

Since L. Cohen et al. (2018, p. 173) denoted that a "research design is governed by fitness for purpose" the current study employed a comparative case study design (Babbie, 2021; G. Thomas, 2011; Yin, 2018; Zartman, 2012) to analyse extant cross-sectional data. A comparative case study design allowed for a comprehensive description (L. Cohen et al., 2018; Creswell & Creswell, 2018) of the *self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context* to find what is collective and distinct in cohorts of cases (Case 1, Case 2, and Case 3) spanning over multiple cross-sectional (2015, 2016 and 2017) points. A strength of a comparative case study design is the logic of comparison approximating inferences allowing clearer hypotheses (Babbie, 2021; L. Cohen et al., 2018) to quantitatively compare the self-efficacy and teacher efficacy beliefs of pre-service teachers.

A comparative case study is also situated in natural, real-life dynamic settings and positioned to extensively compare complex real-world multiple-cases within given parameters (L. Cohen et al., 2018; J. L. Taylor, 2013; Yin, 2018). Such case studies lead to in-depth and reliable findings (Yin, 2018; Zartman, 2012). On the other hand, discontinuities in selecting an appropriate sample are a limitation of a comparative case study design. Such constraints are associated with differences in variables that may hamper the identification of a single variable's distinct association (Babbie, 2021). Due to context-dependent knowledge gained from a comparative case study, generalisation may be limited (Babbie, 2021; Flyvbjerg, 2011). Still, a comparative case study design allowed for the interpretation of identified variance across variables (i.e., within-case and cross-case comparison) (G. Thomas, 2011). In addition, the rigour of the current study could not be established separately.

I utilised numerous strategies to address the quality assurance of quantitative research. I used the following standards of rigour, namely reliability analysis (Babbie, 2021; Creswell, 2014; Foxcroft & Roodt, 2013; Gravetter & Forzano, 2018; Sauro & Lewis, 2016), validity analysis (Babbie, 2021; Foxcroft & Roodt, 2013; Gravetter & Forzano, 2018; Sauro & Lewis,

2016) and statistical power analysis (L. Cohen et al., 2018; Cooper, 2018; Creswell & Creswell, 2018; Faul et al., 2007; Field, 2018; Sauro & Lewis, 2016; Simon, 2011). Further strategies I included the quality assurance of the measurement instrument (i.e., FIRE Teacher Resilience Measure) (Peixoto et al., 2018; Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012) and establishing secondary data analysis as a systematic empirical method of enquiry (Creswell, 2014; Johnston, 2017; Leedy & Ormrod, 2015; Neuman, 2014; Rubin & Babbie, 2014).

Finally, the ethical guidelines included access and permission to utilise extant data (University of Pretoria, 2015) and, the privacy of extant data (Creswell, 2014; Leedy & Ormrod, 2015). I also emphasised ethical reporting of extant data as (Babbie, 2021; Creswell, 2014; Leedy & Ormrod, 2015) as ethical consideration. The next section provides a summary of the research findings for the current study.

1.9 SUMMARY OF THE RESEARCH FINDINGS

In Table 1.6, a synopsis of the findings of the current study is provided. Although the results and findings are discussed in detail in Chapter 4 and Chapter 5, respectively, I provide an outline here to conclude the initial overview of the thesis.

Table 1.6

Summary of Research Findings

Secondary research questions	1	How do self-efficacy and teacher efficacy of final year pre-service teachers within a challenged education context (within-case and cross-case) compare?	• The *self-efficacy* (i.e., confidence in recovery from setbacks in school) and *teacher efficacy* (i.e., confidence in teaching and behaviour management) of final year pre-service teachers *in a challenged context* is high. This result reinforces the presence of intrapersonal resilience-enabling pathways (i.e., intrapersonal protective resources) identified by studies in a challenged context (Bosch, 2020; Coetzee et al., 2017; Ebersöhn, 2014; Ebersöhn et al., 2020; Mansfield et al., 2018; Wabule, 2020; Yokus, 2015). Although Ee and Chang (2010) found that pre-service teachers in Singapore were not adequately prepared to deal with inevitable setbacks, the current study's results support previous high-income countries findings (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) on the presence of self-efficacy and teacher efficacy as protective intrapersonal resources. • The teacher efficacy of final year pre-service teachers is significantly *higher* (within-case and cross-case) compared to final year pre-service teachers' self-efficacy in a *challenged context*. Therefore, final year pre-service teachers are relatively more confident in teaching and behaviour management than in dealing with setbacks. This result provided insight into the confidence pre-service teachers have in recovery from setbacks and their confidence in teaching and behaviour management when facing chronic and cumulative risk factors. Literature supports the significance of teacher efficacy for teachers' recovery from setbacks and buffering against burnout in a challenged context (Bosch, 2020; Ebersöhn et al., 2020; Jackson & Rothmann, 2005) as well as in developed settings (Beltman et al., 2011, 2018; Day & Gu, 2013; Gu & Day, 2007; Gu & Li, 2013; Hong, 2012; Peixoto et al., 2018; Pendergast et al., 2011; Price et al., 2012; Sammons et al., 2007; Tournaki et al., 2009; Yada et al., 2021). • *Pre-service teachers' confidence in their teaching and behaviour management thus enables them to recover from setbacks despite high adversity* (Bandura, 1986, 1993, 1996, 1997; Hewitt et al., 2017; Perkins-Gough, 2013; Waddell, 2007) in a challenged context (Bosch, 2020; Ebersöhn et al., 2020). Teacher efficacy was found to be essential for recovery from setbacks in previous high-income country studies for pre-service teachers (Morgan, 2011; Peixoto et al., 2018).

2	What are the self-efficacy and teacher efficacy of pre-service teachers within a challenged education context based on demographic information (within-case and cross-case)?	• *Male and female pre-service teachers in the current study demonstrated high self-efficacy and teacher efficacy beliefs*. The beliefs indicate that male and female final year pre-service teachers, within a challenged context, are confident to recover from setbacks and feel confident in teaching and behaviour management which support presented literature (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018; Wosnitza et al., 2018) from previous studies utilising similar scales in Europe and Australia. In the current study, *female pre-service teacher self-efficacy and teacher efficacy were significantly higher than male pre-service teacher self-efficacy and teacher efficacy for Case 3.* The difference confirms findings from Özdemir (2008), Üstüner (2017) and Yokus (2015) for pre-service teachers in a challenged context. However, *no gender differences were noted in other cases for the current study*, which confers with research in developed countries (Beltman et al., 2018; Fischer et al., 2018; Klassen & Durksen, 2014; Murshidi et al., 2006; O'Neill & Stephenson, 2012b; Pfitzner-Eden, 2016a; Tschannen-Moran & Woolfolk Hoy, 2007) and in a challenged context (Çelik et al., 2018; Ngidi & Ngidi, 2019) for gender in pre-service teachers. • Enrolled pre-service teaching programmes for *primary and secondary phases denoted high self-efficacy and teacher efficacy for pre-service teachers* in the current study, substantiating previous global North and European research conclusions (Beltman et al., 2018; Brown et al., 2015; Moulding et al., 2014; O'Neill & Stephenson, 2012b; Peixoto et al., 2020). The *primary phase pre-service teachers in the current study demonstrated significantly higher self-efficacy and teacher efficacy* than the secondary phase pre-service teachers. Significant differences indicating higher resilience traits for primary pre-service teachers in comparison to secondary pre-service teachers are evident in literature (Bouillet et al., 2014; Kavita & Hassan, 2018; Perlman & Pearson, 2012; Woodcock, 2011) also in primary school teachers in a challenged setting (Molina et al., 2017; Zuma et al., 2016).
3	To what extent is there a relationship between self-efficacy and teacher efficacy among pre-service teachers in a challenged education context (within-case and cross-case)?	• Self-efficacy and teacher efficacy items on the FIRE Teacher Resilience Measure), demonstrated *a significant positive correlation* in a challenged context for pre-service teachers. This result indicated an interrelated relationship between final year pre-service teachers' ability to recover from setbacks (self-efficacy), confidence in teaching and behaviour management in a challenged context (teacher efficacy) supported by previous studies (Morgan, 2011; Peixoto et al., 2018) which highlight the association between the internal protective factors for pre-service teacher resilience (Beltman et al., 2018; Ee & Chang, 2010; Gu & Day, 2013; Klassen et al., 2011; Morgan, 2011; Peixoto et al., 2018, 2020; Pendergast et al., 2011; Thieman et al., 2014; Wosnitza et al., 2018).

Primary research question	*How can insight into the self-efficacy and teacher efficacy of pre-service teachers in a challenged education context inform knowledge on teacher resilience?*	The current study *contributed systematic empirical evidence to the emergent field of teacher resilience* in a challenged context given the significant gap in teacher resilience knowledge in spaces of high adversity (Ebersöhn, 2014, 2016, 2017; Ebersöhn & Ferreira, 2012; Ebersöhn & Loots, 2017; Mansfield et al., 2018; Ngidi & Ngidi, 2019). The respondents in the sample were 1,193 final year pre-service teachers at the University of Pretoria enrolled in the BEd teaching education programme (2015–2017). Results presented indicate the *presence of high intrapersonal resilience-enabling pathways to teacher resilience*, which is a signature element of trait resources from which pre-service teachers can draw to mitigate adversity despite chronic and cumulative risks, to provide quality teaching in a challenged context (Ebersöhn, 2017). The current study quantified intrapersonal traits that act as protective resources (i.e., presence of self-efficacy and teacher efficacy beliefs) through a post-positivist research approach with a comparative case study design. The established presence of significant internal protective resources demonstrated pre-service teachers' *confidence in recover from setbacks* (i.e., self-efficacy) and *confidence in teaching and behaviour management* (i.e., teacher efficacy) which enable pre-service teachers to resile. The positive relationship between the self-efficacy and teacher efficacy beliefs of pre-service teachers signifies high incidences of self-efficacy and teacher efficacy which may contribute to teacher resilience amongst pre-service teachers. Therefore, based on the results from the completed FIRE Teacher Resilience Measure, pre-service teachers indicated self-efficacy and teacher efficacy beliefs as significant protective internal factors for enabling teacher resilience in spaces of high social disadvantage. Furthermore, the reliability of the current study confers with previous studies (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) employing similar scales also in a challenged context (Bosch, 2020; Ebersöhn et al., 2020) but provides novel insight into comparable results of the measure with pre-service teachers in spaces of high adversity worldwide.

The findings of the current study thus advanced knowledge on teacher resilience in a challenged context. Intrapersonal resilience-enabling pathways (i.e., self-efficacy and teacher efficacy) may enable pre-service teachers to resile despite chronic and cumulative risk factors. The current study contributed quality, quantitatively derived teacher resilience findings from a Global South perspective. This study further validated the use of a globally used teacher resilience measure in South Africa. The results may be compared to that of others worldwide measured with the same instrument. The next section outlines the structure of the thesis by providing a short overview of each chapter for the current study.

1.10 OUTLINE OF CHAPTERS

1.10.1 INTRODUCTION

The current thesis consists of five chapters. In the following sections, I provide a brief outline of these chapters to provide a synopsis of the current study.

1.10.2 CHAPTER 1: INTRODUCTION AND OVERVIEW OF THE STUDY

Chapter 1 provided an introduction and overview of the current study by contextualising relevant background and the current study's rationale and purpose. After formulating research questions and hypotheses and clarifying central concepts, I introduced the theoretical framework that guided this study. Furthermore, I briefly stated the paradigmatic and methodological decisions, and quality assurance measures and ethical considerations. I concluded Chapter 1 by providing a summary of the research findings.

1.10.3 CHAPTER 2: LITERATURE REVIEW

Chapter 2 outlines the literature review on aspects relevant to the context of the present study. The review includes resilience, teacher resilience, self-efficacy, teacher efficacy, initial teacher education and the pre-service teacher. The literature is contextualised by reviewing challenged contexts as characterised in a Global South milieu (as depicted in Chapter 1) and explains how the latter may contribute to the understanding of teacher resilience. I conclude the chapter with the conceptual framework to ensure consistency between the purpose and the relevant theory of the topic of enquiry.

1.10.4 CHAPTER 3: RESEARCH DESIGN, METHODOLOGY AND STRATEGIES

Chapter 3 offers a comprehensive explanation of the selected research design and subsequent methodological strategies followed to explore the research questions and test the formulated hypotheses. The selected method of data analysis and statistical procedures employed are explained and justified. To ensure that credible research is produced, I end the chapter with a discussion on the standards of rigour and ethical guidelines followed in the current study.

1.10.5 CHAPTER 4: RESEARCH RESULTS OF THE STUDY

Chapter 4 presents the results obtained during this study. The chapter contains the statistical within-case and cross-case analysis of the completed FIRE Teacher Resilience Measure that was purposively selected for the current study. The results are explained in terms of descriptive and inferential numerical presentations based on nonparametric statistical procedures performed on extant data. The statistical outputs are provided and graphically represented, and the results of the analyses are discussed.

1.10.6 CHAPTER 5: FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Chapter 5, the final chapter of this thesis, provides a summary of the conclusions and main findings in terms of the research questions, hypotheses, and purpose (as posed in Chapter 1). I explain the interpretation of the results I obtained in terms of the existing literature and the conceptual framework outlined in Chapter 2, based on statistically significant evidence from Chapter 4. I further highlight limitations for this study and conclude the chapter with potential recommendations.

1.11 CONCLUSION

The purpose of Chapter 1 was to introduce the current study and provide contextual background for the rationale and purpose of the current study. I formulated the research questions that guided me in the hypotheses I set out to test. Additionally, I clarified core concepts and introduced the chosen theoretical framework. I briefly outlined the selected paradigm, research design, methodological choices, standards or rigour and ethical considerations applicable to the current study. Lastly, I also concisely provided a summary of the research results and chapters to follow.

In Chapter 2, I conduct a thorough review of existing literature on resilience, teacher resilience, self-efficacy, teacher efficacy, initial teacher education and the pre-service teacher to contextualise the current study within a challenged context. I also discuss and explain the conceptual framework that guided the current study.

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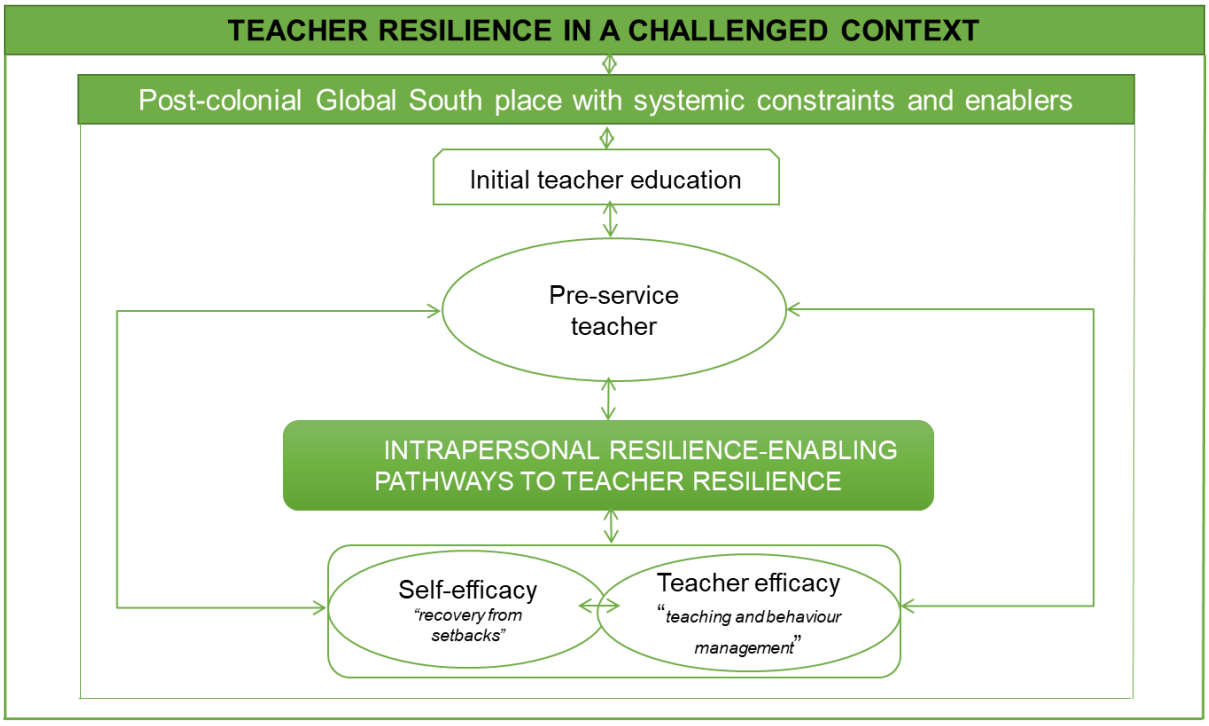
Chapter 2
Literature Review

2.1 INTRODUCTION

Chapter 2 presents an overview of worldwide pivotal bodies of knowledge, focusing on highly challenged spaces typical to a Global South context. The key bodies of knowledge relevant for the current study include (i) psychological resilience and teacher resilience globally (ii) self-efficacy and teacher efficacy beliefs globally (iii) the education landscape, including initial teacher education and (iv) the pre-service teacher globally, with all these bodies viewed within highly challenged spaces. Figure 2.1 illustrates how the pivotal bodies of knowledge for the current study intersect within a challenged context.

Figure 2.1

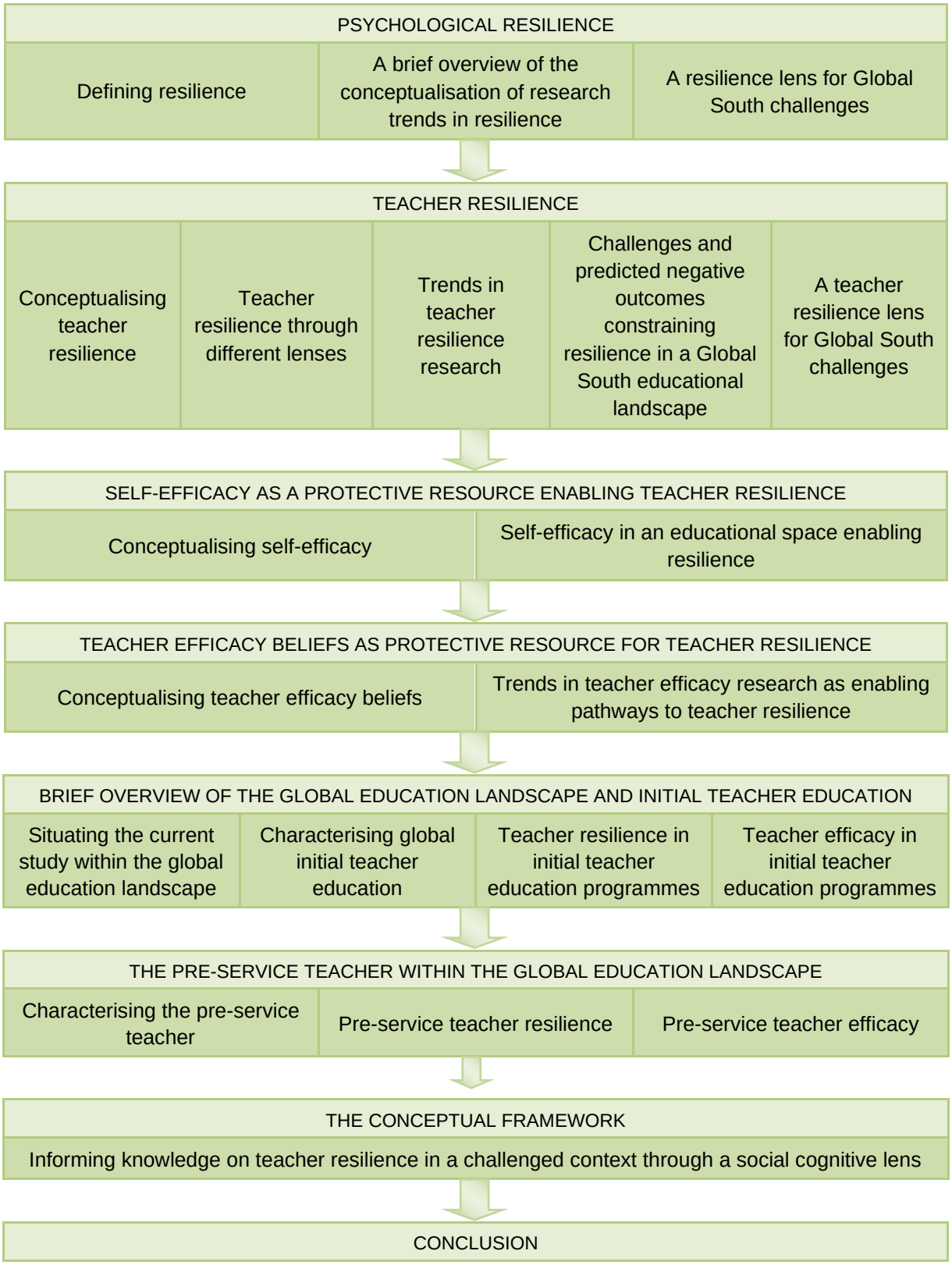
Outline of the Literature Review Relevant to the Current Study



This chapter explains how existing knowledge in the stated domains has meaning for the current study. I conclude the chapter with the conceptual framework for this study. Figure 2.2 presents a flow chart showing the organisational overview of Chapter 2.

Figure 2.2

Flow Chart Showing the Organisation of Chapter 2



2.2 PSYCHOLOGICAL RESILIENCE

2.2.1 INTRODUCTION

Section 2.2 locates the current study within psychological resilience research. In this section, I delineate psychological resilience given historical and current definitions. Furthermore, I provide an overview of the conceptualisation of psychological resilience through different lenses and highlight a resilience lens for Global South challenges. I also highlight resilience discourses indicating that irrespective of context, *individual and systemic protective resources mitigate against adversity* (Ebersöhn, 2017). *Pertinent to the current study, I foreground knowledge that protective resources that may support resilience include individual traits, such as personal grit and hardiness* (Duckworth et al., 2007; Perkins-Gough, 2013; Von Culin et al., 2014), *positive emotions* (Fredrickson, 2001), *sense of coherence* (Hansson & Cederblad, 2004), *positive temperament* (Seligman, 2002) *and self-efficacy* (Bandura, 1977, 1997, 2001, 2002; Gu & Day, 2007; Hewitt et al., 2017).

2.2.2 DEFINING RESILIENCE

To situate the current study on *teacher resilience* within the broader context of resilience research it is necessary to define and discuss resilience given historical and current literature on psychological resilience. I use the literature as a backdrop to understanding the conceptualisation of resilience through different lenses (including grit and hardiness, a sense of coherence, positive emotions, relational resilience, adaptive coping and the socio-ecological resilience discourse.

The research proposes that a prerequisite for resilience is exposure to negative life conditions, environmental risk, threats or recurring setbacks. Resilience manifests through a positive response despite significant risk (Ee & Chang, 2010; Luthar et al., 2000; Masten, 2001). The commonly used phrase to “bounce back” is derived from the definition of resilience as the ability to quickly and efficiently recover strengths, return to normal, or rebound when faced with adversity or negative life events (Day & Gu, 2010; Masten, 2001; Price et al., 2012). By enduring challenging or adverse conditions, an individual may develop and strengthen the tools, strategies and coping mechanisms required to navigate challenges (Brunetti, 2006; Masten, 2001; Willers et al., 2013). Resilience occurs when the individual demonstrates adaptation or positive development, despite having faced significant risk (Luthar et al., 2000; Masten et al., 1990; Masten & Reed, 2005; Theron, 2011).

Walsh (2002, 2007) expounded on this notion by positing resilience as a way not to “bounce back” but to recalibrate, transform, change, and move forward. In other words, resilience implies “bouncing forward” by using assets, strengths, buffers, enabling strategies and protective systemic resources (or capital) which trigger the capacity for adaptive coping

in the presence of adversity. Windle (2010) defined resilience in people (in the current study, a pre-service teacher) as being able to effectively negotiate, adapt to, or manage significant stress by utilising protective factors (in the form of individual, life, and environmental assets). Scholars (Day & Gu, 2013; Masten, 2001) further argued that extraordinary resources are not required for resilience. Rather resilience is demonstrated in daily responses to challenges. Therefore Masten (2001) denoted resilience as *ordinary magic*, while Day and Gu (2013) call it *everyday resilience*. Consequently, the inquiry of resilience is based in the domain of positive psychology. Positive psychology highlights constructive capacities and potential within a purpose-driven, future-oriented life, rather than on negative aspects in the life and context of an individual (Seligman, 2002; Seligman et al., 2009).

Resilience has been defined as an internal trait, characteristic, outcome, or process (Fletcher & Sarkar, 2013). Initially, the construct was viewed as an individual's ability (i.e., a trait, innate quality, state, attribute, personality characteristic or positive advantage) to adapt, recover or return to equilibrium after adverse events (Anthony, 1987; Block & Block, 1980; Connor & Davidson, 2003; Ee & Chang, 2010; Masten et al., 1990; Tait, 2008). However, in recent literature, resilience is defined as a complex, oscillating and fluid construct, as opposed to being viewed solely as an innate quality, personality characteristic or trait (Beltman et al., 2018; Coetzee, 2013; Day & Gu, 2010; Ebersöhn, 2012; Masten & Reed, 2005; Masten & Wright, 2010; Nolan et al., 2014; Rutter, 2006; Theron, 2011; Ungar, 2008; Ungar et al., 2013). In this light, Luthar et al. (2000, p. 554) pronounced that "resilience should always be used when referring to the process or phenomenon of competence despite adversity, with the term resiliency used only when referring to a specific personality trait". Masten (2014, p. 10) reiterated that resilience is "the capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability and development". For this reason, it seems likely that the contexts in and the interaction through which individuals face hardship throughout their lifespan all contribute to the complex, dynamic process of resilience (Beltman et al., 2011; Beltman & Mansfield, 2018; Masten & Reed, 2005). The following section explores different theoretical lenses through which psychological resilience is conceptualised in the literature relevant to the current study.

2.2.3 A BRIEF OVERVIEW OF THE CONCEPTUALISATION OF RESEARCH TRENDS IN RESILIENCE

Whereas a definition (see Section 2.2.2) describes the meaning of a term, a construct is an abstract view stemming from a combination of intuition and evidence (Fletcher & Sarkar, 2013). Cassidy (2015) emphasised the debate around a global resilience construct and the conceptualisation thereof. As a result, resilience can be and is conceptualised in literature from a multitude of perspectives. This section aims to understand psychological resilience as a trait, characteristic, capacity and/or outcome.

The section locates the current study within the trait discourse while at the same time acknowledging the current socio-ecological process conceptualisation of resilience in literature. To gain such understanding, I briefly view resilience through different theoretical lenses, including grit and hardiness, a sense of coherence, positive emotions, relational resilience, adaptive coping and the socio-ecological resilience standpoint.

Resilience has been identified as a vital individual trait, protective personality factor or attribute (Ee & Chang, 2010; Roth & Von Collani, 2007). Various disciplines and perspectives, including psychiatry, child developmental psychology, cognitive psychology, personality psychology, ecological sciences and biology, conceptualised "resilient" people as being stress-resistant individuals with stable personality traits, capabilities or characteristics linked to protective factors and biological influences (Anthony, 1987; Ee & Chang, 2010; Masten, 2018; Masten et al., 1990; Masten & Reed, 2005; Tait, 2008; Windle, 2010). This conceptualisation emphasises the understanding of maladaptive reactions to adversity (e.g., socioeconomic disadvantage, maltreatment, mental disorder, violence, chronic disease, natural disasters, and traumatic experiences) (Luthar et al., 2000) with individuals differing considerably in their vulnerability to distress (Matthews, 2016).

Traits such as neuroticism and dispositional anxiety seemingly increase vulnerability, whereas hardiness, grit, and emotional intelligence support resilience (Kobasa et al., 1982; Maddi et al., 2017; Matthews, 2016; Prince-Embury, 2010). Resilience, conceived as a trait, attribute, personal capacity or quality, represents characteristics enabling adaptation, despite encountered challenges, to thrive during adversity (Connor & Davidson, 2003; Gu & Day, 2007; Masten, 2018; Masten et al., 1990). Block and Block (1980) referred to "ego resilience" as a personality parameter including traits such as resourcefulness, character strength, positive emotionality and flexibility. This belief of resilience showcased the apparent invulnerability or indestructible nature of people in acutely adverse circumstances (Anthony, 1987).

A person with high levels of ego resilience was portrayed with heightened energy, zestful, a sense of optimism, enthusiasm, ingenuity, openness to new experiences and curiosity, as well as demonstrating the ability to detach themselves from and to conceptualise problems (Block & Block, 1980; Block & Kremen, 1996). Thus, resilient people are seen as active and socially responsive to their environmental context (Ee & Chang, 2010), and they display high positive emotionality (e.g., using humour, positive dispositions or optimistic thinking) (Block & Kremen, 1996). Signified as protective characteristics, Rutter (1985, p. 600) defined it as "influences that modify, ameliorate or alter a person's response to some environmental hazard that predisposes to a maladaptive outcome".

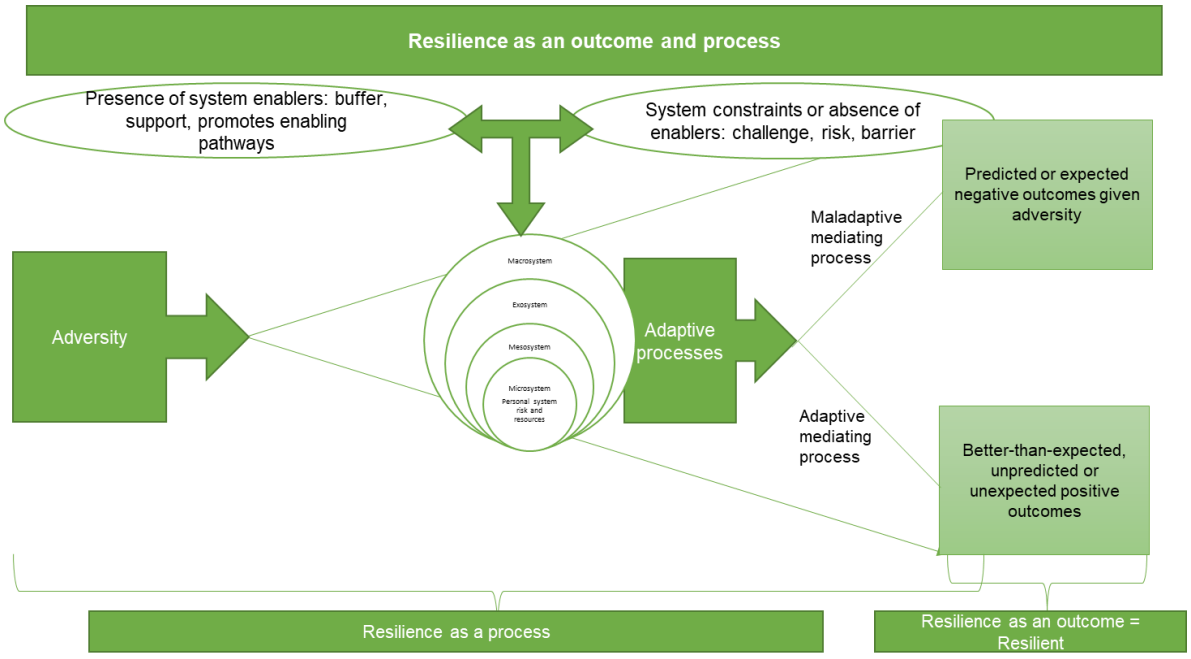
Resilience literature has acknowledged numerous individual protective factors, including, for example, self-efficacy (see Section 2.4), hardiness and grit (Bashant, 2014; Kelly et al., 2014; Kobasa et al., 1982; Maddi et al., 2017; Perkins-Gough, 2013; Prince-Embury, 2010), sense of coherence (A. Antonovsky, 1979) and positive emotions (Fredrickson, 2001; Tugade

& Frederickson, 2004; Tugade et al., 2004). The shift towards understanding resilience as a process replaced the individual capacity as the focus within resilience conceptualisation instead emphasising aspects such as relational resilience (Jordan, 2006, 2013), adaptive coping (Skinner & Zimmer-Gembeck, 2007, 2011; Zimmer-Gembeck et al., 2018) and the socio-ecological context (Ungar, 2010, 2011, 2012a, 2012b; Ungar et al., 2013). Although the extant data limits the current study's investigation to resilience as a trait discourse (as operationalised in Chapter 1), I acknowledge the paradigm shift.

Current research no longer considers resilience solely as an innate, individual and internal capacity (Anthony, 1987; Block & Kremen, 1996; Connor & Davidson, 2003; Ee & Chang, 2010; Letzring et al., 2005; Masten et al., 1990; Tait, 2008) within the micro-system. Instead, resilience is viewed as an interactive systemic process between a person's circumstances, situation and the ecology (Ebersöhn, 2012; Rutter, 2012; Theron, 2011; Ungar, 2010, 2011; Ungar et al., 2013; Van Breda, 2018; Vanderbilt-Adriance & Shaw, 2008), as shown in Figure 2.3.

Figure 2.3

Resilience as Process and Outcome



Adapted from Ebersöhn (2012); Ungar (2010, 2011); Ungar et al. (2013) and Van Breda (2018)

Although resilience research initially focused on providing insights into individual capacities to forge positive adaptive pathways despite adversity, there is a growing consensus that the dynamic interplay between psychological internal personality traits (an outcome process, i.e., "resilient") and external ecologies (transactional process, i.e., resilience) that nurture resilience should be investigated (Beltman et al., 2011; Rutter, 2006; Theron et al., 2011; Ungar, 2010, 2011; Ungar et al., 2013). Ungar's (2011) urged that the individual should not be at the centre in the pursuit to understand resilience given his principle of decentrality. Instead, the context should be highlighted first, followed by how the environment interacts with the individual, and finally individual characteristics.

As illustrated in Figure 2.3, a positive resilient outcome is thus merely dependent on a person experiencing adversity. Rather, the individual's capacity to cope is enhanced with a supportive environment (dynamic interrelationships within a social system) facilitating the ability to prosper collectively despite risk (Bosch, 2020; Ebersöhn, 2012; Ungar, 2010, 2011). Regardless of the setting, environments may serve as a buffer even when resources are limited, perhaps leading to non-normative or atypical nuanced pathways (i.e., unexpected positive outcomes) to resilience (Ungar, 2011). The complexity of a "composite construct" (Gu & Li, 2013, p. 291) such as resilience requires various conceptualisations to address its ambiguous nature. To this aim, Table 2.1 provides an overview of resilience through different lenses. Section 2.2.4, afterwards, focuses on a resilience lens to Global South challenges.

Table 2.1

Overview of the Conceptualisation of Psychological Resilience Through Different Lenses

Resilience lens	Theorists	Definition	Overview on theoretical conceptualisation related to psychological resilience
Resilience conceptualised as grit and hardiness	Grit theory (Duckworth et al., 2007; Von Culin et al., 2014)	• Grit is the ability to persist in the face of struggle (Duckworth et al., 2007; Perkins-Gough, 2013; Von Culin et al., 2014). • Hardiness, as a personality trait manifesting on the cognitive, emotional as well as behavioural levels and variables regarding stress resistance (Rizeanu & Vasiliu, 2016)	• Grit and hardiness are conceptualised as helpful to people to deal effectively with challenging and stressful circumstances (Kobasa et al., 1982; Maddi et al., 2017; Prince-Embury, 2010). Hardiness and grit have been found to support resilience (Matthews, 2016). • Grit is viewed as the quality that enables individuals to work hard and persist with their long-term passions and goals (Bashant, 2014; Perkins-Gough, 2013), to achieve success (Bashant, 2014) based on effort and interest (Von Culin et al., 2014). Resilience as part of being "gritty" entails responding resiliently to situations of failure and adversity. Grit demonstrates resilience and shows deep commitment and engagement over a prolonged period (Perkins-Gough, 2013). • Hardiness is an individual trait of stress resistance on the cognitive, emotional, and behavioural levels (Kobasa, 1979; Kobasa et al., 1982; Maddi et al., 2017; Prince-Embury, 2010; Rizeanu & Vasiliu, 2016). • Grit and hardiness are viewed as fairly stable over time and context (Kelly et al., 2014; Von Culin et al., 2014).
Resilience conceptualised as sense of coherence (SOC)	Salutogenic theory (A. Antonovsky, 1979)	• SOC is "a global orientation that expresses the extent to which one has a pervasive, enduring, though dynamic, feeling of confidence that one's internal and external environment are predictable and that there is a high probability that things will work out as well as can reasonably be expected" (A. Antonovsky, 1979, p. 132).	• A. Antonovsky (1979) questioned why certain people thrive optimally despite adversity, hardship, or bombarding stressors, maintain subjective well-being and keep a positive perspective on life, while others do not (H. Antonovsky & Sagy, 1986; Eriksson & Lindström, 2006; Viviers & Cilliers, 1999). • SOC investigates an individual's global orientation to regard daily stressors or risk factors as comprehensible, manageable, and meaningful (Flannery & Flannery, 1990; Hansson & Cederblad, 2004; Schnyder et al., 2000; Strauser & Lustig, 2003; Ventegodt et al., 2005). It employs generalised resistance resources, protective factors or assets to achieve positive adjustment or outcomes (Almedom, 2005; Masten, 2001). • SOC seems to be a health-promoting resource that strengthens resilience (Eriksson & Lindström, 2006).
Resilience conceptualised as positive emotions	Broaden-and-build theory (Fredrickson, 2001)	• This theory, postulates that positive emotions extend individuals' thought-actions. These in turn build their enduring capacities (e.g., physical, intellectual, social, and psychological resources) and increase the presence	• The capacity for positive emotions as an asset is central to flourishing, optimal functioning, and well-being (Fredrickson, 2001). • Psychological resilience is viewed as the capacity to bounce back from setbacks by employing positive emotions to cope (Tugade et al., 2004). • Cultivating positive emotions predicts an increase in resilience and life satisfaction, while negative emotions do not impede the value of positive emotions (Cohn et al., 2009).

Resilience lens	Theorists	Definition	Overview on theoretical conceptualisation related to psychological resilience
		of positive affect traits (Fredrickson, 2001).	• Resilience mediates the association between positive emotions and life satisfaction. Well-being and health outcomes can promote the presence of positive affect traits (Fredrickson, 2001). • In this regard, Hutchinson and Pretelt (2010) emphasise the important role that positive emotions play in human well-being and the development of resilience (i.e., cultivate resilience through an "upward spiral" of positive emotions). • Extrapolating from the broaden-and-build theory (Fredrickson, 2001), positive emotions are active ingredients within trait resilience since positive emotions buffer against adversity, aid in building lasting resources and fuel thriving (Cohn et al., 2009; Fredrickson et al., 2003).
Resilience conceptualised as relational	Relational resilience (Jordan, 2006, 2013)	• Jordan's (2006) relational resilience model is founded in relational-cultural theory (RCT) with a central belief that growth occurs in relationships. • RCT is a theory about basic interconnectedness, the inevitability of needing one another throughout our lives. In other words, people are wired to connect (Jordan, 2006, 2013).	• Relational resilience highlights "growth-fostering" connections through mutual responsive relationships, empowerment and the development of courage (Jordan, 2006, 2013; Le Cornu, 2009, 2013). • Ebersöhn's (2012) Relationship-Resourced Resilience (RRR) framework, which draws on the collectivistic philosophies associated with indigenous African culture (e.g., Ubuntu[32]), theorise how resilience occurs as a communal, rather than a subjective individual, process to achieve mutually positive outcomes. The framework proposes that a collective stress response (i.e., flocking as opposed to fight, flight, freeze, faint or swarm) can be effective when individuals come together through support-seeking strategies to mobilise resources in reaction to chronic adversity (Ebersöhn, 2012, 2014, 2019a, 2019b).
Resilience conceptualised as adaptive coping	Adaptive coping framework (Skinner & Zimmer-Gembeck, 2007, 2011)	• A multilevel framework that foregrounds the individual's subjective sense of ability to achieve control on a stressful situation by mobilising resources. It is part of an adaptive stress response that limit adverse effects to generate positive outcomes (Skinner & Zimmer-Gembeck, 2007, 2011).	• Adaptive coping is seen as interactional and episodic, distinct from simply coping. Adaptive coping intercedes the influence of adversity, which gradually shapes positive adaptation and enables the resilience process (Skinner & Zimmer-Gembeck, 2011). • Adaptive coping processes are the intersection between individual capacities and the optimal mobilisation of contextual assets to navigate risk (Ebersöhn, 2014). Therefore, positive adjustment despite adversity requires a dynamic process that underlines enablement in ecologies at a given time. • Effective coping strategies limit the influence of adversity and become more eminent for well-being than barriers (Willers et al., 2013). • Resilience is regarded as a function of an interacting transactional adaptive system within which an individual is embedded (Skinner & Zimmer-Gembeck, 2011) and shaped by cultural and contextual factors (Theron, 2016; Willers et al., 2013).

[32] *Ubuntu is* the African belief system reflecting reciprocity (a belief that understands identity as it emerges through relationships (Letseka, 2012, 2013). There is little emphasis on the individual, but rather a connection with social and emotional ties through agency and interdependence, which form part of the obligations every community member has (Ebersöhn, 2019a; Ebersöhn et al., 2014).

Resilience lens	Theorists	Definition	Overview on theoretical conceptualisation related to psychological resilience
			• In this sense, resilience may be characterised as involving a longitudinal, dynamic process whereby a person can achieve positive development even with exposure to substantial challenges (Ebersöhn, 2007; Masten & Wright, 2010). • Ebersöhn (2014) posited that a chain of adaptive coping strategies manifests in the resilience processes.
Resilience conceptualised from an ecological and systemic process view	Socio-ecological view (Ungar, 2008, 2010, 2011, 2012a, 2012b; Ungar et al., 2013)	• Resilience can be viewed as ecological in nature. The context in which the individual functions are fundamental in the resilience process (Ungar, 2008). • The socio-ecological resilience view centres on cultural moderation as valuable in informing varied resilience manifestations (Ungar et al., 2013).	• Researchers have conceptualised resilience as dependent on the interaction between the individual and their social ecologies (Theron, 2016; Theron et al., 2011; Ungar, 2011, 2012b; Ungar et al., 2013). As such, the salience of individuals' social and physical ecology is emphasised (Ungar, 2012a, 2012b). While resilience includes an agency component, the individual's context must be able to provide health-enhancing resources accessible in culturally relevant ways to the individual (Ungar, 2011, 2012a, 2012b; Ungar et al., 2013). • Cultural moderation entails resources influenced by a cultural meaning-making process including the value people attribute to accessible resources (Ungar et al., 2013). • Resilience is, therefore, characterised as an effective negotiation process of navigating risk management and development notwithstanding adversity, stress or trauma within the interface between personal, cultural and contextual roles (Windle, 2010). Consequently, resilience can be viewed as socio-ecological in nature, as the context in which the individual function is intertwined in the process through which adversity is overcome (Ungar, 2008). In conclusion, research (Day & Gu, 2013) suggested that the contexts in which individual works (e.g., teaching landscape within a challenged context) shape resilience by constituting barriers and assets to challenge or support resilience.

2.2.4 A RESILIENCE LENS FOR GLOBAL SOUTH CHALLENGES

This section conceptualises contextual challenges in a Global South place through a resilience lens to locate the current study in a broader context of resilience research. In the presence of monumental adversity and structural disparity, such as South Africa as an archetype of a Global South place, resilience becomes evident (Ebersöhn, 2014). In Chapter 1, I denote South Africa as a high-risk, high-need challenged context with inequality and cultural or political marginalisation typified by an emerging economy due to a post-colonial history (Dados & Connell, 2012; Ebersöhn, 2014; Schwartz & Harris, 2017). Disparate societies imply fewer opportunities for equality, presented by substantial health, social and economic risks outcomes (Ebersöhn, 2016, 2017). Since South Africa is portrayed as a highly unequal country (Bhengu, 2019; Bisseker, 2019; Francis & Webster, 2019; McKeever, 2017), the chasm of inequality increasing (Magubane, 2019) the effects of post-colonialism as well as the numerous challenges the national government face is evident (Mansfield et al., 2018). The existing status will take many decades to amend, and extensive transformation is only pragmatic in the long term (Ebersöhn, 2017).

Researchers (Chisholm et al., 2005; Ebersöhn, 2014, 2016, 2017; Ferreira & Ebersöhn, 2012; Sayed & Badroodien, 2016; Shalem & Hoadley, 2009) urge for the use of contextual lenses to facilitate positive outcomes in an at-risk context aggravated by inequality. The context should be understood with the enabling and constraining processes to develop an accurate view of resilience (Day & Gu, 2013). Given the manifestation of multiple and chronic constraints faced in an emergent post-colonial democracy, *resilience* may act as such a lens to posit the notion of adaptive spaces to address socially-generated risk factors in various contexts (including education). Ebersöhn (2014, 2017) found that, in a space of extreme adversity, besides intrapersonal factors (i.e., intrapersonal traits), it is access to and mobilising of socio-ecological (external) resources that support resilience (see Figure 2.3).

In the field of resilience, a tendency has been noted that Western understandings of resilience may not be sensitive to a Global South context (Bosch, 2020; Ebersöhn, 2015, 2017; Masten & Wright, 2010; Saavedra & Peréz, 2018; Theron & Malindi, 2010). Accordingly, research recommended that an understanding of resilience should be developed at a local level (Shean, 2015) since context is foregrounded as a significant variable across studies of adversity and the education landscape (Beltman et al., 2011; Ebersöhn, 2017; Johnson & Down, 2013; Shean, 2015). This understanding would include an agreed insight into resilience terms so that conceptualisation of resilience is grounded in the local community (Shean, 2015) such as a Global South context. Ebersöhn (2017) denoted the plausibility that education as a buffer against adversity may differ from country to country, including between the Global South and Global North.

I apply what Ebersöhn (2015), Theron (2011), and Vanderbilt-Adriance and Shaw (2008) suggested, that researchers should be more specific in terms of the resilience-related domain, context, or place being studied and avoid "normative" assumptions. Place dissimilarities, with inherent power and structural inequality, illustrate resilience (i.e., capability required for adaptation) within the confines of a given context (Ebersöhn, 2014, 2015). Studies (Beltman et al., 2011; Ebersöhn, 2019a, 2019b; Masten & Wright, 2010; Theron & Malindi, 2010; Theron & Theron, 2014) also *depicted resilience, although a universal experience, as a normative cultural process* influenced by cultural practices and philosophies. Theron (2011, p. 6) noted that the "complexity of the process of resilience, the design of developmentally, contextually and culturally sensitive resilience-promoting prevention and intervention was hamstrung". There is a risk involved in applying Western conceptualisations of resilience directly to a Global South setting which may lack understanding of cultural factors that contextualise resilience in different populations or settings (Theron, 2011; Theron et al., 2011). Culture, context, and indigenous philosophies should be considered to develop a coherent body of resilience research and an understanding of well-being cognisant of contextual and cultural demographics (Beltman et al., 2011; Chun et al., 2006; Kuo, 2013). Cultural differences are important in a Global South ecology as it differs from the historically Eurocentric and Global North dominating cultures, programmes and policies. Applying a usually western positive outcome across all contexts or cultures seems unethical and obstructs meaning-making in different contexts or cultures (Averill & McRae, 2019; Ebersöhn, 2017, 2019a; Kuo, 2013; Saavedra & Pérez, 2018).

According to Ebersöhn (2014, p. 568), adapting to chronic adversity, such as is evident in the Global South, needs a "cable of nonstop vigilance". This proposes a lifeline chain of resilience, conjoining uninterrupted incidences of adaption (i.e., mini-processes of adaptation) consecutively rather than as a once-off incidental process portraying an adversity beginning and positive adaptation end. Given the circumstances of significant adversity and structural disparity in the Global South, resilience implies that adaptive responses, using protective resources or assets on all levels may lead to better than expected outcomes (Ebersöhn, 2017). Therefore, human capital (i.e., intrapersonal assets), social capital (i.e., social stability, flocking) and contextual assets or resources exist collectively (Ebersöhn, 2012, 2017, 2019a). *Contextual protective factors* can include positive institutions (Seligman et al., 2009) that provide necessary services such as schools, libraries, hospitals, clinics, faith-based organisations, and welfare resources. Echoing Jordan (2006, 2013) (see Table 2.1), Ebersöhn (2012, 2016, 2019a) also highlighted the importance of connections or relationships as a resource that nurtures resilience.

Through her honeycomb analogy, Ebersöhn (2014) revealed how collectivism[33] engages interpersonal resources to promote unexpected positive outcomes. In high-risk transforming ecologies where individuals and communities face chronic, cumulative stressors, relationships are used to access and mobilise resources to counter dis-enablement (Ebersöhn, 2012, 2016, 2017). The expanding resilience research, in numerous disciplines (see Section 2.2), has prepared an emergent conceptual base for research on teacher resilience (Gu, 2018). Informed by well-being lenses on a psychological and individual level, researchers (Beltman et al., 2018; Ebersöhn, 2017; Mansfield et al., 2012; Rutter, 2012; Ungar, 2012a, 2012b) deliberate how these positions may be integrated for education research. As a result, the next section highlights teacher resilience literature for the purpose of the current study.

2.3 TEACHER RESILIENCE

2.3.1 INTRODUCTION

In Section 2.3, I position the current study within the framework of teacher resilience enabling pathways. I provide an overview of the conceptualisation of teacher resilience and theoretical approaches related to teacher resilience and investigate current trends within teacher resilience research.

Teacher resilience encapsulates those teachers that withstand the challenges of the education sector to resile (i.e., choose to stay in the profession, deliver quality education[34] and demonstrate job satisfaction and well-being) despite adversity and structural disparity. Teacher resilience can emerge as a combination of personality traits, learnt skills and developmental facilitated and shared socio-ecological processes between the teachers and their contexts. Teacher resilience through different lenses includes, for example, a multidimensional approach, strategic approach, active agent approach, Multi-level Teacher Resilience Model as well as a contextualised structural disparity lens contemplating resilience in spaces where poverty is high. Resilience, as grounded in positive psychology, is often applied as a lens to explore teacher stress and burnout. As highlighted in Chapter 1, teacher resilience research has escalated but remains an emergent research field with limited empirical evidence regarding the phenomenon, especially in a severely challenged context. The following section explores the conceptualisation of teacher resilience worldwide.

[33] Values, orientations, attitudes, beliefs and behaviours that binds a central unit for a meaning-making effect on individuals in a society where the group needs are prioritised (Chun et al., 2006; Kuo, 2013).
[34] Quality education encapsulates a complex system which include quality learners, environments, content, processes and outcomes (United Nations Children's Fund [UNICEF], 2000). Quality education is also indicated as one of the United Nations' (UN) Sustainable Developmental Goals (SDGs 4) to "ensure inclusive and equitable quality education and promote lifelong learning" (UN, 2015, p. 14). Teachers are a key component of meeting SDG 4 goals (UNESCO, 2019a, 2019b).

2.3.2 CONCEPTUALISING TEACHER RESILIENCE

This section attempts to conceptualise teacher resilience through relevant literature and theoretical approaches relating to teacher resilience in the next sections. The challenges teachers face daily have been well documented (e.g., Castro et al., 2010; Ebersöhn, 2014; Ebersöhn & Ferreira, 2012; Gu & Day, 2007; Kyriacou, 2001), highlighting the strains and vulnerability of one of the most demanding professions worldwide. The increasingly complex exigencies under such difficult conditions may exacerbate the negative effect on teachers' health, personal life, welfare and, consequently, on their teaching (Thieman et al., 2014; Wosnitza et al., 2014). Since many teachers are exposed to unpredictability and a transitional education sector, cultivating teacher resilience has become necessary (Ebersöhn, 2014; Gu & Day, 2013). Recent years have seen a particular shift towards focusing on teacher resilience as a proactive perspective as opposed to studies highlighting a reactive perspective on stress, barriers, burnout, attrition and ineffective teaching (Coetzee, 2013; Hong, 2012; Peixoto et al., 2018; Wosnitza et al., 2014, 2018). Researchers (Fleming et al., 2013; Peixoto et al., 2018; Yonezawa et al., 2011) explore the adaptive processes and educational planning efforts that facilitate the development of teacher resilience for effective coping within the profession. A resilience focus may provide a potential alternative perspective to understand how certain teachers manage, provide quality teaching and remain motivated over time (Gu, 2014, 2018; Gu & Day, 2013; Mansfield et al., 2012).

According to Gu and Day (2013, p. 22), teachers perceived resilience as being "allied to their everyday capacity to sustain their educational purposes and successfully manage the unavoidable uncertainties which are inherent in the practice of being a teacher. Their capacity to be resilient fluctuated because of the influences of the personal, relational and organisational settings in which they worked", thus leading to "everyday resilience". The statement, echoed Masten's (2001) description of resilience as "ordinary magic" as described in Section 2.2.2. Teacher resilience thus denotes teachers who maintain motivation in their daily working lives which sustain their educational purpose to culminate in resilience-enabling outcomes such as agency, commitment, quality teaching and teacher well-being (Gu & Day, 2013; Mansfield et al., 2016). Day and Gu (2013) claimed that teacher resilience has evident characteristics highlighting the characteristics as context-specific, role-specific and a conceptualisation of more than mere bouncing back from adversity.

Firstly, teacher resilience is characterised as context-specific by Day and Gu (2013). Contextual aspects such as school leadership support, trust in the management structures and constructive feedback from management, parents as well as learners may serve as positive influences on teachers' resilience (Day & Gu, 2010; Day et al., 2006). Day and Gu (2010) referred to organisational resilience to highlight the importance of leadership in harnessing resilience in teachers. Furthermore, Day and Gu (2013) outlined resilience in teachers as role-

specific. Teacher resilience is related to the strength, purpose, and conviction of teachers' vocation to serve (Day & Gu, 2010; Sammons et al., 2007). The role enables teachers to manage challenges during uncertain and inevitable recurring setbacks (Brunetti, 2006; Gu, 2018; Gu & Day, 2013). Lastly, teacher resilience, as trait, quality or personality characteristic (i.e., outcome, see Figure 2.3) seems to be the capacity of a teacher to "bounce back" or recover as well as to develop, learn and strengthen effective coping mechanisms or strategies over time, while gaining insight, maintaining equilibrium as well as commitment and agency to teaching despite the challenges experienced in the teaching world (Brunetti, 2006; Day, 2012; Day & Gu, 2010, 2013; Gu & Day, 2013; Masten, 2001; Wosnitza et al., 2018).

Day and Gu (2013) argued that the capacity to be resilient is important for resilience in teachers, with Sammons et al. (2007) postulated that teacher qualities are relevant to account for variances in learner progress. Teacher resilience plays a vital part in teachers' experiences and, thus, by implications the educational outcomes of their learners (Day, 2012; Ebersöhn, 2014; Thieman et al., 2012). Resilient teachers tend to *respond positively in challenging settings* (Gu & Day, 2007; Stanford, 2001; Tait, 2008); *demonstrate applicable strategies and perseverance for working with demanding or struggling learners* (Gibson & Dembo, 1984; Gu & Day, 2007; Stanford, 2001; Tait, 2008); and *deliver quality teaching and learning in varied contexts* (Gu & Day, 2007; Stanford, 2001; Tait, 2008), which may result in higher *learner achievement* and *greater learner resilience* (Woolfolk Hoy & Spero, 2005).

Resilient teachers are furthermore *enthusiastic about new ideas and approaches to meet their learners' needs* (Guskey, 1988; Ross et al., 1996); *exhibit high levels of planning and organisation* (Hewitt et al., 2017); *experience satisfaction in their work* (Gu & Day, 2007; Stanford, 2001; Tait, 2008); *have high self-efficacy, positive dispositions and are persistent despite setbacks and adversity* (Gibson & Dembo, 1984) and are *able to rebound after a challenging event, create meaning from it and set futuristic goals* (Tait, 2008). However, teacher resilience is conceptualised as *more than the ability to "bounce back"* and recovering quickly, resourcefully, and efficiently from difficulties in current literature (Day & Gu, 2007, 2013; Gu & Li, 2013). Established evidence (Ainsworth & Oldfield, 2019; Beltman & Mansfield, 2018; Coetzee, 2013; Day & Gu, 2007, 2013, Ebersöhn, 2014; Gu, 2018; Johnson & Down, 2013; Price et al., 2012; Theron & Theron, 2010; Wosnitza et al., 2014) promulgate the influence of situated dimensions and contextual elements of teachers' lives, which involve more complex multifaceted components than merely internal traits, assets or characteristics determined by nature alone. Gu and Li (2013) claimed that teacher resilience is shaped by intrapersonal qualities in collaboration with dynamic conceptual embedded elements of teachers' work and lives (i.e., the interaction of personal and contextual resources). In this regard, Johnson and Down (2013, p. 703) cautioned against "the tendency towards hyper-individualisation" when conceptualising teacher resilience in isolation (i.e., reductionism) and the consequent shift of primary well-being responsibility onto teachers.

This warning resonates with Ungar's (2011) principle of decentrality in resilience research. While Ainsworth and Oldfield (2019), expounding from Price et al. (2012), found that contextual effects on teachers' well-being within the profession are crucial for adaptation and does not rest on teachers alone. Teachers who resile use adaptive coping strategies (Skinner & Zimmer-Gembeck, 2011; Willers et al., 2013) to manage (portray through a sense of coherence, [A. Antonovsky, 1979]) everyday challenges and maintain commitment (as delineated by grit, Duckworth et al., 2007) to their vocation despite adversity in the teaching context (Brunetti, 2006; Gu & Day, 2013; Wosnitza et al., 2014). Hence, teachers demonstrate positive adaptation when they can draw upon individual (trait, capacity or characteristics) and environmental protective resources and employ coping strategies to manage daily strains or risk factors (Brunetti, 2006; Coetzee et al., 2017; Gu & Day, 2013; Jackson & Rothmann, 2005; Masten, 2001; Ungar, 2010, 2011, 2012a, 2012b; Willers et al., 2013). In this sense, teacher resilience takes account of the socio-cultural setting within the teachers' landscape viewing resilience as a dynamic multidimensional process of adaptation despite severe challenges (Mansfield et al., 2016; Peixoto et al., 2018). In addition, responding to challenges may also provide opportunities for professional growth and developmental paths, enabling teachers to thrive (Beltman et al., 2011; Mansfield et al., 2014; Peixoto et al., 2018; Wosnitza et al., 2014).

Addressing challenges by using intellectual, social and organisational environmental resources (Day & Gu, 2013) that facilitate resilience can enable teachers to verve beyond merely 'bouncing back' (Gu, 2014; Gu & Day, 2013; Wosnitza et al., 2018). Teacher resilience may therefore involve the *capacity* of a teacher to harness internal and external resources, as well as the dynamic *process* whereby teacher capacities and their professional and situated dimensions interact over time, to facilitate well-being *outcome*s in their everyday world of work (Gu, 2014; Gu & Day, 2007, 2013; Mansfield et al., 2016). The next sections discuss teacher resilience through different lenses.

2.3.3 TEACHER RESILIENCE THROUGH DIFFERENT LENSES

In this section, I outline various perspectives relating to teacher resilience to establish an evidence-based framework for teacher resilience. Researchers have conceptualised teacher resilience through different lenses, for example, *a multidimensional approach*, *strategic approach*, *active agent approach*, *the Multi-level Teacher Resilience Model* as well as a contextualised structural disparity lens. The following section thus explores different perspectives on teacher resilience to gain an enhanced understanding of teacher resilience within an international and Global South landscape.

2.3.3.1 Multidimensional, strategic, and active agent approach

Gu and Day (2007) conceptualised teacher resilience as a *multidimensional approach* in which internal and external resources interact to constitute resilience in teachers. A *strategic approach was* portrayed by Patterson et al. (2004), where teacher resilience is depicted as an adaptation process where numerous strategies are utilised. Castro et al. (2010) assumed a position from both these approaches portraying teachers as "*active agents, adopting various strategies to find balance and achievement in the face of adversity, often caused by minimal resources and challenging working conditions*" (Castro et al., 2010, p. 623). Given the extant data generated through the FIRE Teacher Resilience Measure for the current study, the Multi-level Teacher Resilience Model[35] (Wosnitza et al., 2014) is discussed in more detail next.

2.3.3.2 Multi-level Teacher Resilience Model

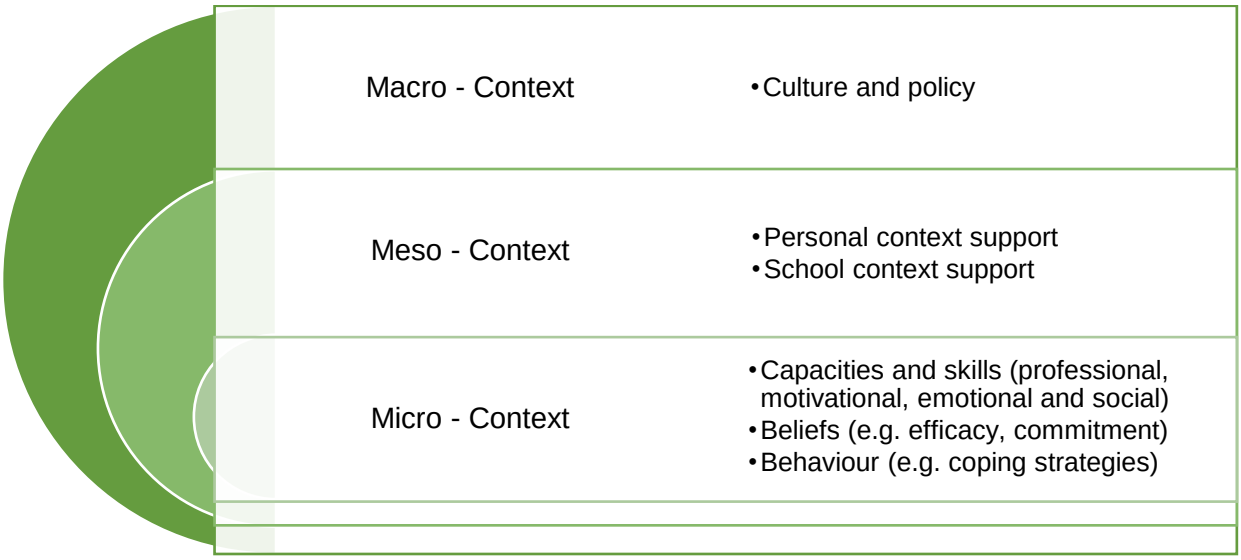
Wosnitza et al. (2014) postulated that teacher resilience is embedded in the notion that individual behaviour is the product of multifaceted systemic interaction. Furthermore, it is assumed that resilience can be promoted through support systems and environmental factors to enhance individual resilient responses over time (Mansfield et al., 2012; Wosnitza et al., 2014).

Resilience enabling pathways require identifying available, present and unique resources such as mobilising unused resources, community building and developing partnerships (Mansfield et al., 2018). Wosnitza et al. (2014, p. 2) thus argued that "individuals, drawing on personal, professional and social resources, not only 'bounce back' but also are able to thrive professionally and personally, experience job satisfaction, positive self-beliefs, personal well-being and an ongoing commitment to the profession". As demonstrated in Figure 2.4, the dynamic, heuristic *Multi-level Teacher Resilience Model* highlight resilience resources within the micro-, meso- and macrosystem (Bronfenbrenner, 1979; Wosnitza et al., 2014).

[35] The Multi-level Teacher Resilience Model originated from the ENTREE project (Mansfield & Wosnitza, 2015; Peixoto et al., 2018). See Appendix A for an overview of the ENTREE project.

Figure 2.4

Multi-level Teacher Resilience Model



Adapted from Wosnitza et al. (2014)

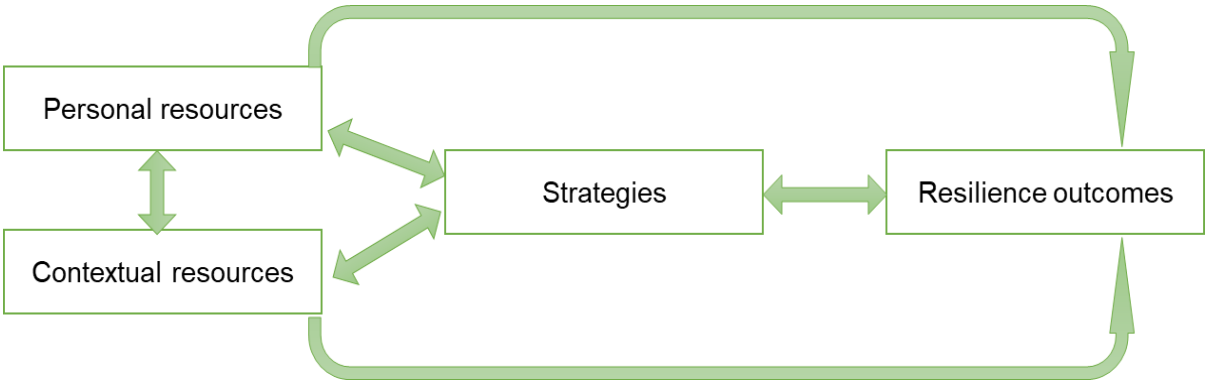
Within the microsystem, capacities are depicted as *social* (e.g., support, relationships, social competence, interpersonal and communication skills and problem-solving), *emotional* (e.g., humour, emotional management, emotional competence, coping strategies and enjoyment), *professional* (e.g. teaching competence, organisation, reflection, flexibility, planning and time management), and *motivational* (e.g. optimism, enthusiasm, positivity, perseverance confidence, self-efficacy, intrinsic motivation and goal setting) as well as behaviour strategies and beliefs of teacher resilience (Mansfield et al., 2012, 2018; Peixoto et al., 2018; Wosnitza et al., 2014). Mansfield et al. (2018) postulated that certain teacher personal resources (e.g., optimism, perseverance, coping, problem-solving strategies) in the microsystem remain uniform regardless of context. School and personal context support are portrayed in the mesosystem, while elements such as culture and policy are relevant within the macro context (Mansfield et al., 2012; Peixoto et al., 2018; Wosnitza et al., 2014). Differences at the macrosystem level may have greater variation in welfare, culture and education policies (Day & Gu, 2013; Gu & Li, 2013; Mansfield et al., 2012, 2018; Peixoto et al., 2018; Price et al., 2012; Wosnitza et al., 2014).

2.3.3.3 The teacher resilience process

As demonstrated in Figure 2.5, *the teacher resilience process* (Mansfield et al., 2016) is seen as multidimensional and dynamic, where resources are promoted through various strategies enabling resilience outcomes.

Figure 2.5

The Teacher Resilience Process



Adapted from Beltman (2020) and Mansfield et al. (2016)

As indicated in Figure 2.5, through the bidirectional arrows, resilience is shaped by complex, interrelated and dynamic contextual and personal resources (Beltman, 2020; Mansfield et al., 2016). Personal resources include capacities such as emotional competence, while contextual resources encapsulate, for example, supportive relationships and mentors.

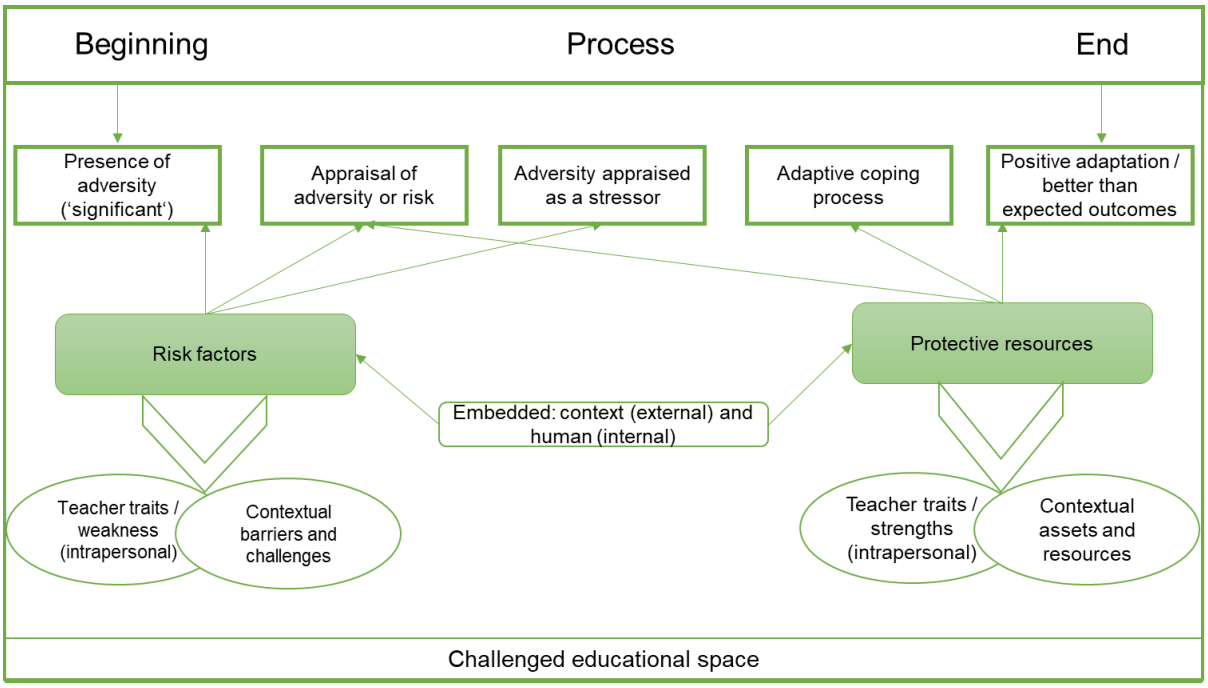
The capacity for resilience is demonstrated by the mobilisation of personal recourse as well as contextual resources using various strategies (Beltman, 2020; Beltman et al., 2018). Strategies may comprise professional learning and effective planning. This conceptualisation draws together views of resilience centring personal capacity, environmental enabling or constraining resources, adaptation processes and teacher resilience as a necessary well-being outcome (Mansfield et al., 2016). Resilience outcomes are then seen in committed teachers experiencing job satisfaction and engagement (Beltman et al., 2018).

2.3.3.4 Contextualised structural disparity lens

Given the Global South context of the current study, as highlighted in Chapter 1, an overview of Ebersöhn's (2014) theoretical lens for teacher resilience in a challenged context is provided and employed within the conceptual framework (see Section 2.8). Ebersöhn (2014) argued that resilience as an outcome (i.e., static resiliency or trait) and process (i.e., the dynamic and interactive interface between the individual and ecological system risk and protective factors) coexist in the South African teacher profile as represented in Figure 2.6.

Figure 2.6

Contextualised Structural Disparity Lens



Adapted from Ebersöhn (2014)

Ebersöhn (2014) delineated resilience in South African teachers as a transactional ecological process and an adaptive outcome or trait. She reiterated, as shown in Figure 2.6, that teacher resilience are evident in the presence of structural disparity with the teacher appraising (see Skinner & Zimmer-Gembeck, 2007, 2011 in Table 2.1) the relative significance of the challenge or risk factor based on personal perception and awareness of their context (Ebersöhn, 2014). The importance of the risk is regulated by contextual familiarity, including the physical context and psychological, social, spiritual, and cultural protective factors.

Risk, as well as protective factors, is embedded in the teacher (internal) as well as the specific context or ecology (external) (Ebersöhn, 2014; Mapfumo et al., 2012; Ungar, 2012a; Ungar et al., 2013). The teacher then evaluates available assets to adapt to the risk by engaging in specific coping behaviour (Skinner & Zimmer-Gembeck, 2007, 2011; Willers et al., 2013) to manage the stressor. A resilient teacher would be able to identify and access internal and external protective resources and employ those as mentioned earlier, in a sustained manner to mediate chronic and cumulative challenges (Ebersöhn, 2014). As a result, teachers may follow different paths to develop resilience processes to negotiate a perceived dissonance between available assets and adversity (Coetzee, 2013; Coetzee et al, 2017; Ebersöhn, 2014).

In spite of the various foci in the conceptualisation and frameworks of teacher resilience discussed, teacher resilience seems to emerge as a dynamic interaction of intrapersonal characteristics, developed skills and developmental processes (Bobek, 2002; Coetzee, 2013; Ebersöhn, 2014; Gu & Day, 2007; Johnson & Down, 2013; Knight, 2007; Mansfield et al., 2012;

Muller et al., 2014; Stanford, 2001; Yonezawa et al., 2011) delineating the interactive qualities of resilience that can buffer against adversity (Ebersöhn, 2014). The aforementioned highlights Beltman's (2020) overview of different perspectives regarding teacher resilience as *person-focused* (i.e., trait or personal capacity or agency), *process-focused* (i.e., interface between individual and contextual interaction, where teachers employ well-being strategies to resile), *context-focused* (i.e., contextual challenges and sources of support for resilience), and *system-focused* (i.e., the collective dynamic interactive nature between levels of a system).

Given the perturbing amount of teachers indicating burnout (Cefai & Cavioni, 2014; Clement, 2017; Wosnitza et al., 2014; Zuma et al., 2016), high attrition rates (Muller et al., 2014) and teachers leaving the profession, especially during the first 5 years (OECD, 2017a; Wosnitza et al., 2014), teachers need to be equipped for the demanding vocation to provide quality teaching and thrive within the teaching (Wosnitza et al., 2014). According to Wosnitza et al. (2014), a discussion on quality of teaching cannot exclude teacher resilience, with researchers (Ebersöhn, 2014; Masten, 2001; Thieman et al., 2012) echoing that one of the factors influencing learner outcomes is teacher resilience. Therefore, teacher resilience is vital, since teachers who remain and provide quality teaching may impact learners' performance (Day, 2012; Day & Gu, 2010; Thieman et al., 2012). Consequently, the following section investigates trends in teacher resilience research.

2.3.4 TRENDS IN TEACHER RESILIENCE RESEARCH

In recent years, research has focused on a multitude of constructs associated with or sustaining teacher resilience and factors hindering teacher resilience. Teacher resilience is a fairly novel research domain and to develop an enhanced understanding of the phenomenon, requires an inquiry into the complex relationship between the risk factors and protective resources evident in the teaching profession (Gu, 2014). Consequently, it is needed to explore and determine elements that enable teachers to choose and stay in the profession as well as the factors that disenable resilience in teachers.

The following sections explore risk factors (i.e., that constrain resilience) enabling expected or predicted negative outcomes and protective factors (i.e., facilitating resilience) enabling unexpected or unpredicted positive outcomes despite the risk given current literature trends within the teacher resilience field. I highlight risk factors constraining teacher resilience first and the enablers of resilience in subsequent sections.

2.3.4.1 Risk factors constraining teacher resilience

Literature identified personal and contextual risk factors which may counter the resilience in teachers, possibly leading to stress, burnout, impaired performance, absenteeism, high turnover and attrition (Cefai & Cavioni, 2014; Clement, 2017; Diale et al., 2014; Fleming et al., 2013; Gu & Li, 2013; Zuma et al., 2016).

Personal risk factors may typically include, for example, *lacking motivation, professional competence and commitment* (Fleming et al., 2013; Mansfield et al., 2016); *negative self-beliefs, confidence or efficacy* (Beltman et al., 2011); *lack of coping strategies, self-care and boundaries implementation* (Fleming et al., 2013); *ineffective classroom management beliefs* (Beltman et al., 2011; Delale-O'Connor et al., 2017; Gu & Day, 2013; Kitching et al., 2009); *difficulties in help-seeking* (Beltman et al., 2011); *limited social competence or relational resilience* (Castro et al., 2010; Coetzee et al., 2017) as well as *conflict between internal beliefs and school-prioritised expectations* (Ainsworth & Oldfield, 2019; Beltman et al., 2011). Internal barriers may affect teachers' confidence to teach and to cope with challenges (Bobek, 2002). Teacher resilience should not be simplistically embedded to enable overworked teachers to "just cope" with challenges by merely learning to "bounce back" from adversity without attempts to change the contextual discourses (Price et al., 2012). Therefore, contextual risk factors should be carefully considered.

Contextual risk factors include *inadequate professional preparation* (Peixoto et al., 2018); *the uncertainty of the reality of the job* (Sayed & McDonald, 2017; Thieman et al., 2014); *demoralizing political mandates* (Beltman et al., 2011), *inconsistent standards and policy-related issues (e.g., increased administrative and excessive policy reform) with pressure for performance appraisal* (Day & Gu, 2013; Gu, 2018; Gu & Li, 2013; Price et al., 2012); *family responsibility and relationship* (Fleming et al., 2013); *inadequate mentoring or developmental support* (Black, 2015; Hong, 2012; Le Cornu, 2009); *school reform efforts* (Fleming et al., 2013); *lack of support from school administration* (Fleming et al., 2013; Flores, 2018; Peixoto et al., 2018; Peters & Pearce, 2012; Waddell, 2007); *lack of adequate resources* (Fleming et al., 2013); *duties not directly related to teaching (e.g., demanding extra-mural responsibilities), role overload or expanded roles* (Castro et al., 2010); *intense and overwhelming workload* (Ainsworth & Oldfield, 2019; Castro et al., 2010; Chisholm et al., 2005; Ebersöhn, 2014; Peixoto et al., 2018; Waddell, 2007; Zuma et al., 2016); *lack of participation in school decision making* (Fleming et al., 2013); and *poor working conditions* (Ainsworth & Oldfield, 2019; Fleming et al., 2013; Johnson & Down, 2013; Price et al., 2012; Zuma et al., 2016).

Inadequate working conditions and stressors teachers may deal with include *insufficient incentives, poor or uncompetitive salaries*; *work stability or education reform*; *burden of paperwork*; *overcrowded curriculum; large classes or increased class size per teacher; disruptive misbehaviour, unacceptable or challenging learner behaviour*; *poor learner*

motivation; *unmet needs that hinder teacher professional growth and development prospects; emotional demands; increased assessment, portfolios and curriculum demands*; *organisational challenges at schools*; *long hours and time constraints*; with a *lack of time for personal interests; and administrative responsibilities and record-keeping* (Beltman et al., 2011; Castro et al., 2010; Chisholm et al., 2005; Fleming et al., 2013; Gu, 2018; Johnson & Down, 2013; Peixoto et al., 2018; Sayed & McDonald, 2017; Van Staden & Zimmerman, 2017; Waddell, 2007; Zuma et al., 2016). The presence of risk factors (or absence of protective factors) may give rise to expected or predicted negative outcomes.

2.3.4.2 Expected or predicted negative outcomes: Teacher stress, burnout and attrition

The teaching profession has become more demanding (Peixoto et al., 2018). The stress of the job may adversely affect teachers' well-being and preclude a suitable work-life balance (Day & Gu, 2007, 2010, 2013). Stress can be recognised through mental or psychological indicators (e.g., anxiety, negative emotions, lower concentration, and depression) as well as somatic symptoms (e.g., stomach aches, insomnia, fatigue, headaches, appetite or weight issues, and high blood pressure) (Fleming et al., 2013; Jackson & Rothmann, 2005; Selye, 1976). The negative end of the stress continuum interrelates with the notion of teacher burnout (i.e., physical, emotional, and attitudinal exhaustion resulting from an inability to cope adequately with job demands and the level of distress generated by the profession) (Cefai & Cavioni, 2014; Clement, 2017; Wosnitza et al., 2014). A (dis)stressed teacher may, therefore, be irritated, frustrated, forgetful, lack emotional availability and withdraw from relationships with learners and colleagues (Clement, 2017; Fleming et al., 2013). A lack of balance (e.g., limited time for personal, social and family life) may result in a strong work engagement and teaching responsibility but the consequences are possible stress and burnout, lower-quality interactions with learners, lowering of teacher morale and well-being leading to a likelihood of teacher attrition (Fleming et al., 2013; Jackson & Rothmann, 2005; Thieman et al., 2012).

Attention has been paid to the high teacher attrition ratio (Arends, 2011; Mansfield et al., 2018; Zuma et al., 2016), especially early career teachers within the first 5 years of teaching (Hong, 2012; OECD, 2017a; Peters & Pearce, 2012; Wosnitza et al., 2014). Debate, both nationally (Diale et al., 2014; Diko & Letseka, 2009; Ebersöhn, 2014; Mlachila & Moeletsi, 2019; Spaull, 2015) and internationally (Ee & Chang, 2010; Gu & Day, 2007; Hong, 2012; Lowe & Prout, 2019; OECD, 2019c; Peters & Pearce, 2012), in relation to quality teacher recruitment and retention remains. Frequently cited reasons why teachers consider leaving the profession included disruptive learner behaviour; lack of appropriate support adding to a sense of incompetence and creating feelings of isolation and alienation; unmanageable workloads; demanding targets; and excessive administration (Mansfield et al., 2016; Peters & Pearce, 2012).

Teacher resilience is an alternative lens to explore retention, despite challenges, in the education sector (Hong, 2012; Peixoto et al., 2018). Hong (2012) examined the variances between leaver and stayer teachers based on their resilience response processes. Indicators like values, beliefs and emotions were highlighted to appraise how leavers and stayers compared in negotiating and interpreting external contexts. The findings indicated that both groups acknowledged similar difficulties working as a teacher (e.g., curriculum delivery and classroom management) and demonstrated an intrinsic interest in working as a teacher. However, stayers displayed stronger self-efficacy beliefs and boundaries with strategies to prevent burnout (Hong, 2012). Consequently, attrition may be less likely for teachers with strong resilience (Ee & Chang, 2010; Hong, 2012). Resilience may provide teachers with the capital to cope with challenges effectively to prevent burnout and attrition (Ainsworth & Oldfield, 2019; Thieman et al., 2014).

2.3.4.3 Teacher resilience enablers

In contrast with risk factors, resilience studies have demonstrated the association between teacher resilience and many related constructs. Prior research has proposed several individual (i.e., person-focused, intrapersonal, traits or capacities) and contextual (i.e., context-focused) resources that may enable resilience in teachers.

Individual resilience-facilitating factors may include *self-efficacy* (Beltman et al., 2011, 2018; Bobek, 2002; Bosch, 2020; Day & Gu, 2013; Ee & Chang, 2010; Gu & Day, 2007; Morgan, 2011; Price et al., 2012; Sammons et al., 2007); *positive self-belief* (Le Cornu, 2009; Wosnitza et al., 2014); *values and morals* (Flores, 2018; Gu, 2018; Hong, 2012); *coping skills* (Morgan, 2011) or *strategies* (Castro et al., 2010; Connor & Davidson 2003; Tait, 2008; Willers et al., 2013); *social competence* (Bosch, 2020; Mansfield et al., 2012, 2018; Peixoto et al., 2018; Wosnitza et al., 2014), *interpersonal skills* (Gu & Day, 2007; Tait, 2008) *and communication* (Tait, 2008); *positive emotions* (Tugade & Fredrickson, 2004), *emotional competence* (Ainsworth & Oldfield, 2019; Beltman et al., 2011, 2018; Bosch, 2020; Cefai & Cavioni, 2014; Day & Gu, 2013; Ee & Chang, 2010; Hong, 2012; Jennings et al., 2013; Knight, 2007; Mansfield et al., 2012, 2018; Morgan, 2011; Tugade & Fredrickson, 2004) including *empathy* (Jennings et al., 2013; Tait, 2008), *humour* (Bobek, 2002) and *optimism* (Day, 2012; Ee & Chang, 2010; Gu & Day, 2007; Knight, 2007; Tait, 2008), *professional, goals, competence and development* (Beltman et al., 2011; Bosch, 2020; Day & Gu, 2007, 2010, 2013; Flores, 2018; Gu & Day, 2007; Hong, 2012; Papatraianou & Le Cornu, 2014; Peixoto et al., 2018; Tait, 2008), *teacher identity formation* (Beltman et al., 2011; Day et al., 2006; Hong, 2012; Johnson & Down, 2013; Pearce & Morrison, 2011; Price et al., 2012) and *systematic reflection* (Le Cornu, 2009; Wosnitza et al., 2014, 2018); *persistence* (Gu & Li, 2013; Peixoto et al., 2018), hardiness (Matthews, 2016) and *grit* (Matthews, 2016; Perkins-Gough, 2013);

and *motivation* (Beltman et al., 2018; Gu & Day, 2007; Lohbeck, 2018; Mackenzie, 2012; Mansfield et al., 2012, 2018; Peixoto et al., 2018; Sammons et al., 2007).

Resilience studies have, furthermore, demonstrated the association between increased teacher resilience and a *strong sense of vocation (i.e., the call to teach or serve)* (Day, 2012; Day & Gu, 2010; Hong, 2012; Sammons et al., 2007); *effective adjustment and flexibility to accommodate constant change* (Bobek, 2002; Gu & Day, 2007; Peixoto et al., 2018; Wosnitza et al., 2014); *a sensible, transient and realistic view of negative events (i.e., not take it personally)* (Papatraianou & Le Cornu, 2014); *successful management of work-life tension* (Day & Gu, 2010); and *a positive impact on learning as well as learner progress, emotion, outcomes and achievement promotion* (Day, 2012; Day & Gu, 2010; Gu & Day, 2013; Price et al., 2012; Sammons et al., 2007, Thieman et al., 2012).

Substantial attention has also been award to **contextual factors** on teacher adaptation. Contextual influence includes factors such as *school culture* (Ainsworth & Oldfield, 2019; Beltman et al., 2018; Day, 2012) and *conditions* (Gu & Li, 2013); *being part of decision-making processes* (Johnson & Down, 2013); *supportive mutually sustainable and trusting relationships (e.g. relational resilience*) (Castro et al., 2010; Cefai & Cavioni, 2014; Day & Gu, 2010, 2013; Ebersöhn, 2012, 2014; Gu & Day, 2013; Jordan, 2006, 2013) including *personal and professional relationships* (Le Cornu, 2013; Papatraianou & Le Cornu, 2014; Peixoto et al., 2018) *with colleagues, learners, parents, communities, management or school leaders* (Ainsworth & Oldfield, 2019; Day & Gu, 2010, 2013; Gu & Day, 2013; Papatraianou & Le Cornu, 2014; Peters & Pearce, 2012); *support networks* (Beltman et al., 2018) including *social, collegial or personal support* (Brunetti, 2006; Cefai & Cavioni, 2014; Day & Gu, 2010; Knight, 2007; Mansfield et al., 2012, 2014; Morgan, 2011; O'Sullivan, 2006; Peixoto et al., 2018); *leadership* (Ainsworth & Oldfield, 2019; Day & Gu, 2010; Peters & Pearce, 2012), *community engagement* (Peixoto et al., 2018) and *support for teacher professional development through collaboration, networking and tangible assistance* (Day & Gu, 2013; Gu & Day, 2013; Mansfield et al., 2012; Papatraianou & Le Cornu, 2014); and *the development of communities that enable*s *reflection about teaching praxes* (Day & Gu, 2013; Gu & Day, 2013; Wosnitza et al., 2014, 2018). When considering the setting in which teachers work, the presence of resilience enablers may lead to unexpected, unpredicted or better than expected positive outcomes (Ebersöhn, 2014; Mansfield et al., 2016).

2.3.4.4 Unexpected, unpredicted or better than expected positive outcomes despite significant risks

The personal and contextual resources interact through dynamic **socio-ecological processes** enabling possible resilience outcomes such as *high levels of well-being* (Ainsworth & Oldfield, 2019; Bobek, 2002; Brouskeli et al., 2018; Cefai & Cavioni, 2014; Day & Gu, 2010, 2013; Gu & Li, 2013; Wosnitza et al., 2014); *job or career satisfaction and fulfilment* (Ainsworth &

Oldfield, 2019; Arnup & Bowles, 2016; Beltman et al., 2018; Bobek, 2002; Gu & Day, 2007; Gu & Li, 2013; Mansfield et al., 2016; Wosnitza et al., 2014); and *ongoing commitment* (Arnup & Bowles, 2016; Beltman et al., 2018; Brunetti, 2006; Chesnut, 2017; Day & Gu, 2007, 2013; Gu, 2018; Gu & Li, 2013; Mansfield et al., 2016; Morgan, 2011; Peixoto et al., 2018; Wosnitza et al., 2014) *enthusiasm* (Mansfield et al., 2016), *active engagement* (Beltman et al., 2018; Gu & Li, 2013; Hong, 2012) and *agency* (Johnson & Down, 2013; Mansfield et al., 2016; Yost, 2016) with *effective and quality teachers* (Arnup & Bowles, 2016; Bobek, 2002; Gu & Day, 2007, 2010) *who are continuously developing in the profession* (Beltman et al., 2018).

Alternatively to teacher stress, burnout and attrition (as discussed in Section 2.2.2), teacher resilience relates positively with occupational well-being (Ainsworth & Oldfield, 2019; Bobek, 2002; Brouskeli et al., 2018; Cefai & Cavioni, 2014; Day & Gu, 2013; Ebersöhn, 2014; Gu & Li, 2013; Wosnitza et al., 2014). Well-being and job satisfaction may be indicative of teacher adaptation and is vital for teacher retention within the teaching profession (Ainsworth & Oldfield, 2019; Bobek, 2002; Day, 2012; Jackson & Rothmann, 2005; Mansfield et al., 2016). Protective mechanisms, traits, factors or strategies are reported to assist teachers in maintaining a positive work-life balance to enhance teacher well-being, coping capacity and counteract stress and burnout effectively.

These mechanisms incorporate, for example *self-care habits (e.g., diet, exercise*, *and sleep as well as making time for themselves, leisure activities, socialisation, and practising reflection) focusing on emotional, physical and mental wellness* (Beltman et al., 2011; Cook et al., 2017); *optimistic thinking* and *mindset, positive self-talk and* a *positive attitude as well as humour* (Beltman et al., 2011; Tait, 2008; Yost, 2016); *self-esteem* (Ainsworth & Oldfield, 2019); *effective time management strategies or time-efficient practices* (Mansfield et al., 2016; Thieman et al., 2012; Wosnitza et al., 2014); *self-regulation between work and life to increase job satisfaction* (Jennings et al., 2013); *setting and sustaining appropriate work boundaries (i.e., establishing limits in terms of workload, role, tasks and time)* (Hong, 2012); *being active agents for their well-being, while accepting the transient nature of life* (Fleming et al., 2013); *establishing and maintaining supportive relationships within and outside the teaching landscape* (Ainsworth & Oldfield, 2019; Cefai & Cavioni, 2014; Day & Gu, 2013; Olsen, 2017).

The well-being of teachers has also been shown to affect the learners in their care since satisfied teachers are likely to create an effective learning environment with more productive classrooms (Day, 2012). The affective dimension of the classroom is related to the likelihood of school completion, attendance and achievement. Hence, well-being seems important for learners, teachers, and school communities. Nonetheless, Price et al. (2012) argued that the accountability of well-being and self-care could not be the sole responsibility of the individual teacher since dominant contextual factors influence how teachers experience their role.

Teacher resilience focuses on thriving teachers who deliver high-quality and effective teaching and learning, regardless of career stage, to all learners in varied contexts (Gu & Day,

2013; Mansfield et al., 2016; Stanford, 2001). *Quality in education* can signify the positive inputs from teachers and learners (Pareek & Rathore, 2016) and holds the opportunity to change lives, especially for the youth sector (World Bank, 2018). Teachers' positive adaptation to their professional role influences their teaching performance, desire, engagement and ability to teach, their academic rigour, and cultivate learner-teacher relationships (Ainsworth & Oldfield, 2019; Day et al., 2006; Gu & Day, 2007; Guskey, 1988; Somech & Drach-Zahavy, 2000). Teacher quality is also a critical factor in effective schools where learners are educated in a conducive environment and teachers feel supported in collegial conditions (Arnup & Bowles, 2016; Beltman et al., 2011; Cefai & Cavioni, 2014; Day & Gu, 2010). These conditions, in turn, encourage teacher commitment and retention with which may result in higher learner performance. Effective schools and teachers provide learners with successful mastery experiences to encounter achievement that nurtures motivation, resilience, self-efficacy and persistence despite challenges (Arnup & Bowles, 2016; Ee & Chang, 2010; Woolfolk Hoy & Spero, 2005).

Teacher effectiveness includes planning, organisation and preparation, classroom environments as well as instruction and teaching skills (Beltman et al., 2011; Tournaki et al., 2009; Wosnitza et al., 2014). To teach effectively, teachers must maintain resilience to cope with stress (Evans-Palmer, 2010, 2016). The fact that negative experiences (even small incidents) are inevitable in the teaching landscape makes it essential for effective teachers to resile (Meyer & Turner, 2006). Therefore, effective teaching skills (Beltman et al., 2011; Tournaki et al., 2009; Wosnitza et al., 2014); as well as organisation and preparation (Tournaki et al., 2009; Wosnitza et al., 2014) is crucial to teacher resilience since it has an immediate effect on learners and impact classroom experiences that affect learning.

Aspects such as *teacher emotion and emotional regulation* (Ee & Chang, 2010; Meyer & Turner, 2006; Tait, 2008); *professional development, teacher sense of identity* (Beltman et al., 2011; Cefai & Cavioni, 2014; Day & Gu, 2010; Day et al., 2006; Hong, 2012; Price et al., 2012); *commitment and retention* (Beltman et al., 2011;Cefai & Cavioni, 2014; Day & Gu, 2007, 2010); *motivation, goal setting and teacher efficacy* (Gibson & Dembo, 1984; Meyer & Turner, 2006; Ross et al., 1996; Tournaki et al., 2009) with *responsive and differentiated personal and professional support* as well as *relationships* (Beltman et al., 2011; Cefai & Cavioni, 2014; Day & Gu, 2007, 2010, 2013) are integral to promote teaching effectiveness. Given the resilience trends discussed, the following section deliberates on a teacher resilience lens for Global South challenges within the context of the current study.

2.3.5 CHALLENGES AND PREDICTED NEGATIVE OUTCOMES CONSTRAINING RESILIENCE IN A GLOBAL SOUTH EDUCATIONAL LANDSCAPE

Given the far-reaching influence of South Africa as an exemplar of a Global South context, the following section highlights the barriers and predicted or expected negative outcomes

within a challenged educational space within the South African education landscape relevant to the current study.

According to the World Development Report (World Bank, 2018), there is a worldwide learning crisis, although education is still viewed as a vital factor for transformation. Worldwide the teaching profession is labelled as an emotionally and physically challenging career (Gu & Li, 2013), with health professionals characterising teaching as a vulnerable occupation with high levels of stress and burnout. Even though there are coinciding universal educational challenges in developed (e.g., Global North and Western Europe) and developing countries, the Global South educational landscape (such as South Africa) is faced with systemic risk factors that are a result of a distinctive socio-political context and emerging economy (Ebersöhn, 2014, 2015, 2017; Zuma et al., 2016). Nevertheless, Global North views and dispositions are engrained in Global South education programmes (Saavedra & Pérez, 2018), impeding the education advancement and social ascendant of indigenous people (Ebersöhn, 2019a). The knowledge systems as well as production in and views of the Global South, therefore, may be relegated in favour of Global North and Eurocentric counterparts (Saavedra & Pérez, 2018). Furthermore, there are variations in expected achievement standards and in what is taught between developing and developed countries necessitating the development of frameworks in a challenged context (Spaull et al., 2020; Van Staden & Zimmerman, 2017).

As highlighted in Chapter 1, a Global South place is characterised by chronic and cumulative barriers, which further exacerbate the adversities inherent in the education system and teaching profession within a challenged context. Ideological, socio-economic and political shifts imply incessant change and require continuous adaptation in the system (Ebersöhn, 2015). The social, cultural and political context in which an education system is embedded and in which teachers work can thus not be ignored since it influences a country's ability to retain and develop committed teachers (Gu, 2014; Tikly, 2001; Tikly & Bond, 2013). Post-colonial societies or developing countries are typified by adverse educational spaces due to structural disparity, marginalisation and inequality, predicting high vulnerability to risks and compromised opportunities for positive developmental outcomes (Ebersöhn, 2016; Nkoana, 2017; Sayed & Badroodien, 2016) with repercussions at a policy level (Howie et al., 2012; Mansfield et al., 2018), as well as consequences for the teachers' working environment (Castro et al., 2010).

Scholars (Ebersöhn, 2017; Mlachila & Moeletsi, 2019) argued that South Africa's historically low structural economic growth with a limited initiative to generate entrepreneurial income and stasis of human capital may in part be due to a decelerated transformation in the education sector with dismal outcomes. The multi-level risk factors in post-colonial South Africa may remain fundamentally unchanged which impede quality education (Ebersöhn, 2017; Harber & Mncube, 2011). Presently, the South African ecology is thus characterised by educational instability, multi-faceted systemic barriers and inequality found in place, space

and time of a Global South exemplar (Bhengu, 2019; Bisseker, 2019; Bryan, 2005; Ebersöhn, 2015; Magubane, 2019; Sayed & Badroodien, 2016). The constraints mentioned hold true for basic and higher education systems in South Africa.

2.3.5.1 Higher education challenges pertaining to the education landscape

Regarding the higher education sector, tertiary education attainment in South Africa is the lowest based on the OECD comparison (OECD, 2019a). Although increasing, only 7% of the population obtains a tertiary qualification demonstrating that tertiary attainment in South Africa remains low in contrast to worldwide indicators (OECD, 2019a). The DHET (DHET, RSA, 2018b) indicated that 975,837 students were enrolled in the 26 public HEIs in 2016, with around 19,214 lecturers (instructional and permanent research staff) employed. Education enrolment for students between 23–38 years at South African universities accounted for 22.0% of enrolments, which is the second-highest enrolment rate per field of study (DHET, RSA, 2018b). Furthermore, according to the DHET (DHET, RSA, 2018b), 176,986 students were enrolled in public HEIs, with 42,107 students graduating within the education field in 2016. Furthermore, related to the global teacher shortage, South Africa does not graduate enough pre-service teachers to meet the supply and demand within the teaching landscape (Sayed & McDonald, 2017; UNESCO, 2019a, 2019b). Currently, South Africa's initial teacher institutions graduate around 15,000 novice teachers per year. This number is below the benchmark (25,000-indicator) needed to sustain an effective teacher-learner ratio (DBE, RSA, 2018b; Maphalala & Mpofu, 2019; Sayed & McDonald, 2017).

National funding for public HEI is 0.6% of gross domestic product (GDP)[36] compared to the average of 0.9% worldwide (OECD, 2019a). Additionally, the employment rate for 25–64-year-olds South Africans with a tertiary qualification was 85%, while South Africans without a tertiary qualification seem less likely to be employed (OECD, 2019a). Nonetheless, despite the benefits higher education enables, most young South Africans leave the education system before the age of 25-years (OECD, 2019a). Moreover, responses confronting inequality structures (Ebersöhn, 2019a) give rise to movements such as *#Fees-Must-Fall*[37] that emerged at South African public universities from the end of 2015, encumbering HEI activities (Mavunga, 2019). However, Mlachila and Moeletsi (2019) argued that free tertiary education, given the GDP expenditure on public education discussed next, is likely to deliver disappointing results in South Africa without addressing the inadequate foundations at basic education (i.e.,

[36] Typical government expenditure (current, capital, and transfers) on education is extracted as a percentage of GDP (OECD, 2017b, 2019c).
[37] SA public HEI experienced student-led protest movements demanding fee-reductions, free higher education and increasing government funding, commencing in October 2015 at the University of the Witwatersrand (Wits). The aforementioned escalated to other government-funded universities including the University of Pretoria in 2016 under the #Fees-Must-Fall2016 movement which necessitated the move to online teaching and learning (Mavunga, 2019).

primary and secondary school) levels. Therefore, South African basic educational constraints, within a Global South context, are discussed on a macro-level (i.e., education expenditure, education achievement outcomes, policy and curriculum changes, language as well as access to education) and the micro-level (school, learner, and teacher) relevant to the current study.

2.3.5.2 Basic Education challenges pertaining to the education landscape

The average worldwide GDP expenditure for education is 5.2% (McFarland et al., 2018; OECD, 2014a). However, in 2018 the South African GDP expenditure on education was 6.16% (approximately 20% of the national budget) which is higher than the average international GDP expenditure for public education and exceeding many Sub-Saharan African (SSA) countries (OECD, 2014a; Mlachila & Moeletsi, 2019). South Africa thus spends a large part of its capital on public education funding in comparison to international standards (OECD, 2019a). Most of the funding (94%) is allocated to primary (FP/ECD, IP, SP), secondary (SP and FET) and post-secondary non-tertiary education (OECD, 2019a). However, despite considerable education and policy investments, learner outcomes (in the form of learner performance) remain inadequate (Van Staden & Zimmerman, 2017) with disappointing retention and throughput rates (Gustafsson & Nuga Deliwe, 2020; Ngqakamba, 2019; Sing & Maringe, 2020; Spaull, 2015). According to the DBE, RSA (2018a), South Africa's public[38] school education sector had approximately 410,000 teachers working in 25,000 national schools and were responsible for educating 12.9 million learners in 2018 (DBE, RSA, 2018a; Maphalala & Mpofu, 2019). Basic education attainment in South Africa is increasing[39], yet is still low compared to international indicators (OECD, 2019a, 2019c). Given the Global South backdrop, numerous attainment discrepancies and challenges are evident with limited improvement in the education structures (McKeever, 2017).

In 2018 the national pass rate for Grade 12 learners completing their South African National Senior Certificate (NSC) examinations was 78.2% with critics (Ngqakamba, 2019; Spaull, 2015) arguing that the latter is a misleading reflection of the true pass rate since almost 50% of learners commencing their schooling career in 2007 (Grade 1) did not complete Grade 12 in 2018. Although an increase was noted in the pass rate for 2019 (87.3%) and a slight decrease in 2020 (76.2%) (DBE, RSA, 2021), the drop-out rate, due to contextual factors perpetuated by a worldwide health pandemic, indicated below-expected Grade 12 outcomes (Gustafsson & Nuga Deliwe, 2020; Sing & Maringe, 2020). Similarly, the *Annual National Assessments* (ANAs)[40] (DBE, RSA, 2018a, 2018c) confirmed that most South African learners

[38] Approximately 92.7% of learners attend public schools in South Africa (DBE, RSA, 2018c).
[39] Implementation of the South African Schools Act (SASA) enforced compulsory schooling for learners aged 7 to 15 (Grade 1 – Grade 9) (RSA, 1996a).
[40] The ANAs are standardised national assessments for languages and mathematics in the SP and IP and in literacy and numeracy for the FP (DBE, RSA, 2018c).

underperform (Van der Berg, 2015) within a national context, signifying disquieting results for education progress. Furthermore, large-scale international research studies, such as Trends in International Mathematics and Science Study (TIMSS)[41], Progress in International Reading Literacy Study (PIRLS)[42] and PISA indicated below average results for South African learners on basic skills such as literacy, reading, science, and mathematics calculations (Van Tilburg, 2019). This conclusion especially holds true for learners attending dysfunctional (mostly no-fee) schools achieving below national and international standards (Spaull, 2011). Nonetheless, given government spending, Mlachila and Moeletsi (2019) premised that insufficient funding is thus not the reason for poor-quality education, but rather how funding is applied. Ebersöhn (2017) also argued against stand-alone strategies for increased spending in education. As a result, policy and curriculum development and implementation are relevant to the discussion.

Educational policies and curriculum development have been continuously modified over the last two decades in South Africa (DBE, RSA, 2018a, 2018c; Howie et al., 2012). Therefore, on a policy and curriculum level, teachers need to keep abreast of continual adjustments to facilitate transformation (Howie et al., 2012; Plüddemann, 2015). Intrinsically, South African teachers are expected to deliver quality education against numerous policy and curricula changes, which have not always been met with keen anticipation. Educational policy and curricula reform inevitably necessitate additional time allocation to training, modification of teaching practices and further administrative tasks (Chisholm et al., 2005; Van Staden & Zimmerman, 2017). The outcomes mentioned unavoidably increase teachers' workload (Castro et al., 2010; Ebersöhn, 2014; Flores, 2018). The incessant curriculum and policy changes highlight a society in transformation and a focus on access to education (Howie et al., 2012; Plüddemann, 2015). In the South African context, another important policy factor pertains to language since language diversity affects the well-being of teachers (Olsen, 2017; Plüddemann, 2015).

Within developing countries, including Sub-Saharan Africa, many learners are not school ready when starting primary education as they do not possess the social, emotional and cognitive skills (including language) to benefit from formal instruction (Bos, 2017; Plüddemann, 2015). Education has become an influential force driving the globalisation of English and other Global North languages (Tikly, 2001; Tikly & Bond, 2013) due to the dominance of mono-lingual education orientation (Makalela, 2018; Omidire & Ayob, 2020; Plüddemann, 2015). A linguistic difference can lead to exclusion or prevent equal access (Gogolin, 2002). South Africa, as a multicultural society, views diversity (e.g., "the rainbow

[41] Mathematics achievement indicates that numerous Grade 5 learners, in South Africa, are not able to compute basic calculations.
[42] PIRLS, under the patronages of the International Association for the Evaluation of Educational Achievement (IEA), provides multi-level trend data and international comparisons of Grade 4 learners reading literacy (Mullis et al., 2004). Grade 4 (international benchmark) and Grade 5 (national benchmark) learners participating in PIRLS were evaluated across all official languages (Howie et al., 2012, 2016; Van Staden & Zimmerman, 2017).

nation"), including multilingualism (11-official languages with equal status) (RSA, 1996b, 2019) as an asset advocating to move away from imposed monolingual policies (Makalela, 2015; Omidire & Ayob, 2020; Plüddemann, 2015). A language comparison between the 2011 SA census (Stats SA, 2012a) and the 2016 community survey[43] (Stats SA, 2016) indicated that Afrikaans (-1.4%), English (-1.3 %), isiNdebele (-0.5%) and Xitsonga (-0.3%) showed a decrease in home language speakers. Afrikaans, with a decrease of 1.4%, is thus the language with the largest decrease. On the other hand, isiXhosa (+1.0%), isiZulu (+1.9%), Sepedi (+0.4%), Sesotho (+0.4%), Setswana (+0.8%) and siSwati (+0.1%) demonstrated an increase in home language speakers (Stats SA, 2012a, 2016). IsiZulu (25.1%) and English (16.6%) remain the most spoken language outside the household (RSA, 2019; Stats SA, 2018). However, the value of information from large-scale international assessments (e.g., PIRLS) and national assessments (i.e., ANAs) highlighted the foundational challenges in the national education system by emphasising the difficulties of learners to master literacy and comprehension skills, regardless of the language of instruction (Van Staden & Zimmerman, 2017). Grade 4 and Grade 5 learners in South African schools demonstrated underperformance or is seen without basic reading proficiencies compared to international standards (Howie et al., 2012, 2016; Spaull et al., 2020; Van Staden & Zimmerman, 2017).

Studies (Bryan, 2005; Milner & Khoza, 2008) showed that multiple South African schools might have inadequate resources to counter challenges to learning, and teachers seem ill-equipped to provide quality education. Therefore, schools and teachers seem unable to address the developmental needs of learners within a challenged context which indicate the high need for improvements in developing countries (Bos, 2017; Mammadov & Çimen, 2019). As a result, there is an acute need for more effective schools with qualified and effective teachers, especially in resource-poor communities in developing countries (Bos, 2017; Jenkins, 2019). Teachers are a vital component of schools influencing learner performance (Mammadov & Çimen, 2019). In this regard, structural inequality, exacerbated by economic disparity (Ebersöhn, 2014; Ebersöhn & Loots, 2017; Schwartz & Harris, 2017), hamper the effectiveness and quality of South African schools and teachers within the basic education system. Accordingly, South Africa is struggling to provide quality education (Spaull, 2015), with approximately 62% (OECD, 2014a) of public schools in South Africa situated in resource-constrained communities (Mansfield et al., 2018). Schools, as spaces of activism and engagement, cultural identity, connectedness, ideology, and politics, signify in many respects post-colonial societies in transition (Ebersöhn, 2015). Therefore, in the meso-system (i.e., the school context and teacher system) barriers are vast (see Table 1.1) (Ebersöhn, 2014, 2016, 2017; Ebersöhn & Loots, 2017; Milner & Khoza, 2008) which may predict negative systemic

[43] The latest large-scale population survey conducted in South Africa to date.

educational outcomes for learning and well-being, with the government having limited success in addressing challenges in education (Mlachila & Moeletsi, 2019).

An unsurprising compounding factor is a discrepancy between teacher demand and teacher supply. An additional 6.3 million teachers are required in Sub-Saharan Africa to ensure universal primary education by 2030 (Maphalala & Mpofu, 2019; UNESCO, 2019a, 2019b). In addition, a report from the Centre for Development and Enterprise (CDE) (Simkins, 2015) specified that South Africa requires a surplus of 456,000 teachers by 2025 for quality basic education (Van Tilburg, 2019). However, between 18,000 and 22,000 teachers depart from teaching yearly in South Africa. In comparison with international statistics, these figures are higher than the number of teachers who enter the profession (Maphalala & Mpofu, 2019). As indicated in Table 2.3, the 2018 TALIS report (OECD, 2019c) indicated the average age of the South African teacher as 43-years with 32% of teachers aged 50-years and above. According to Maphalala and Mpofu (2019), these figures signify that almost half of the current teaching workforce will have to be replaced in the next decade. However, according to the DBE, RSA (2018b) the overall attrition rate due to the resignation of teachers accounts for only 1.9% of all teachers with the supply of newly qualified teachers increasing from 8,000 to 23,800 between 2012–2016. Nevertheless, the challenging working conditions and unreasonable workload of teachers may lead to absenteeism, teacher shortage and poor teacher retention hampering the quality of education in South Africa (Sayed & McDonald, 2017; Van Tilburg, 2019). In addition, according to Macupe (2018), teachers, especially in rural areas, felt that the preparation of teachers is insufficient to deal with the main challenges in schools. Although the proportion of qualified teachers in South Africa are increasing (DBE, 2018b, 2018c), this trend does not guarantee teacher competency.

Teachers may have insufficient content knowledge and teaching skills with limited professional growth opportunities (Besharati & Tsotsotso, 2015; Gardiner, 2008; Jenkins, 2019). If South Africa is unable to recruit, train and retain enough teachers, given the prediction of the Centre for Development and Enterprise (Simkins, 2015) satisfactory education to meet social and economic needs will not be possible (Maphalala & Mpofu, 2019) since the quality of teaching plays a major role in this regard (Mansfield et al., 2018). The challenges may require teachers to adopt various roles and responsibilities (Brunetti, 2006; Castro et al., 2010; Cefai & Cavioni, 2014; Ebersöhn, 2014, 2017; Ebersöhn & Ferreira, 2012; Gu & Day, 2007, 2013; Kirk & Wall, 2010; O'Sullivan, 2006; Stanford, 2001; Thieman et al., 2012) leading to possible burnout, harmful personal effects, diminished job experiences and a negative effect on institutional health (e.g. school context) (Daniilidou et al., 2020; Polat & İskender, 2018; Rieg et al., 2007; Skaalvik & Skaalvik, 2010; Wang et al., 2015).

The arguments underline the risk factors depicted in a Global South education landscape under pressure and highlight South Africa as one of the most inefficient countries worldwide (Mlachila & Moeletsi, 2019). According to Mlachila and Moeletsi (2019), South

Africa must address the derivation of its dysfunctional education system since the inadequate quality of education handicaps equality and hinders the country's development. The latter highlights the need for individual and collective agency, combined with education policy to support agendas for well-being (Ebersöhn, 2017; Yost, 2016). Teachers in the Global South need to resile despite adversity related to structural disparity synonymous with a post-colonial society transforming towards the conditions of democracy (Bennell et al., 2002; Bhana et al., 2006). For this reason, Ebersöhn (2016, p. 1) argued that in South Africa emphasis should be placed on "enabling spaces for accessible and adaptable education practices that are fitting, with a transforming, post-colonial Global South space with teachers recognised as knowledgeable from a pluriversal stance". The next section employs a teacher resilience lens for Global South educational challenges.

2.3.6 A TEACHER RESILIENCE LENS FOR GLOBAL SOUTH EDUCATIONAL CHALLENGES

It is important to explore the factors contributing to and affecting teachers' ability to resile despite chronic and cumulative risk to understand the necessity of teacher resilience in challenged contexts. This study intended to contribute to teacher resilience research by comparing pre-service teachers' self-efficacy and teacher efficacy beliefs as protective factors enabling intrapersonal resilience-enabling pathways to teacher resilience within a challenged context. I, therefore, pose a teacher resilience lens for Global South educational challenges.

Since teaching is embedded in a context with inherent uncertainties, challenges and stress that influence teachers' ability to "teach and teach well over time" (Gu, 2018 p. 24) teacher resilience (Beltman, 2020; Day, 2012; Ebersöhn, 2014; Ebersöhn et al., 2020; Gu, 2014; Hong, 2012; Mansfield et al., 2012; Peixoto et al., 2018; Wosnitza et al., 2014) and teacher efficacy beliefs (Duffin et al., 2012; Klassen et al., 2011; Kleinsasser, 2014; Woodcock, 2011) are a worldwide concern. The complexity and demand of the teaching profession, as well as the consequences thereof (e.g., attrition, stress levels, burnout, supply-and-demand statistics), are well documented (Castro et al., 2010; Stanford, 2001). The global environment necessitates research on the phenomenon of teacher resilience, especially in early career teachers (Johnson & Down, 2013; Le Cornu, 2013).

Challenged systems require adaptive teacher responses to remain committed to the profession, provide quality and effective instruction, and experience job satisfaction and well-being. When generating teacher resilience knowledge, it is vital to include the discourses on protective resources (such as self-efficacy and teacher efficacy beliefs) involved in processes relating to resilience while acknowledging the risk factors (Ebersöhn, 2016). A teacher's ecology provides resources to navigate adaptive responses to risks (Bosch, 2020; Ebersöhn, 2019a; Ebersöhn et al., 2020). For that reason, it is essential to recognise the lifeworld of teachers as resilience is influenced through the interaction of the teachers with their ecology (Gu & Day, 2007).

In a severely challenged context (i.e., resource-constrained environment) it has become more pertinent to explore how teachers can resile despite paramount difficulties. As a result, research that focuses on teacher resilience has also escalated (see for example Bosch, 2020; Coetzee, 2013; Coetzee et al., 2017; Ebersöhn, 2012, 2014, 2015, 2016, 2017; Ebersöhn & Ferreira, 2012; Ebersöhn & Loots, 2017). As illuminated in Table 1.1, teachers in a challenged context face numerous chronic and cumulative barriers. In the national context, situated in the Global South, with its emerging economy and enduring socio-political transformation, teachers continuously face difficult working conditions which may result in an apathetic acceptance due to a lack of alternate options or in teacher resilience (Ebersöhn, 2014). By integrating a teacher resilience lens, education research may generate knowledge on how to mitigate against adversity and enhance functionality (Ebersöhn, 2017). Resilience, as defined and conceptualised in Section 2.2, indicated the continuous debate regarding the theorising of resilience as a trait, outcome, or process. Ebersöhn (2014), however, argued for the coexistence of both outcome (i.e., trait) and process (i.e., dynamic, interactive, and transactional-ecological process) indicators in the teacher resilience profile of teachers in a challenged context such as South Africa (see Figure 2.6). Vieluf et al. (2013) supported the meaningfulness of examining constructs or traits such as teacher efficacy beliefs within diverse contexts. Ebersöhn (2014, p. 569) poised teacher resilience in challenged contexts as "teachers ceaselessly adapting in a sequence of linked incidents to respond to a procession of risks". In the life chain of resilience, as postulated by Ebersöhn (2014), teachers demonstrate instances of maladaptation as well as positive outcomes and thriving. In this regard, teacher resilience is process orientated and explores how adversity and risk in one system co-exist and mobilise protective resources in aligned ecologies (Coetzee et al., 2017; Ebersöhn, 2012). In a Global South context, teacher resilience, therefore, signifies "teachers who withstand the ebbs and flows of the educational sector" and keep on teaching notwithstanding chronic and cumulative risk factors (Ebersöhn, 2014, p. 573).

Scholars (Ebersöhn, 2016; Stewart, 2014) have also noted the central role of schools in building resilience and the fact that resilience facilitates not only surviving but also thriving for learners, teachers, and the whole school community under adverse conditions. An enabling school would be a space where the risk factors are mediated by acknowledging, identifying and mobilising available capital to make the adversity context conducive to education (Ebersöhn, 2016). Resilience in schools involves a process where all role players, including teachers, principals, families, learners, and district officials, know and employ strategies that assist teachers in teaching and learning (Ebersöhn, 2017). Ebersöhn (2012, 2014, 2016, 2017) thus argued for an education enabling spaces that emphasise evidence on health, well-being and innovative adaptation (rather than a deficit focus) in a transforming, post-colonial Global-South space where accelerated progress towards equality is unlikely.

Teachers in low-resource areas or geographically remote locations identified that strong collegial relationships have great significance for teachers and view it as an opportunity to mobilise resources, assets and strengths collectively (Ebersöhn, 2012). Furthermore, Ebersöhn (2012) explained in her RRR theory (as defined in Section 2.2.3) how school reform is maintained through resources and relationships even with unfavourable educational settings. The RRR theory relates to actions, reactions and transactions between schools and communities facilitating positive adaptation (Ebersöhn, 2012), linking with the work of Jordan (2006, 2013) and, Skinner and Zimmer-Gembeck (2007, 2011) as highlighted in Section 2.2.3.

Since Ebersöhn (2012) denoted resilience as a collective experience, the capacity to "flock" is a powerful way for teachers to link and share resources for collective resilience. Teacher resilience may signify adaptive coping processes as teachers mediate the effect of barriers by engaging in specific positive adaptive coping behaviours (Skinner & Zimmer-Gembeck, 2007; Willers et al., 2013; Zimmer-Gembeck et al., 2018). To buffer risks in resource-constrained contexts (such as a post-colonial space) teachers may utilise personal traits (capacity for resilience) (Block & Block, 1980; Block & Kremen, 1996; Letzring et al., 2005; Morgan, 2011) such as self-efficacy (Bandura, 1997), grit (Duckworth et al., 2007; Perkins-Gough, 2013; Von Culin et al., 2014), positive emotions (Fredrickson, 2001; Tugade & Fredrickson, 2004), sense of coherence (A. Antonovsky, 1979) and systemic resources in dynamic processes to enable supportive spaces (Ebersöhn, 2014). In addition, education spaces that provide a positive environmental context may foster resilience (Ebersöhn et al., 2014; Masten, 2014; Theron & Theron, 2014).

The use of protective resources and strategies can buffer against the impact of disparity and mediate positive learning and development in a challenged context (Ebersöhn, 2014). Protective factors might attract, retain and support teachers to facilitate quality teaching (Morgan, 2011; Muller et al., 2014) so desperately needed in a Global South context. Literature (Beltman, 2020; Day & Gu, 2013; Ebersöhn, 2014, 2017; Gu & Li, 2013; Willers et al., 2013), showed that resilience in teachers is a process that requires teachers to utilise protective resources, personal resources as well as coping strategies to thrive in adverse conditions. Within a Global South context, education and schools may still be viewed as an avenue of hope (Ebersöhn, 2017) with 95% of South African teachers indicating that they joined teaching to influence the development of learners (Van Diemen, 2019). Nonetheless, to address the inequality and adversity in a challenged context such as South Africa, reform and action are necessary within the education system (Van Tilburg, 2019). In countries with concerns about risk factors (see Table 1.1) research underlined the importance of individual and contextual resources, as highlighted in Table 2.2, that teachers may draw on in responding to risk.

Table 2.2

Protective Resources in a Global South Educational Space

Assets / strengths / protective factor or resources / capital / adaptive coping strategies / buffers / sustaining / enabling in a Global South context (i.e., enable, develop or support resilience)
Macrosystem (Culture, policy, education, health, and welfare systems)
Culture • Diversity (including culture and language, i.e., rainbow nation) • Ubuntu • Freedom of expression Policy • Enabling policies • Political democracy Education • Medium of preparing learners for participation and fulfilling certain roles in society • School setting as a space where learners receive care and support with teachers as assets • Selected benefits (e.g., pension, housing and medical aid) Health • Hospitals and clinics • Medical aid for government workers (e.g., Government Employees Medical Scheme (GEMS)) Welfare • Health and welfare resources (e.g., social grants for parents or caregivers)
Exosystem (Physical infrastructure, location, resources)
• Physical infrastructure available for utilisation • Development and improvement of infrastructure • Characteristics of location • Resources (e.g., vegetable gardens, laboratories, libraries, learning materials) • School stability / safe space for learners
Mesosystem (Relationships between learners, parents, colleagues, school and support networks)
School context support • Support from school administration, colleagues, learners, mentors, family and friend • Responsive and differentiated scaffolding for professional development and personal learning, • Positive attitudes of others • Caring professional communities that support learner and teacher well-being and resilience • Collegial relationships: Facilitate emotional and practical support since school life, and personal life are so closely intertwined • School culture • Multi-lingual classrooms Personal context support (e.g., family and friends) • Flocking (access and use scarce protective resources) • Relationships or relational resilience • Support person • Caring network of friends and family (caring network of friends and family can assist teachers in managing the challenges of the profession • Work-life balance: Supportive family members can also help teachers maintain work-life balance
Microsystem (Personal attributes, traits or capacities)
Social capacities • Sense of coherence • Being personable • Build support networks • Build and maintain relationships • Seek help • Takes advise • Maintain a work-life balance Emotional capacities • Cares for own well-being (self-kindness) • Manages emotions • Copes with stress • Emotional awareness • Positive emotions • Emotional intelligence

- Emotional competence (including, e.g., optimism, motivation, hope, courage, vitality, compassion, showing enthusiasm, having a positive attitude, patience)

Professional capacities

- Solves problems and improvement focused
- Flexible and adaptable
- Reflective
- Taking initiative
- Ongoing learning (i.e., life-long learner)
- Being organised
- Knowing learners
- Teaching skills
- Professional goals, purpose and aspirations
- Creativity

Motivational capacities

- Confident
- Intrinsic motivations and values
- Sense of moral purpose and vocation (e.g., making a difference or making an impact)
- Achievement and motivation
- Perseverance and persistence
- Personal grit and hardiness

Beliefs

- Beliefs (e.g., self-efficacy and commitment)
- High expectancies
- Feeling confident and competent

Behavioural dispositions

- Adaptive coping strategies and skills (e.g., relational support and problems solving)
- Self-care (e.g., exercise and healthy habits)

(Bronfenbrenner, 1979; Beltman et al., 2011; Chong et al., 2011; Duckworth et al., 2007; Ebersöhn, 2012, 2014, 2017; Ebersöhn et al., 2020; Fredrickson, 2001; Gu & Day, 2007; Jackson & Rothmann, 2005; Mansfield et al., 2012, 2018; Molina et al., 2017; Morgan et al., 2010; Stats SA, 2012b, 2020a, 2020b; Yost, 2016; Wabule, 2020; Willers et al., 2013).

By highlighting teacher resilience, the lens veers from *why teachers leave teaching or burnout* to *why teachers stay and cope*, but even more so; *why teachers stay and not only survive but thrive* (Beltman et al., 2011; Mansfield et al., 2014) in *challenging Global South circumstances* of extreme adversity (Ebersöhn, 2014; Stewart, 2014). Such understanding may be crucial for teacher resilience, teacher education and early career induction (Watt et al., 2012).

It seems apparent from existing knowledge that teachers, including pre-service teachers, especially in a Global South context such as South Africa, are inundated with challenges prevalent in the profession. However, given the resilience lens employed in the current study, evidence of protective resources (including internal traits such as self-efficacy and teacher efficacy beliefs) that can be mobilised to enable positive adaptation to risks is highlighted. The following section explores self-efficacy as a protective resource enabling teacher resilience.

2.4 SELF-EFFICACY AS A PROTECTIVE RESOURCE ENABLING TEACHER RESILIENCE

2.4.1 INTRODUCTION

This section localises self-efficacy as a protective resource within teacher resilience research. In addition to resilience as a scholarly research field, the construct of self-efficacy, encapsulated in the Social Cognitive Theory (Bandura, 1986, 1989a, 1989b) discussed in Chapter 1, guided my understanding regarding teacher resilience and teacher efficacy beliefs. The following sections elaborate on the definition of self-efficacy and the conceptualisation of the construct to explore self-efficacy as an enabler for teacher resilience if present and a constraint to teacher resilience if absent.

2.4.2 CONCEPTUALISING SELF-EFFICACY

Section 2.4.2 attempts to define self-efficacy given literature on the construct. This discussion aimed to establish this study in the broader context of self-efficacy research as enabling pathway to resilience. As discussed in Chapter 1, Bandura (1977, 1989a, 1989b, 1997, 2001, 2002) highlighted that self-efficacy functions as proximal determinants of human action. According to Bandura (1997, p. 161) “people avoid activities and environments they believe exceed their capabilities, but they readily undertake activities and pick social environments they judge themselves capable of handling”. Alternatively to Bandura, Rotter’s (1966) theory of the Locus of Control (LOC), within the framework of the Social Learning Theory (Rotter, 1954), highlighted the internal (e.g., personal efforts, actions, and decisions) and the external (e.g., chance, fate, circumstance and other individuals) locus of control as mediating factors in adaptation and regulation processes. The locus of control is outlined as an individual’s beliefs about the extent of their control over things that happen to them (Rotter, 1966). The internal locus of control (as related to self-efficacy), as a buffer against negative events, is associated with a range of indices of physical and psychological well-being (Buddelmeyer & Powdthavee, 2016). The internal locus of control, as a personal attribute, has been related to resilience. However, multiple researchers (Cassidy, 2015; Chesnut, 2017; Duffin et al., 2012; Hewitt et al., 2017; Lemon & Garvis, 2016; Morgan et al., 2010; Moulding et al., 2014; O’Neill & Stephenson, 2012b; Pfitzner-Eden, 2016a, 2016b; Raath & Hay, 2016; Skaalvik & Skaalvik, 2010; Snowman & McCown, 2013) within the reviewed literature conform with the definition that self-efficacy is a self-perceived belief, a judgement of expectation of how capable or prepared people feel to organise or accomplish a particular task to manage prospective situations or obtain a valued outcome. Therefore, the current study is aligned with Bandura’s theoretical perspective of self-efficacy, as highlighted in Chapter 1. The following section explores self-efficacy in an educational space as applicable to the current study.

2.4.3 SELF-EFFICACY IN AN EDUCATIONAL SPACE ENABLING RESILIENCE

In this section, I discuss self-efficacy in an educational space to frame the current study within relevant literature to lead the discussion into teacher efficacy beliefs. Morgan et al. (2010) posited that research provides an overview of why teaching is selected as a profession and the factors affecting teacher retention. However, the literature lacks information regarding the reasons that sustain teachers daily with Kunnari et al. (2018) echoing that limited research is available on how teachers can thrive in demanding profession. Morgan (2011, p. 94) argued that "the highly specific nature of efficacy suggests that the ability to recover from adverse events is itself a particular form of efficacy and is thus worthy of study in its own right". Self-efficacy, *in the educational sector, has been associated with numerous positive outcomes for teachers and learners* (Bandura, 1997; Lent & Brown, 2006; Pfitzner-Eden, 2016b). Self-efficacy is a dynamic, developmental process, and as a result, teacher efficacy interacts with and predicts the development of teacher resilience (Beltman et al., 2011, 2018; Day, 2012; Day & Gu, 2013; Ee & Chang, 2010; Morgan, 2011; Peixoto et al., 2018; Wosnitza et al., 2018). Major factors in the choice of staying, moving schools or leaving teaching are based on success experience in the classroom and supportive school structures (Johnson & Down, 2013). Self-efficacy beliefs govern how contextual enablers or constraints are perceived which may influence task selection, effort exerted or how long the individual will persevere when faced with obstacles (Bandura, 2006).

Multiple studies (see, for example, Cassidy, 2015; Duffin et al., 2012; Morgan et al., 2010; Vieluf et al., 2013) regarding self-efficacy have been conducted since the latter continues to be an extensively investigated construct in educational research, especially in the context of North America (Morgan et al., 2010; Vieluf et al., 2013). However, investigations have also been conducted in Africa, Australasia, Europe, the Middle East, Southeast Asia and South America (see Duffin et al., 2012). Therefore, self-efficacy in the education landscape has become a focus of interest globally (Chong et al., 2011; Woodcock, 2011). Given Banduras' (1997) self-efficacy definition, the construct as the personal belief that one can perform activities appropriately and effectively is a growing body of research on teachers' competencies and/or teacher characteristics (Raath & Hay, 2016). Self-efficacy, based on self-perceptions play an important role in behaviour, influence human functioning and teaching behaviour and is considered important for lifelong learning (Bandura, 1977; Heneman et al., 2006). Gu and Day (2007) explained that *to rebound from setbacks*, teachers need beliefs in their abilities as a teacher. The presence of self-efficacy within the microsystem of teachers can thus enable resilience while the absence of self-efficacy may constrain resilience. Hence, in the following section, literature regarding teacher efficacy beliefs is specifically highlighted to explore the construct as an intrapersonal resilience-enabling pathway to teacher resilience.

2.5 TEACHER EFFICACY BELIEFS AS PROTECTIVE RESOURCE FOR TEACHER RESILIENCE

2.5.1 INTRODUCTION

Within teacher resilience research, the presence of teacher efficacy beliefs has been identified as a protective factor. In Section 2.5, I provide an overview of the conceptualisation of teacher efficacy beliefs and current trends in teacher efficacy research to investigate teacher efficacy as an intrapersonal resilience-enabling pathway to teacher resilience. Given the conceptualisation of self-efficacy as a personal belief and appraisal of competence to manage, perform, or employ necessary actions, teacher efficacy pertains to the confidence teachers display in teaching and behaviour management. Furthermore, teacher efficacy is depicted as an important protective factor for teacher well-being, job satisfaction and professional practices, which can highlight unexpected positive outcomes despite diversity within teacher resilience research. Although teacher efficacy is a global research focus and an important construct for policy and practice, additional research is needed to explore teacher efficacy beliefs as an intrapersonal resilience-enabling pathway to teacher resilience in a challenged context. Therefore, the following sections provide an overview of relevant literature on teacher efficacy pertaining to intrapersonal resilience-enabling pathways.

2.5.2 CONCEPTUALISING TEACHER EFFICACY BELIEFS

As with teacher resilience (discussed in Section 2.3), teacher efficacy is viewed as a complex, multidimensional and multi-faceted construct (Bandura, 1997; Duffin et al., 2012; Kleinsasser, 2014; Skaalvik & Skaalvik, 2010; Woolfolk Hoy et al., 2009). Individual behaviour stems from systemic interaction between experience, capacities, knowledge, beliefs and ecology (Bandura, 1997). Hence, teachers enter the profession with particular capabilities, beliefs, proficiency, and strategies that may assist with coping with adverse events as they adapt to a new setting (Peixoto et al., 2018).

Teacher efficacy is understood as the teachers' situation-specific evaluation of how they will cope with events, given the competence they possess (Bandura, 1977, 1986, 1993, 1997). Tschannen-Moran et al. (1998, p. 207) extrapolated from Banduras' work that teachers "need efficacy for teaching" and defined teacher efficacy "as a belief in one's own capabilities to organize and execute courses of action required to accomplish a specific teaching task in a particular context successfully". Efficacy can be based on teachers' sense of effectiveness to facilitate the learning process as well as engagement and to bring about preferred learning outcomes even among challenging learners (Bandura, 1997; Moulding et al., 2014; Ross et al., 1996; Soodak & Podell, 1996). Being certain of one's ability is important to teacher agency (Vieluf et al., 2013; Yost, 2016).

The construct and measurement of teacher efficacy beliefs are grounded in the theoretical and conceptual basis of two influential psychological theories (Duffin et al., 2012; Lemon & Garvis, 2016; Moulding et al., 2014; Vieluf et al., 2013), namely Rotter's theory of the Locus of Control (see Section 2.4.2) and Bandura's Social Cognitive Theory (see Chapter 1). Rotter's (1966) theoretical perspective postulated that teacher efficacy is the competence belief a teacher demonstrates based on perceived control over the learning situation. Although the Locus of Control theory has a historical role in teacher efficacy literature, scholars (Klassen et al., 2011) have recommended a conceptualisation of teacher efficacy beliefs that align with Bandura's (1997) since self-efficacy influences human behaviour. Therefore, for the current study, given the conceptual strand of the FIRE Teacher Resilience Measure, as discussed in Chapter 1, Bandura's (1997, 2006) view on self-efficacy is adopted.

Based on Banduras' work (1977, 1997), the teachers' sense of efficacy may be created, nurtured and strengthened by four sources, including *mastery experiences* (e.g., own successful teaching; performance accomplishments, learner achievement and teaching practices); *vicarious experience* (e.g., observing behaviour of an experienced teacher; shadowing a mentor, identifying with a model, leadership observation); *verbal persuasion* (e.g., suggestions from other teachers or management) and *emotional or physiological states* (e.g., effective emotional and physical perception, interpretation and responses to challenging situations like monitoring breathing and heart rate). Furthermore, according to research (Begum et al., 2020; Heneman et al., 2006; Hewitt et al., 2017; OECD, 2019b, 2019c; Watson & Marschall, 2019), teacher efficacy comprises of different but related capacities or factors including efficacy for behaviour management, engaging learners and using different instructional strategies. Hewitt et al. (2017) argued that once teachers believe they can regulate such factors, their self-efficacy increases.

Although Bandura (1997) believed that efficacy remains stable, scholars (Ross et al., 1996; Wang et al., 2015) argued that teacher efficacy change over time given teaching experience. A non-linear relationship between work experience and teacher efficacy was found by Wolters and Daugherty (2007), who indicated that teacher efficacy increases in novice teachers until mid-career and then declines. Nonetheless, teachers may gain confidence from looking back on past successes (i.e., mastery experiences) and self-believe as teachers which necessitate investigation of factors impacting the development of teacher efficacy beliefs (Raath & Hay, 2016). The following section explores the current trends in teacher efficacy research as enabling (i.e., presence of teacher efficacy beliefs) or constraining (i.e., absence of teacher efficacy beliefs) pathways to teacher resilience.

2.5.3 TRENDS IN TEACHER EFFICACY RESEARCH AS ENABLING PATHWAYS TO TEACHER RESILIENCE

This section explores current literature on teacher efficacy, highlighting trends in teacher efficacy research regarding protective and risk factors associated with teacher efficacy enabling or constraining resilience.

2.5.3.1 Protective factors associated with teacher efficacy enabling teacher resilience

Teacher efficacy has been a central construct in research efforts over the last few decades (e.g., Bosch, 2020; Duffin et al., 2012; Gibson & Dembo, 1984; Klassen et al., 2011; Kleinsasser, 2014; Tschannen-Moran et al., 1998; Vieluf et al., 2013; Woodcock, 2011). However, criticism (Fackler & Malmberg, 2016; Klassen et al., 2011) against current teacher efficacy research argued that most studies are single-country investigations, cross-sectional studies and did not account for classroom or school level factors with limited research in developing countries, including African countries (Bosch, 2020; Klassen et al., 2011; Moalosi, 2013; Pierre & Worrell, 2003). Nonetheless, teacher efficacy continues receiving attention globally from researchers since it is viewed as highly relevant for teaching and learning (Kleinsasser, 2014; Vieluf et al., 2013). Demonstrating the latter is the fact that teacher efficacy is included as one of the priority themes in the TALIS survey (OECD, 2019c). Therefore, teacher efficacy is a continuously growing body of knowledge about a range of educational outcomes, including teachers' competencies and behaviour.

In this regard, teacher efficacy is highlighted as an important **associated factor** for teachers' characteristics, including *resilience* (Beltman et al., 2011; Bosch, 2020; Ebersöhn et al., 2020; Pendergast et al., 2011); *well-being* (Brouwers & Tomic, 2000; Jennings et al., 2013); *job satisfaction* (Klassen et al., 2011; Skaalvik & Skaalvik, 2010; Vieluf et al., 2013); *pedagogical beliefs* (Duffin et al., 2012); *classroom management* (Woolfolk Hoy et al., 2009); *professional instructional practices* (Duffin et al., 2012; OECD, 2009; Vieluf et al., 2013) and *performance* (Begum et al., 2020); *instructional quality* (Gibson & Dembo, 1984; Moè et al., 2010; Moulding et al., 2014; Wang et al., 2015; Woolfolk Hoy et al., 2009) and *quality teaching* (Moulding et al., 2014; Raudenbush et al., 1992); *effectiveness* (Gibson & Dembo, 1984; Hewitt et al., 2017; Moè et al., 2010; Moulding et al., 2014; Ross et al., 1996; Wang et al., 2015); *emotional capacity* (Evans-Palmer, 2010, 2016); *effort, perseverance and motivation* (Brown et al., 2015; Duffin et al., 2012; Hewitt et al., 2017; Lemon & Garvis, 2016); *commitment* (Chesnut & Burley, 2015); *retention* (Hong, 2012; O'Neill & Stephenson, 2012b); and *reduced burnout* (Brouwers & Tomic, 2000; Jackson & Rothmann, 2005; Jennings et al., 2013; Skaalvik & Skaalvik, 2010), *job tension, stress and discontent* (O'Neill & Stephenson, 2012b).

Teacher efficacy, as a result, may affect positive **learner outcomes** (Fackler & Malmberg, 2016; Woolfolk Hoy et al., 2009) such as *motivation* (Duffin et al., 2012; Fackler &

Malmberg, 2016; Gibson & Dembo, 1984; Gonzalez-DeHass & Willems, 2016; Klassen et al., 2011; Woolfolk Hoy et al., 2009); *achievement* (Duffin et al., 2012; Evans-Palmer, 2010, 2016; Fackler & Malmberg, 2016; Gavora, 2010; Gonzalez-DeHass & Willems, 2016; Klassen et al., 2011; Moulding et al., 2014; Woolfolk Hoy et al., 2009); *engagement* (Guo et al., 2011); *attitude towards school and teachers* (Gonzalez-DeHass & Willems, 2016; Woolfolk Hoy et al., 2009); and as *learners' sense of efficacy* (Gonzalez-DeHass & Willems, 2016).

Teachers with a high perception of self-efficacy appear to anticipate success in the classroom despite external conditions like a low socio-economic context, parental home or school climate (Bandura, 1997; Heneman et al., 2006; Ross et al., 1996). Teachers who possess high self-efficacy thus have the confidence to organise and manage a situation competently (Wosnitza et al., 2014). In addition, teachers with high self-efficacy beliefs may be more open to using a variety of new ideas, resources or pedagogical approaches or risk more with curriculums to support and meet the needs of their learners (Fives & Buehl, 2010; Ghaith & Yaghi, 1997; Heneman et al., 2006; Skaalvik & Skaalvik, 2010; Woolfolk Hoy et al., 2009; Woolfolk Hoy & Spero, 2005). As a result, this leads to effective teaching, autonomy-support, and a conducive classroom atmosphere (Fackler & Malmberg, 2016; Gavora, 2010; Hewitt et al., 2017; Moalosi, 2013).

A strong sense of efficacy in teachers are further likely to produce a positive impact on the behaviour, learning and achievement outcomes of learners (Duffin et al., 2012; Evans-Palmer, 2016; Fackler & Malmberg, 2016; Gavora, 2010; Gonzalez-DeHass & Willems, 2016; Klassen et al., 2011; Moulding et al., 2014; Woolfolk Hoy et al., 2009). In addition, efficacious teachers may adopt a more humanistic but strict classroom management approach by using positive and reductive strategies to achieve or maintain a desirable behaviour (Raudenbush et al., 1992; Ross et al., 1996; Woolfolk Hoy et al., 2009). Furthermore, teachers with high teacher efficacy tend to demonstrate dispositions such as *humour* (Evans-Palmer, 2010, 2016); *enthusiasm* (Hewitt et al., 2017; Woolfolk Hoy & Spero, 2005); *fairness* (Hewitt et al., 2017); *self-reflection and mindfulness* (Cook et al., 2017*;* Dunlosky & Rawson, 2012; Ross et al., 1996); *self-development* (Hewitt et al., 2017); *self-care* (Cook et al., 2017; Lee, 2018); and *positive connections and adaptive interaction with colleagues and learners* (Cook et al., 2017; Delale-O'Connor et al., 2017; Gibson & Dembo, 1984; Guo et al., 2011; Lemon & Garvis, 2016; Wang et al., 2015).

A positive level of self-efficacy may also enable teachers to *encourage and persist when working with struggling learners* (Gibson & Dembo, 1984; Raudenbush et al., 1992; Ross et al., 1996); *introduce peer support* (Raudenbush et al., 1992; Ross et al., 1996) *and persisting in helping all learners to reach their potential* (Pendergast et al., 2011). Lastly, teachers with high teacher efficacy seem less *critical of learners* (Tsouloupas et al., 2014) and *initiate fewer referrals to other services* (Hewitt et al., 2017). The following section explores the risk factors associated with teacher efficacy constraining teacher resilience.

2.5.3.2 Risk factors associated with teacher efficacy constraining teacher resilience

Teachers with a lower sense of efficacy may be uncertain if they can cope with situations, feel overwhelmed and experience confusion, negative thinking, bodily tension and anxiety (Bandura, 1977, 1982, 1993, 1997; Klassen et al., 2011). Teachers leaving the profession showed weaker efficacy with convictions that imposed heavy burdens on themselves, possibly creating stress and emotional burnout. (Hong, 2012). Therefore, there are some areas of skills that can present challenges for even the most experienced teachers such as classroom or behaviour management.

Classroom or behaviour management is one of the key areas where all teachers benefit from ongoing skill development and preparation (Beltman et al., 2011; Brouwers & Tomic, 2000; Delale-O'Connor et al., 2017; O'Neill & Stephenson, 2012a, 2012b; Sing & Maringe, 2020). Classroom management has been associated with the need for teachers to regulate emotions and balance caring with discipline (Delale-O'Connor et al., 2017). Teacher efficacy is linked to their ideology about the teaching practice such as effective classroom management (Delale-O'Connor et al., 2017; Gibson & Dembo, 1984; Woolfolk Hoy et al., 2009). Efficacy for classroom management is thus the teacher's belief in their ability to implement the necessary actions to maintain an orderly, organised, non-distractive classroom context (Brouwers & Tomic, 2000; Delale-O'Connor et al. 2017). Delale-O'Connor et al. (2017) emphasised the need to build teachers' beliefs to inform their classroom management practices. Teachers with lower teacher efficacy also tended to support the use of verbal or physical violence. Teachers who have doubts about classroom discipline are more likely to demonstrate burnout and consider leaving the profession (Jackson & Rothmann, 2005; Tsouloupas et al., 2014). The next section situates the current study in the education landscape, focusing on the pre-service teacher given the resilience, teacher resilience, self-efficacy and teacher efficacy scholarly domains discussed above.

2.6 BRIEF OVERVIEW OF THE GLOBAL EDUCATION LANDSCAPE AND INITIAL TEACHER EDUCATION

2.6.1 INTRODUCTION

This section locates the current study within the global education landscape. I provide an overview of the demographic profile of teachers in the global education landscape and the teaching profession pertinent to the current study. I further characterise initial teacher education and highlight intrapersonal resilience-enabling pathways to teacher resilience in teacher education programmes.

2.6.2 SITUATING THE CURRENT STUDY WITHIN THE GLOBAL EDUCATION LANDSCAPE

This section includes a short description of international and national teacher demographics to contextualise the current study in the global education landscape. Within a demanding profession, given risk and protective factors, teachers worldwide must adjust to an ambiguous dynamic landscape that factors in the wider context in which countries are embedded. This argument especially holds true in a Global South milieu with chronic and cumulative risk factors. The global demographic profile of teachers (i.e., teacher age and gender profile) has remained fairly stable over time (OECD, 2009, 2019a), as displayed in Table 2.3. Table 2.3 portrays international teacher demographics illustrated by the 2018 TALIS report (OECD, 2019c) as 68% female, with 34% of teachers being 50 years and older. In South Africa, 60% of teachers were female, with 32% aged 50 years and above and with an average age of 43 years in 2018, which is comparable to the United States, Japan, and Australia (Maphalala & Mpofu, 2019; OECD, 2009, 2019a; Van Diemen, 2019).

Table 2.3

Teacher Demographic Landscape

	International average	South African average
% Teachers 50 years and younger	66%	68%
% Teachers 50 years and above	34%	32%
% Male teachers	32%	40%
% Female teachers	68%	60%
% Female primary teachers	67%	79%
% Female secondary teachers	54%	58%

(Jenkins, 2019; OECD, 2009, 2019a, 2019c; Van Diemen, 2019; World Bank, 2020b)

Although the demographic profile of teachers, as depicted above in Table 2.3, has remained relatively similar (OECD, 2009, 2019a), the world related to education in general as well as higher education, is rapidly transforming with progress in technology and information access, which influences ways of knowing and learning (Lemon & Garvis, 2016; Pareek & Rathore, 2016; Thieman et al., 2014). The education sector facilitates technological, societal, and human resource advancement (Pareek & Rathore, 2016). Therefore, teachers and teacher education must adjust to new advances in pedagogical technology, the expansion of human knowledge, and the challenge of developing a relevant and appropriate curriculum from the vast range of materials available in a twenty-first-century world of pluralistic skills, values and goals (Lemon & Garvis, 2016; W. Taylor, 2016).

Globally, teachers are required to achieve more with higher demand for learner performance while funding is decreased (Bobek, 2002; Kyriacou, 2001). All these factors may

affect how teachers are educated and trained (W. Taylor, 2016). The following section explores initial teacher education, as part of the education landscape, in more detail. I explore initial teacher education globally and intrapersonal resilience-enabling pathways to teacher resilience within initial teacher education programmes.

2.6.3 CHARACTERISING GLOBAL INITIAL TEACHER EDUCATION

This section aims to characterise initial teacher education in the framework of the current study within international and national literature. I underline pathways of teacher certification and focus on teacher resilience and teacher efficacy during teacher training to highlight enablers and constraints to teacher resilience pathways. Teacher initial education, as conceptualised in Chapter 1, should equip prospective teachers to effectively execute their responsibilities (DBE, RSA, 2019; OECD, 2019b; RSA, 2000; W. Taylor, 2016). Teacher education includes formal programmes established by institutions for the preparation of future teachers at the ISCED 1 – ISCED 3 level and influences their professional development (OECD, 2009). Worldwide teacher training is tasked with novice teachers to become effective and quality teachers (Duffin et al., 2012).

Teacher education can entail pre-service and in-service training[44] (W. Taylor, 2016). Pre-service education comprises training that precedes the novice teacher's entry to employment as a composite of pre-service education and induction (OECD, 2019b; W. Taylor, 2016). Induction, as part of in-service orientation, is presented to guide novice teachers (OECD, 2019b). Education standards depend upon the quality of its teachers, which rely on the quality of teacher education programmes preparing teachers who maintain their motivation and commitment to the teaching profession (Lowe & Prout, 2019; Mansfield et al., 2016). Therefore, pre-service teacher education should constantly be improved, reorganised or refocused to develop high calibre teachers ready for the demanding classroom (Buchanan et al., 2013; Thieman et al., 2014). However, Lowe and Prout (2019) argued that teacher education programmes are overly bureaucratic, under-resourced, and poorly delivered within the Global South landscape, leading to a decline in educational standards. Mlachila and Moeletsi (2019) concluded that improved teacher training, school management and teacher accountability may have a prominent long-term effect on educational performance.

Since the education landscape is changing at such a rapid pace, internationally the preparation of teachers can vary widely across traditional and alternative preparation programmes (Lieberman & Darling-Hammond, 2012; OECD, 2017a, 2017b; Pfitzner-Eden, 2016a; W. Taylor, 2016). In North America, and increasingly in other high-income countries,

[44] In-service education is the training a teacher receives after commencing their teaching career (W. Taylor, 2016).

teachers are generally university graduates who commence their teaching certification after completing secondary education (W. Taylor, 2016).

In South Africa, two routes are stipulated to become a registered teacher, as required by Section 21 of the South African Council for Educators Act, No. 31 of 2000, at the South African Council for Educators (SACE), namely a Bachelor of Education degree (BEd) (4-years) or a Bachelor's degree (3 or 4-years), with a Postgraduate Certificate in Education (PGCE) (1-year) (DBE, RSA, 2019; RSA, 2000). When completed, the qualification results in classification as a profession teacher once registered at SACE (DBE, RSA, 2019). According to the TALIS report (OECD, 2019c; Van Diemen, 2019) more than half of teachers in South Africa have degrees (55.6%), with 97.7% indicating a diploma or higher as the highest level of formal education completed. About 21.5% of teachers have a national diploma, while 18.3% have an honour's degree. Only 61.7% of South African teachers felt competent to teach, for example, critical thinking skills (OECD, 2019c; Van Diemen, 2019). The statistics may emphasise Mlachila and Moeletsi's (2019) recommendations that South Africa consider implementing more intensive and contextualised teacher training to address teaching quality. Spaull (2015, p. 39) argued that teacher selection and training must be fundamentally improved to influence the education system and states that "no education system can go beyond the competencies and quality of its teachers". Ebersöhn (2014) echoed the latter by highlighting quality teachers as valuable assets to facilitate learning, especially in a highly unequal infrastructure where the education landscape is riddled with a lack of resources and poverty-saturated schools.

The quantity and quality of teachers' initial education for developed and developing countries is an important factor in shaping teachers' careers and further development (OECD, 2009; W. Taylor, 2016). Factors playing an important role in the aforementioned is, for example, the teaching practice as conceptualised in Chapter 1. Hence, worldwide training programmes are compelled to raise standards for quality teacher training and teaching practice (Duffin et al., 2012; Moulding et al., 2014). The factors are highlighted by the substantial proportion of the UNESCO budget devoted to the improvement of teacher education (W. Taylor, 2016). However, studies (Ee & Chang, 2010; Hewitt et al., 2017) have noted that pre-service teachers struggle during pressured teacher training programmes due to a lack of teacher resilience and teacher efficacy. The following section explores teacher resilience in initial teacher education programmes.

2.6.4 TEACHER RESILIENCE IN INITIAL TEACHER EDUCATION PROGRAMMES

The aim of this section is to situate initial teacher education within resilience research. Teacher education programmes must create awareness and prepare upcoming teachers for the expectations, likely adverse experiences and demands of their future career (Buchanan et al., 2013; Lowe & Prout, 2019; Mansfield et al., 2016; Thieman et al., 2014).

Buchanan et al. (2013, p. 115) argued "that teacher educators should be more realistic in their preparation of pre-service teachers for the rigours of teaching". The "rigours" of teaching can include working in spaces of high challenge and poverty (Ebersöhn, 2014). Consequently, there is an emphasis on the development of resilience as well as resilience-related skills during teacher training from researchers (Beltman et al., 2011, 2018; Bobek, 2002; Buchanan et al., 2013; Ebersöhn & Loots, 2017; Le Cornu, 2009; Mansfield et al., 2012).

The understanding of teacher resilience and its significance in maintaining personal capacities is vital for pre-service teacher education programmes. However, teacher educators need to engage pre-service teachers' internal (traits) and external resources to nurture teacher resilience to prepare novice teachers for teaching realities (Gu & Day, 2013; Sayed & McDonald, 2017). Therefore, the development of teacher resilience, during teacher training, should be a collective endeavour from all relevant role-players (Wosnitza et al., 2014). Pre-service teacher education programmes and teacher educators have an important role in building capacity for teacher resilience (Beltman et al., 2011; Ebersöhn & Loots, 2017; Pendergast et al., 2011; Thieman et al., 2014). Ee and Chang (2010) recommended that admission processes for teacher training should identify resilient attitudes and behaviours. At the same time, Le Cornu (2009) emphasised the need for mentors in schools, training institutions and universities as well as peer support for nurturing resilience in pre-service teachers during teacher training. Ebersöhn (2014) stressed curriculum development that primes pre-service teachers for the constant adaptation required in adverse settings but equally centres the presence of assets, despite resource scarcity.

In this regard, research indicated that pre-service teacher training ought to offer systematic resilience-building activities (e.g., using scenarios, case studies, videos, action research, observations or actual classroom observations of challenging nature) to incorporate a wellness paradigm for pre-service programmes (Castro et al., 2010; Tait, 2008). The teaching of resilient strategies (Le Cornu, 2009) can assist pre-service teachers in developing *coping strategies* (Chong et al., 2011; Ee & Chang, 2010); *emotional competence in teaching* (e.g., such as *self-assessment, self-regulation, emotional-regulation, motivation, empathy,* and *social skills*) (Cefai & Cavioni, 2014; Ee & Chang, 2010; Mansfield et al., 2012); *effective stress management strategies (including communication, self-help, relaxation, physical health, hobbies, time management and planning)* and *mindfulness training* (Cefai & Cavioni, 2014; Cook et al., 2017; Jennings et al., 2013; Mansfield et al., 2016); *well-being* (Cefai & Cavioni, 2014; Le Cornu, 2009), *self-care habits* (Cook et al., 2017); *reflection and reframing skills* (Black, 2015; Dunlosky & Rawson, 2012; Ee & Chang, 2010; Hewitt et al., 2017; Wosnitza et al., 2018); *gratitude practices* (Cook et al., 2017)*; problem-solving skills* (Day & Gu, 2013; Mansfield et al., 2016); *assertiveness* (Ee & Chang, 2010); *motivation for teaching* (Prosser, 2008); *classroom management* (Cefai & Cavioni, 2014; Delale-O'Connor et al., 2017); *appropriate teaching strategies* (Ee & Chang, 2010); *enhancing teacher efficacy* (Beltman et

al., 2018; Cefai & Cavioni, 2014; Ee & Chang, 2010); *support networks* (Le Cornu, 2009; Papatraianou & Le Cornu, 2014), *social competence* (Cefai & Cavioni, 2014) and *collegial collaborations* (Cefai & Cavioni, 2014; Ee & Chang, 2010); *personal and professional relationships* (Ee & Chang, 2010; Le Cornu, 2009); and *resilient behaviour, responses and ways of thinking* (Ee & Chang, 2010).

Beltman et al. (2018) suggested specifically crafted interventions during teacher training to build teacher resilience. Still, limited evidence is available on incorporating resilience-building activities into teacher education programmes. Ebersöhn and Loots (2017) suggested that teacher training, especially in a context of adversity (i.e., including a challenged context such as the Global South), could benefit from incorporating foci on mapping and mobilising assets and resources. Mobilisation of assets may be achieved by using networks as well as by monitoring and managing the use of resources, according to Muller et al.'s (2014) and Windle's (2010) views on utilising protective factors (individual, life and environment assets) to promote resilience. Given the exploration of teacher efficacy as a protective factor for teacher resilience, the next section highlights teacher efficacy in initial teacher education programmes.

2.6.5 TEACHER EFFICACY IN INITIAL TEACHER EDUCATION PROGRAMMES

The purpose of this section is to position initial teacher education within teacher efficacy research. Pendergast et al. (2011) stated that pre-service teacher education programmes are vital in developing neophyte teacher efficacy. Supporting the development of teacher efficacy is considered an important goal of teacher training, professional performance, identify formation and school improvement (Begum et al., 2020; Lemon & Garvis, 2016; Pendergast et al., 2011). Teachers prepared with essential content knowledge and instructional abilities feel confident enacting pedagogical practices resulting in positive educational outcomes (Duffin et al., 2012).

Quality and effective teacher training develop teacher efficacy of beginning teachers (Averill & McRae, 2019; Brown et al., 2015; Woolfolk Hoy & Spero, 2005). The malleability of teacher efficacy makes it a key intervention focus for teacher training (Al Sultan et al., 2018; Bandura, 1977, 1997; Chesnut, 2017). Therefore, establishing teacher efficacy beliefs during initial teacher preparation is important since failures may hamper self-efficacy development if they occur early on (Bandura, 1997; Pfitzner-Eden, 2016a, 2016b). Research findings (Brown et al., 2015; Cook et al., 2017; Fackler & Malmberg, 2016; Jennings et al., 2013) have shown that formal teacher training efforts affect teacher efficacy to enable fundamental self-beliefs necessary for pre-service teachers to enter the profession. In turn, teacher efficacy may positively affect teacher persistence, resilience, and higher rates of retention over time (Chesnut, 2017). Hence, exploring teacher efficacy beliefs during teacher training may generate knowledge on how pre-service teachers can flourish during and upon programme

completion (Duffin et al., 2012; Lemon & Garvis, 2016). The next section, consequently, explores pre-service teachers as a scholarly domain within the current study.

2.7 THE PRE-SERVICE TEACHER WITHIN THE EDUCATION LANDSCAPE

2.7.1 INTRODUCTION

This section outlines the literature on the pre-service teacher as a scholarly domain to situate the pre-service teacher within the education landscape. I discuss the demographic profile of pre-service teachers and highlight intrapersonal resilience-enabling pathways to teacher resilience for pre-service teachers.

2.7.2 CHARACTERISING THE PRE-SERVICE TEACHER

In this section, I review the literature on pre-service teachers within the teaching landscape by exploring the demographic profile of pre-service teachers. I further identify the characteristics of pre-service teachers to establish the risk and protective factors associated with pre-service teachers. As operationalised in Chapter 1, a pre-service teacher signifies a student enrolled in a teacher education programme working towards a teaching qualification and a completely supervised teaching practice. The dynamics, including relationships, experiences support and challenges, of being a pre-service teacher is unique (Averill & McRae, 2019; Brown et al., 2015; Woolfolk Hoy & Spero, 2005). Given the changing education landscape the current generation of pre-service teachers have access to more knowledge than ever. Nonetheless, pre-service teachers may still find it difficult to retrieve the relevant information and knowledge for integration into their practice and show concerns regarding their abilities (Thieman et al., 2014). Although beginner teachers perceive themselves as professionals with a desire to realise positive learner outcomes, they also tend to overrate their capacities (Daniels et al., 2017) since they lack classroom experience and may not yet grasp the realities of the classroom (Brown et al., 2015). Therefore, they can feel uncertainty about their fit within the profession (Thieman et al., 2014).

According to the OECD education indicators (OECD, 2014b), the median age of first graduation from university is 24.7-years worldwide. Younger students (25th percentile age distribution) graduated at age 23.2-years, while older students (75th percentile age distribution) graduate at age 27.9-years. However, international variation between countries may be high depending on structural factors (e.g., typical graduation age from secondary education and entry into tertiary education) and economic factors (e.g., lack of scholarships). In countries such as Iceland and Israel, the median age of the first graduation is approximately 27-years, while in Belgium and the United Kingdom, the median age is around 22-years. Furthermore, the Hamilton project (2017) postulated that about 80% of undergraduate students enrolled for

a 4-year degree (e.g., BEd programme degree) are between 18 and 24 years of age with about 20% of undergraduate students at 4-year institutions older than 24-years. Therefore, most final year undergraduate teachers tend to be between the age of 22 to 25 years of age (Lemon & Garvis, 2016; O'Neill & Stephenson, 2012a, 2012b).

Internationally (Jenkins, 2019; Lemon & Garvis, 2016; O'Neill & Stephenson, 2012a; World Bank, 2020b) as well as nationally (Petersen, 2014), females seem to outweigh males within the pre-service teacher demographic profile. The statistics are especially true within the FP/ECD (Petersen, 2014) and primary teaching population (O'Neill & Stephenson, 2012a; Zuma et al., 2016). However, an increase in male students entering the FP/ECD teaching phase has been noted in South Africa (Petersen, 2014). The following section introduces the scholarly domain of teacher resilience in pre-service teacher as a relevant body of knowledge within the current study.

2.7.3 PRE-SERVICE TEACHER RESILIENCE

To further illustrate the importance of teacher resilience, I discuss pre-service teacher resilience, narrowing my discussion to pre-service teacher resilience enablers and constraints and the variations in pre-service teacher resilience demographics, given the available extant data of the current study.

Pre-service teacher resilience can be conceptualised, as discussed in Chapter 1, as managing the emotional challenges and inevitable vocational uncertainties driven by the commitment to the teaching profession. For novice teachers, this entails entering the teaching profession with unique views and abilities that enable effective management of professional challenges in a new context (Wosnitza et al., 2014). By exploring self-efficacy and teacher efficacy beliefs as protective resources for teacher resilience, those involved with teacher training may develop programming to promote resilience in beginner teachers. Research of self-efficacy and teacher efficacy beliefs in pre-service teachers is essential for a conceptualisation of teacher development towards effective, flourishing professionals (Thieman et al., 2014), especially in a challenged context. The following section focuses on pre-service teacher resilience enablers.

2.7.3.1 Pre-service teacher resilience enablers

Thieman et al. (2014) reported that resilience and the desire of novice teachers to teach are promoted through educational roles and events within a variety of educational contexts, domains or chronological systems. Pre-service teachers, however, can differ in their entry motivation, negotiation for their career decision-making, and the strength of their commitment to teaching (Hong et al., 2018). Pre-service teachers' resilient qualities are challenged during

teaching practice, and the relationships in which they engage during this time impact their professional development and resilience (Le Cornu, 2009).

The literature highlighted that pre-service teacher resilience is associated with aspects such as *tenacity* (Çelik et al., 2018); *academic achievement* (Yokus, 2015); *acquisition of content knowledge* (Thieman et al., 2014*); motivation* and *intrinsic rewards* (Çelik et al., 2018; Hong et al., 2018; Watt & Richardson, 2008); *relational and social-support networks* (Mansfield et al., 2014; Mapfumo et al., 2012) and *reciprocal learning relationships* (Le Cornu, 2009); *mentoring from experienced teachers and training institution* (Hong, 2012; Le Cornu, 2009); *adequate* and *timely feedback* (Hong, 2012); *beliefs about competency* (Bandura, 1977, 1997; Ee & Chang, 2010); *emotional awareness, regulation, empathy,* and *optimism* (Brown et al., 2015; Ee & Chang, 2010); *commitment, persistence and perseverance* (Hong et al., 2018); *the expectations held about and assessment of the teaching profession* (Buchanan et al., 2013); and *self-knowledge, future-self and identity development* (Chong et al., 2011; Dinham et al., 2017; Pearce & Morrison, 2011; Thieman et al., 2014).

Watt and Richardson (2008) found that novice teachers identifying teaching as intrinsic reward demonstrated high levels of effort and persistence. Although pre-service teachers tend to be altruistic in their motivations (Price et al., 2012; Sayed & McDonald, 2017), they can encounter dissonance when facing the realistic nature of the profession. However, intrapersonal resilience-enabling pathways to resilience may counteract attrition in pre-service teachers transitioning into the profession. Nonetheless, additional risk factors may constrain resilience in pre-service teachers, highlighted in the next section.

2.7.3.2 Risk factors constraining pre-service teacher resilience

Limited literature is available on attrition rates during initial teacher education (Pfitzner-Eden, 2016a). Research on the transition from teacher training to the profession indicate that more than 30% of final year pre-service teachers do not enter the teaching vocation (Pfitzner-Eden, 2016a; Wang et al., 2015). Thieman et al. (2014) foregrounded that the uncertainty of the teaching profession could constrain pre-service teacher resilience since a variety of educational experiences does not necessarily translate into confidence in pre-service teachers' knowledge on the daily work-lives of being a teacher (Sayed & McDonald, 2017; Thieman et al., 2014).

The literature also identified a multitude of stressors, risk factors, or complex challenges for pre-service teachers influencing their perception of the teaching profession, including *poor time management* (Knight, 2007; Mansfield et al., 2016); *limited understanding of the role emotions play in teaching* (Hewitt et al., 2017); *work stress perpetuated by limited strategies to cope with the unexpected* (Cefai & Cavioni, 2014); *supervision related matters and stressful or vulnerable teaching practices* (Le Cornu, 2009; Mapfumo et al., 2012); *impact of teacher-based unrealistic responsibility of learner well-being* (Daniels et al., 2017); *balancing personal,*

family, economic and heavy workload issues (Le Cornu, 2009; Mapfumo et al., 2012); *limited resources or learning aids (*Mapfumo et al., 2012); and *learners*' *challenging behaviour and classroom management* (Cefai & Cavioni, 2014; Delale-O'Connor et al., 2017; Mapfumo et al., 2012; O'Neill & Stephenson, 2012a). The following section explores the variations in pre-service teacher resilience demographics based on the extant data of the current study.

2.7.3.3 Variations in pre-service teacher resilience demographics given the extant data of the current study

Research (Gu, 2018; Thieman et al., 2014; Wosnitza et al., 2014) emphasised that teacher resilience is vital to keep early career teachers in the teaching vocation. However, Ee and Chang (2010) found that 65.1% of pre-service teachers demonstrated below average resilience while 34.9% had average resilience. Conversely, Yokus (2015) indicated that pre-service teachers' psychological resilience levels were high. Studies (Ee & Chang, 2010) found no significant difference between younger and older pre-service teacher resilience profiles, which may imply that resilience is dependent on individuals rather than being age-related. However, this finding can depend on the culture and social experience provided. Other studies (Castro et al., 2010; Gu & Day, 2007; Hong, 2012; Peixoto et al., 2018) indicated that an age difference matters for teacher resilience since resilience is a dynamic process that may fluctuate over time (Gu & Day, 2007). Studies (Hong, 2012; OECD, 2017a; Wosnitza et al., 2014) also reported the high attrition rate amongst beginning teachers. Age may thus be one factor that influences career change (Ee & Chang, 2010). However, according to Ee and Chang (2010), frequent career changes may not develop a more resilient teacher from a transience perspective. Teachers that stay in the profession do also not necessarily reflect resilient traits since endurance may indicate resistance to change or a result of restricted opportunities (Ebersöhn, 2014).

Literature (Beltman et al., 2018; Çelik et al., 2018; Fischer et al., 2018) indicated that resilience between male and female pre-service teacher profiles do not differ significantly. On the contrary, Hartman et al. (2009) found that protective factors fostering resiliency may vary across gender since male and female counterparts can rely on different individual protective factors to nurture resiliency. Comparably, Pareek and Rathore (2016), as well as Petersen (2014), highlighted a significantly higher mean value for female teachers on character strengths and virtues (including resilience). Ee and Chang (2010) noted that female pre-service teachers were more empathetic while male pre-service teachers demonstrated better impulse control which may relate to males having greater inner strengths in taking charge and control (Peglar & Reker, 2008). Similarly, Yokus (2015) observed a statistically significant difference between gender as female pre-service teachers provided more favourable responses in their self-perception, future-perception, and social resources. In addition, Bouillet et al. (2014) reported high resilience in foundation teachers. Teachers who perceived themselves as more

resilient also felt more competent in fostering resilience in their learners (Bouillet et al., 2014). While Yokus (2015) observed no statistically significant difference according to graduation type or class level variables for pre-service teachers. Nonetheless, research (Kavita & Hassan, 2018; Molina et al., 2017; Perlman & Pearson, 2012; Zuma et al., 2016) indicated a difference between primary school teachers' stress and the supportive learning context that is lower than secondary school teachers. The OECD (2018) also highlighted the different teaching and working conditions for primary and secondary teachers. The following section explores the teacher efficacy of pre-service teachers.

2.7.4 PRE-SERVICE TEACHER EFFICACY

This section elaborates on the literature domain of teacher efficacy by discussing pre-service teacher efficacy concerning teacher resilience. I focus my discussion on the protective factors and risk factors associated with pre-service teacher efficacy enabling or constraining teacher resilience. Lastly, I discuss the variations in pre-service teacher efficacy demographics given the available data of the current study.

Pre-service teachers' sense of efficacy has been explored worldwide since the 1990s (Ngidi & Ngidi, 2019; O'Neill & Stephenson, 2012a), often by using a convenience sample of undergraduates enrolled at teaching institutions (Mergler & Tangen, 2010). Findings (Duffin et al., 2012; Fives & Buehl, 2010; O'Neill & Stephenson, 2012b) suggested that pre-service teachers may not yet adequately differentiate between distinct aspects of teaching efficacy (i.e., efficacy for behaviour management, engaging learners and using different instructional strategies). This finding was due to limited pedagogical knowledge and teaching experience, which warranted the use of teacher efficacy as a unidimensional construct. However, some scholars (Pfitzner-Eden, 2016a) argued that senior pre-service teachers could differentiate between teacher efficacy dimensions. Nonetheless, pre-service teachers with higher teacher efficacy seem more likely to enter the occupation on completion of the teaching experience (Swan et al., 2011). Mergler and Tangen (2010) and Pfitzner-Eden (2016a) noted that pre-service teacher efficacy changes occurred during coursework at a training institution and the supervised teaching practice at schools.

Examining pre-service teachers' efficacy beliefs is essential because these beliefs seem malleable during the commencement of teacher training (Al Sultan et al., 2018; Bandura, 1977, 1997; Duffin et al., 2012; Woolfolk et al., 2009) but can be impervious to change later (Bandura, 1997; Moè et al., 2010; Woolfolk Hoy & Spero, 2005). There is limited literature about the efficacy beliefs of pre-service teachers at the start and during training as well as the extent to which pre-service teacher efficacy influences and is influenced by other psychological factors (Pendergast et al., 2011). Given the argument that teacher efficacy beliefs may be resistant to change after the novice teaching phase, it seems imperative to explore pre-service teachers' efficacy beliefs (Lemon & Garvis, 2016).

2.7.4.1 Protective factors associated with pre-service teacher efficacy enabling teacher resilience

Based on Bandura's self-efficacy theory (see Chapter 1), pre-service teachers may ascertain knowledge and skills through the four principal sources of efficacy, including enactive mastery experiences, vicarious or modelling experiences, verbal or social persuasion as well as physiological and emotional states. Pre-service teachers may acquire teacher efficacy through personal experiences, verbal feedback, observation as well as physical and affective states (Bandura, 1977,1986, 2001; Moulding et al., 2014; O'Neill & Stephenson, 2012b; Pendergast et al., 2011; Pfitzner-Eden, 2016a, 2016b; Schunk, 2008; Watson & Marschall, 2019).

For pre-service teachers, factors associated with teacher efficacy have been found to include *responsibility (i.e., learner-outcome focused responsibility and teacher-based responsibility)* (Daniels et al., 2017)*; motivation and realistic expectations* (Kim & Cho, 2014); *occupational commitment* (Chesnut, 2017; Chesnut & Burley, 2015; Pfitzner-Eden, 2016a); *retention (e.g., commitment to complete a teaching degree or decreased intention to quit)* (Pfitzner-Eden, 2016a); *teaching practice* (Brown et al., 2015; Clement, 2017; Moulding et al., 2014; O'Neill & Stephenson, 2012b); *identity construction* (Pendergast et al., 2011); and *learner achievement* (Moulding et al., 2014; Tschannen-Moran & Johnson, 2011).

Before any practical experience in the field, pre-service teachers appear to overestimate or miscalibrate their teacher efficacy beliefs (Pendergast et al., 2011). However, undergraduate teachers in the final semester demonstrated a lower level of teacher efficacy than the initial teacher efficacy belief (Pendergast et al., 2011). Clark (2020) echoed the decrease of teacher efficacy at the end of teacher training compared to first-year pre-service teachers. On the other hand, Klassen and Durksen (2014) found a significant linear increase in pre-service teacher efficacy throughout their teaching practice in their final year. Moulding et al. (2014) found that the pre-service teacher efficacy increased after the teacher practice regardless of the school's location or social-economic status. School placement with higher learner achievement was associated with higher pre-service teacher efficacy (Moulding et al., 2014; Tschannen-Moran & Johnson, 2011). The findings may highlight the importance of practical experience, including mastery experiences and the exposure to contextual factors during teacher training (Pendergast et al., 2011). Pfitzner-Eden (2016a) emphasised that the teacher efficacy changes differed by the stage of teacher education. What is more, research (Brown et al., 2015; Wolters & Daugherty, 2007; Woolfolk Hoy & Spero, 2005) suggested different developmental trajectory of teacher efficacy that tends to demonstrate an upward trajectory during training but decline after qualification in the first year of teaching.

Klassen et al. (2011) denoted that improving teacher efficacy is essential in ensuring a resilient profession. The literature indicated that pre-service teacher efficacy could be supported by *enabling critical reflection* (Black, 2015; Hewitt et al., 2017); *self-evaluation* (Hewitt et al.,

2017); *encouragement of self-awareness* (Hewitt et al., 2017); *practising behaviour management* (O'Neill & Stephenson, 2012b) *and practical skills* (Black, 2015); *providing information on developmental domains and stages of teachers* (Black, 2015); *feelings of preparedness* (Brown et al., 2015; Lieberman & Darling-Hammond, 2012); *descriptive and extensive verbal and written motivational feedback* (Black, 2015; Moulding et al., 2014); and *support systems, supervision, and positive relationships* (Hewitt et al., 2017; Lieberman & Darling-Hammond, 2012; Moulding et al., 2014; K. E. Thomas & Mucherah, 2016; Woolfolk Hoy & Spero, 2005). Immersive and supportive environments (K. E. Thomas & Mucherah, 2016) as well as social systems, including the support of peers and mentors and the support structures inside and outside the training institution (Hewitt et al., 2017), may enhance pre-service teacher efficacy (Lieberman & Darling-Hammond, 2012; Moulding et al., 2014; Woolfolk Hoy & Spero, 2005). The next section explores risk factors associated with pre-service teachers constraining teacher resilience.

2.7.4.2 Risk factors associated with pre-service teacher efficacy constraining teacher resilience

A lack of teacher efficacy can impact pre-service teacher outcomes and the outcomes of the learners in their care (Hewitt et al., 2017). Factors that may hamper pre-service teacher efficacy may involve the *lack of supervisors or mentor teacher approval or support* (Black, 2015; Klassen & Durksen, 2014; Moulding et al., 2014); *low motivation and confidence* (Lemon & Garvis, 2016); *limited rapport or not perceiving a positive impact with learners* (Black, 2015; Mergler & Tangen, 2010); *struggling to engage with colleagues, parents, or caregivers* (Castro et al., 2010); *instructional, curriculum planning and implementation* (Black, 2015)*; inadequate exposure to mastery or practical experiences* (O'Neill & Stephenson, 2012a); *negative physical and affective states* (Bandura, 1986; O'Neill & Stephenson, 2012a); and *classroom and behaviour management* (Black, 2015; Mergler & Tangen, 2010; O'Neill & Stephenson, 2012a).

Pre-service teachers find deficient preparation for behaviour management a concern during teaching practice (Black, 2015; O'Neill & Stephenson, 2012a), demonstrating a lack of confidence in the area (Delale-O'Connor et al., 2017). Further risk factors such as *undefined roles* and *excessive responsibility* which create guilt and tension may lead to *job-related stress, burnout, decreased job satisfaction and attrition* for pre-service teachers (Clement, 2017; Fives & Buehl, 2010; Jackson & Rothmann, 2005; Pfitzner-Eden, 2016a; Zuma et al., 2016).

2.7.4.3 Variations in pre-service teacher efficacy demographics given extant data of the current study

Pre-service teachers seem to demonstrate a high sense of teacher efficacy, thus feeling that they can influence learning and behaviour of learners (Beltman et al., 2018; Fives & Buehl, 2010; Klassen et al.'s; 2011; Kyriakides et al., 2013; Moulding et al., 2014; Ngidi & Ngidi, 2019; O'Neill & Stephenson, 2012b; Özdemir, 2008; Swan et al., 2011). Also, it appears that pre-service teacher efficacy was higher begging teachers in schools with better learner performance (Caprara et al., 2006; Moulding et al., 2014; Tschannen-Moran & Johnson, 2011) but that socio-economic status, disadvantaged communities or social background did not have a significant impact on pre-service teacher efficacy (Morgan, 2011; Moulding et al., 2014). Additionally, the age of pre-service teachers does not seem significantly related to teacher efficacy (Pendergast et al., 2011; Pfitzner-Eden, 2016a) since, according to Bandura (1997), self-efficacy is not associated with age but rather with professional teaching experience. Furthermore, literature (Beltman et al., 2018; Klassen & Durksen, 2014; Murshidi et al., 2006; Ngidi & Ngidi, 2019; O'Neill & Stephenson, 2012b; Pendergast et al., 2011; Pfitzner-Eden, 2016a; Tschannen-Moran & Woolfolk Hoy, 2007) indicated no significant difference of pre-service teacher efficacy by gender. However, the association between pre-service teacher efficacy and for example, commitment seem stronger for male pre-service teachers than the relationship for female pre-service teachers (Chesnut, 2017). In comparison, female pre-service teachers seemed more inclined toward mastery approaches than males (Daniels et al., 2017). On the other hand, Brandon (2000) found that female pre-service teachers had lower self-efficacy relating to teaching competencies than male pre-service teachers before teaching practice experience. In contrast, Özdemir (2008) and Üstüner (2017) reported that male pre-service teachers had lower teacher efficacy beliefs than their female counterparts.

Teacher efficacy for pre-service teachers in primary (Brown et al., 2015; Moulding et al., 2014; O'Neill & Stephenson, 2012b), as well as secondary schools' (O'Neill & Stephenson, 2012b; Woolfolk Hoy & Spero, 2005) teaching education programmes, seemed high. Although Pendergast et al. (2011) noted that the mean for teacher efficacy was highest for early childhood and primary pre-service teachers, no statistically significant difference was obtained. At the same time, Woodcock (2011) reported that primary pre-service teachers held a significantly higher teacher efficacy belief than secondary pre-service teachers. Given the pivotal bodies of literature discussed in the previous sections, the following section put forth the conceptual framework for this study.

2.8 THE CONCEPTUAL FRAMEWORK

2.8.1 INTRODUCTION

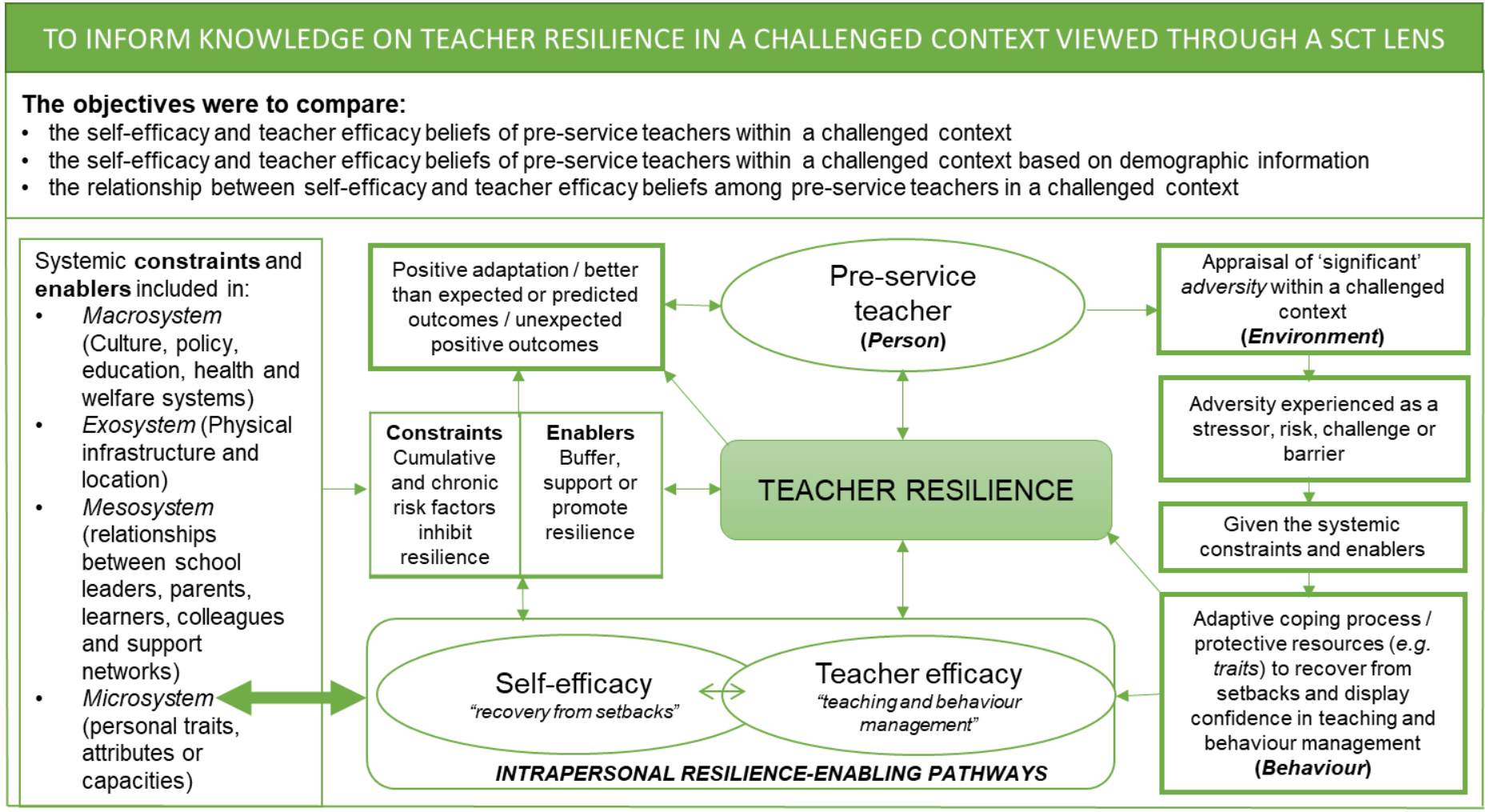
The chosen theoretical framework (i.e., Social Cognitive Theory [Bandura, 1986]) is discussed in Chapter 1 (see Section 1.7). In this section, I discuss the conceptual framework of the current comparative case study. The conceptual framework aimed to guide the process of analysis and the interpretation of results to inform systematic knowledge on intrapersonal resilience-enabling pathways (i.e., self-efficacy and teacher efficacy) to teacher resilience. Therefore, I contextualise intrapersonal resources, in a Global South educational space, to allow for a comparison of pre-service teachers' self-efficacy and teacher efficacy as intrapersonal protective pathways to teacher resilience in a challenged context.

2.8.2 INFORMING KNOWLEDGE ON TEACHER RESILIENCE IN A CHALLENGED CONTEXT THROUGH A SOCIAL COGNITIVE LENS

In Figure 2.7, I present a conceptual framework for this study. Figure 2.7 illustrates the conceptual framework that unites key elements to consider the self-efficacy and teacher efficacy of pre-service teachers as protective factors in a challenged context to inform intrapersonal resilience-enabling to teacher resilience.

Figure 2.7

Informing Knowledge on Teacher Resilience in a Challenged Context: An SCT Lens to Self-efficacy and Teacher Efficacy of Pre-service Teachers



Adapted from Bandura (1977, 1997) and Ebersöhn (2014)

As highlighted in Section 2.2, resilience only becomes evident during monumental adversity and structural disparity (i.e., a challenged context), such as South Africa as an exemplar of a Global South place (Ebersöhn, 2014). As foregrounded in Chapter 1, South Africa is a high-risk, high-need Global South context with inequality and cultural or political marginalisation typified by an emerging economy and high adversity as well as structural disparity due to a post-colonial history (Dados & Connell, 2012; Schwartz & Harris, 2017). Ebersöhn (2017) postulated that the ecology of resilience matters when considering education and context. Research generating evidence to address challenges due to multiple and chronic disruptions can elicit valuable insights while acknowledging the risk factors. A resilience lens may promote dialogue on evidence of better than expected educational outcomes despite a high-risk ecology to counter a dis-enabling disaster perspective (Ebersöhn, 2016).

As per Section 2.2.3, I drew on trait-resilience (Block & Block, 1980; Block & Kremen, 1996; Letzring et al., 2005), grit and hardiness (Kobasa et al., 1982; Maddi et al., 2017; Prince-Embury, 2010), the salutogenic theory's sense of coherence (A. Antonovsky, 1979), Fredrickson's theory of positive emotions (Fredrickson et al., 2003), adaptive coping (Skinner & Zimmer-Gembeck, 2011; Willers et al., 2013; Zimmer-Gembeck et al., 2018), relational resilience (Ebersöhn, 2012; Jordan, 2006, 2013) as well as transactional-ecological process thinking (Ungar, 2011; Ungar et al., 2013) for the conceptualisation of psychological resilience in spaces of high challenge. Furthermore, the lenses employed to conceptualise teacher resilience included the multidimensional approach (Gu & Day, 2007), strategic approach (Patterson et al., 2004), active agent approach (Castro et al., 2010), the Multi-level Teacher Resilience Model (Wosnitza et al., 2014), the teacher resilience process (Mansfield et al., 2018) as well as a contextualised structural disparity lens (Ebersöhn, 2014).

The contextualised structural disparity lens (Ebersöhn, 2014) is specifically employed in the conceptual framework given the Global South education landscape depicted in the current study. In addition, the Social Cognitive Theory (Bandura, 1986, 1989a, 1989b), underpinning the current study as the theoretical framework (see Chapter 1), postulated the notion that adaptation occurs in a social context where pre-service teachers can actively contribute (i.e., individual as active agent) to their development within a reciprocality process over time (Bandura, 1989a, 1989b; Bandura et al., 1977; Schunk, 2008). The individual (i.e., pre-service teachers with internal traits including for example grit, hardiness, positive emotions, and efficacy), behaviour (e.g., employing adaptive coping strategies, beliefs and protective resources) and the environment (i.e., including risk [see Table 1.1] and protective factors [see Table 2.2] in a challenged context) thus continuously influence one another bidirectionally. Given the Social Cognitive Theory's assumptions, pre-service teachers may select, influence and construct their circumstances. Consequently, they are active agents (correlating with Castro et al.'s [2010] active agent view for teacher resilience), shaping themselves and their

context (Bandura, 1989a, 1989b) which include the socio-ecological environment (Ungar, 2008, 2010, 2011, 2012a, 2012b; Ungar et al., 2013).

As a central feature of the Social Cognitive Theory (1986, 1989a, 1989b), self-efficacy beliefs (Bandura, 1977, 1986; Bandura et al., 1977) can affect pre-service teachers' behaviour, perceptions, and outcomes directly or indirectly. As a result, pre-service teachers may pursue goals as well as challenges, rebound from setbacks, persist or demonstrate grit, hardiness, control as well as optimism when faced with obstacles (Bandura, 1986, 1993, 1996, 1997; Perkins-Gough, 2013). Therefore, even if there is adversity, self-efficacy can act as a protective resource if the pre-service teachers believe they can succeed and recover from setbacks (Hewitt et al., 2017). The latter may likely "counteract" adversity or enable resilience pathways. From this perspective, self-efficacy is an element of competence (Lemon & Garvis, 2016), predicting possible enabling pathways to resilience. Consequently, Bandura's theory, as discussed in Chapter 1, emphasised behaviour regulation, reflection, and active agency rather than the environmental product outcome alone (Bandura, 1977, 1997, 2006; Hewitt et al., 2017).

Perceived self-efficacy may enable control over pre-service teachers' functioning and (stressful) events that could influence their lives (Lemon & Garvis, 2016). The aforementioned may link with how pre-service teachers appraise (significant) adversity and positively adapt (Skinner & Zimmer-Gembeck, 2007, 2011) through an interacting complex transactional coping system by utilising capacities, learnt skill and the mobilisation of contextual resources to manage cumulative and chronic risk factors (Ebersöhn, 2014). Thus, the individual systems act as a pathway of adaptation resulting in unexpected positive outcomes and competencies despite significant adversity in a challenged context. Therefore, the pre-service teacher must appraise their circumstances as adverse and respond to the experience in a manner that reflects resourceful adaptation employing protective traits such as self-efficacy (i.e., recovery from setbacks) and teacher efficacy (i.e., confidence in teaching and behaviour management).

Given the latter pre-service teachers might evaluate adverse conditions in a challenged context based on its comprehensibility, manageability, and meaningfulness (A. Antonovsky & Sourani, 1988). If pre-service teachers perceive their environment as predictable and manageable, they may have the confidence to confront challenges, utilising internal resources (e.g., self-efficacy, teacher efficacy, positive emotions) and contextual assets to address barriers (A. Antonovsky & Sourani, 1988; Masten, 2001). Extrapolating from the broaden-and-build theory (Fredrickson, 2001), positive emotions are active ingredients within trait resilience (Cohn et al., 2009; Fredrickson et al., 2003) since positive emotions buffer against adversity and fuel coping, thriving as well as life satisfaction (Cohn et al., 2009; Fredrickson, 2001). Resilient pre-service teachers may thus quickly and effectively "bounce back" from challenges, and routine positive emotions can enable increased protective resources (Tugade & Fredrickson, 2004). Therefore, positive emotions (including feeling confident and competent)

assist with adaptive coping during challenges (Skinner & Zimmer-Gembeck, 2011; Tugade & Fredrickson, 2004; Willers et al., 2013; Zimmer-Gembeck et al., 2018).

Given the trait-discourse with self-efficacy and teacher efficacy postulated as protective factors enabling teacher resilience intrapersonal resilience-enabling pathways, the current study analysed the FIRE Teacher Resilience Measure to compare the self-efficacy and teacher efficacy of final year pre-service teachers (within-case and cross-case) in a challenged educating context aiming to inform knowledge on teacher resilience in a Global South setting. In Chapter 5, Section 5.5, the conceptual framework is revisited together with the hypotheses to theorise findings within the conceptual framework to highlight an evidence-based theoretical framework for teacher resilience in spaces of high risk.

2.9 CONCLUSION

A main conclusion, evident from the literature, is the limited research available on *teacher resilience* in a challenged context given a Global South discourse, and particular from *quantitative studies* and with *pre-service* teachers. In Chapter 2 I situated this study within existing literature and a theoretical framework to compare the self-efficacy and teacher efficacy of pre-service teachers in a challenged context. I discussed the literature on resilience, teacher resilience, self-efficacy, teacher efficacy beliefs, teacher education, and pre-service teachers in a challenged setting. I concluded the chapter by justifying the conceptual framework that guided me in undertaking the current study.

In Chapter 3, I explain the epistemological perspective and methodological approach, together with the research design employed. I examine sample and the statistical procedures used for the current study. I conclude the chapter with a detailing the standards of rigour and the ethical guidelines followed throughout the current study.

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Chapter 3
Research Design, Methodology and Strategies

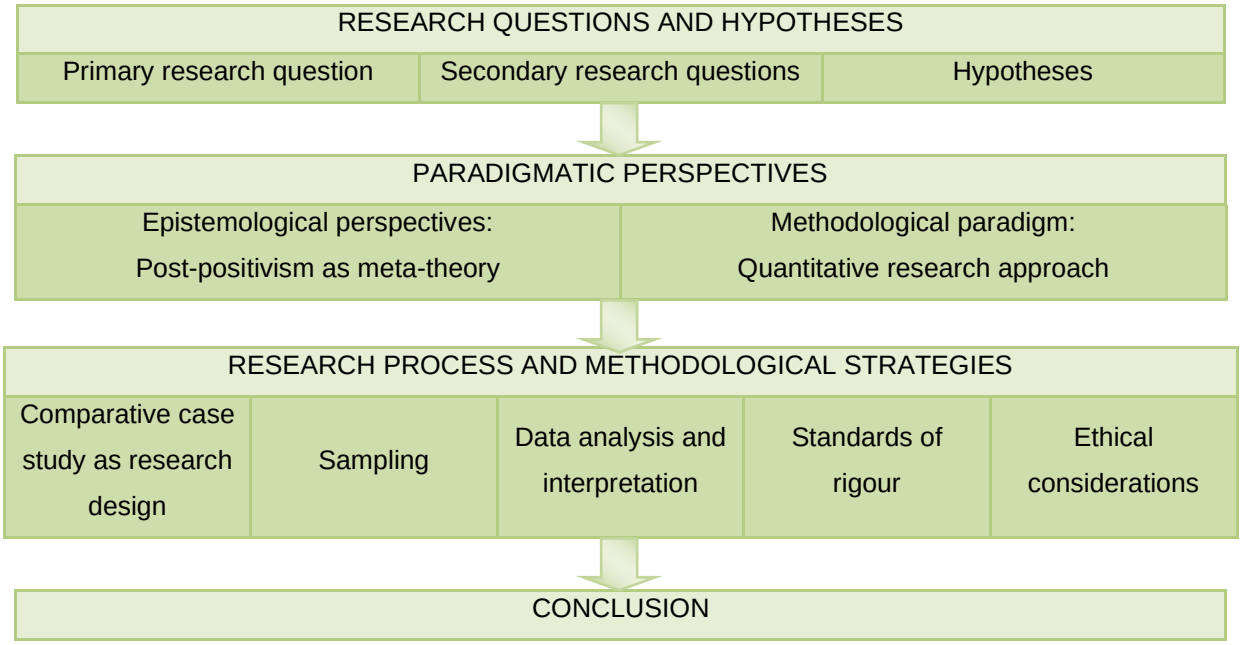
3.1 INTRODUCTION

In Chapter 2, I embarked on a literature review associated with resilience, teacher resilience, self-efficacy, teacher efficacy, initial teacher education, pre-service teacher resilience and pre-service teacher efficacy within a challenged context to compare the self-efficacy and teacher efficacy beliefs of pre-service teachers to gain insight into teacher resilience in a Global South education space. I further presented the theoretical framework, namely the Social Cognitive Theory (Bandura, 1986), in Chapter 1, as a lens for the conceptual framework discussed in Chapter 2.

In Chapter 3, I provide a description of the research processes followed during this study to address the research questions based on testing the formulated hypotheses. In this chapter, I also highlight the paradigmatic approach that informed the research. I further justify the choice of comparative research design and methodology, including the strengths and limitations of methodological decisions. The chapter describes the sampling and selection strategies, the statistical data analysis processes and the interpretations thereof. Based on the purpose of the current study, I conducted a non-experimental, descriptive and inferential mode of inquiry in the form of a quantitative secondary data analysis. As part of the FIRE project (Appendix C), the dataset obtained from the FIRE Teacher Resilience Measure (Appendix B) was purposefully selected to compare the self-efficacy and teacher efficacy of pre-service teachers within the context of the relevant literature. I conclude the chapter by discussing the quality criteria employed to ensure rigour and the ethical guidelines pursued throughout the current study. Figure 3.1 presents a flow chart showing the organisational overview of Chapter 3.

Figure 3.1

Flow Chart Showing the Organisation of Chapter 3



3.2 RESEARCH QUESTIONS AND HYPOTHESES

3.2.1 INTRODUCTION

According to Donnellan et al. (2011), quality research should proceed from an important, specific and interesting question grounded by theoretical concerns or knowledge gaps. Quantitative research questions investigate the relationships among variables under inquiry, while hypotheses within quantitative research, are numerical estimations about the expected outcomes of relationships (Creswell, 2014; Creswell & Creswell, 2018). Therefore, I used research questions and hypotheses to direct and steer the purpose of the current study (L. Cohen et al., 2018; Creswell, 2014; Creswell & Creswell, 2018). This section, consequently, presents the primary and secondary research questions and the hypotheses addressed by the current study.

3.2.2 PRIMARY RESEARCH QUESTION

Considering the rationale and purpose of this study, depicted in Chapter 1, my inquiry was guided by the following primary research question:

How can insight into the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged education context inform knowledge on teacher resilience?

3.2.3 SECONDARY RESEARCH QUESTIONS

To address the primary research question, the current study explored the subsequent secondary research questions:

- How do self-efficacy and teacher efficacy beliefs of final year pre-service teachers within a challenged education context (within-case and cross-case) compare?
- What are the self-efficacy and teacher efficacy beliefs of pre-service teachers within a challenged education context based on demographic information (within-case and cross-case)?
- To what extent is there a relationship between self-efficacy and teacher efficacy beliefs among pre-service teachers in a challenged education context (within-case and cross-case)?

3.2.4 HYPOTHESES

Quantitative research is well suited for testing hypotheses (Ary et al., 2019), which contain numerical estimations the research holds about the relationship among two or more variables (i.e., self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged education context) (Creswell, 2014). A hypothesis is a tentative explanation, logical conjecture or supposition that accounts for a set of facts based on data collected from samples, and it can be tested by further investigation (Ary et al., 2019; Creswell, 2014; O'Leary, 2017). A testable statement (i.e., hypothesis) operationalise numerical procedures to draw inferences or conjectures from a given sample under investigation (L. Cohen et al., 2018; Creswell, 2014). Hypotheses cannot be proven or accepted within the post-positivist paradigm and may either be rejected or not rejected (i.e., failure to reject), as evidence is seen as fallible and imperfect (Creswell, 2014; Sauro & Lewis, 2016). Criticism opposed to the custom of hypotheses (O'Leary, 2017; Sharpe, 2013; Trafimow & Marks, 2015) contend that hypotheses have limited usefulness for conveying relevant quantitative information and may constrain social research. Nonetheless, it is still widely used in research (Sharpe, 2013) and is seen as valuable in the appropriate context (O'Leary, 2017).

The variables (constructs or units) (Ary et al., 2019; Creswell, 2014) within the current study were operationalised by using relevant scales (FIRE Teacher Resilience Measure: Teacher Resilience scale[45] and Teacher Efficacy scale) (see Appendix B). To address the research questions, the hypotheses were formulated to test for a statistically significant difference or correlation between variables.

[45] Operationalised as self-efficacy as discussed in Chapter 1.

3.2.4.1 Statistical hypothesis of the population difference

The statistical hypotheses related to assumptions based on the population difference are stated as follows:

- H_0: $Median_{dif} = 0$ (median population difference between self-efficacy and teacher efficacy beliefs [within-case and cross-case] does not differ significantly from zero).
- H_a: $Median_{dif} \neq 0$ (median population difference between self-efficacy and teacher efficacy beliefs [within-case and cross-case] differs significantly from zero).

The null hypothesis (H_0) state that there is no statistically significant difference (Creswell & Creswell, 2018; López et al., 2015; Pietersen & Maree, 2019d; Sauro & Lewis, 2016) between the self-efficacy and teacher efficacy beliefs of final year pre-service teachers (within-case and cross-case). Thus, the expectation of the null hypothesis is that there is no statistically significant difference in pre-service teachers' confidence in recovery from setbacks in school (i.e., self-efficacy) and their confidence in teaching and behaviour management (i.e., teacher efficacy beliefs). Conversely, the alternative hypothesis (H_a) state that there is the expectation that there is a statistically significant difference (L. Cohen et al., 2018; Creswell & Creswell, 2018; Pietersen & Maree, 2019d; Sauro & Lewis, 2016) between the self-efficacy and teacher efficacy beliefs (within-case and cross-case) of pre-service teachers within a challenged context.

When testing a hypothesis, a *p*-value is calculated and compared to the level of significance ($\alpha = .05$), with α being the probability of rejecting a null hypothesis (H_0) that is true (López et al., 2015). A 5% level of significance is typically used in behavioural studies (Cozby & Rawn, 2016). If the *p*-value is less than .05, the null hypothesis (H_0) is rejected, and there is a statistically significant difference between the self-efficacy and teacher efficacy beliefs of pre-service teachers. If the *p*-value is greater than .05, the null hypothesis (H_0) is not rejected, and there is not a statistically significant difference between the self-efficacy and teacher efficacy of pre-service teachers (Field, 2018; Sauro & Lewis, 2016).

3.2.4.2 Statistical hypothesis of the population correlation

The statistical hypotheses related to assumptions based on the population correlation coefficient are stated as follows:

- H_0: There is no statistically significant correlation between self-efficacy and teacher efficacy beliefs.
- H_a: There is a statistically significant correlation between self-efficacy and teacher efficacy beliefs.

If the *p*-value is less than .05, the null hypothesis is rejected and there is a statistically significant correlation and, on the other hand, if the *p*-value is greater than .05, the null hypothesis is not rejected then there is no statistically significant correlation. Given the hypotheses stated, the assumption was that variations would be noted between groups of pre-service teachers. It was hypothesised that within groups of pre-service teachers, their self-efficacy and teacher efficacy beliefs may differ, and the sources of variance could be different for distinct groups.

If the null hypothesis (H_0) is not supported, a significant *p*-value does not provide any warrantable evidence about the theoretical meaningfulness or extent of the effect. Rejecting the null hypothesis (H_0) indicates that there is a low probability of no effect or no difference, or correlation. Rejecting the null hypothesis indicates that the alternative hypothesis (H_a) is a more likely explanation (Sharpe, 2013). The current study is not focused on determining the mediated or indirect effect on self-efficacy or teacher efficacy beliefs within a challenged context. Since causality cannot be sustained from non-experimental or cross-sectional data[46] (L. Cohen et al., 2018), the current study aimed to compare associations and directions of the relationship between variables (i.e., self-efficacy and teacher efficacy beliefs) (Roni et al., 2020) in a challenged context. Given the research questions and hypotheses, the next section situates the current study within a post-positivist, quantitative paradigm.

3.3 PARADIGMATIC PERSPECTIVES

3.3.1 INTRODUCTION

A research perspective is a set of basic beliefs applied as understanding of worldview or inferences (Babbie, 2021; Lincoln et al., 2011). A research paradigm guides how a researcher views material related to scientific inquiry (De Vos et al., 2011). A broad research approach "is thus the plan or proposal to conduct research" (Creswell & Creswell, 2018, p. 43). In this study, I employed a quantitative methodological paradigm anchored in post-positivism, as depicted in Table 3.1. Post-positivism is often associated with a quantitative approach, with quantitative researchers being primarily post-positivist (Creswell & Creswell, 2018; Johnson & Gray, 2010; Ramlo & Newman, 2011; Tuli, 2010).

[46] Data collected at one point in time (L. Cohen et al., 2018; Creswell & Creswell, 2018). Within the current study cross-sectional data refer to the extant data collected during the FIRE project in 2015, 2016 and 2017 with final year pre-service teachers.

Table 3.1

Paradigmatic Perspectives

Paradigmatic perspectives	
Meta-theory	Post-positivism
Methodological paradigm	Quantitative research approach

3.3.2 EPISTEMOLOGICAL PERSPECTIVES: POST-POSITIVISM AS META-THEORY

In Section 3.3.2, I discuss post-positivism as meta-theory for this study. I highlight the implications of the post-positivist researcher. I further note advantages and limitations of this perspective and how it was addressed in the current study.

As a scientific methodology, the post-positivist paradigm is viewed as an extension to positivism by challenging the traditional positivist worldview (Creswell & Creswell, 2018; Panhwar et al., 2017). Post-positivism postulates that the world is ambiguous and open to interpretation (O'Leary, 2017) and aims to understand phenomena holistically (e.g., teacher resilience) (Tekin & Kotaman, 2013) whilst still embracing the scientific method (L. Cohen et al., 2018). The post-positivist view holds to a realist ontology (L. Cohen et al., 2018) and therefore searches for reliable, reproducible and valid empirical evidence to explain and correspondingly verify the prediction of phenomena, laws or theories through scientific testing (Creswell & Creswell, 2018; Lincoln et al., 2011). Through this lens, the intricacies of any social occurrence and different perspectives, possibilities and points-of-view, are acknowledged while research is conducted (Lor, 2011; Tekin & Kotaman, 2013). Reality is understood probabilistically (Howell, 2013) and conceived as a subjective, mentally crafted construct within the context of influential factors and a given society (Tekin & Kotaman, 2013). Knowledge accumulated, generated, investigated and shaped through a post-positivist paradigm is grounded in clear scientific measurement, generalisation and observation of reality in the world (Creswell & Creswell, 2018; Howell, 2013; Panhwar et al., 2017). Nonetheless, an absolute truth within post-positivist research can never be proven or predicted since knowledge is assumed to be conjectural, imperfect, provisional and fallible (Creswell, 2014; Creswell & Creswell, 2018; Lincoln et al., 2011; Lor, 2011).

This reality implies that concrete universal laws, theories and facts cannot be attained as they lack context (Tekin & Kotaman, 2013). Consequently, within post-positivism, the world is without a defined truth, and knowledge may be reliant on one's ability to predict changing social phenomena (O'Leary, 2017, Tuli, 2010). Shifts in complex conclusions can accordingly occur over time given future evidence (L. Cohen et al., 2018) and are provisional within a particular society or context-bound knowledge systems (L. Cohen et al., 2018; Tekin & Kotaman, 2013). Diversity (e.g., different cultural groups) and idiographic situations are recognised (O'Leary, 2017), but also that outcomes from one context may apply to other

contexts (i.e., the purpose is generalisation) (Creswell, 2014; Lincoln et al., 2011; Lor, 2011). Individuals' subjective knowledge is shaped by rational considerations, evidence, and data and is therefore regarded as a valid form of knowledge creation (Creswell, 2014). Therefore, post-positivist research aims to develop accurate and appropriate statements that can assist in explaining multi-layered situations by adopting a distanced view to gain perspective of the data (Creswell, 2014). This paradigm predicts apparent reality by investigating the causal or underlying law-like perceptions when scientific methods are applied to understand the world (De Vos et al., 2011; Tuli, 2010).

The post-positivists researchers' goal is to maintain as much objectivity as feasible during research while acknowledging the probable influence of the researcher in the investigation (Creswell & Creswell, 2018; Ramlo & Newman, 2011). As L. Cohen et al. (2018, p. 138) denoted, "it is almost impossible for researchers to free themselves from their values and perspective in a post-positivist era, and indeed there may be unintentional breaches of ethics, researchers must be vigilant, very self-aware and reflexive". Since post-positivism believes that no universal truth (i.e., knowledge is partial, probabilistic and provisional) is possible, it leaves room for subjective perspectives, critical multiplism or pluralist view (L. Cohen et al., 2018; O'Leary, 2017; Panhwar et al., 2017). Therefore, a post-positivist researcher views objectivity as relative and open to be critiqued (O'Leary, 2017; Panhwar et al., 2017). Bird (2020, p. 83) defined the "norm of objectivity as a set of guidelines for the gathering, interpreting and reporting on research which views this reporting as intelligible, reasonable, discursive, and inherently reciprocating, public activity". Therefore, objectivity in social sciences is guided by the authentic representation of research, using measures that enable evaluation and verification to exercise accountable judgments and open dialogue (Bird, 2020). Thus, the researcher should examine methods and conclusions for bias by ensuring rigorous research (e.g., the standard of validity and reliability, as discussed in Section 3.4.5) (Creswell & Creswell, 2018), alternative elaborations and collaborative discussion (Panhwar et al., 2017). Consequently, the post-positivist researcher should remain conscious of the possible effect of research bias in all studies (Creswell, 2014; Panhwar et al., 2017) and highlight diverse viewpoints, possibilities, perspectives, and various variables that may affect results (Lor, 2011).

Post-positivist principles emphasise meaning and the interpretative creation of new knowledge (Panhwar et al., 2017). As an independent change agent, the researcher can use the scientific information to form, explain, and justify actions and policies through activism and advocacy (Howell, 2013; Lincoln et al., 2011). As a critical realist (Panhwar et al., 2017), the post-positivist researcher thus provides greater scope for human endeavour and social-educational movement (Howell, 2013). Nonetheless, when investigating the actions and behaviour of individuals or phenomena, the researcher cannot be certain about the claims of knowledge made from a post-positivist study and should scrutinise subjective assumptions

and possible bias regarding conclusions established (Creswell, 2014; Creswell & Creswell, 2018). Subsequently, I needed to remain cognisant of suppositions about conjectural conclusions drawn from the results and subsequent constraints of objectivity since an absolute truth cannot be found within a post-positivist paradigm (Creswell & Creswell, 2018; Ramlo & Newman, 2011).

A post-positivist view seemed suitable for the current study by prompting knowledge creation, quantification and creating meaning through critical realism (Lincoln et al., 2011; Lor, 2011; O'Leary, 2017; Panhwar et al., 2017). As I set out to compare the variables, self-efficacy and teacher efficacy beliefs of final year pre-service teachers within a challenged context, through research questions and hypotheses, the post-positivist paradigm appeared relevant (Creswell, 2014; Howell, 2013; Lor, 2011), from a fundamentally deterministic and reductionistic philosophy (Creswell, 2014; Creswell & Creswell, 2018; Lincoln et al., 2011). In addition, post-positivist inquiry allows for a rich, in-depth understanding of what is being studied within a more extensive social system (O'Leary, 2017; Tekin & Kotaman, 2013), which aligns with the conceptual framework employed in the current study. A post-positivist lens allowed the opportunity to compare the relationship (Creswell, 2014), if any, of interest between variables (i.e., self-efficacy and teacher efficacy beliefs). It provided amiable and unambiguous information to examine patterns across many cases (Babbie, 2021; Yin, 2018). The justification of post-positivism as a research paradigm for the current study implied the benefit of outcomes being transparent, methodical and dependable (O'Leary, 2017) given the standards of rigour the current study adopted during the research endeavour (Scotland, 2012). The post-positivist paradigm produces explicit evidence to support generated findings and conclusions based on a systematic, comparative description of a reliable extant dataset without perceived perfection and minimising the risk of bias (Panhwar et al., 2017).

Critics of post-positivism, such as phenomenologist philosophers, still question the adherence to the idea of external reality and dualist objectivity based on the interaction between "self and the world" (Howell, 2013, p. 33). Furthermore, post-positivism is usually highly structured, which can prevent the exploration of unexpected outcomes or information (Howell, 2013). As such, the conjecture is made that reality exists, but as a creation of the research respondents' construction of influential contextual factors, and can accordingly never be fully understood, resulting in a limited understanding of their perspectives (Lincoln et al., 2011; Scotland, 2012). To address the concerns, I espoused a flexible and reflexive (O'Leary, 2017; Panhwar et al., 2017) open-minded stance as this perspective is regarded as a key factor in post-positivist research.

Given that findings may be conditional and situationally embedded within a specific natural context (Tekin & Kotaman, 2013), I constantly employed a reflexive practice. This practice consisted of a generated audit trail, e.g., by stipulating an account of the research process and decisions made, the literature review, the chosen conceptual framework and my

research diary and notes, regarding the research process (Nieuwenhuis, 2016). A meticulous and organised research approach may create dependable, transparent descriptions of the research process (O'Leary, 2017). To see the entire representation, and not as the sum of its parts, a post-positivist researcher should take a distance perspective and remain open-minded, self-critical, flexible and reflexive about the research (Tekin & Kotaman, 2013). A reflexive distance approach implies the capability of the researcher to evaluate the research process from the outside while unceasingly considering what is being researched and the credibility and integrity of the complete research process, despite the unavoidable practicalities (O'Leary, 2017). Even so, since knowledge within this paradigm is constructed from data, evidence and rational considerations, it is considered a valid form of knowledge (Creswell, 2014). I, thus, approached the current study from a reflexive awareness, deliberating the fact that the findings may not be co-created and fitting to the context in which the data had been collected. I furthermore continuously reflected on biases that might influence the research outcomes (Creswell & Creswell, 2018).

A further limitation of employing a post-positivist epistemology is the possibility to employ inaccurate or inappropriate statistical procedures during data analysis (e.g., performing parametric statistical procedures on data if data was not normally distributed) (Scotland, 2012). Hence, it was essential to examine the extant dataset to direct the chosen statistical procedures. This examination was conducted under the supervision of the faculty statistician and co-supervisors of this study. Therefore, based on the background, the current study employed a post-positivist worldview to provide empirically reliable data and information (Creswell & Creswell, 2018; O'Leary, 2017; Tuli, 2010) on the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context. This information was sought to gain insight into teacher resilience through quantified observations (Creswell & Creswell, 2018).

3.3.3 METHODOLOGICAL PARADIGM: QUANTITATIVE RESEARCH APPROACH

In Section 3.3.3, I review the quantitative research approach as methodological for the current study. I focus on the implications for the quantitative researcher. I further consider this approach's strengths and possible caveats and how it was addressed in the current study.

Creswell (2003, p. 18) described a quantitative paradigm as "one in which the investigator primarily uses post-positivist claims for developing knowledge (i.e., cause and effect thinking, reduction to specific variables and hypotheses and questions, use of measurement and observation and the test of theories), employs strategies of inquiry such as experiments and surveys and collects data on predetermined instruments that yield statistical data". As evident from the quotation, a quantitative approach draws together accumulated data that tends to be numerical and statistical, resulting from empirical scientific methods and measures (Creswell, 2014; P. Kruger & Janeke, 2011; Ramlo & Newman, 2011; Roni et al.,

2020). A quantitative methodological paradigm seeks to quantify the social world systematically and objectively, assuming that scientific inquiry is based on general laws (L. Cohen et al., 2018; O'Leary, 2017). An objectivist approach to social science is grounded in realism, positivism, deductive determinism standardised data collection and nomothetic procedures and methods (Ary et al., 2019; L. Cohen et al., 2018). The intention is to focus on measurable aspects of behaviour or the unit of analysis through a formal systematic and controlled statistical research process (Ary et al., 2019; Creswell, 2014; Maree & Pietersen, 2019a; Van Rensburg et al., 2010). Quantitative data analysis, therefore, depends on deductive reasoning, starting with a premise (e.g., hypothesis) and then drawing logical conclusions from findings (Creswell & Creswell, 2018; Leedy & Ormrod, 2015). A quantitative approach is used to determine and address inquiries about the relationships between variables or differences between groups under investigation (Leedy & Ormrod, 2015; Van Rensburg et al., 2010) and to evaluate the social world objectively (O'Leary, 2017) to generalise, explain or make claims about the population based on the sample results or subgroup population (Creswell, 2014; Leedy & Ormrod, 2015; Maree & Pietersen, 2019c). The main objective of quantitative research is thus to portray patterns or to quantify significant relationships between variables (such as self-efficacy and teacher efficacy beliefs) by collecting numerical data using formal instruments of measure (e.g., FIRE Teacher Resilience Measure) and test quantifiable hypotheses (Ary et al., 2019; Creswell & Creswell, 2018; Durrheim & Painter, 2014).

Ontologically, the quantitative research approach assumes an objective reality external of human perception (L. Cohen et al., 2018). The quantitative researcher formulates exact research questions or poses hypotheses that can be quantified (Creswell & Creswell, 2018). Bird (2020), however, provided nuanced guidelines for the social sciences highlighting honest representation, responsible judgments and enhancing public activity as opposed to an alone standing objective reality. Epistemologically, the researcher and the respondents or object under study are independent because reality is not co-constructed (Creswell & Creswell, 2018). The researcher assumes that knowledge is independent of the investigator and remains objectively separated since a quantitative approach has a clear aim in advance and imposes an external system upon a phenomenon (Babbie, 2021; Creswell & Creswell, 2018). The researcher measures dimensions through the quantification of constructs (Babbie, 2021; Neuman, 2014). The quantitative paradigm, thus, enables a researcher to deductively use literature (Creswell & Creswell, 2018) to employ statistical methods to portray potential associations, trends or patterns in the data (Durrheim & Painter, 2014; Roni et al., 2020).

A quantitative methodological approach may resonate with the objectives of the current study. Existing numerical cross-sectional data (based on completed questionnaires generated through the FIRE project) was utilised. The data, statistical procedures employed during data analysis and the quantitative methodological approach enabled the current study to achieve the purpose and objectives. The investigation was directed at comparing the phenomenon of

intrapersonal resilience-enabling pathways within a particular context (e.g., Global South challenged educational context).

Generally, data collection through quantitative methods (e.g., surveys and questionnaires) is comparatively quick and provides precise numerical data useful for studying large numbers of people. It also provides information in breadth from a significant quantity of units to allow objective, quantifiable explanations and predictions (Ary et al., 2019). Additional advantages include the possibility of examining patterns, indicating the quantification significance of a phenomenon. Quantitative methods also serve as a control for alternative theories (Creswell & Creswell, 2018). Since data must be electronically available to facilitate statistical tests when conducting quantitative research, routine data analysis may be relatively less time consuming when using statistical software (e.g., IBM Statistical Package for the Social Sciences [SPSS] version 27, IBM Corp. [2020]) and the results are reasonably independent of the researcher protecting against researcher bias (Creswell & Creswell, 2018). However, employing a rigorous and systematic quantitative data management process can be challenging and time-intensive (O'Leary, 2017). Nonetheless, quantitative research may have higher credibility with important stakeholders and allow the replication of findings with a higher impact in terms of publication and translation (Creswell & Creswell, 2018; Roni et al., 2020). On the other hand, quantitative research measures relationships between known limited variables (e.g., self-efficacy and teacher efficacy beliefs) through a deductive process (Creswell & Creswell, 2018; Leedy & Ormrod, 2015; Neuman, 2014). Therefore, a quantitative process may not be able to reveal any new factors (Shean, 2015) that can be pertinent in, for example, the development of resilience as a process. Furthermore, the self-reported FIRE Teacher Resilience Measure used in the current study could not observe how respondents demonstrated constructs (e.g., self-efficacy or teacher efficacy beliefs) within their given environment (e.g., classroom or school setting). Likewise, biased responses due to, for example, a social desirability effect, inaccurate self-beliefs or perceived coercion are frequent concerns in self-report data (Chesnut, 2017; L. Cohen et al., 2018; Maree & Pietersen, 2019b, 2019c). Even though respondents' lack of observed demonstrated constructs is a probable limitation, a reasonable conjecture may be possible once potential associations between variables have been established (Creswell & Creswell, 2018). Such outcomes may still provide insight into noteworthy factors demonstrating intrapersonal resilience-enabling pathways in a challenged context. Bird (2020) also argued, based on his view on objective investigation and descriptions, that objectivity is a civic virtue and not only determining empirical realities.

Quantitative research may produce overtly abstract knowledge hampering specific application since a quantitative lens do not consider respondents' rich social and historical contextual construction or personal meaning-making and realities (Creswell, 2014). Consequently, the structured nature of a quantitative view may prevent a researcher from further examining unexpected outcomes and sacrifice personal significance (Babbie, 2021;

Creswell & Creswell, 2018). Thus, the researcher may miss out on phenomena occurring due to emphasis on hypothesis testing and lack the depth of qualitative research (Ary et al., 2019). Nevertheless, it can be the starting point for additional qualitative research or give rise to future inquiry (Panhwar et al., 2017). In addition, the distanced approach of the researcher may result in barriers to accommodate behaviour expressions not anticipated in the research process (Van Rensburg et al., 2010), and important research skills (e.g., the ability to interpret and find meaning) may not develop (Terre Blanche et al., 2014).

Since secondary data analysis (see Section 3.4.4.2) was employed in the current study existing clean, electronically stored, quantitative data was utilised, saving time (Donnellan et al., 2011; Eaton & Krueger, 2011; Johnston, 2017; Pienta et al., 2011; Trzesniewski et al., 2011). However, it was not possible to further consider respondent experiences during the data collection phase due to extant data utilised in the current study. Nonetheless, the quantitative paradigm enabled me to establish to what extent the respondents (i.e., final year pre-service teachers at the University of Pretoria) displayed self-efficacy and teacher efficacy beliefs but did generate universal laws applicable across a population. However, the reflexive exploration throughout the research process could contribute to the feasible generalisation of findings to all final year pre-service teachers at the University of Pretoria. As mentioned in Section 3.3.2, I employed a holistic approach while taking the dynamic and abstract nature of findings into account within the context-oriented research through a post-positivist research paradigm. I also included an inclusive explanation regarding the procedures that were used to produce findings to evaluate the credibility and possible replication of the current study (O'Leary, 2017). Therefore, a quantitative approach was followed in the current study using extant numerical teacher resilience data based on completed questionnaires. The current study intended to address the research questions and hypotheses (as depicted in Section 3.2) by analysing the nature of intrapersonal resilience-enabling pathways to teacher resilience through statistical procedures performed on data to align with the aim and process of a quantitative methodological research approach (Creswell & Creswell, 2018). The following section describes the research process and methodological strategies employed in the current study.

3.4 RESEARCH PROCESS AND METHODOLOGICAL STRATEGIES

3.4.1 INTRODUCTION

This section discusses the research design, research methodology, and related strategies I relied on, as displayed in Table 1.2 in Chapter 1. The choice of research design and data analysis acts as a framework and determines the research output (López et al., 2015; O'Leary, 2017), demonstrating the importance of reporting on the methodological decision-making process detail.

3.4.2 COMPARATIVE CASE STUDY AS RESEARCH DESIGN

A research design provides direction for specific research inquiry, decisions and analysis (Creswell, 2014; Creswell & Creswell, 2018). The selection of a research design is informed by elements including the research problem, research assumptions, paradigmatic approach, a study's audience, data collection methods and interpretation (Creswell, 2014; Creswell & Creswell, 2018). Therefore, L. Cohen et al. (2018, p. 173) convey that a "research design is governed by fitness for purpose".

I opted for a comparative case study design (Babbie, 2021; Mills et al., 2006; G. Thomas, 2011; Yin, 2018; Zartman, 2012), which is frequently applied in the social science field (G. Thomas, 2011, to analyse extant cross-sectional data by selecting particular cases for semblance. A comparative case study design allowed for a deeper understanding (L. Cohen et al., 2018; Creswell & Creswell, 2018) of the phenomenon under study to determine what was collective and distinct in cohorts of cases (Case 1, Case 2 and Case 3) spanning over 3 years (2015–2017). A case may be classified as a single observable unit that characterises a system examined within a context (L. Cohen et al., 2018; Fraenkel et al., 2012). A case is measured through scientific observation (single or multiple forms) to present a comprehensive portrayal of an empirical inquiry (L. Cohen et al., 2018; Fraenkel et al., 2012; Yin, 2018). Figure 3.2 and Figure 3.3 depict the cohorts of multiple cases compared in the current study.

Figure 3.2

Within-case Comparison of Self-efficacy and Teacher Efficacy Beliefs of Pre-service Teachers

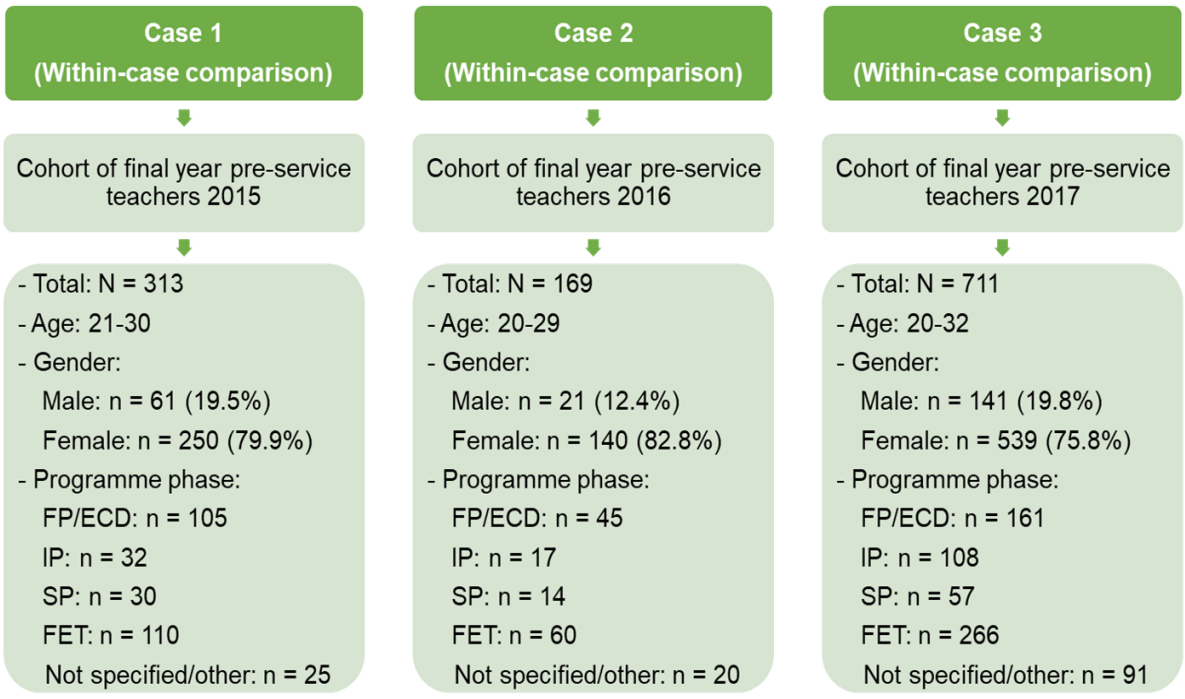
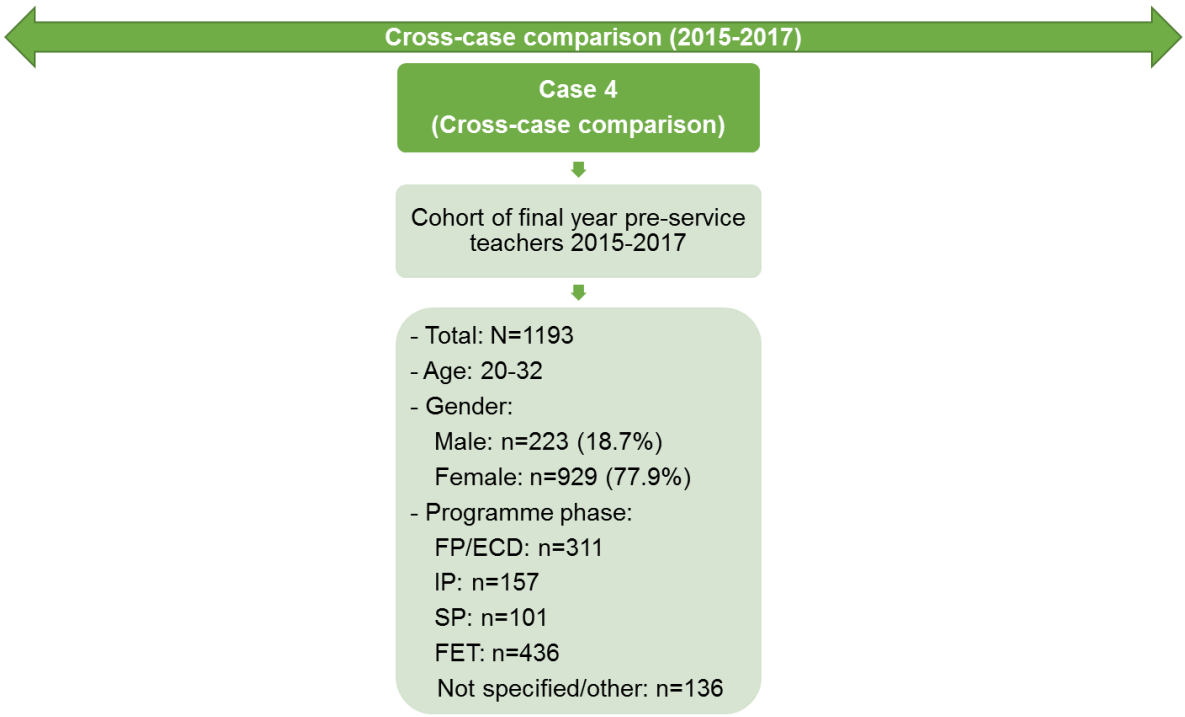


Figure 3.2 describes the within-case comparison of pre-service teachers' cohorts for 2015 (Case 1), 2016 (Case 2) and 2017 (Case 3). Case 1 included the second-largest cohort of pre-service teachers ranging from 21-years to 30-years of age, with 79.9% female teachers and the FET teaching phase (*n* = 110) being the largest group. Case 2, the smallest cohort of pre-service teachers, ranged from 20-years to 29-years of age with 82.8% females and the FET programme phase the largest group. Case 3, the largest cohort of pre-service teachers, ranged from 20-years to 32 years of age with 75.8% female teachers and again with the FET programme phase as the largest group. On the other hand, Figure 3.3 portrays the cross-case comparison combined cohort for pre-service teachers between 2015–2017 (Case 4). Case 4 included a combined total of 1,193 pre-service teachers ranging between 20-years and 32-years of age with 77.9% female students and *n* = 436 FET programme phase teachers.

Figure 3.3

Combined Cross-case Comparison of Self-efficacy and Teacher Efficacy Beliefs of Pre-service Teachers



Since a comparative case study entails identifying unique and similar occurrences of a phenomenon, it is employed to determine what characteristics are singular or collective to those occurrences (J. L. Taylor, 2013; Yin, 2018). Consequently, using a case study, and testing hypotheses (L. Cohen et al., 2018), allowed me to compare (Babbie, 2021; L. Cohen et al., 2018; Creswell & Creswell, 2018), and identify differences and similarities across intrapersonal resilience-enabling pathways for pre-service teachers in a challenged context to interpret variations or relationships (J. L. Taylor, 2013).

As demonstrated in Figure 3.2 and Figure 3.3, a comparison was first drawn within each case (i.e. per year), between the self-efficacy and teacher efficacy beliefs of pre-service teachers within a challenged context, and then across cases (i.e. 2015–2017) to identify what is universal and what is particular in these cases (Yin, 2018). Fittingly, the comparison of the cases involved is an appraisal of factors in one case (i.e. within-case analysis of Case 1, Case 2 and Case 3) (see Figure 3.2) while concurrently comparing the within-case analysis with a parallel case (i.e. cross-case analysis of Case 4) (see Figure 3.3) (G. Thomas, 2011).

The strength of a comparative case study design is reflected in the logic of comparison approximating inferences, which allows a research study to attempt to define clearer hypotheses (Babbie, 2021; L. Cohen et al., 2018). Therefore, the potential in the current comparative study was to quantitatively compare the self-efficacy and teacher efficacy beliefs of pre-service teachers to gain insight into teacher resilience in a challenged context. J. L. Taylor (2013) postulates that comparative case study research is dynamic and positioned to investigate a complex real-life phenomenon. The FIRE project was conducted in the setting in which the phenomenon usually occurs (i.e., HEI), bound by time (2015–2017), place (Pretoria, South Africa) and selected individuals (final year BEd pre-service teachers participating in the FIRE project), which set boundaries for inclusion in the current study (Yin, 2018). The parameters are important to ensure that the current study remained in a reasonable scope to avoid addressing questions that are too general or have excessive objectives (Yin, 2018). Therefore, extensive information on context-specific cases can be generated (L. Cohen et al., 2018). Furthermore, opting for a comparative case study design allowed for the comparison of multiple cases (as depicted in Figure 3.2 and Figure 3.3) that may ensue a more convincing, in-depth, holistic and accurate comparison (J. L. Taylor, 2013; Yin, 2018). Comparing the findings of the cases allows for the identification of similarities and differences, giving rise to enriched reliable data (Creswell & Creswell, 2018). Therefore, a comparative case study was valuable to gain insights into pre-service teachers' self-efficacy and teacher efficacy beliefs that may promote knowledge on teacher resilience.

I, nonetheless, recognise that a comparative case study as a research design has impending limitations. The challenge of selecting an appropriate sample is the associated constraints given differences in variables (e.g., age, language and culture, causing difficulty to isolate the importance of a single variable (Babbie, 2021; Maree & Pietersen, 2019a) on self-efficacy or teacher efficacy beliefs. However, the current design is not aimed at establishing impact, and I acknowledge that self-efficacy and teacher efficacy beliefs can be associated with numerous factors such as social, cultural, personal or contextual support in a challenged setting (Castro et al., 2010; Gu & Day, 2013; Kuo, 2013). Another possible challenge of a case study design is the production of context-specific knowledge (Flyvbjerg, 2011).

The caveat that such context-dependent information signifies is that findings may not apply to larger or other populations (Babbie, 2021). This limitation implies a potential hindrance to construct theory and knowledge bases on teacher resilience. Even so, L. Cohen et al. (2018) argued that multiple case studies may interpose greater generalisability. Following the choice of comparative case study as research design, the next section elaborates on sampling within the current study given the use of secondary data.

3.4.3 SAMPLING

3.4.3.1 Introduction

Sampling entails strategies for selecting manageable units of observation related to the research method employed (Babbie, 2021; Creswell & Creswell, 2018; O'Leary, 2017). A valid sample enables generalisation so that the findings inform knowledge about a specific population in general (Maree & Pietersen, 2019a). The current study used previously collected data (McMillan & Schumacher, 2010) generated in the FIRE project (see Appendix C). Besides the FIRE Teacher Resilience Measure, the FIRE dataset also includes nominal demographic information (i.e., age, gender, teaching phase and language). Respondents in the initial FIRE project was purposely sampled with elements of convenience (University of Pretoria, 2015) based on the research design of the FIRE project. For the current study, I purposively selected (Babbie, 2021; L. Cohen et al., 2018) teacher resilience data from the FIRE dataset and analysed items related to self-efficacy and teacher efficacy beliefs. The following section elaborates on the sampling of the FIRE project and the selection of variables from the FIRE Teacher Resilience Measure for the current study.

3.4.3.2 Sampling from FIRE project data

As explained in Chapter 1, Section 1.2, I analysed FIRE project data, specifically the FIRE Teacher Resilience Measure, to gain insight into the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context. I selected this extant data because the target population (i.e., final year pre-service teachers in a Global South space) contained specific information required for the research purpose (Babbie, 2021; Gravetter & Forzano, 2018) insight into teacher resilience in a challenged context.

An advantage of purposively selecting existing FIRE data is the established ethical professional data collection (University of Pretoria, 2015), reliability and validity of the data (Peixoto et al., 2018, 2020; Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012). Furthermore, purposively selecting data may provide a greater depth of knowledge since cases are included based on the characteristic being sought (L. Cohen et al., 2018). The FIRE sample constitutes a total sample (i.e., a subset of the population consisting of a predetermined

number) (Maree & Pietersen, 2019a) of 1,193 final year pre-service teachers, between the age of 20-years to 32-years, who completed the FIRE Teacher Resilience Measure from 2015 to 2017 during the FIRE project. According to the FIRE project documents,[47] the respondents in the FIRE project (i.e., fourth-year BEd pre-service teachers at the University of Pretoria) were purposively sampled with elements of convenience (University of Pretoria, 2015) within the research design of the given project (see Appendix C for extract information on the FIRE project). Non-probability purposive sampling is employed when a specific research purpose or rationale (e.g., FIRE project aims as discussed in Chapter 1) directs the sampling selection (L. Cohen et al., 2018; Maree & Pietersen, 2019a). In contrast, non-probability convenience or opportunity sampling occurs when respondents are selected because they are conveniently available (e.g., final year pre-service teachers enrolled at the University of Pretoria), allowing easy access (L. Cohen et al., 2018; Creswell & Creswell, 2018; Roni et al., 2020).

Convenience sampling can be fast and inexpensive; there are also disadvantages. Convenience sampling but may limit the representativeness of the sample (Maree & Pietersen, 2019a). Final year pre-service teachers (2015–2017) participated in the FIRE research project as part of selected modules (see Appendix C and Appendix D). López et al. (2015) argued that using a representative sample is the only way to generalise results for a population (i.e., pre-service teachers in a challenged context).

As the initial sampling strategy (i.e., for the FIRE research project[48]) was non-probabilistic and purposive with elements of convenience, generalisability is not possible to a larger population of pre-service teachers (L. Cohen et al., 2018; Maree & Pietersen, 2019a). Nevertheless, Gravetter and Forzano (2018) argued that it is reasonable to presume that samples from one location can represent samples from similar settings, which leads to the assumption that extrapolation of findings may be possible in similar settings (e.g., generalisation to final year pre-service teachers at the University of Pretoria). Still, there are risks in making inferences about patterns and effects in general populations from extracted samples skewed by one or more forms of selection bias, as with purposive non-probabilistic sampling (Babbie, 2021; L. Cohen et al., 2018; Creswell & Creswell, 2018; Maree & Pietersen, 2019a). Although the sample size (N = 1,193), for the current study, was sufficient for quantitative research purposes, based on the central limit theorem (Field, 2018) and statistical power analysis (see Section 4.3.4), caution should be taken when generalising the results to pre-service teachers in South Africa or the Global South context.

[47] FIRE project ethical approval: University of Pretoria (UP) 14 03 01.
[48] See Appendix C for details regarding the FIRE Project sampling.

3.4.3.3 Selection of FIRE Teacher Resilience Measure variables for analysis

For the current study, I purposively included two variables, self-efficacy and teacher efficacy. I excluded additional FIRE Teacher Resilience Measure variables (i.e., teacher professional, teacher emotions, teacher motivation and teacher social capacities included in 2015–2017). I wanted to foreground variables denoting the confidence of pre-service teachers to both recover from setbacks, as well as in their teaching and behaviour management given a challenged context. The FIRE Teacher Resilience Measure scales used in the current study (i.e., Teacher Resilience scale and Teacher Efficacy scale (see Appendix B) originally developed by Morgan [2011]) are grounded in the self-efficacy theory of Bandura (1997) and has been validated in other countries (e.g., Australia, Germany, Ireland, Malta and Portugal) within the teaching landscape (Peixoto et al., 2020). Previous studies found that *confidence in recovery from setbacks* (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) and *confidence in teaching and behaviour management* (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) were significant or strong contributors to teacher resilience in all indicated countries in comparison with social, emotional, professional and motivational capacities that differed in significance (Peixoto et al., 2018). Thus, to quantify factors influencing teachers' ability to resile in a Global South context is needed given the emergent teacher resilience field, the lack of robust resilience measures and limited research on resilience in pre-service teachers (Beltman et al., 2011; Mansfield et al., 2016; Morgan, 2011). Insight about pre-service teachers' intrapersonal resources may be important to attract, retain and support quality pre-service teachers to resile despite challenging circumstances. In this regard, literature highlight the importance of resilience traits (i.e., self-efficacy and teacher efficacy) for teacher resilience (Beltman et al., 2018; Castro et al., 2010; Ee & Chang, 2010; Gu & Day, 2013; Klassen et al., 2011; Morgan, 2011; Peixoto et al., 2018, 2020; Pendergast et al., 2011; Thieman et al., 2014; Wosnitza et al., 2018; Yada et al., 2021) also in a Global South context (Coetzee et al., 2017; Ebersöhn, 2014, 2017; Ebersöhn et al., 2020; Mansfield et al., 2018; Raath & Hay, 2016).

Table 3.2 provides an overview of the selected variables from the FIRE Teacher Resilience Measure for the current study. Instead of using all constructs[49] available on the FIRE Teacher Resilience Measure (Appendix B), only a selection of variables (i.e., self-efficacy and teacher efficacy beliefs) related to the purpose of the current study were selected for analysis given the set parameters.

[49] Teacher professionalism (TR-Prof), teacher emotion (TR-Emot), teacher motivation (TR-Mot), teacher social capacity (TR-Soc), resilience (Resilience) and teacher efficacy (TeachEff) as well as contextual resilience variables.

Table 3.2

Key Outcome Measures Assessing Levels of Self-Efficacy and Teacher Efficacy Beliefs of Pre-Service Teachers within the Current Study

Variable name	Question index on the measure[50]	No. of items	Response type	Example item (Absolutely not confident to strongly confident)	Origin of scale	Developed by
Self-efficacy[51]	Questions 114–122	9	Likert scale (1–7)	*Getting over setbacks in school; bouncing back when things upset met*	Teacher Resilience scale	Morgan (2011)
Teacher efficacy	Questions 123–134	12	Likert scale (1–7)	*Teaching all the subjects on the curriculum effectively*	Teacher Efficacy scale	Morgan (2011); Peixoto et al. (2018)

The Teacher Resilience scale (Morgan, 2011) (Questions 114–122) appraises, as operationalised in the current study, self-efficacy factors (ordinal data), including "getting over setbacks in school", "bouncing back when upset", "carrying on with school work when things go wrong", "carrying on in school when upset", "feeling certain that things will come right even if there are serious problems in school", "managing negative events in school when I try", "coping with most problems on any school day", "some negative things that have happened in school have made me better able to deal with problems" and "not getting disheartened even when children's circumstances make it difficult" (see FIRE Teacher Resilience Measure, Appendix B).

The Teacher Efficacy scale (Morgan, 2011; Peixoto et al., 2018) (Questions 123–134) measures general teacher efficacy factors (ordinal data), including "teaching all the subjects on the curriculum effectively", "explaining difficult material in ways that the children will understand", "suggesting suitable examples when the children are having difficulty understanding", "teaching in a way that my students will remember important information", "applying the new developments in the curriculum into my teaching", "helping children focus on learning tasks and avoid distractions", "managing inappropriate behaviour", "encouraging students to take responsibility for their behaviour", "dealing with the diverse learning needs of the students in my class", "teaching students positive behaviour", "providing students with clear specific behaviour expectations" and "communicating effectively with parents" (see FIRE Teacher Resilience scale, Appendix B).

[50] FIRE Teacher Resilience Measure (Appendix B).
[51] Within the current study the variable *resilience* on the FIRE Teacher Resilience Measure is operationalised as self-efficacy as discussed in Chapter 1.

The constructs under discussion (i.e., self-efficacy and teacher efficacy beliefs) were measured using a seven-point Likert scale, producing ordinal data ranging from one (*absolutely not confident)* to seven (*strongly confident*). The Likert scale is a convenient way to measure a construct (Maree & Pietersen, 2019b). Furthermore, the ordinal data (Likert scale data) for both constructs (self-efficacy [9 items] and teacher efficacy [12 items]) were averaged using SPSS to create continuous scale variables for comparison. By including items (relevant scales) from all FIRE respondents (i.e., final year pre-service teachers), the research questions for the current study may be addressed. Hence, insight into the self-efficacy and teacher efficacy beliefs of final year pre-service teachers in a challenged context can inform knowledge on teacher resilience. The following section describes the data analysis and interpretation for this study.

3.4.4 DATA ANALYSIS AND INTERPRETATION

3.4.4.1 Introduction

The data analysis process entails the meaning-making of data by identifying associations, trends, relations or patterns (Babbie, 2021; Creswell, 2014). The purpose of analysing data is to refine the scientific understanding of the world and develop theories by testing empirical hypotheses (Donnellan et al., 2011). This section, therefore, elaborates on secondary data analysis and interpretation, the use of nonparametric statistics when data is not normally distributed and the descriptive and inferential statistics employed in the current study.

3.4.4.2 Secondary data analysis and interpretation

As I analysed previously collected data (extant data) (Babbie, 2021; Johnston, 2017; Logan, 2020; MacInnes, 2016) from a preceding primary research project (i.e., FIRE project), I was guided by secondary data analysis. As opposed to primary research data, the focus of the current study was on analysing rather than collecting data. Thus, I used secondary data analysis to examine numerical data derived from the FIRE Teacher Resilience Measure completed by final year pre-service teachers (N = 1,193) in one HEI. Secondary data analysis entails the use of an existing dataset collected for another primary purpose to address new or current research questions differently from the original investigation or to analyse raw materials from previous research (Johnston, 2017; Pienta et al., 2011; Widaman et al., 2011). Secondary data analysis creates the opportunity to pursue a specific social research interest (such as teacher resilience).

Secondary analysis can provide a new view on pre-existing data, analyse data not fully evaluated yet or compare extant data with newly collected data to build on previous research (Babbie, 2021; Logan, 2020; MacInnes, 2016; Neuman, 2014). As such, secondary data

analysis is an important element of scholarly research disciplines (Pienta et al., 2011). Furthermore, like studies utilising primary data, secondary data analysis is an empirical process applying rigorous research principles with steps and procedures to avoid any deception (Johnston, 2017). Awareness regarding the distinct characteristics of secondary analysis is needed so that foreseeable errors are avoided when selecting an extant dataset and performing the analysis (Babbie, 2021; Logan, 2020; MacInnes, 2016; Pienta et al., 2011). Archived data is mostly quantitative (e.g., questionnaire data), linking with the methodological paradigm of the current study. Still, increasingly, qualitative data (e.g., interview transcripts) and other non-quantitative data (e.g., video) are being stored for secondary use (i.e., available for use by people not involved in the initial data acquisition) (Donnellan et al., 2011; Pienta et al., 2011).

A researcher working with secondary data should have a thorough understanding of the original study (i.e., FIRE project), including methodology, design, sampling, measurement and theory to ensure in-depth knowledge of extant data (Babbie, 2021; Neiss et al., 2011). Moreover, secondary data analysis requires a researcher to be explicit and clear about the theory and assumptions underlining the data (Babbie, 2021; Logan, 2020; MacInnes, 2016) to ensure their purpose is compatible with the primary data (L. Cohen et al., 2018). It is essential to link original data to the goals and questions of a study (De Vos et al., 2011). Donnellan et al. (2011) further advised that researchers undertaking secondary data analysis should have a clear sense of the advantages and limitations of the approach. I, therefore, immersed myself in the available documents describing the FIRE project and publications regarding the ENTREE[52] project. Additionally, contact with the initial FIRE project researchers (my supervisors and other members of the FIRE project) and consultation with a Principal Investigator (i.e., Prof Caroline Mansfield) of the ENTREE project provided me with an opportunity to gain in-depth insight into the original study and measure development (Neiss et al., 2011). As such, I could address questions about the relevance of the data, data collection methods and measures utilised, parties that collected the data, and purpose of the original study (L. Cohen et al., 2018; Struwig & Stead, 2013).

Employing secondary data (i.e., an existing or pre-existing dataset that was previously collected and captured) is economical in terms of time, budget, energy, access, permission, resources and risk; making it an increasingly prevalent methodological choice (L. Cohen et al., 2018; Johnston, 2017; O'Leary, 2017; Pienta et al., 2011). Collecting a large, authentic and credible sample can be a considerable undertaking, especially for an individual or early career scholar starting in a field of research and lacking resources to undertake a primary study (L. Cohen et al., 2018; Neiss et al., 2011). Thus, having quick or even immediate access to an available quality sample is beneficial (Neiss et al., 2011). The research design can be useful

[52] Project from which the FIRE Resilience Measure originated from.

to a researcher, the scholarly scientific field and the public by economising time and finances as unique questions or re-interpretations can extend the pool of knowledge to increase the optimum use of available raw data that is often expensive to collect (L. Cohen et al., 2018; Donnellan et al., 2011; Pienta et al., 2011; Trzesniewski et al., 2011). Time and money are thus saved since unnecessary duplication of research effort are avoided by taking advantage of existing resources (L. Cohen et al., 2018; Eaton & Krueger, 2011; Johnston, 2017). A benefit of secondary data analysis is the possibility of investigating new important research questions relating to extant data that had not been examined in previous research (Babbie, 2021), which holds true for the current study. New investigations enable exploration of the data from a different perspective with lower risks to respondents (Babbie, 2021; Logan, 2020; MacInnes, 2016) to attain a multidisciplinary or broader understanding of social concerns (De Vos et al., 2011). Consequently, secondary data analysis is associated with minimal ethical dilemmas as direct harmful or obtrusive effects to respondents are limited, and potential respondents' reactivity during data collection is avoided (L. Cohen et al., 2018). Nonetheless, the respondents in any study have the right to respect, anonymity, privacy, non-traceability, welfare, dignity and protection (L. Cohen et al., 2018; Creswell, 2014). I was cognisant of these issues during all research activities and adhered to the ethical considerations and guidelines for conducting, working and reporting on secondary data analysis as stipulated by, for example, L. Cohen et al. (2018), Leedy and Ormrod (2015), and O'Leary (2017).

I ensured that the necessary measures to protect the data, including ethical and legal implications of the analysis, were established (APA, 2020b; Babbie, 2021; Logan, 2020; MacInnes, 2016) as discussed in Section 3.4.6. An additional benefit associated with secondary data analysis is that data collection difficulty (e.g., physical access to research respondents) are excluded (O'Leary, 2017; Trzesniewski et al., 2011), and a new study does not have to be designed to collect a primary set of data (Donnellan et al., 2011). Bias or the impact of the researcher during data collection is also limited since primary data collection is not conducted, placing a buffer between the researcher and respondent (O'Leary, 2017). Nonetheless, De Vos et al. (2011) argued that possible prejudice in all extant data should be evaluated. For this reason, areas of concern may relate to the integrity, reliability and validity of the original dataset due to a lack of control over data collection in the current study (Eaton & Krueger, 2011). To this end, I investigated the reliability (see Section 3.4.5.2), validity (see Section 3.4.5.3) and quality (see Section 3.4.5.4) of the data before commencing with analysis (De Vos et al., 2011; Widaman et al., 2011). Furthermore, errors or limitations in the data might have occurred as a result of the original data collection process, over which I had no control (Babbie, 2021). For example, some data may be ambiguous or missing from the dataset, which can potentially affect statistical inferences (L. Cohen et al., 2018). Accordingly, I elected suitable quantitative methods in response to possible challenges to reduce the bias of missing data (Cooper, 2018; Trzesniewski et al., 2011). These methods included implementing the

necessary process of data cleaning (Rubin & Babbie, 2014) or subsequently deletion of selected complete cases (Kang, 2013) before data analysis to minimise errors and condense the effect of missing data.

By using quantitative secondary analysis, I could describe the phenomenon under investigation through descriptive statistics and draw inferences through inferential statistics from extant data (Leedy & Ormrod, 2015) by using SPSS. This process was also relatively time effective and enabled a quality professional representation of results with tabular and graphical output (Field, 2018). In addition, I was able to conduct various nonparametric statistical tests on the available electronic data as the data could be sorted, ordered and ranked as required. The analysis was conducted under close supervision of the statistician of the Faculty of Education at the University of Pretoria who is also a co-supervisor of the current study. However, an important potential danger of secondary analysis is the fallacy of concreteness. This fallacy is a misleading impression of accuracy given by citing statistics with more emphasis than appropriate (L. Cohen et al., 2018; Neuman, 2014). I avoided the probability by interpreting findings cautiously and being aware of the historical context in which the data was obtained.

Possible challenges may exist when employing extant data and the analysis thereof. Throughout the current study, I remained aware of these potential pitfalls when conducting secondary data analysis. The process can be more complex and deceptively time-consuming than what researchers may anticipate (De Vos et al., 2011; Donnellan et al., 2011). Willms (2011) echoed that using secondary data can be daunting and frustrating for novice researchers but rewarding. As a researcher, I remained mindful of the possibility that the purpose or defined variables for which the data was initially collected (i.e., FIRE project), may vary from the aim, operationalisation and research question of the current study (Trzesniewski et al., 2011). As detailed, the control of data collection errors was not feasible, and the analysis may be limited by the purpose of the primary research project constraining analysis or altering proposed questions (Babbie, 2021; O'Leary, 2017). Additionally, limitations in the design, methodology and measurement tools implemented in a primary study (i.e., FIRE Project) may be inevitable and impose certain restrictions (Babbie, 2021; MacInnes, 2016). There can also be no assurance that the procedures of an initial study were undertaken as described because of limited accompanying information on a study or how data was affected by potential problems (e.g., low response rate or misunderstanding of questions) (L. Cohen et al., 2018; Eaton & Krueger, 2011). Secondary data emanating from an original source (e.g., education departments or institutions), may not be neutral, causing a power imbalance and response bias in the data (L. Cohen et al., 2018). Therefore, I carefully considered and critically reflected on the existing dataset's quality, rigour and potential to address the research questions for the current study (O'Leary, 2017).

The investigation of an existing dataset can require a substantial investment of time and energy (Donnellan et al., 2011). Therefore, in conjunction with my supervisors, I carefully considered the time, effort and analytical acumen required to use the existing FIRE dataset since it can easily be underestimated. Closely related, a researcher may not have a proper understanding of the original study or problem when using secondary data analysis (De Vos et al., 2011), which further highlights strategies taken to immerse myself in the initial FIRE project information. Willms (2011) claimed that a difficult task in working with secondary data is taking the raw data provided and building a dataset that can be used for analysis.

Within the current study, the dataset was overseen with the assistance of my supervisors, one of which was the statistician of the Faculty of Education, University of Pretoria. Thus, re-using data instead of collecting primary data may forfeit contextual information and omit reflective interpretation (Babbie, 2021; L. Cohen et al., 2018). Although this possible drawback of working with extant data instead of respondents exists, quantitative secondary data analysis generates statistically significant knowledge rather than qualitatively relevant evidence (Babbie, 2021). Nonetheless, Trzesniewski et al. (2011) denoted that concern may remain regarding the likelihood that the interpretation of results through secondary data analysis may be biased if the conceptual framework does not include all quantified constructs. In response, I concentrated on the systematic process of secondary data analysis as prescribed by scholars (L. Cohen et al., 2018; Leedy & Ormrod, 2015; O'Leary, 2017) while duly considering all variables that form part of my conceptual model for congruence fit and fitness for purpose (L. Cohen et al., 2018).

I linked the epistemology of the current study with constructs in the dataset and verified the compatibility of the dataset and conceptual framework with my supervisors before commencing with data analysis (L. Cohen et al., 2018). Neiss et al. (2011) further emphasised the careful consideration of all data-related decisions, highlighting the justification of conceptual choices given congruent standard practices and adequate record-keeping of decisions and justifications. Lastly, I was aware that conclusions might only be tentative since the data utilised were not originally collected with the specific research questions (as depicted in Section 3.2) in mind and cognisant of currency (e.g. the effect of the time elapsed since data collection) of the primary data (i.e. 2015–2017) (O'Leary, 2017; Roni et al., 2020). However, the use of extant data may allow the research to be completed and findings to be produced quicker, and therefore the development and contribution of new knowledge may occur timeously despite challenges (Johnston, 2017).

3.4.4.3 Nonparametric statistics

Statistics in social sciences represents applied mathematical tools and techniques used to describe, summarise, and interpret the nature of numbers representing quantitative data (L. Cohen et al., 2018; Neuman, 2014; Salkind & Shaw, 2020). The statistical analysis depends

on the research design and type of data utilised (López et al., 2015). Furthermore, the extent to which data, specifically continuous data, reflect the normal distribution and the features of the data determine the statistical procedures employed during the data analysis process (Leedy & Ormrod, 2015). According to López et al. (2015), it is vital to choose the statistical procedures and test that best fits the nature of the data. The data that I analysed were nominal (e.g., gender), ordinal (e.g., Likert scale items) and continuous data (the constructs created for self-efficacy and teacher efficacy by averaging over the relevant Likert scale items). For the continuous data, I checked for normality using the Kolmogorov-Smirnov and Shapiro-Wilk tests (Field, 2018) and since the constructs were not normally distributed (see Section 4.5.1). Nonparametric or distribution-free statistics were used as they require less stringent assumptions to be made about the underlying process distribution (Chakraborti & Graham, 2019). In addition, nonparametric tests can be conducted on data that have been selected by non-probability sampling procedures, such as in the case of the current study (Chakraborti & Graham, 2019; Roni et al., 2020). The choice to use nonparametric statistics is suitable for relatively simple data analysis to determine whether constructs differ significantly (Gibbons & Chakraborti, 2010).

Nonparametric tests do not require stringent assumptions and are convenient as the associated and appropriate tests are straightforward and easy to compute (Chakraborti & Graham, 2019; Roni et al., 2020). Nonetheless, as nonparametric tests do not utilise all the information in a dataset (it, typically, uses signs and ranks), it has been argued in the literature, over the past few decades, that parametric tests are more robust and more powerful than their nonparametric counterparts (Gibbons & Chakraborti, 2010). However, since then, studies (see for example, Chakraborti & Graham, 2019) have shown that most nonparametric tests are almost as powerful as parametric tests or even similar in power. In addition, Roni et al. (2020) recently advocated using nonparametric methods over parametric methods[53] since nonparametric data can be a staple of education research. Therefore, nonparametric statistical analysis was performed in the current study. The facilitation of the hypotheses testing associated with the current study was supported by the availability and suitability of sufficient statistical tests as discussed in Section 3.4.4.5. Using statistical analysis, I could utilise descriptive statistics to describe the secondary data and interpret the data (i.e., draw inferences) through inferential statistics (Field, 2018; Leedy & Ormrod, 2015; Salkind & Shaw, 2020). Leedy and Ormrod (2015, p. 218) claimed that “inferential statistics involve using one or more small samples and then estimating the characteristics of the population from which each sample has been drawn”, thereby permitting the testing of hypotheses for a larger population. Still, before inferences or decisions about the data could be made, I utilised descriptive statistics to summarise the data as discussed in Section 3.4.4.4.

[53] See Roni et al., 2020 (pp. 3–4) listing the reasons why nonparametric methods are advocated over parametric methods.

Since statistical procedures form part of quantitative research (Leedy & Ormrod, 2015), I utilised descriptive and inferential statistics to address the research questions and test the hypotheses of the current study. Inferential statistics included the nonparametric Wilcoxon signed-rank (WSR) test (Wilcoxon, 1945), the nonparametric Mann-Whitney (MW) test (Mann & Whitney, 1947), the nonparametric Kruskal-Wallis (KW) test (Kruskal & Wallis, 1952) and the nonparametric Spearman correlation (Spearman, 1904). The differences between these tests and the reason for choosing them are discussed in Section 3.4.4.5. The following section discusses the descriptive procedures employed in the current study.

3.4.4.4 Descriptive statistics

Descriptive questions, statistics or procedures aim to describe, explore and summarise a collection of data based on basic features (Ary et al., 2019; Creswell & Creswell, 2018; O'Leary, 2017; Salkind & Shaw, 2020). Therefore, I used descriptive statistics to illustrate, organise and simplify the general nature of the raw quantitative data in a meaningful and manageable way to improve my understanding and the scope of the data properties (Field, 2018; Gravetter & Forzano, 2018; Leedy & Ormrod, 2015; O'Leary, 2017; Pietersen & Maree, 2019c). Descriptive statistics can potentially enable the researchers' exploration of data in a graphical and numerical way to improve understanding of data properties (De Vos et al., 2011; Pietersen & Maree, 2019c). Hence, I used descriptive statistics (L. Cohen et al., 2018; Field, 2018; Pietersen & Maree, 2019c) to derive values from the FIRE Teacher Resilience Measure, to determine to what extent the respondents (i.e., final year pre-service teachers in a challenged context) demonstrated self-efficacy and teacher efficacy beliefs when they completed the questionnaires.

Encapsulating quantitative variables can be complex since numerous inherent properties can be described (Pietersen & Maree, 2019c). In the current study, measures of central tendency (e.g., mean and median) and measures of spread (e.g., standard deviation and variance) (Field, 2018) were determined using SPSS. In terms of the measures of central tendency, the mean, the measure of location most used, represents the arithmetic average score of the data, and the median indicates the centre or middle value of an entire distribution, splitting the distribution (ordered from the smallest to the largest value) into equal halves (Field, 2018; Pietersen & Maree, 2019c). Regarding the measures of spread, the variance quantifies the spread of values of data around the mean, thus the average dispersions (Field, 2018; Pietersen & Maree, 2019c), while standard deviation is the square root of the variance or average difference of each value from the mean (Field, 2018; Pietersen & Maree, 2019c). In addition to relying on these strategies, I used graphical methods to represent the data included in Chapter 4. The means of the measure were derived statically to determine the aggregate of self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context.

The average levels were accomplished by statically establishing the mean scores (arithmetic average) (Field, 2018). The variables were then plotted against each other to indicate the mean scores obtained. Furthermore, researchers should investigate the reason for a possible association between variables if a correlation is identified (Leedy & Ormrod, 2015). In general, a correlation coefficient of less than .3 signifies a weak correlation, .3 to .5 is moderate and greater than .5 is strong (Heale & Twycross, 2015). However, a correlation between variables does not necessarily imply causation (Leedy & Ormrod, 2015; Sauro & Lewis, 2016) but indicate the associated direction and strength between self-efficacy and teacher efficacy beliefs (Roni et al., 2020). Still, the results do provide evidence for the justification for inferential methods. As a result, I included appropriate inferential statistical tests, including the Spearman correlation, Wilcoxon signed-rank, Mann-Whitney and the Kruskal-Wallis tests to test the hypotheses and potential correlations and differences between constructs (i.e., self-efficacy and teacher efficacy beliefs) associated with the current study.

3.4.4.5 Inferential statistics

Inferential questions, statistics or procedures enable researchers to generalise or draw inferences beyond descriptive analysis to reach a conclusion that encompasses the immediate dataset (Field, 2018; Pietersen & Maree, 2019d). The purposes of inferential statistics include the testing of hypotheses, comparison, correlation and estimation of population parameters or characteristics to allow generalisation by relying on probability theory (Gravetter & Forzano, 2018; O'Leary, 2017). Gravetter and Forzano (2018) argued that it is reasonable to conclude, even with non-probability sampling, that samples from one location are as representative as samples from comparable settings, which leads to the assumption that generalisation of findings may be possible when conducting research in similar settings.

While conducting hypotheses testing, a .05 level of significance (α) was set, indicating that a result occurs, on average, only 5% (or .05 probability) of the time (Field, 2018). As such, the result can also be ascribed to another factor that has influenced the data (Corder & Foreman, 2014; Leedy & Ormrod, 2015). I established if the computed *p*-value fell within the critical region by determining whether the *p*-value was less than the level of significance during quantitative data analysis (Corder & Foreman, 2014). The *p*-value evaluates the likelihood of results being more than chance and is only valid if the sample represents the population (O'Leary, 2017; Sauro & Lewis, 2016). The null hypothesis (H_0) is rejected when it is found that the result can be attributed to something other than approximate chance difference; if not, the null hypothesis (H_0) is not rejected (Leedy & Ormrod, 2015; Sauro & Lewis, 2016).

It is, nevertheless, possible that a Type I error (rejecting the null hypothesis when it is true, or there is actually no difference) or a Type II error (to fail to reject or retain the null hypothesis when it is false) can occur (Pietersen & Maree, 2019d; Sauro & Lewis, 2016) during data analysis. Errors are seldom due to the negligence of the researcher but can instead be

credited to the significance level selected for a particular study. The test criterion convention of α = .05 provides considerable control against a Type I error, and any result with $p < .05$ is, by assumption, statistically significant while all others are not (Sauro & Lewis, 2016). When the *p*-value falls below .05, there is sufficient evidence to conclude the difference is unlikely due to chance (O'Leary, 2017; Sauro & Lewis, 2016). To analyse the research data and test the formulated hypotheses, I used the Wilcoxon signed-rank test to compare two related groups (i.e., self-efficacy and teacher efficacy of the same pre-service teachers), the Mann-Whitney test to compare two independent groups (i.e., gender) and the Kruskal-Wallis test to compare three or more independent groups (i.e., programme phases enrolled for) to determine if there is a statistically significant difference between groups. The Wilcoxon signed-rank, Mann-Whitney, and Kruskal-Wallis tests overcome the distributional limitation by ranking the data, which eliminates the effect of outliners and is suitable for data not fitting a normal distribution (Field, 2018; Pietersen & Maree, 2019a).

The Wilcoxon signed-rank test is a nonparametric statistical hypothesis test performed to compare two related samples (Field, 2018). It is warranted as an alternative to the parametric *t*-test for matched pairs (also known as the paired Student *t*-test) when data distribution cannot assume normality (Pietersen & Maree, 2019a). The Wilcoxon signed-rank test is based on ranking differences between scores and considers the direction of change and the extent of variance between two datasets and, therefore, makes full use of the data (Pietersen & Maree, 2019a). The Wilcoxon signed-rank test is typically used when data is ordinal (e.g., Likert scale data) in nature, when nonparametric statistics are used and to compare the medians of two related scores or matched samples (i.e., there are two measurements from the same entity or individual) (Field, 2018; Leedy & Ormrod, 2015). Since the same pre-service teachers completed the Teacher Resilience scale and the Teacher Efficacy scale on the FIRE Teacher Resilience Measure, the Wilcoxon signed-rank test was used. When computing the Wilcoxon signed-rank test, the test statistic and corresponding *p*-value are produced. If the *p*-value is less than .05, the null hypothesis (H_0) is rejected and there is a statistically significant difference between the results (Field, 2018) of a pre-service teacher's self-efficacy and teacher efficacy beliefs. Alternatively, if the *p*-value is greater than .05, it is implied that the differences between the self-efficacy and the teacher efficacy beliefs of pre-service teachers are not statistically significant (Field, 2018). Section 4.5 reports on the results of the Wilcoxon signed-rank test performed on extant data.

The Mann-Whitney test is the nonparametric counterpart to the parametric *t*-test for independent groups (Corder & Former, 2014; Roni et al., 2020). The medians between two independent (mutually exclusive) groups are compared (Roni et al., 2020) in the value of an ordinal (including Likert scale data), or a continuous variable. The null hypothesis (H_0) (i.e., distributions are equal) and alternative hypothesis (H_a) (i.e., distributions are not equal) are thus stated in terms of the median as opposed to the mean (independent samples *t*-test) (Pietersen

& Maree, 2019a). As a result, the Mann-Whitney test, as a nonparametric measure, was utilised to identify possible statistically significant differences between the self-efficacy and teacher efficacy beliefs of males and females (L. Cohen et al., 2018) pre-service teachers within a challenged context.

The Kruskal-Wallis test seemed to be appropriate for comparing the programme phase variable (i.e., FP/ECD; IP; SP, FET and not specified/other) since the test is used to compare medians of three or more mutually exclusive independent groups to determine any statistically significant difference (Roni et al., 2020; Utts & Heckard, 2012). The Kruskal-Wallis test is suitable when the normal distribution as the underlying process distribution of the data cannot be assumed, and the performance depends on the ranks of the measurement observations on a rating scale (Pietersen & Maree, 2019a). The nonparametric Kruskal-Wallis test is equivalent to a parametric one-way analysis of variance (ANOVA) test (L. Cohen et al., 2018; Roni et al., 2020). The null hypothesis (H_0) and alternative hypothesis (H_a) are compared in terms of the population medians (Kruskal-Wallis) instead of the population means (ANOVA) (Gibbons & Chakraborti, 2010). A significant Kruskal-Wallis test (p-value < .05) may indicate that at least one median differs statistically from the rest. A pairwise Mann-Whitney test with Holm corrections (Aickin & Gensler, 1996) was performed on the extant data (see Chapter 4 for results) to analyse results obtained from a significant Kruskal-Wallis test. The Wilcoxon signed-rank test, the Mann-Whitney test and the Kruskal-Wallis test, as statistically significant tests, do not imply correlation or causation between variables but test for differences among groups (Roni et al., 2020).

The correlation indicates the degree to which the variables are related; consequently, it explores the monotonic linear relationship between variables (Field, 2018; Roni et al., 2020). The Spearman correlation coefficient, denoted by r_s (an appropriate measure of similarity between two ordinal rankings of a single dataset), was employed (Field, 2018; Pietersen & Maree, 2019a) to determine whether there was a statistically significant correlation between the self-efficacy and teacher efficacy beliefs of pre-service teachers. It should be noted that correlation does not imply causation (Leedy & Ormrod, 2015; Roni et al., 2020). Correlation takes on values between (and including) -1 and +1, i.e., $-1 \leq r_s \leq 1$.

The closer the value is to -1, the stronger the negative (linear) correlation, and the closer the value is to +1, the stronger the positive (linear) correlation (Pietersen & Maree, 2019a). Self-efficacy and teacher efficacy beliefs were correlated using the Spearman correlation coefficient (r_s) (Field, 2018; Roni et al., 2020), which allows for the investigation of an association between two ratios, intervals, or ordinal variables (Roni et al., 2020). The results are represented in Section 4.5.2, which reports the correlation between the average scores of self-efficacy and teacher efficacy beliefs of final year pre-service teachers within a challenged context. The following section illustrates the standard of rigour that guided the current study to ensure quality criteria throughout the research process.

3.4.5 STANDARDS OF RIGOUR

3.4.5.1 Introduction

Since the current study employed a post-positivist, quantitative epistemology, I aimed to obtain reliable, valid and objective evidence in terms of the phenomena investigated (L. Cohen et al., 2018; Howell, 2013; O'Leary, 2017). Reliability and validity are ways of demonstrating and communicating the quality and rigour of the research process (Heale & Twycross, 2015). Quantitative research should provide detailed information to assess the rigour of the design, robustness of results, any knowledge claims, conclusions drawn and to allow for replication of a study (Creswell, 2014; López et al., 2015). The following sections will explore the quality assurance of quantitative data and secondary data analysis to ensure that credible research takes place.

3.4.5.2 Quality assurance of quantitate data: Reliability

As an overarching term, reliability denotes the dependability and stability of measures, scales, or respondent groups, across time, to achieve believable and replicable results (L. Cohen et al., 2018; Maree & Pietersen, 2019c). The reliability of a measurement instrument (such as questionnaires) can be explained as the ability of the instrument to measure a construct in a consistent (Creswell & Creswell, 2018; Gravetter & Forzano, 2018) and repeatable manner (Creswell & Creswell, 2018; Maree & Pietersen, 2019c) with the required precision (Widaman et al., 2011). As such, I determined whether the instrument (i.e., FIRE Teacher Resilience Measure) had been used in a consistent and standardised fashion (Leedy & Ormrod, 2015) by consulting the documentation (University of Pretoria, 2015) on the project describing the data collection methods and discussing the procedures with my supervisors.

I paid particular attention to the manner of administration, possible language barriers that may have existed, instrument development descriptions, and the coefficient of reliability (Cronbach's alpha). The Cronbach's alpha coefficient, the most often reported internal consistency index (Widaman et al., 2011), is based on inter-item correlations (Creswell & Creswell, 2018; Pietersen & Maree, 2019b). Therefore, if items strongly correlate with each other, a high internal consistency will be present with a Cronbach's alpha value close to one (Foxcroft & Roodt, 2013; Pietersen & Maree, 2019b). Cronbach's alpha can be interpreted in terms of excellent reliability (Cronbach's alpha > = .90), high reliability (.80 < = Cronbach's alpha < .90), moderate reliability (.70 < = Cronbach's alpha < .80), or low reliability (Cronbach's alpha < .70) (Pietersen & Maree, 2019b).

In summary, a Cronbach's alpha value of .70 or greater has been accepted as a reasonable indication of the reliability of a scale (Field, 2018). However, a Cronbach's alpha value of .60 or greater is generally accepted by researchers in the social sciences (Ghazali,

2008). It follows that reliability can be determined by examining internal consistency (i.e., item responses are consistent across constructs), but also in terms of test-retest reliability (i.e., scores are stable over time when the instrument is administered multiple times) (Creswell, 2014). However, a limitation when employing Cronbach's alpha is the possibility of overestimating internal consistency due to the number of items (López et al., 2015; Widaman et al., 2011). Thus, adding items may increase Cronbach's alpha (López et al., 2015). A scale assessing a trait construct should have high internal consistency, reliability and demonstrate high test-retest reliability (Widaman et al., 2011).

The reliability of the FIRE Teacher Resilience Measure (including, for example, the Teacher Resilience scale [Morgan, 2011] and the Teacher Efficacy scale [Morgan, 2011; Peixoto et al., 2018]) has been confirmed by previous studies (e.g., Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) (see Appendix A) with a Cronbach's alpha, which ranged from .67 to .91. Table 3.3 provides an overview of previous studies' reliability analysis for the scales utilised in the current study.

Table 3.3

Reliability of Scales

Variable	Origin of scale	Cronbach's alpha				
		Beltman et al. (2018)	Morgan (2011)	Peixoto et al. (2018)	Peixoto et al. (2020)	Wosnitza et al. (2018)
Self-efficacy	Teacher Resilience scale (Morgan, 2011)	.93	.91	.89	.93	.87 .92 .86 .94 .90
Teacher efficacy	Teacher Efficacy scale (Teaching) (Morgan, 2011)	.94	.88	.82	N.A.	.86 .93 .85
	Teacher Efficacy scale (Behaviour management) (Peixoto et al., 2018)		N.A.	.81	N.A.	.93 .88

As previously stipulated, the current study foregrounded sections of the FIRE Teacher Resilience Measure on self-efficacy[54] and teacher efficacy which indicated high satisfactory reliability on the original scales (i.e., Cronbach's alpha = .91 and Cronbach's alpha = .88, respectively) developed by Morgan (2011). Further studies (Beltman et al., 2018; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) in numerous countries (Australia, the Czech Republic, Germany, Ireland, Malta and Portugal) have demonstrated excellent reliability (Cronbach's alpha > = .90) to high reliability (.80 < = Cronbach's alpha < .90) for the scales as displayed in Table 3.3.

[54] Within the current study the variable *resilience* on the Teacher Resilience scale is operationalised as self-efficacy as discussed in Chapter 1.

3.4.5.3 Quality assurance of quantitative data: Validity

A second measure of quality assurance in quantitative research entails validity (Creswell & Creswell, 2018; Heale & Twycross, 2015). Validity may imply that a sound instrument assesses what it claims or intends to measure (L. Cohen et al., 2018; Gravetter & Forzano, 2018), which is essential when a measurement is carried out. In the current study, the validity of the FIRE Teacher Resilience Measure was derived from its intent to assess what the instrument was supposed to measure, in other words, the self-efficacy and teacher efficacy beliefs of final year pre-service teachers. The validity of an instrument is especially important in cases where a hypothetical construct is measured using an operational definition (Gravetter & Forzano, 2018). Validity is determined by establishing whether data had been collected and reported on with care and meticulousness warranting interpretations (Struwig & Stead, 2013). In quantitative research, validity often strives for controllability, replicability, consistency, predictability, generalisability, randomness, objectivity and observability to avoid threats (L. Cohen et al., 2018).

Internal validity entails the confidence to which the design (e.g., comparative case study) and data of a study allow a researcher to deduct accurate inferences about relationships of the data or outcome variables of a study (L. Cohen et al., 2018; Sauro & Lewis, 2016). In such cases, an explicit, single description applies to the correlation between variables (Gravetter & Forzano, 2018). External validity refers to the confidence with which a study's findings can be extrapolated (i.e., generalisability) beyond the context of a study (Leedy & Ormrod, 2015; Sauro & Lewis, 2016). Gravetter and Forzano (2018) caution that any aspect limiting the generalisability of findings can threaten external validity. Closely related, Leedy and Ormrod (2015) suggest that research done in a real-life setting can provide generalisability and, therefore, increase the external validity of research findings. As the extant data I analysed was collected directly from the respondents (i.e., pre-service teachers) at the University of Pretoria (i.e., a higher institution of teacher training) during the original research project, I was able to analyse data collected in the specific setting under investigation. External validity (Leedy & Ormrod, 2015) may indicate the future usefulness of exploring pre-service teachers' self-efficacy and teacher efficacy beliefs in a challenged context. However, Pietersen and Maree (2019a) cautioned against threats to validity, including reliability (i.e., if an instrument is not reliable, it cannot be valid), social desirability (e.g., agreeing to all questions or answering in an expected socially accepted manner) and item bias (e.g., culture or gender bias).

Two types of construct validity were investigated within the current study, namely convergent validity and discriminant validity (Cooper, 2018; Sauro & Lewis, 2016). Convergent and discriminant validity are subcategories of construct validity. Therefore, if there is evidence of convergent and discriminant validity, construct validity is likely (Trochim, 2006). Convergent validity shows that items that belong to the same construct are, in fact, related (Sauro & Lewis,

2016). Convergent validity can be tested by calculating correlation coefficients on the items belonging to the same constructs and checking that these correlations are high, i.e., close to -1 or close to +1. On the other hand, discriminant validity shows that items that do not belong to the same construct are, in fact, not related (Sauro & Lewis, 2016). Discriminant validity can be tested by calculating correlation coefficients since items that do not belong to the same constructs should have lower correlations than those belonging to the same constructs.

3.4.5.4 Established quality assurance of the measuring instrument

In the following section, I discuss the rigour and background of the FIRE Teacher Resilience Measure selected for the current study. One criterion for demonstrating robustness is to provide evidence to show that the instrument used to measure the variables is reliable and valid, i.e., it appraises, with a degree of accuracy, what it is supposed to measure (DeVellis, 2012). Secondary analysis is generally restricted to the primary study's (i.e., FIRE project) choice of measurement tools, and limitations may be inevitable. Nonetheless, insurance must be provided regarding the properties of the instrument (MacInnes, 2016). Therefore, the validity and reliability of the data collection instrument must be considered when conducting or critiquing research (Heale & Twycross, 2015). The reliability of a measurement tool implies that an instrument consistently determines a given construct (Foxcroft & Roodt, 2013; Gravetter & Forzano, 2018). As reliability is a prerequisite for validity (Gravetter & Forzano, 2018), the accuracy of an instrument can be improved by enhancing its reliability (Leedy & Ormrod, 2015). The degree of what a researcher can learn about a phenomenon that is investigated, the extent to which meaningful conclusions can be drawn, and the probability of obtaining statistical significance are all dependent on the reliability and validity of the instruments used in a study (Leedy & Ormrod, 2015).

The FIRE Teacher Resilience Measure (completed by pre-service teachers during the FIRE project in 2015–2017) included items from the FIT-Choice Scale (Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012), ENTREE (Peixoto et al., 2018) and contextual resilience questions (Coetzee, 2013). Initially developed by Watt and Richardson (2007) and empirically validated for the Australian context with pre-service teachers (Watt & Richardson, 2007, 2008), the FIT-Choice scale has been utilised internationally in English-speaking countries such as Ireland, Norway, the United Kingdom and the United States with translations into Croatian, Dutch, Estonian, French. German, Mandarin, and Turkish (Watt & Richardson, 2012; Watt et al., 2012). Furthermore, Salifu et al. (2018) verified the structural validity of the measurement in an African context (i.e., Ghana). The scale is founded on the expectancy-value motivational theory, Social Cognitive Career Theory (SCCT) and teacher education literature providing an integrative and compressive framework exploring teaching as career choice (Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012).

The questionnaire is a sound psychometrical measure, displaying reliability and validity across cultural research and a range of contexts. (Watt & Richardson, 2012). In addition, ENTREE utilised measures including the Teacher Resilience scale (Morgan, 2011), Personal Life (Morgan, 2011), Rumination scale (Morgan, 2011), Teacher Commitment (Morgan, 2011), Teacher Efficacy scale (Morgan, 2011; Peixoto et al., 2018), Social Context (Cefai & Cavioni, 2014), School Support (Morgan, 2011), Conditions Provided by Institutions for Job Satisfaction (Silva, 2013) and Administrative and Policy Demands (Peixoto et al., 2018). Confirmatory factor analyses (CFA), from previous studies, confirmed the factor structures (CFA ranging from .935 to .999) while the reliability was confirmed by the Cronbach's alpha, which ranged from .67 to .91 (Peixoto et al., 2018).

3.4.5.5 Quality assurance of analysis and results: Secondary data analysis as empirical systematic method

Neuman (2014) elucidates that, even if a reliable source collected the data (i.e., FIRE project), secondary data could not be regarded as problem-free. Rubin and Babbie (2014) advise that awareness of possible limitations in reliability and validity when doing secondary data analysis is a protective factor for a researcher. The current study involved secondary data analysis; therefore, I could not regulate the reliability and validity of the measurement instruments used during data collection. Therefore, I was not able to remedy threats to internal validity (Creswell, 2014). However, I remained aware of the threats and subsequently implemented necessary measures and strategies to increase the reliability and external validity of the results. One such measure was to utilise the expertise of the Faculty of Education's statistician who is also a co-supervisor of the current study, to, for example, conduct reliability testing. However, since data can be defective, claims may be made congruently that are invalid.

Statistical conclusion validity may be threatened if inaccurate inferences are made from the data due to inadequate statistical assumptions (Creswell, 2014). To avoid this potential limitation, I took meticulous care during the data analysis and verified statistical procedures against existing literature. I correspondingly conducted data cleaning (as explained in Section 3.4.4.2) (Rubin & Babbie, 2014) to remove potential errors in the data before commencing with the data analysis. Regular contact with my supervisors further increased the possibility of an accurate data analysis and reporting of the results.

3.4.6 ETHICAL CONSIDERATIONS

3.4.6.1 Introduction

The awareness and importance of ethical concerns during the entire research process are crucial to making an argument for a study (L. Cohen et al., 2018; Gravetter & Forzano, 2018). Every step during research prompts extensive and complex ethical considerations (Creswell,

2014; Creswell & Creswell, 2018). These considerations hold when employing secondary analysis of extant data since ethics are situated to a specific situation, and secondary analysis is not absolved from ethical issues (L. Cohen et al., 2018). Therefore, ethical strategies considered for this study included permission to utilise an existing dataset, ethical concerns with mining extant data and reporting of secondary data analysis.

3.4.6.2 Access and permission to use extant data

The current study used extant data already accessible in the scientific domain. Permission was granted by the FIRE project's Principal Investigator (PI) (i.e., the late Professor William J. Fraser, University of Pretoria, SA) and co-researcher Professor Liesel Ebersöhn (CSR, University of Pretoria, SA) to use extant data generated during the FIRE research project from the FIRE Teacher Resilience Measure incorporated during the FIRE project. The current study could, therefore, employ data generated from the completed self-reported questionnaires of pre-service teachers (cohorts 2015–2017) during the FIRE project[55] (University of Pretoria, 2015). The data ownership remains with the original project and the CSR, and any restrictions regarding data use, analysis and dissemination would still apply (L. Cohen et al., 2018).

3.4.6.3 Privacy and extant data

As part of the broader FIRE research project, I adhered to the required ethical considerations and guidelines while conducting secondary data analysis and reporting the current study's findings. Even though, as discussed in Section 3.4.4.2, minimal ethical quandaries are associated with secondary data analysis (L. Cohen et al., 2018), the respondents in the FIRE project had the right to protection, welfare, dignity, respect, anonymity and privacy (Creswell & Creswell, 2018; Gravetter & Forzano, 2018).

During the analysis and interpretation, I ensured anonymity, data de-identification and privacy of the FIRE project respondents and did not represent data or findings in any way that may have resulted in the identification of a respondent (APA, 2017, 2020b, The Presidency, RSA, 2013). While using SPSS, no names of respondents were captured to ensure confidentiality and anonymity (Leedy & Ormrod, 2015) and adhere to the responsibility secondary researchers have to the original respondents (L. Cohen et al., 2018). I also followed prescriptions regarding the safe storage of data. I respected the guideline of data only being available to the research team to protect data privacy (The Presidency, RSA, 2013).

[55] FIRE project ethical approval: University of Pretoria (UP) 14 03 01.

3.4.6.4 Ethical reporting on extant data

Ethical issues similarly apply to reporting and dissemination of the final research findings. All researchers must analyse (L. Cohen et al., 2018) and report their results ethically by including multiple perspectives and report contrary findings (Creswell & Creswell, 2018). Research has an ethical responsibility to demonstrate quality (L. Cohen et al., 2018). A rigorous, honest and precise presentation of research results, findings and challenges need to be reported without misrepresentation (Babbie, 2021; L. Cohen et al., 2018). I clarified the primary research's position (FIRE project) regarding the right to publish from secondary data and ensure that authorship on any publication that results from the secondary analysis is credited to report on the secondary analysis results (APA, 2017). The FIRE project and the original investigators will be cited in any publication or presentation resulting from the current study (Babbie, 2021).

In reporting on the results based on extant data, I did not use language or words that are biased against individuals based on age, gender, culture, race, sexual orientation or disability, and I applied appropriate language for the audience of the research (Creswell, 2014; Creswell & Creswell, 2018). I further endeavoured to remain honest with no misrepresentation, suppression, invention or falsification of the results or findings in any way (Gravetter & Forzano, 2018; Leedy & Ormrod, 2015). I strived to make the research auditable by following rigorous, methodical and systematic procedures while stipulating transparent, detailed explanations of the research study and reporting on technical failures and limitations (O'Leary, 2017; Rubin & Babbie, 2014). I also credited to all the sources or research ownership I consulted and acknowledged the use of others' words and ideas where applicable (Creswell & Creswell, 2018; Gravetter & Forzano, 2018). Throughout the entire study and during all the steps of data analysis, and when reporting on the results, I focused on acting ethically and responsibly and being mindful of my epistemology and underlying assumptions (Babbie, 2021; L. Cohen et al., 2018). In addition, I endeavoured to equip myself for the processes involved in quantitative statistical data analysis to report accurately on the results and deal with challenges that may have arisen (L. Cohen et al., 2018).

I was, furthermore, aware of the time elapsed since the collection of the data (i.e., 2015 to 2017). The questionnaires completed during the FIRE project were independently captured into Microsoft Excel. The Faculty of Education's statistician, who is also one of the current study's co-supervisors, oversaw the process. By utilising the completed questionnaires as an existing dataset in this study, I conformed to the ethical and legal guidelines concerning confidentiality and anonymity (Gravetter & Forzano, 2018) as outlined in the FIRE project (University of Pretoria, 2015) and diligently protected any sensitive information of respondents (APA, 2020b; Babbie, 2021).

I obtained ethical clearance from the Ethics Committee of the Faculty of Education at the University of Pretoria and started analysing data after obtaining permission (APA, 2020b).

Furthermore, as part of the FIRE project and the ethical guidelines of the Faculty, I adhered to the safeguarding prescriptions of the raw and interpreted data. Lastly, as per ethical guidelines, the original questionnaires (2015–2017) will be stored securely for 15 years at the CSR.

3.5 CONCLUSION

In this chapter, I focussed my discussion on a detailed description of the research process. I discussed the selected metatheoretical and methodological paradigm in terms of their suitability to the current study. A quantitative stance allowed me to describe and make inferences from the extant dataset from a post-positivist perspective by conducting statistical analysis. Using a comparative case study research design supported the purpose of this study as it enabled me to address the research questions and test the associated hypotheses. I reflected on the advantages and disadvantages of the chosen methodology and reported on my attempts to address the limitations. I furthermore deliberated on aspects of rigour and ethical responsibilities in this chapter.

Chapter 3, thus, aimed to provide a methodological context for the analysis of the results in the following chapter. Hence, in Chapter 4, the results of the current study are presented and discussed. For this purpose, I explain and report the results I obtained from the descriptive and inferential statistical analysis conducted.

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Chapter 4
Research Results of the Study

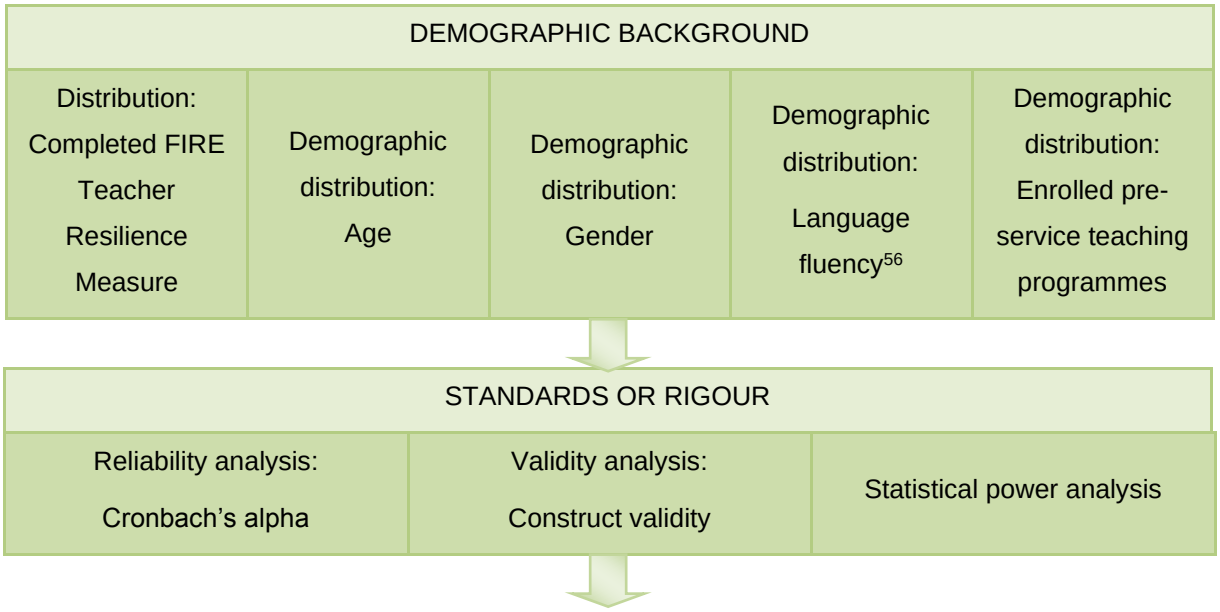
4.1 INTRODUCTION

In Chapter 3, I reported on the methodological process and strategies of the current research study. I described the paradigmatic perspectives (i.e., quantitative research, situated within post-positivism) in detail. I also explained the suitability of a comparative case study as the research design with secondary data analysis. I justified the methodological decisions based on the research purpose and questions of this study, as formulated in Chapter 1. Chapter 3 also discussed the secondary data analysis of extant data and the choice of statistical techniques employed. Furthermore, the strategies to ensure rigorous and ethical research when conducting data analysis were deliberated.

In this chapter, I present the quantitative results of the current study following the quantitative analysis of the measure (i.e., FIRE Teacher Resilience Measure). I commence with demographic distribution results about the demographic information available. In addition, the reliability analysis, validity analysis and statistical power analysis for the current study are discussed. Lastly, I summarise the results obtained from the descriptive and inferential statistics conducted graphically. Figure 4.1 presents a flow chart showing the organisational overview of Chapter 4.

Figure 4.1

Flow Chart Showing the Organisation of Chapter 4



[56] As discussed in Section 1.6.9, general language fluency is the ability, proficiency, ease, confidence or accuracy with which communicative language (oral, reading and writing) is used.

DESCRIPTIVE STATISTICS OF THE SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS IN A CHALLENGED CONTEXT			
Descriptive statistics of the self-efficacy of pre-service in a challenged context (2015 to 2017)	Descriptive statistics of the teacher efficacy beliefs of pre-service in a challenged context (2015 to 2017)	Descriptive statistics of the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context (2015 to 2017)	Descriptive results of the self-efficacy and teacher efficacy beliefs of pre-service teachers based on gender and enrolled teaching programmes

INFERENTIAL STATISTICS OF THE SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS IN A CHALLENGED CONTEXT				
Correlation analysis between the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context	Results of the FIRE Teacher Resilience Measure Case 1 (2015): Self-efficacy and teacher efficacy beliefs of pre-service teachers (within-case comparison)	Results of the FIRE Teacher Resilience Measure Case 2 (2016): Self-efficacy and teacher efficacy beliefs of pre-service teachers (within-case comparison)	Results of the FIRE Teacher Resilience Measure Case 3 (2017): Self-efficacy and teacher efficacy beliefs of pre-service teachers (within-case comparison)	Results of the FIRE Teacher Resilience Measure 2015 to 2017: Self-efficacy and teacher efficacy beliefs of pre-service teachers (cross-case comparison)

CONCLUSION

4.2 DEMOGRAPHIC BACKGROUND

4.2.1 INTRODUCTION

Based on extant data available (i.e., *N* = 1,193; 77.9% female), I report on pre-service teachers' self-efficacy and teacher efficacy beliefs to highlight intrapersonal resilience-enabling pathways to teacher resilience in the Global South. As presented in Chapter 1, the purpose of the current study is to inform teacher resilience knowledge by statistically comparing (within-case and cross-case) teacher resilience data based on the self-efficacy and teacher efficacy beliefs of final year pre-service teachers in a challenged context. Section 4.2 provides an overview of the pre-service teachers' demographic background, relating to *age, gender*, *language fluency* and *enrolled pre-service teaching programmes.*, based on extant data generated from the completed FIRE Teacher Resilience Measure during the FIRE project.

4.2.2 DISTRIBUTION: COMPLETED FIRE TEACHER RESILIENCE MEASURE (QUESTIONNAIRES)

Table 4.1 presents an outline of the completed number (*N* = 1,193) and percentage (%) of questionnaires (FIRE Teacher Resilience Measure) from 2015 to 2017.

Table 4.1

Total Completed FIRE Resilience Measure per Year (2015 to 2017)

Year	*N*	Percent (%)
Case 1 (2015)	313	26.2
Case 2 (2016)	169	14.2
Case 3 (2017)	711	59.6
Cross-case (2015–2017)	1,193	100.0

As depicted in Table 4.1, *n* = 313 (26.2% of the total sample [*N* = 1,193]) pre-service teachers completed the FIRE Teacher Resilience measure in 2015. In 2017, the largest number of questionnaires were collected, *n* = 711 (59.6% of the total sample). During 2016, which was also the year of the #Fees-Must-Fall2016 movement at universities in South Africa, as discussed in Chapter 1, final year pre-service teachers completed the smallest number of questionnaires, *n* = 169 (14.2% of the total sample).

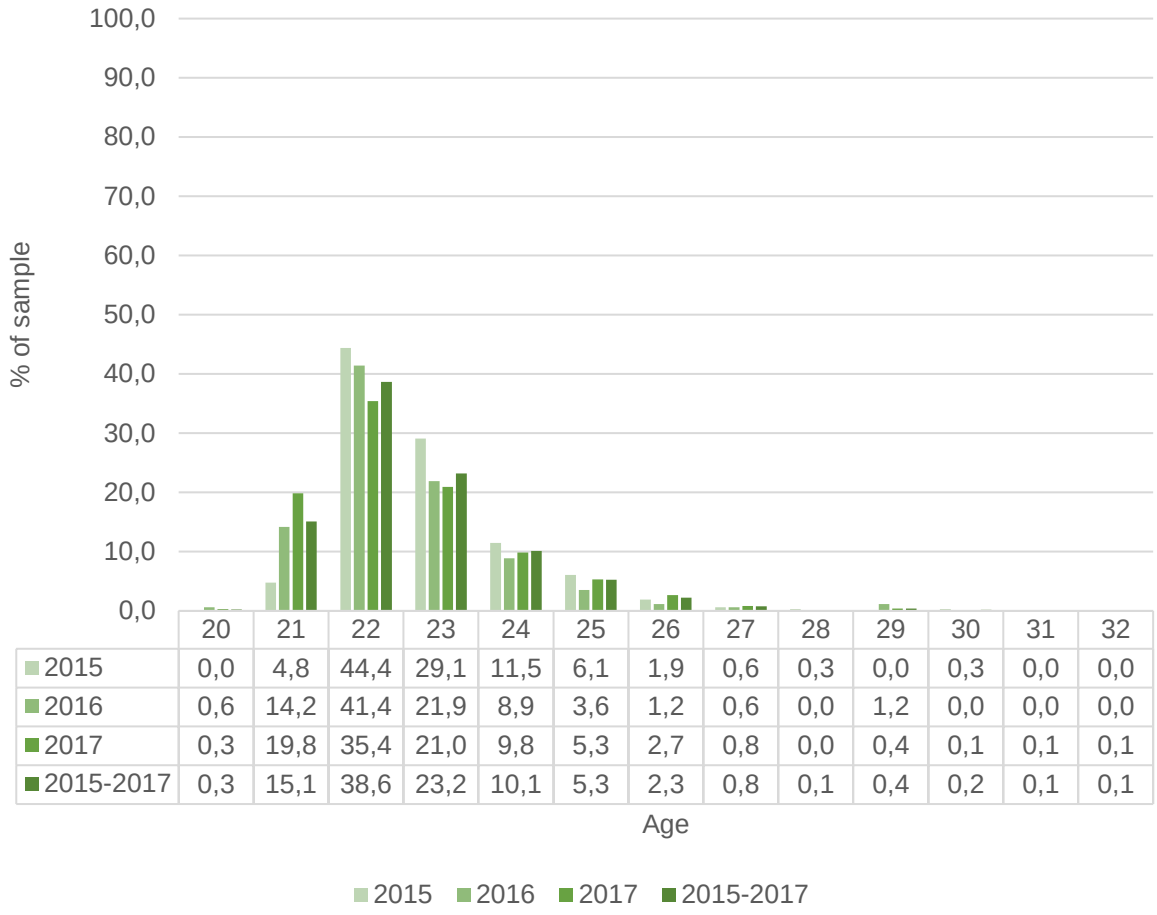
The 2016 results should be cautiously interpreted since the sample is relatively smaller (*n* = 169) than 2015 (*n* = 313) and 2017 (*n* = 711). However, as discussed in Chapter 3, based on the central limit theorem (Field, 2018), the 2016 sample (*n* = 169) is regarded as sufficiently large so that statistical inferences can be generalised to the population (i.e., final year pre-service teachers at the University of Pretoria). The following section presents an overview of the age distribution of pre-service teachers for the current study.

4.2.3 DEMOGRAPHIC DISTRIBUTION: AGE

Figure 4.2 gives a percentage (%) summary of the *age demographic* distribution of pre-service teachers that completed the FIRE Teacher Resilience Measure from 2015 to 2017.

Figure 4.2

Age Demographic–percentage (%) Distribution of Pre-service Teachers (2015 to 2017)



	20	21	22	23	24	25	26	27	28	29	30	31	32
2015	0,0	4,8	44,4	29,1	11,5	6,1	1,9	0,6	0,3	0,0	0,3	0,0	0,0
2016	0,6	14,2	41,4	21,9	8,9	3,6	1,2	0,6	0,0	1,2	0,0	0,0	0,0
2017	0,3	19,8	35,4	21,0	9,8	5,3	2,7	0,8	0,0	0,4	0,1	0,1	0,1
2015-2017	0,3	15,1	38,6	23,2	10,1	5,3	2,3	0,8	0,1	0,4	0,2	0,1	0,1

Figure 4.2 provides the percentage (%) overview of age demographic per year (in-case, 2015, 2016 and 2017) and cross-case (2015–2017) as indicated on the FIRE Teacher Resilience Measure. A total of *N* = 1,151 pre-service teachers indicated their age during the completion of the FIRE Teacher Resilience Measure from 2015 to 2017. As expected, given a 4-year BEd degree in South Africa, the largest age group was indicated as the 22-year-old frequency (*n* = 461; 38.6%). The 23-year-old age group was the second largest (*n* = 277; 23.2%) and the 21-year-old age group the third-largest (*n* = 180; 15.0%). As illustrated in Figure 4.2, the age distribution for within-case and cross-case comparison presents relatively similar patterns within (2015, 2016, 2017) and across the years (2015 to 2017). Table 4.2 presents the mean and standard deviation (*SD*) for the age distribution of pre-service teachers form the FIRE Teacher Resilience Measure from 2015 to 2017.

Table 4.2

Mean and Standard Deviation Age Distribution (Within-case and Cross-case)

Year	Mean (years)	*SD*
Within-case 2015	22.82	1.22
Within-case 2016	22.54	1.35
Within-case 2017	22.60	1.49
Cross-case 2015–2017	22.65	1.41

Table 4.2 shows that the overall mean age of pre-service teachers who completed the FIRE Teacher Resilience Measure from 2015 to 2017 was 22.65-years. In similar studies employing the teacher resilience (Morgan, 2011) and teacher efficacy (Morgan, 2011; Peixoto et al., 2018) scales, the mean age of pre-service teachers was higher (32.1-years in Australia [Beltman et al., 2018]; 25.2-years in Germany, Ireland, Malta and Portugal [Peixoto et al., 2018]).

Internationally, the average age of the first graduation from university is 24.7-years (OECD, 2014b), with approximately 80% of undergraduate students enrolled for a 4-year degree, being between the age of 18-years and 24-years (The Hamilton Project, 2007) with pre-service teachers tending to be 22-years to 25-years. Inferential statistics were not performed because the age biographical variable didn't vary much as respondents (i.e., final year pre-service teachers) of the same age group were sampled. Based on the international average age (24.7-years) (OECD, 2014b) distribution of graduating fourth-year students, also similar in the current study (22.7-years). The following section expounds on the gender distribution for the current study.

4.2.4 DEMOGRAPHIC DISTRIBUTION: GENDER

Table 4.3 indicates the *gender (male and female) demographic* distribution overview of final year pre-service teachers that completed the FIRE Teacher Resilience Measure for within-case (2015, 2016 and 2017) and cross-case (2015-2017) examples.

Table 4.3

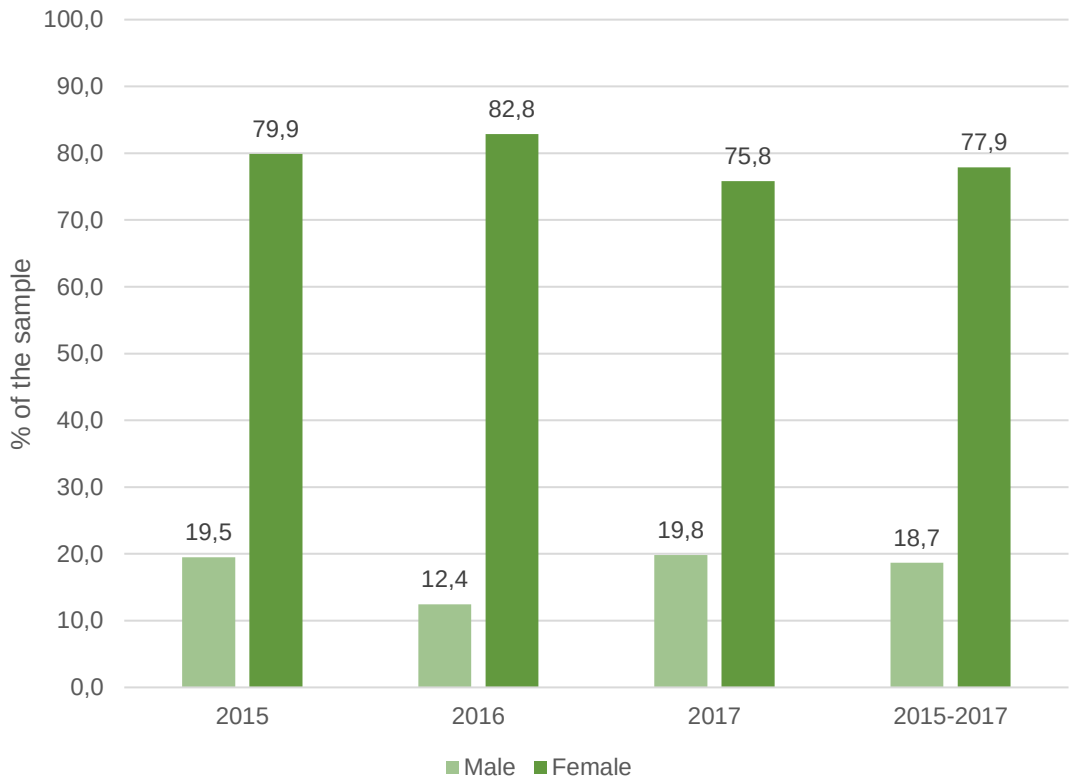
Gender Demographic Distribution of Completed FIRE Teacher Resilience Measure

	Within-case		Within-case		Within-case		Cross-case	
	2015		2016		2017		2015–2017	
Gender	*N*	%	*N*	%	*N*	%	*N*	%
Male	61	19.5	21	12.4	141	19.8	223	18.7
Female	250	79.9	140	82.8	539	75.8	929	77.9
Total	311	99.4	161	95.3	680	95.6	1,152	96.6
Missing	2	0.6	8	4.7	31	4.4	41	3.4
TOTAL	313	100.0	169	100.0	711	100.0	1,193	100.0

As demonstrated in Table 4.3, the highest rate of completed female FIRE Teacher Resilience Measures was in 2016 (82.8%), while the highest rate for males was in 2017 (19.8%). Interesting to note is that the male completion rate for 2016 was the lowest (12.4%) compared to 2015 (19.5%) and 2017 (19.8%) and the cross-case comparison of 18.7%. The #Fees-Must-Fall2016 movement may have affected the response rate for 2016 since activities at HEIs were disrupted. Figure 4.3 displays the overall gender demographic distribution of pre-service that completed the FIRE Teacher Resilience Measure within a graph.

Figure 4.3

Gender Demographic Percentage Distribution (2015 to 2017)



As illustrated in Figure 4.3, the female gender distribution (77.9%) dominates the male distribution (18.7%) for pre-service teachers in a challenged context. The distribution is higher than the international gender distribution for male and female teacher demographics (68% female vs 32% male) (OECD, 2019c), but may highlight the existing worldwide pattern that more females are still enrolling for teaching than their male counterparts (Jenkins, 2019; OECD, 2009, 2017b, 2019a, 2019c; Van Diemen, 2019; World Bank, 2020b). In similar studies employing the teacher resilience (Morgan, 2011) and teacher efficacy (Morgan, 2011; Peixoto et al., 2018) scales, female gender distribution also exceeded the male distribution (79.5%, Australia [Beltman et al., 2018]; 69.8%, Germany; 79.7%, Ireland; 80.5%, Malta; 96.5%, Portugal [Peixoto et al., 2018]).

Average female gender dominance, especially in the early education and primary phases (Jenkins, 2019; OECD, 2017b; World Bank, 2020b), is the international (Lemon & Garvis, 2016; O'Neill & Stephenson, 2012a) and national standard (OECD, 2017b; Petersen, 2014). According to the OECD (2019a), the international average for female teachers was approximately 68%, while 60% of teachers in South Africa were female. The following section considers the language distribution of pre-service teachers for the current study.

4.2.5 DEMOGRAPHIC DISTRIBUTION: LANGUAGE FLUENCY

Table 4.4 and Figure 4.4 indicate the *language fluency demographic* distribution of pre-service teachers that completed the FIRE Teacher Resilience Measure from 2015 to 2017. Pre-service teachers indicated their language fluency (i.e., "List of languages you are fluent in") as requested on the FIRE Teacher Resilience Measure (see Appendix B) and could, therefore, indicate more than one language of proficiency.

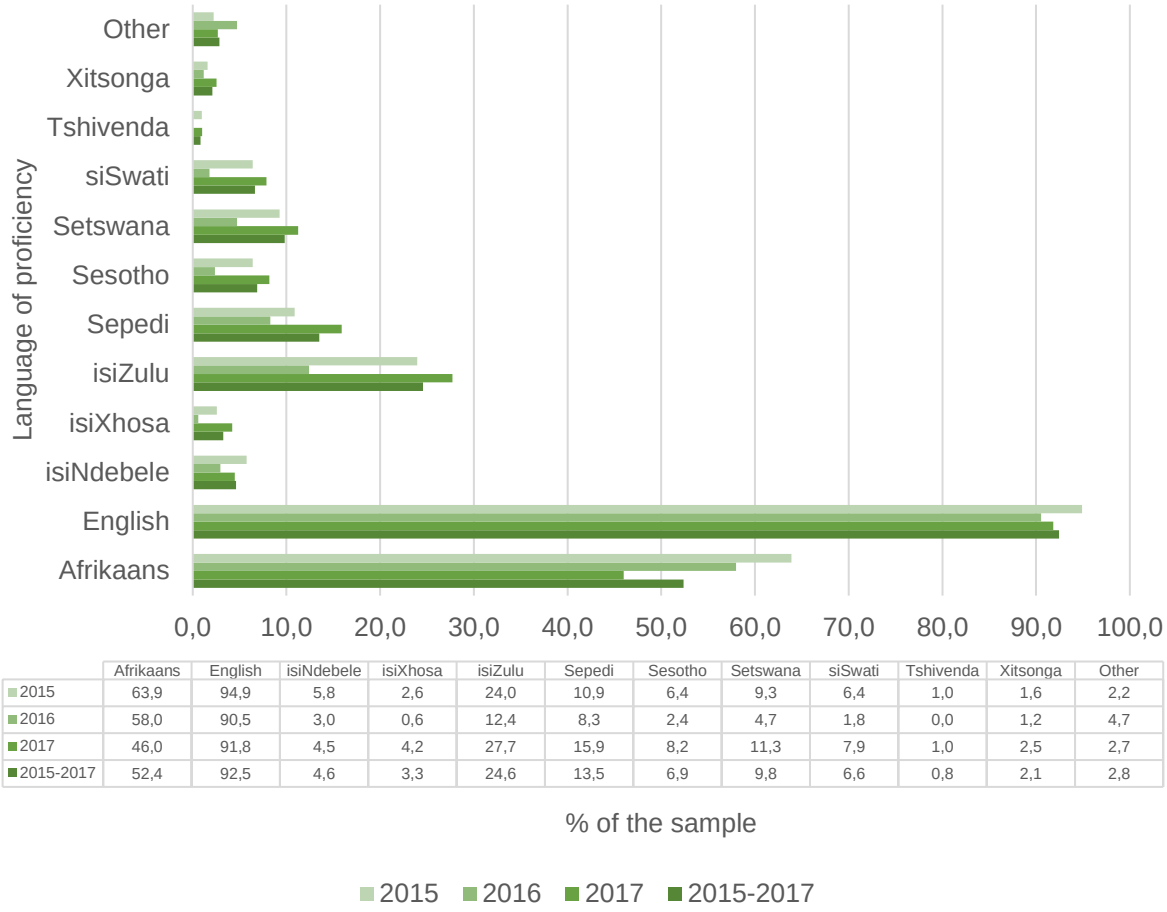
Table 4.4

Language Fluency Demographic of Pre-Service Teachers

Year	Afrikaans	English	isiNdebele	isiXhosa	isiZulu	Sepedi	Sesotho	Setswana	siSwati	Tshivenda	Xitsonga	Other
Within-case 2015	200	297	18	8	75	34	20	29	17	3	5	7
Within-case 2016	98	153	5	1	21	14	4	8	2	0	2	8
Within-case 2017	327	653	32	30	197	113	58	80	54	7	18	19
Cross-case 2015–2017	625	1,103	55	39	293	161	82	117	73	10	25	34

Figure 4.4

Percentage (%) Language Fluency Demographic Distribution of Pre-Service Teachers



	Afrikaans	English	isiNdebele	isiXhosa	isiZulu	Sepedi	Sesotho	Setswana	siSwati	Tshivenda	Xitsonga	Other
2015	63,9	94,9	5,8	2,6	24,0	10,9	6,4	9,3	6,4	1,0	1,6	2,2
2016	58,0	90,5	3,0	0,6	12,4	8,3	2,4	4,7	1,8	0,0	1,2	4,7
2017	46,0	91,8	4,5	4,2	27,7	15,9	8,2	11,3	7,9	1,0	2,5	2,7
2015-2017	52,4	92,5	4,6	3,3	24,6	13,5	6,9	9,8	6,6	0,8	2,1	2,8

As depicted in Table 4.4 and Figure 4.4, English (*N* = 1,103; 92.5%) was specified as the main language category of proficiency by pre-service teachers for 2015 (*n* = 297; 94.9%), 2016 (*n* = 153; 90.5%) and 2017 (*n* = 653; 91.8%), with Afrikaans (*N* = 625; 52.4%) and isiZulu (*N* = 293; 24.6%) in the second and third succession for each year (2015, 2016 and 2017). The language demographics underlines the possible emphasis placed on English as an academic language for teaching and learning in South Africa, especially after Grade 3 (McKinney & Guzula, 2019; Spaull et al., 2020). Spaull et al. (2020) denoted that 70% of FP/ECD (Grade 1 to Grade 3) learners in South Africa receive schooling in an African home language with English taught in addition. From the IP phase (Grade 4), 90% of learners are taught in English with an African language as their home language subject. Despite the national prominence (McKinney & Guzula, 2019; RSA, 1996a; Spaull et al., 2020) for home language (especially in early education, i.e., ECD), it may be interesting to note the high rate of English (cross-case comparison of 92.5%) indicated as language proficiency by final year pre-service teachers. The shortage of quality teachers within a Global South context may be exacerbated by the fact that teachers are confounded by language barriers (DHET, RSA, 2018a).

Regardless of policies, the dominance of Western languages lingers (McKinney & Guzula, 2019). Figure 4.4 demonstrates that Afrikaans is the only language declining each year (2015 = 63.9%; 2016 = 58.0%; 2017 = 46.0%), while indigenous languages, except for isiNdebele, show an increase when comparing 2015 with 2017. The decrease in Afrikaans is consistent with the comparative language results of the 2011 SA census and the 2016 community survey indicating a notable decrease in Afrikaans home language speakers in South Africa (Stats SA, 2012a, 2016). A community household survey (Stats SA, 2018) also indicated a decline for spoken languages outside the household with the exception of isiZulu and Setswana. Table 4.5 demonstrates the percentages of the number of languages pre-service teachers are fluent in.

Table 4.5

Number of Languages Pre-service Teachers are Fluent in

	Within-case		Within-case		Within-case		Cross-case	
	2015		2016		2017		2015–2017	
Number of languages spoken	*N*	%	*N*	%	*N*	%	*N*	%
1	48	15.3	27	16.0	126	17.7	201	16.8
2	186	59.4	107	63.3	353	49.6	646	54.1
3	41	13.1	17	10.1	102	14.3	160	13.4
4	24	7.7	5	3.0	62	8.7	91	7.6
5	9	2.9	1	0.6	20	2.8	30	2.5
6	3	1.0			10	1.4	13	1.1
7	2	0.6			4	0.6	6	0.5
8					2	0.3	2	0.2
Total			157	92.9	679	95.5	1,149	96.3
Missing			12	7.1	32	4.5	44	3.7
TOTAL	313	100	169	100	711	100	1,193	100

Most of the South African population can speak at least two of the official languages (RSA, 2019; Stats SA, 2018), which correlates with the given results in Table 4.5, indicating that 54.1% of pre-service teachers noted fluency in at least two languages. However, the language measure is inadequate to make further significant inferences about the possible role of multilingualism for pre-service teachers in a challenged context.

As with the age demographic, the current study did not include inferential statistics for the language distribution for further exploration. Inferential statistics were not performed for the biographical variable language because there are too many categories (since South Africa has 11 official languages), some with sparse data. Having many categories with sparse data is not ideal for comparative analysis. In addition, pre-service teachers could select more than one

language on the FIRE Teacher Resilience Measure (i.e., questionnaire) since the language demographic question asked respondents to indicate all their languages of fluency; thus, it was a multiple response question.

Multiple response questions may further complicate a comparative analysis, as it created more than 11 categories because the categories were the 11 official languages and, for example, a category for those that speak English and Afrikaans, a category for those that speak English and isiZulu, etc.; there are numerous combinations for possible categories. Given the South African context with 11 official languages and the language-based descriptive results, the current study did not perform inferential statistical procedures on the language distribution of pre-service teachers. Chapter 5 also addresses the limitation with recommendations for future questionnaire development and/or FIRE Teacher Resilience Measure amendments within a South African context given the multilingual society. The following section elaborates on the enrolled teaching programme demographic distribution of final year pre-service teachers for the current study.

4.2.6 DEMOGRAPHIC DISTRIBUTION: ENROLLED PRE-SERVICE TEACHING PROGRAMMES

Table 4.6 and Figure 4.4 indicate the *enrolled pre-service teaching programme demographic* (FP/ECD, IP, SP, FET) and distribution (frequency [*N*] and percentage [%]) of pre-service teachers that completed the FIRE Teacher Resilience Measure from 2015 to 2017.

Table 4.6

Enrolled Pre-service Teaching Programme (2015 to 2017)

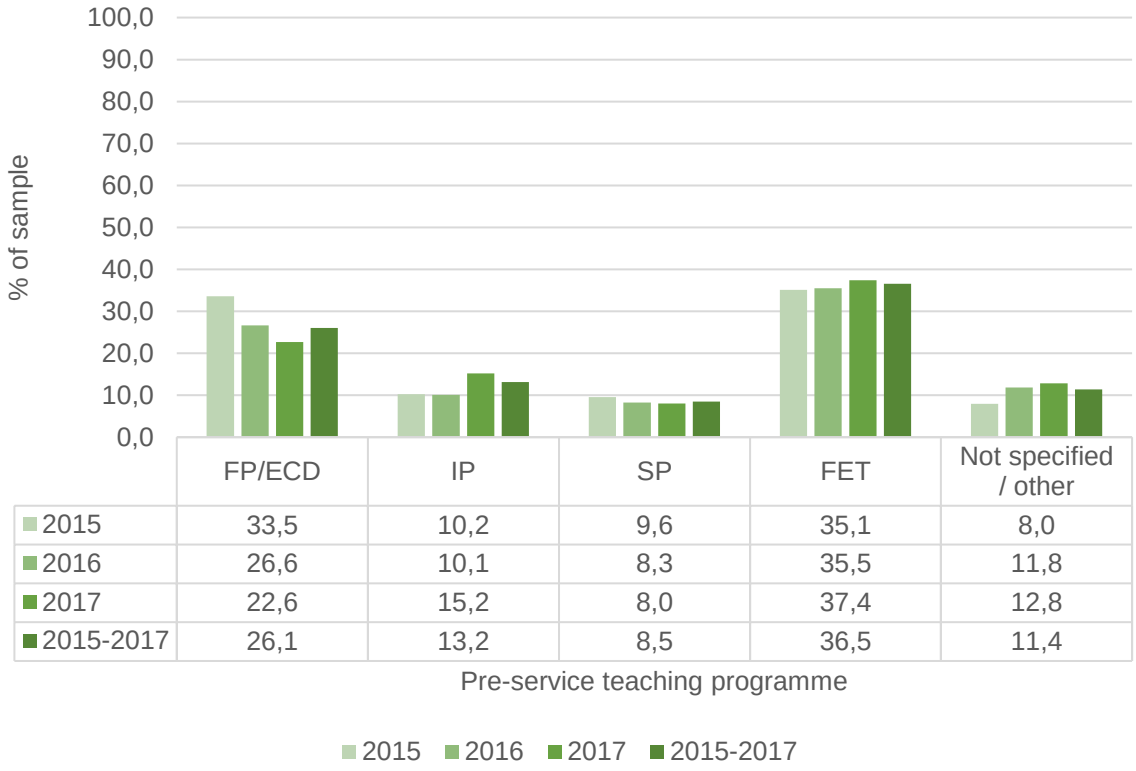
	Within-case		Within-case		Within-case		Cross-case	
	2015		2016		2017		2015–2017	
Enrolled pre-service teaching programme	*N*	%	*N*	%	*N*	%	*N*	%
Foundation phase (FP)/Early childhood development (ECD)	105	33.5	45	26.6	161	22.6	311	26.1
Intermediate phase (IP)	32	10.2	17	10.1	108	15.2	157	13.2
Senior phase (SP)	30	9.6	14	8.3	57	8.0	101	8.5
Further education and training phase (FET)	110	35.1	60	35.5	266	37.4	436	36.5
Enrolled pre-service teaching programmes not specified	25	8.0	20	11.8	91	12.8	136	11.4
Total	302	96.5	156	92.3	683	96.1	1,141	95.6
Missing	11	3.5	13	7.7	28	3.9	52	4.4
TOTAL	313	100.0	169	100.0	711	100.0	1,193	100.0

As illustrated in Table 4.6, the pre-service teaching programme distribution within-case and cross-case present relatively similar stable within (2015, 2016, 2017) and across years (2015 to 2017) for FP/ECD, IP, SP, FET and the category of teaching programme not specified.

Figure 4.5 presents the percentage teaching programme for within-case and cross-case distribution graphically for pre-service teachers in their final year of study.

Figure 4.5

Percentage (%) Enrolled Pre-service Teaching Programme Distribution for Final Year Pre-service Teachers (2015–2017)



	FP/ECD	IP	SP	FET	Not specified / other
2015	33,5	10,2	9,6	35,1	8,0
2016	26,6	10,1	8,3	35,5	11,8
2017	22,6	15,2	8,0	37,4	12,8
2015-2017	26,1	13,2	8,5	36,5	11,4

As illustrated in Figure 4.5, the two most prevalent programmes for which pre-service teachers enrolled were the FP/ECD and FET teaching programmes. Interestingly, the FP/ECD and FET phases remained popular across the years, with the FET phase dominating the within-case (2015, 2016 and 2017) and cross-case (2015–2017) comparison. The pre-service teaching programme distribution may indicate the emphasis placed nationally and internationally on early childhood education and the importance of the final schooling years (i.e., throughput rate).

The programme with the lowest enrolment rate is the SP, with only 8.5% of pre-service teachers completing the FIRE Teacher Resilience Measure in the senior phase. The following section describes the reliability analysis, validity analysis and statistical power analysis performed on the data to verify the consistency and reliability of the extant data utilised.

4.3 STANDARDS OF RIGOUR

4.3.1 INTRODUCTION

Section 4.3 discusses the reliability (i.e., Cronbach's alpha) and the validity (i.e., construct validity) of the FIRE Teacher Resilience Measure. As part of the rigour of credible research conducted, the statistical power analysis of the current study is also described.

4.3.2 RELIABILITY ANALYSIS: CRONBACH'S ALPHA

As discussed in Chapter 3, the reliability of the FIRE Teacher Resilience Measure has been confirmed by previous studies (Beltman et al., 2018; Peixoto et al., 2018, 2020; Wosnitza et al., 2018). The original Teacher Resilience scale (Morgan, 2011) had a Cronbach's alpha of .91, and the Teacher Efficacy scale (Morgan, 2011; Peixoto et al., 2018) had a Cronbach's alpha of .88, indicating very satisfactory reliability. Further studies (Beltman et al., 2018; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) showed excellent reliability to high reliability for the Teacher Resilience (Morgan, 2011) and Teacher Efficacy (Mansfield & Wosnitza, 2015; Morgan, 2011; Peixoto et al., 2018) scales. Reliability analysis for the scales from the current study is depicted in Table 4.7.

Table 4.7

Reliability Analysis

FIRE Teacher Resilience Measure Scales	Cronbach's alpha
Teacher Resilience scale (Morgan, 2011)	.87
Teacher Efficacy scale (Morgan, 2011; Peixoto et al., 2018)	.91

Table 4.7 indicates that the Teacher Resilience scale (Cronbach's alpha = .87) and the Teacher Efficacy Scale (Cronbach's alpha = .91) had satisfactory reliability for the current study. This reliability analysis is in agreement with findings from previous studies (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018). Therefore, based on the current findings displayed in Table 4.7, it may be concluded that the scales (i.e. Teacher Resilience scale and Teacher Efficacy scale) were capable of measuring pre-service teachers' confidence in recovery from setbacks (i.e., self-efficacy) and confidence in teaching and behaviour management (i.e., teacher efficacy) in a reliable and valid manner. Since reliability was established for the current study, the following section describes the validity analysis conducted.

4.3.3 VALIDITY ANALYSIS: CONSTRUCT VALIDITY

As discussed in Chapter 3, validity implies that a sound instrument assesses what it claims or intends to measure (L. Cohen et al., 2018; Foxcroft & Roodt, 2013; Gravetter & Forzano, 2018; Maree & Pietersen, 2019c; Pietersen & Maree, 2019b). Therefore, in the current study, the validity of the measure (i.e., FIRE Teacher Resilience Measure) was derived from the ability to assess the self-efficacy and teacher efficacy beliefs of final year pre-service teachers. Convergent validity shows that items that belong to the same construct are related (Sauro & Lewis, 2016). This assumption can be tested by calculating correlation coefficients on the items belonging to the same constructs and checking that these correlations are high, i.e., close to -1 or close to +1. All the correlations were statistically significant (i.e., all *p*-values < .001) for the self-efficacy construct, with the weakest correlation being .316 and the strongest being .661, as depicted in Table 4.8.

Table 4.8

Convergent Validity - Self Efficacy Construct

	Bouncing back, when things upset me	Carrying on with my school work when things go wrong	Carrying on in school when events upset me	Feeling certain that things will come right even if there are serious problems in school	Managing negative events in school when I try	Coping with most problems on any school day	Some negative things that have happened in school have made me better able to deal with problems	Not getting disheartened even when children' s circumstances make it difficult
Getting over setbacks in school	.577	.462	.398	.348	.430	.421	.316	.356
Bouncing back, when things upset me		.493	.416	.383	.435	.416	.344	.359
Carrying on with my school work when things go wrong			.661	.396	.431	.410	.365	.368
Carrying on in school when events upset me				.444	.492	.460	.371	.371
Feeling certain that things will come right even if there are serious problems in school					.528	.428	.321	.329
Managing negative events in school when I try						.592	.441	.417
Coping with most problems on any school day							.469	.415
Some negative things that have happened in school have made me better able to deal with problems								.468

For the teacher efficacy construct, all the correlations were statistically significant (all *p*-values < .001), with the weakest correlation being .269 and the strongest being .628, as portrayed in Table 4.9. These coefficients provide evidence for convergent validity.

Table 4.9

Convergent Validity - Teacher Efficacy Construct

	Explaining difficult material in ways that the children will understand it	Suggesting suitable examples when the children are having difficulty understanding	Teaching in a way that my students will remember important information	Applying the new developments in the curriculum into my teaching	Helping children focus on learning tasks and avoid distractions	Managing inappropriate behaviour	Encouraging students to take responsibility for their behaviour	Dealing with the diverse learning needs of the students in my class	Teaching students positive behaviour	Providing students with clear specific behaviour expectations	Communicating effectively with parents
Teaching all the subjects on the curriculum effectively	.527	.410	.406	.450	.406	.327	.362	.384	.356	.396	.308
Explaining difficult material in ways that the children will understand it		.628	.589	.458	.445	.353	.375	.409	.395	.397	.307
Suggesting suitable examples when the children are having difficulty understanding			.622	.480	.421	.310	.391	.431	.432	.416	.269
Teaching in a way that my students will remember important information				.531	.477	.363	.431	.433	.457	.441	.326
Applying the new developments in the curriculum into my teaching					.531	.358	.417	.447	.439	.436	.386

	Explaining difficult material in ways that the children will understand it	Suggesting suitable examples when the children are having difficulty understanding	Teaching in a way that my students will remember important information	Applying the new developments in the curriculum into my teaching	Helping children focus on learning tasks and avoid distractions	Managing inappropriate behaviour	Encouraging students to take responsibility for their behaviour	Dealing with the diverse learning needs of the students in my class	Teaching students positive behaviour	Providing students with clear specific behaviour expectations	Communicating effectively with parents
Helping children focus on learning tasks and avoid distractions						.462	.489	.456	.460	.454	.395
Managing inappropriate behaviour							.540	.409	.442	.454	.362
Encouraging students to take responsibility for their behaviour								.505	.540	.508	.367
Dealing with the diverse learning needs of the students in my class									.561	.525	.416
Teaching students positive behaviour										.612	.409
Providing students with clear specific behaviour expectations											.430

In addition, discriminant validity shows that items that do not belong to the same construct are not statistically related. This discrimination can be tested by calculating correlation coefficients since items that do not belong to the same constructs should have lower correlations than those belonging to the same constructs. Table 4.10 demonstrates the discriminant validity analysis between self-efficacy and teacher efficacy constructs.

Table 4.10

Discriminant Validity - Self-Efficacy Vs Teacher Efficacy

	Teaching all the subjects on the curriculum effectively	Explaining difficult material in ways that the children will understand it	Suggesting suitable examples when the children are having difficulty understanding	Teaching in a way that my students will remember important information	Applying the new developments in the curriculum into my teaching	Helping children focus on learning tasks and avoid distractions	Managing inappropriate behaviour	Encouraging students to take responsibility for their behaviour	Dealing with the diverse learning needs of the students in my class	Teaching students positive behaviour	Providing students with clear specific behaviour expectations	Communicating effectively with parents
Getting over setbacks in school	.288	.305	.309	.275	.343	.292	.276	.295	.341	.314	.318	.228
Bouncing back, when things upset me	.215	.310	.270	.238	.262	.273	.250	.299	.296	.288	.268	.171
Carrying on with my school work when things go wrong	.321	.308	.299	.281	.308	.314	.261	.321	.323	.338	.310	.236
Carrying on in school when events upset me	.297	.288	.265	.262	.235	.301	.258	.283	.275	.283	.276	.223
Feeling certain that things will come right even if there are serious problems in school	.248	.289	.258	.262	.266	.307	.242	.295	.286	.294	.295	.227
Managing negative events in school when I try	.334	.355	.316	.286	.329	.374	.339	.330	.320	.340	.340	.296

	Teaching all the subjects on the curriculum effectively	Explaining difficult material in ways that the children will understand it	Suggesting suitable examples when the children are having difficulty understanding	Teaching in a way that my students will remember important information	Applying the new developments in the curriculum into my teaching	Helping children focus on learning tasks and avoid distractions	Managing inappropriate behaviour	Encouraging students to take responsibility for their behaviour	Dealing with the diverse learning needs of the students in my class	Teaching students positive behaviour	Providing students with clear specific behaviour expectations	Communicating effectively with parents
Coping with most problems on any school day	.359	.365	.321	.299	.332	.365	.347	.342	.360	.348	.346	.260
Some negative things that have happened in school have made me better able to deal with problems	.298	.321	.308	.265	.316	.298	.267	.346	.311	.296	.315	.207
Not getting disheartened even when children's circumstances make it difficult	.331	.352	.320	.308	.371	.352	.288	.340	.326	.311	.308	.285

When correlating the self-efficacy construct against the teacher efficacy construct, all the correlations were statistically significant (all *p*-values < .001). The weakest correlation was .171, and the strongest was .374, as shown in Table 4.10. This finding indicates that the correlations of items that do not belong to the same constructs are lower than those belonging to the same constructs. Therefore, these coefficients provide evidence for discriminant validity. Thus, from the evidence depicted in Table 4.8, Table 4.9 and Table 4.10, the likeliness of construct validity is reasonably established. The following section explores the statistical power analysis for data analysis.

4.3.4 STATISTICAL POWER ANALYSIS

Statistical power, or the power of a hypothesis test, is the probability of correctly rejecting false null hypotheses or the ability of a selected statistical test to detect a true effect, significant association or difference if it exists to separate it from random chance (Faul et al., 2007; Field, 2018; Simon, 2011). Statistical power is a vital element of high-quality, rigorous quantitative education research (Cooper, 2018; Creswell & Creswell, 2018).

There are two types of power analyses: a priori and observed power analyses (Chen & Liu, 2019). A priori power analysis is done during the planning phase of a study, and it enables researchers to establish the minimum sample size for obtaining a high statistical power (Cooper, 2018). In other words, it is used to obtain the minimum sample size requirement for a given power (typically, a power of at least .8 is desired), for a specified level of significance (α = .05) and effect size (the software G*Power [Faul et al., 2007] can compute this, or the researcher can use J. Cohen's [1992] classification of small, medium or large effect size as thresholds). Although the SPSS version 27 makes provision for the computation of a power analysis, the option is only available for parametric statistics. Therefore, I utilised the G*Power software to compute the achieved power for the current study.

Since the current study employed secondary data analysis, the data has already been collected and, accordingly, an a priori power analysis is not relevant here. Instead, an observed power analysis is used to calculate the achieved power since the data from the sample has already been collected. To compute the achieved power, one needs the sample size, effect size, and significance level (Faul et al., 2007; Field, 2018). Taking a conservative approach for the current study, the smallest sample size was used to compute the achieved power utilising G*Power. For a level of significance of .05, a sample size of n_1 = 14 for group 1 and n_2 = 17 (smallest pairwise-comparison sample sizes) and a large effect size of .8 (J. Cohen, 1992), the achieved power for the current study was .757.

Although this power estimate is smaller than the desired minimum achieved power of .8, it is close to it (J. Cohen, 1988). Therefore, a conservative approach was employed where the smallest pairwise comparison sample sizes were used, i.e., for the other pairwise comparisons,

the achieved power was higher than .757 for each comparison, respectively. Based on the established reliability, validity and acceptable achieved statistical power for the current study, the following section provides an overview of the descriptive statistics of final year pre-service teachers' self-efficacy and teacher efficacy beliefs in a challenged context.

4.4 DESCRIPTIVE STATISTICS OF THE SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS IN A CHALLENGED CONTEXT

4.4.1 INTRODUCTION

This section contains an exposition on descriptive statistics, which served to summarise and aid understanding of the data's important characteristics obtained from the FIRE Teacher Resilience Measure. As depicted in Chapter 3, descriptive statistics aim to describe and summarise the observations in a dataset (Ary et al., 2019; Salkind & Shaw, 2020). I used descriptive statistics to derive values from the FIRE Teacher Resilience Measure to determine pre-service teachers' self-efficacy and teacher efficacy beliefs within a challenged context. More specifically, the questionnaire aimed at collecting data on confidence in recovery from setbacks (operationalised as self-efficacy in the current study) and confidence in teaching and behaviour management (operationalised as teacher efficacy beliefs in this study).

Since the early definition of teacher resilience as the capacity of teachers to "bounce back or recover from adversity" is inadequate to conceptualise the full complexity of teacher resilience, the current study operationalised the scale of resilience (Morgan, 2011) as *self-efficacy*. Therefore, the current study focused on intrapersonal resilience-enabling pathways (i.e., traits on the microsystem) to teacher resilience in a severely challenged Global South education system. These pathways are assets within the microsystem (i.e., personal protective resources) of teachers whose presence or absence can enable or constrain resilience. These enablers may include self-efficacy, teacher efficacy beliefs, social, emotional, professional, and motivational capacities, coping behaviours and strategies, personal resources, vocational purpose and intrinsic value, as well as self-care. Thus, the current study operationalised resilience measurement within trait discourses in resilience, denoting resilience as personal qualities (e.g., self-efficacy and teacher efficacy) that enable people to flourish despite adversity.

The domains on self-efficacy and teacher efficacy beliefs (i.e., on the FIRE Teacher Resilience Measure) that formed the current study's focus were completed by N = 1,193 respondents. The means of the constructs were derived to determine the average level of self-efficacy and teacher efficacy beliefs. The means were obtained by statistically establishing the mean or the aggregate of the scores (arithmetic average) (Field, 2018). Both constructs (i.e., self-efficacy [items 1–9] and teacher efficacy [items 1–12]) were averaged using SPSS to

create continuous scale variables for comparison. The constructs were then plotted against each other to explain the overall average scores attained by final year pre-service teachers.

4.4.2 DESCRIPTIVE STATISTICS OF THE SELF-EFFICACY OF PRE-SERVICE TEACHERS IN A CHALLENGED CONTEXT (2015 TO 2017)

Table 4.11 and Figure 4.6 provide an overview of the descriptive statistics on pre-service teachers' self-efficacy from the FIRE Teacher Resilience Measure (questions 114–122). Questionnaire items that were included in this scale are:

- "getting over setbacks in school";
- "bouncing back when things upset me";
- "carrying on with school work when things go wrong";
- "carrying on in school when events upset me";
- "feeling certain that things will come right even if there are serious problems in school";
- "managing negative events in school when I try";
- "coping with most problems on any school day";
- "some negative things that have happened in school assisted in dealing better with problems" and
- "not getting disheartened even when children's circumstances make it difficult".

As discussed in Chapter 3, the FIRE Teacher Resilience Measure employed a seven-point Likert scale ranging from one (*absolutely not confident*) to seven (*strongly confident*)[57].

[57] Note that, as a seven-point Likert scale was used, if the mean and median were above the midpoint of four (neutral), the respondents tended to respond in agreement with the statement (as opposed to indicating disagreement with the statement).

Table 4.11

Descriptive Statistics of the Self-Efficacy of Pre-Service Teachers

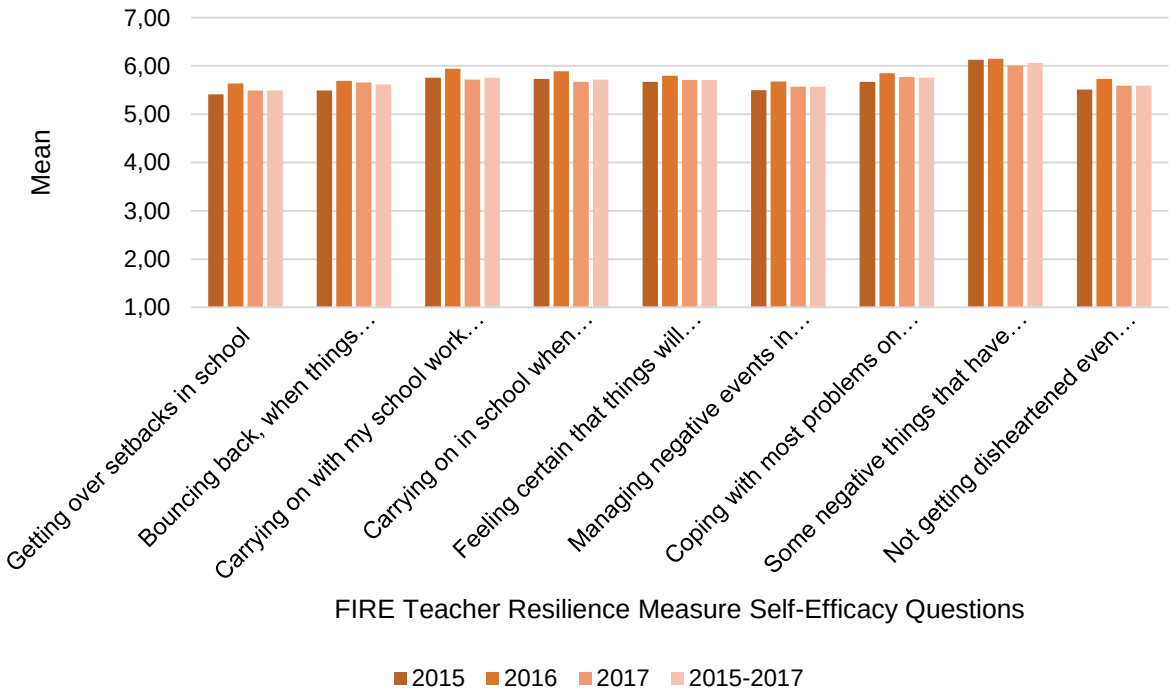
Variable	Within-case 2015			Within-case 2016			Within-case 2017			Cross-case 2015–2017		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Getting over setbacks in school	311	5.41	1.03	168	5.64	0.92	702	5.49	0.95	1,181	5.49	0.97
Bouncing back, when things upset me	307	5.49	1.22	167	5.69	0.95	697	5.66	1.07	1,171	5.62	1.10
Carrying on with my school work when things go wrong	310	5.76	1.01	167	5.94	0.85	700	5.72	1.04	1,177	5.76	1.01
Carrying on in school when events upset me	311	5.73	1.07	168	5.89	0.83	704	5.67	1.04	1,183	5.72	1.02
Feeling certain that things will come right even if there are serious problems in school	311	5.67	1.07	168	5.80	0.86	703	5.71	1.05	1,182	5.71	1.03
Managing negative events in school when I try	310	5.50	1.02	167	5.68	0.88	701	5.57	0.93	1,178	5.57	0.95
Coping with most problems on any school day	311	5.67	1.05	168	5.85	0.90	701	5.77	0.92	1,180	5.76	0.96
Some negative things that have happened in school have made me better able to deal with problems	308	6.13	1.06	168	6.15	0.85	703	6.01	0.97	1,179	6.06	0.98
Not getting disheartened even when children's circumstances make it difficult	309	5.51	1.16	168	5.73	1.02	702	5.59	1.09	1,179	5.59	1.10
Self-efficacy items average	311	5.65	0.79	168	5.82	0.61	706	5.69	0.70	1,185	5.70	0.72

Note. Scale minimum = 1.00; scale maximum = 7.00. The median value for all questions was = 6.00.

As illustrated in Table 4.11, the within-case and cross-case mean comparison for the self-efficacy items demonstrate a consistently high positive response by pre-service teachers. *Pre-service teachers in a challenged context, therefore, feel confident to deal with setbacks in school* based on the mean data available for 2015 (5.65); 2016 (5.82); 2017 (5.69) and for 2015 to 2017 (5.70). However, the mean data and the median value (6.00 for all questions) may indicate a response bias skewed to the left relating to the positive response effect or overly positive reporting of teachers (i.e., the Dunning-Kruger effect discussed as a possible limitation of the current study in Chapter 5). Three items that consistently (within-case and cross-case) scored higher than the mean average per year for the self-efficacy items, included “carrying on with my school work when things go wrong”; “coping with most problems on any school day” and “some negative things that have happened in school have made me better able to deal with problems”. The item “getting over setbacks in school”, also the first item on the scale, consistently scored the lowest per year (within-case) and cross-case (2015–2017). Figure 4.6 represents the descriptive results of the self-efficacy items of pre-service teachers in a visual format.

Figure 4.6

Descriptive Results of the Self-efficacy of Pre-service Teachers



As illustrated by Figure 4.6, in 2016, the mean comparison of the self-efficacy items for pre-service teachers is substantially higher than those reported in 2015 and 2017.

4.4.3 DESCRIPTIVE STATISTICS OF THE TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS IN A CHALLENGED CONTEXT (2015 TO 2017)

Table 4.12 and Figure 4.7 summarise the descriptive statistics on the teacher efficacy beliefs about pre-service from the FIRE Teacher Resilience Measure (questions 123–134). Questionnaire items included:

- "teaching all the subjects on the curriculum effectively";
- "explaining difficult material in ways that the children will understand it";
- "suggesting suitable examples when the children are having difficulty understanding";
- "teaching in a way that my students will remember important information";
- "applying the new developments in the curriculum into my teaching";
- "helping children focus on learning tasks and avoid distractions";
- "managing inappropriate behaviour";
- "encouraging students to take responsibility for their behaviour";
- "dealing with the diverse learning needs of the students in my class";
- "teaching students positive behaviour";
- "providing students with clear specific behaviour expectations" and
- "communicating effectively with parents".

Pre-service teachers indicated their responses on a seven-point Likert scale ranging from one (*absolutely not confident*) to seven *(strongly confident*).

Table 4.12

Descriptive Statistics of Pre-Service Teacher Efficacy Beliefs

Variable	Within-case 2015			Within-case 2016			Within-case 2017			Cross-case 2015–2017		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Teaching all the subjects on the curriculum effectively	310	5.59	1.27	167	5.86	1.01	698	5.64	1.24	1,175	5.66	1.22
Explaining difficult material in ways that the children will understand it	307	5.99	1.14	168	6.05	0.87	693	6.00	0.96	1,168	6.01	0.99
Suggesting suitable examples when the children are having difficulty understanding	310	6.02	1.10	168	6.15	0.86	704	6.02	0.94	1,182	6.04	0.97
Teaching in a way that my students will remember important information	311	6.08	1.09	168	6.26	0.75	703	6.15	0.90	1,182	6.15	0.94
Applying the new developments in the curriculum into my teaching	311	5.68	1.09	168	5.95	0.89	702	5.80	0.91	1,181	5.79	0.96
Helping children focus on learning tasks and avoid distractions	311	5.64	1.06	168	6.04	0.80	702	5.81	0.94	1,181	5.80	0.96
Managing inappropriate behaviour	309	5.67	1.21	167	5.76	1.18	699	5.75	1.03	1,175	5.73	1.10
Encouraging students to take responsibility for their behaviour	309	5.91	1.13	168	6.18	0.82	702	6.01	0.93	1,179	6.01	0.97
Dealing with the diverse learning needs of the students in my class	311	5.86	1.08	167	6.17	0.88	702	5.86	0.98	1,180	5.90	1.00
Teaching students positive behaviour	310	6.16	1.06	165	6.35	0.78	699	6.16	0.92	1,174	6.19	0.95
Providing students with clear specific behaviour expectations	310	5.96	1.12	168	6.20	0.75	706	6.03	0.91	1,184	6.03	0.95
Communicating effectively with parents	311	5.68	1.29	162	5.70	1.30	694	5.42	1.38	1,167	5.53	1.35
Teacher efficacy items average	311	5.86	0.89	168	6.06	0.57	706	5.88	0.70	1,185	5.90	0.74

Note. Scale minimum = 1.00; scale maximum = 7.00. The median value for all questions was = 6.00.

As demonstrated in Table 4.12, the within-case and cross-case mean comparison for the teacher efficacy items also reveals a consistently positive final year pre-service teachers' response. *Pre-service teachers consequently feel confident regarding teaching and behaviour management* given the mean data available for 2015 (5.86); 2016 (6.06); 2017 (5.88), and 2015 to 2017 (5.90). Items that constantly (within-case and cross-case) scored higher than the mean average per year for the teacher efficacy items included “suggesting suitable examples when the children are having difficulty understanding”; “teaching in a way that my students will remember important information”; “encouraging students to take responsibility for their behaviour”; “teaching students positive behaviour” and “providing students with clear specific behaviour expectations”.

The item “teaching students positive behaviour” was also the highest-scoring mean for 2015 (6.16), 2016 (6.35), 2017 (6.16) and 2015 to 2017 (6.19), indicating the possible need for pre-service teachers to teach learners positive behaviour. However, the item with the lowest mean for 2016 (5.70); 2017 (5.42) and 2015 to 2017 (5.53), namely “communicating effectively with parents”, may signify pre-service teachers’ limited experiences and skills in this regard. In 2015, the lowest mean, (5.59), was denoted by the item “teaching all the subjects on the curriculum effectively”, indicating a possible lower teaching efficacy for skills across curriculum subjects. Figure 4.7 graphically represents the descriptive results of the teacher efficacy items of pre-service teachers.

Figure 4.7

Descriptive Results of the Teacher Efficacy Beliefs of Pre-service Teachers

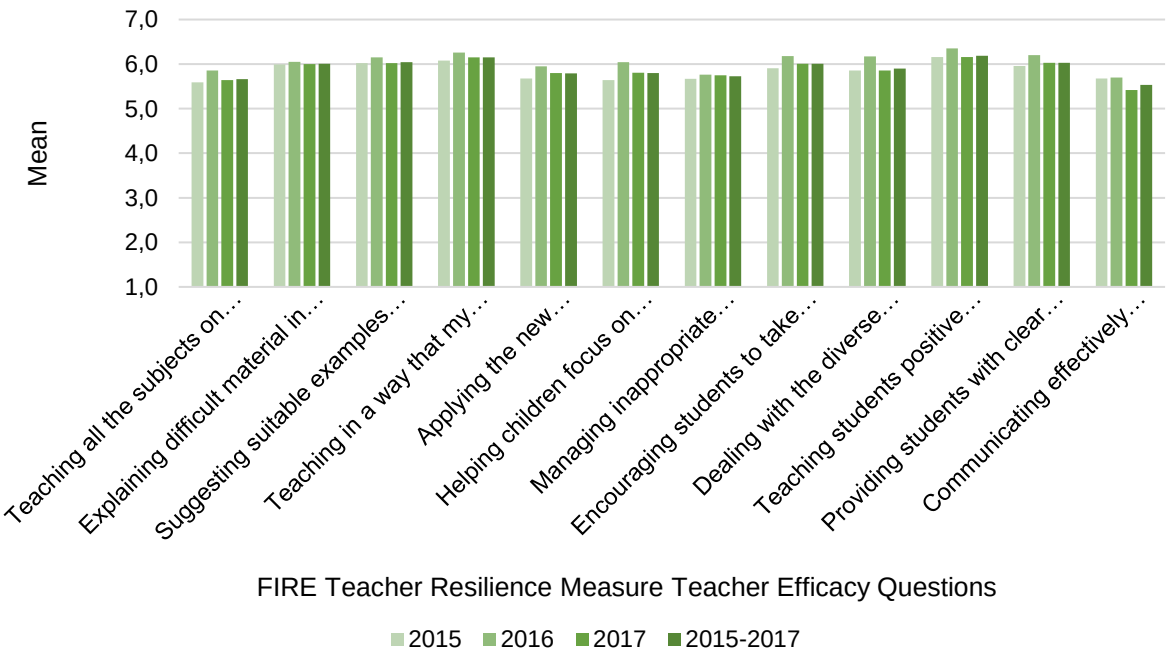


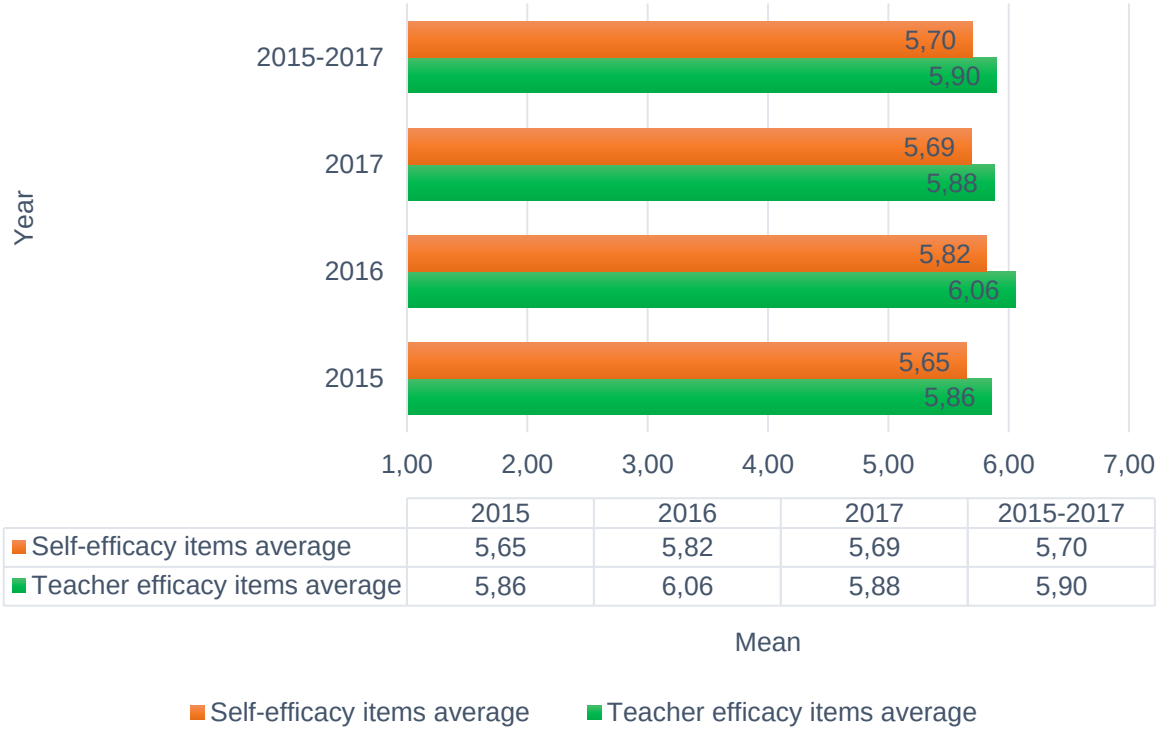
Figure 4.7 elucidates that the mean comparison of the teacher efficacy items for pre-service teachers is higher in 2016 than in 2015 and 2017.

4.4.4 DESCRIPTIVE STATISTICS OF THE SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS IN A CHALLENGED CONTEXT (2015 TO 2017)

This section presents an overview of descriptive statistics of pre-service teachers' self-efficacy, and teacher efficacy beliefs compared within-case and cross-case, as depicted in Figure 4.8.

Figure 4.8

Comparison of the Self-efficacy and Teacher Efficacy Beliefs of Pre-service Teachers



	2015	2016	2017	2015-2017
Self-efficacy items average	5,65	5,82	5,69	5,70
Teacher efficacy items average	5,86	6,06	5,88	5,90

As illustrated in Figure 4.8, the *teacher efficacy is higher than the self-efficacy for pre-service teachers in a challenged context for within-case and cross-case comparison*. Furthermore, 2016 self-efficacy (5.82) and teacher efficacy (6.06) item means are higher than the 2015 and 2017 item means for both constructs (i.e., self-efficacy and teacher efficacy beliefs). However, as previously indicated, the higher means should be cautiously interpreted due to the relatively smaller 2016 sample given the #Fees-Must-Fall2016 movement at South African universities. Thus, overall (within-case and cross-case comparison), the self-efficacy (i.e., confidence in recovery from setbacks) and teacher efficacy (i.e., confidence in teaching and behaviour management), based on the mean values, of final year pre-service teachers in a challenged context is high. Furthermore, pre-service teachers' self-efficacy is slightly lower than the teacher efficacy beliefs of final year pre-service teachers in a challenged setting. See Section 4.5 for the results of inferential statistics indicating the statistical significance for pre-service teachers' self-efficacy and teacher efficacy beliefs (within-case and cross-case comparison).

4.4.5 DESCRIPTIVE RESULTS OF THE SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS BASED ON GENDER AND ENROLLED PRE-SERVICE TEACHING PROGRAMMES: MEAN VALUES FIRE TEACHER RESILIENCE MEASURE

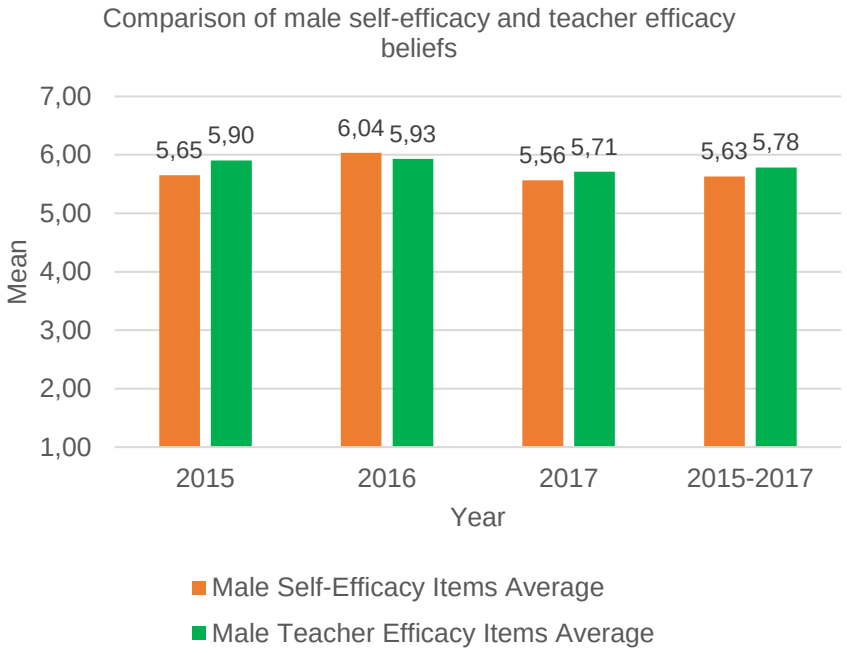
This section presents an integration of descriptive statistics of self-efficacy and teacher efficacy beliefs of final year pre-service teachers based on the mean values of gender (Figure 4.9) and programme enrolment (Figure 4.10).

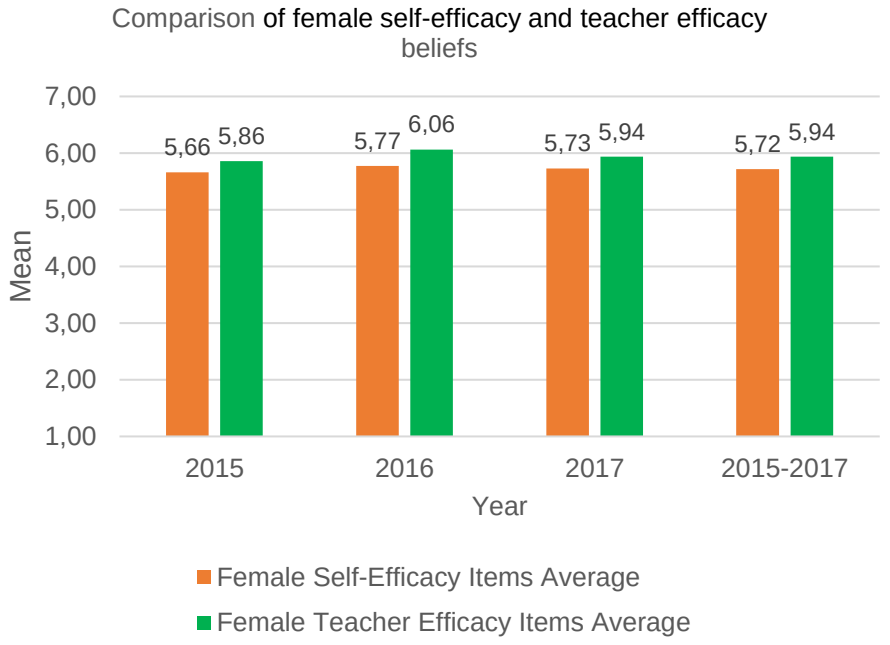
4.4.5.1 Exploring gender differences concerning levels of self-efficacy and teacher efficacy beliefs of pre-service teachers

Figure 4.9 compares the mean values for male and female self-efficacy and teacher efficacy beliefs of final year pre-service teachers with a graphical presentation.

Figure 4.9

Comparison of Pre-service Teachers' Gender (Male and Female) Self-efficacy and Teacher Efficacy Beliefs



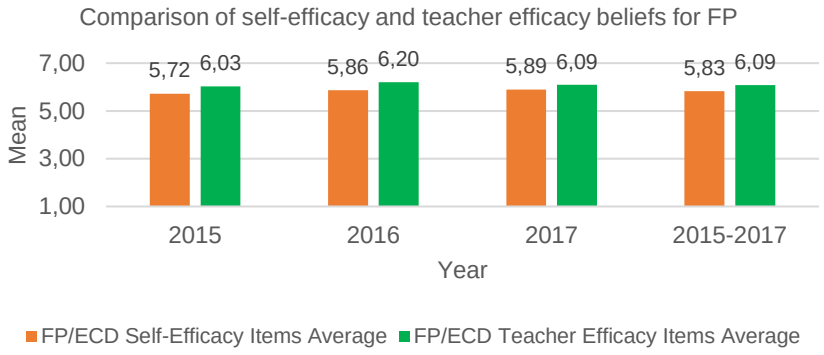


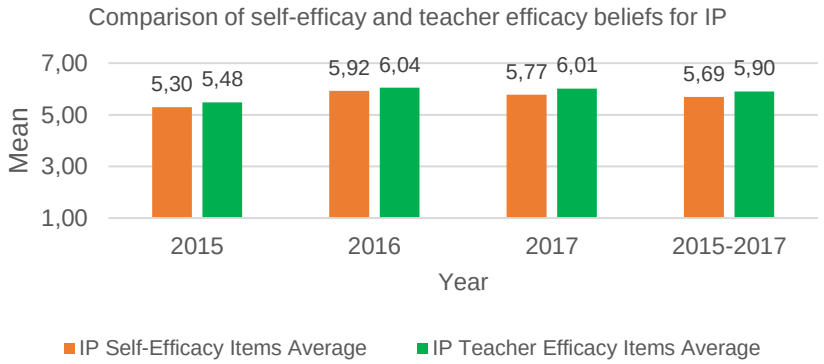
As indicated in Figure 4.9, the mean for teacher efficacy was consistently higher than the mean for self-efficacy for both male and female pre-service teachers, except for 2016, where the mean for self-efficacy (6.04) was higher than teacher efficacy (5.93) for males. The year 2016 also produced the highest mean (6.06) for self-efficacy for female pre-service teachers in comparison with 2015 (5.86) and 2017 (5.94). See Section 4.5 for the results of inferential statistics indicating statistical significance for gender (within-case and cross-case comparison).

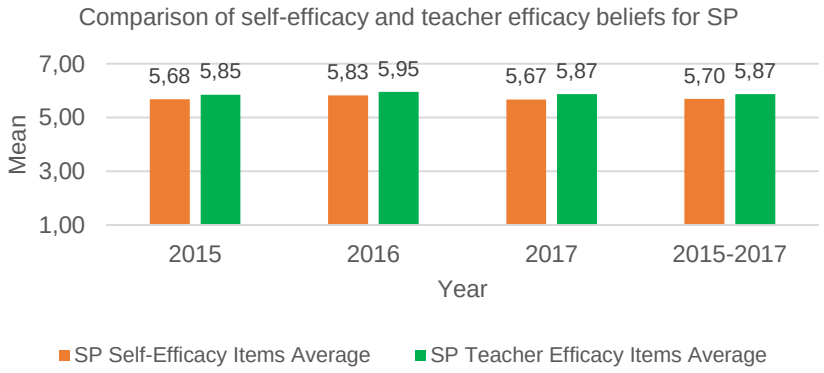
4.4.5.2 Exploring enrolled pre-service teaching programme differences concerning levels of self-efficacy and teacher efficacy beliefs

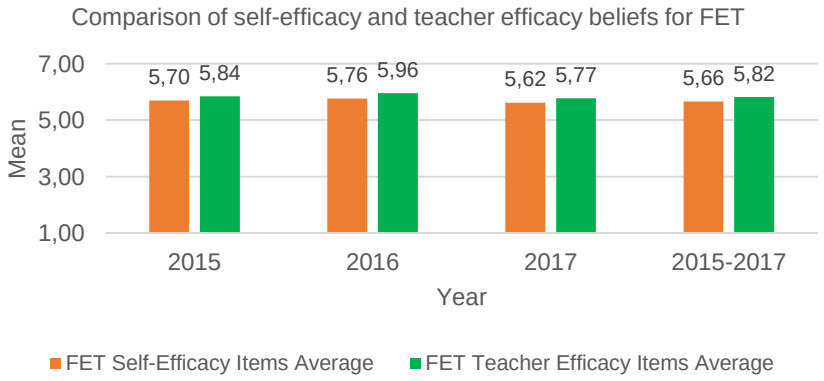
Figure 4.10 provides a visual comparison of the mean values for the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context enrolled in a teaching programme.

Figure 4.10
Comparison of Pre-Service Teachers' Self-Efficacy and Teacher Efficacy Beliefs for Enrolled Teaching Programmes









As illustrated in Figure 4.10, the mean for teacher efficacy was consistently higher than the mean for self-efficacy for all teaching programmes. The mean self-efficacy values for FP/EC 2015 (5.72) and 2017 (5.89) is the highest compared to other enrolled teaching programmes, except for 2016, where the IP has the highest self-efficacy mean (5.92). In addition, the mean teacher efficacy values for the FP/EC rank the highest for all years (see Section 4.5 for the results of inferential statistics indicating statistical significance for enrolled teaching programmes [within-case and cross-case comparison]). Given the confirmation of the reliability analysis (Section 4.3) and the descriptive results (Section 4.4) between the self-efficacy and teacher efficacy of pre-service teachers, inferential statistics were performed on data for further investigation of the relationship between self-efficacy and teacher efficacy beliefs of final year pre-service teachers in a challenged context as presented in the following section.

4.5 INFERENTIAL STATISTICS OF THE SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS WITH A CHALLENGED CONTEXT

4.5.1 INTRODUCTION

In this section, I present the correlation analysis and the results (within-case and cross-case) of the inferential statistics for the FIRE Teacher Resilience Measure to identify potentially significant differences and similarities across possible intrapersonal resilience-enabling pathways concerning the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context. Before conducting inferential statistics, the continuous variables were tested for normality because parametric methods can be used if they are normally distributed. If the continuous variables are not normally distributed, nonparametric methods must be used. Note that the continuous constructs referred to here were created by averaging the items relating to each construct. These continuous variables were tested for normality, and since the p-values of the Kolmogorov-Smirnov and Shapiro-Wilk test, for both constructs, were less than .05 (all p-values < .001), it was found that the continuous variables were not normally distributed and, accordingly, nonparametric statistics had to be used.

The inferences drawn based on the sample data (Pietersen & Maree, 2019d) aimed to address the hypotheses as formulated in Chapter 3. If the p-value is less than .05, the null hypothesis (i.e., H_0: Medians do not differ significantly from each other) is rejected, and the medians differ significantly from each other (i.e., H_a: Medians differ significantly from each other). Alternately, if the p-value is greater than .05, the null hypothesis (H_0) is not rejected, and the medians do not differ significantly from each other.

4.5.2 CORRELATION ANALYSIS BETWEEN THE SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS IN A CHALLENGED CONTEXT

As described in Chapter 3, the correlation between variables indicates that the degree to which the variables are correlated is linearly related (Field, 2018; Roni et al., 2020). To determine if there is a significant correlation between the self-efficacy and teacher efficacy beliefs of pre-service teachers, the Spearman correlation coefficient, denoted by r_s (an appropriate measure of similarity between two ordinal rankings of a single dataset), was employed (Field, 2018; Roni et al., 2020). It should be noted that correlation does not imply causation (Leedy & Ormrod, 2015; Sauro & Lewis, 2016).

Correlation takes on values between (and including) -1 and +1, i.e., $-1 \leq r_s \leq 1$. Thus, the closer the value is to +1, the stronger the positive correlation, and the closer the value is to -1, the stronger the negative correlation (Pietersen & Maree, 2019a). In Table 4.13, the correlation between the averages of the self-efficacy and teacher efficacy belief items of pre-service teacher items from the FIRE Teacher Resilience Measure are displayed.

Table 4.13

Correlation between Self-Efficacy Items Average and Teacher Efficacy Items Average (2015 to 2017)

Variables	Spearman's rho (r_s)	*N*	*p*
Self-efficacy items average and Teacher efficacy items average	.580	1,185	.000

Based on the Spearman correlation coefficient (.580) with *p*-value < .001, *self-efficacy and teacher efficacy* beliefs of pre-service teacher items have a statistically significant positive correlation as depicted in Table 4.13. In Table 4.14, a comprehensive outline is provided depicting the correlation between all self-efficacy and teacher efficacy beliefs of pre-service teachers for the FIRE Teacher Resilience Measure (2015 to 2017).

Table 4.14

Inter-Item Correlation between Self-Efficacy and Teacher Efficacy Beliefs of Pre-Service Teachers Items (2015 to 2017)

Self-efficacy Items (SE)		Teacher Efficacy Items (TE)											
		Teaching all the subjects on the curriculum effectively	Explaining difficult material in ways that the children will understand it	Suggesting suitable examples when the children are having difficulty understanding	Teaching in a way that my students will remember important information	Applying the new developments in the curriculum into my teaching	Helping children focus on learning tasks and avoid distractions	Managing inappropriate behaviour	Encouraging students to take responsibility for their behaviour	Dealing with the diverse learning needs of the students in my class	Teaching students positive behaviour	Providing students with clear specific behaviour expectations	Communicating effectively with parents
Getting over setbacks in school	r_s	.288	.305	.309	.275	.343	.292	.276	.295	.341	.314	.318	.228
	N	1,171	1,164	1,178	1,178	1,177	1,177	1,171	1,175	1,176	1,170	1,180	1,163
Bouncing back. when things upset me	r_s	.215	.310	.270	.238	.262	.273	.250	.299	.296	.288	.268	.171
	N	1,161	1,156	1,169	1,168	1,168	1,167	1,163	1,165	1,167	1,161	1,170	1,153
Carrying on with my school work when things go wrong	r_s	.321	.308	.299	.281	.308	.314	.261	.321	.323	.338	.310	.236
	N	1,168	1,162	1,175	1,174	1,173	1,173	1,168	1,172	1,172	1,166	1,176	1,160
Carrying on in school when events upset me	r_s	.297	.288	.265	.262	.235	.301	.258	.283	.275	.283	.276	.223
	N	1,173	1,166	1,180	1,180	1,179	1,179	1,173	1,177	1,178	1,172	1,182	1,166
Feeling certain that things will come right even if there are serious problems in school	r_s	.248	.289	.258	.262	.266	.307	.242	.295	.286	.294	.295	.227
	N	1,173	1,166	1,180	1,180	1,178	1,178	1,172	1,176	1,177	1,171	1,181	1,165
	r_s	.334	.355	.316	.286	.329	.374	.339	.330	.320	.340	.340	.296

Self-efficacy Items (SE)		Teacher Efficacy Items (TE)											
		Teaching all the subjects on the curriculum effectively	Explaining difficult material in ways that the children will understand it	Suggesting suitable examples when the children are having difficulty understanding	Teaching in a way that my students will remember important information	Applying the new developments in the curriculum into my teaching	Helping children focus on learning tasks and avoid distractions	Managing inappropriate behaviour	Encouraging students to take responsibility for their behaviour	Dealing with the diverse learning needs of the students in my class	Teaching students positive behaviour	Providing students with clear specific behaviour expectations	Communicating effectively with parents
Managing negative events in school when I try	*N*	1,169	1,162	1,176	1,175	1,174	1,175	1,168	1,173	1,173	1,167	1,177	1,160
Coping with most problems on any school day	r_s	.359	.365	.321	.299	.332	.365	.347	.342	.360	.348	.346	.260
	N	1,172	1,164	1,178	1,179	1,177	1,177	1,172	1,174	1,175	1,169	1,179	1,162
Some negative things that have happened in school have made me better able to deal with problems	r_s	.298	.321	.308	.265	.316	.298	.267	.346	.311	.296	.315	.207
	N	1,170	1,164	1,177	1,177	1,175	1,175	1,170	1,173	1,174	1,168	1,178	1,161
Not getting disheartened even when children's circumstances make it difficult	r_s	.331	.352	.320	.308	.371	.352	.288	.340	.326	.311	.308	.285
	N	1,171	1,164	1,178	1,177	1,175	1,175	1,170	1,174	1,174	1,168	1,178	1,161

According to Spearman's correlation coefficients and the corresponding *p*-values ($p < .001$), all items for self-efficacy and teacher efficacy beliefs of pre-service teachers have a significant positive correlation, as Table 4.14 demonstrates. Since there was a significant positive correlation, the null hypothesis, as depicted in Section 3.2.4.2, was rejected. The correlation, as explained in Chapter 3, however, does not imply that one variable causes the other but instead highlights the association between the variables (i.e., self-efficacy and teacher efficacy). The following section elaborates on the statistically significant results obtained for within-case and cross-case analysis of final year-pre-service teachers' self-efficacy and teacher efficacy beliefs.

4.5.3 RESULTS OF THE FIRE TEACHER RESILIENCE MEASURE CASE 1 (2015): SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS (WITHIN-CASE COMPARISON)

4.5.3.1 Summary of the *p*-value for the self-efficacy and teacher efficacy beliefs of pre-service teachers 2015

Table 4.15 presents the results of the Wilcoxon signed-rank (WSR) test (*Z*) performed on within-case data (for the year 2015) to compare the self-efficacy and teacher efficacy beliefs of pre-service teachers. The nonparametric Wilcoxon signed-rank test was used since it is the appropriate statistical test when comparing two related groups for Likert scale data where normality cannot be assumed.

Table 4.15

Summary of the p-value for Self-efficacy and Teacher Efficacy Beliefs (2015)

Pairwise comparison	*Z*	*p*	Significant diff	Conclusion
Self-efficacy vs Teacher efficacy	-6.007	.000	Yes	The median for teacher efficacy of 6.00 is statistically significantly higher than the median of self-efficacy (*Mdn* = 5.78)

As demonstrated in Table 4.15, there was a statistically significant difference (diff) between pre-service teachers' self-efficacy and teacher efficacy beliefs in 2015. The median (5.78) for pre-service teachers' self-efficacy was statistically significantly lower than the median for teacher efficacy beliefs (*Mdn* = 6.00). The Wilcoxon signed-rank test statistics ($z = -6.007$, $p < .001$) indicated that the difference was statistically significant, and therefore, the null hypothesis (i.e., H_0: Medians do not differ significantly from each other) was rejected.

4.5.3.2 Summary of the *p*-values for gender 2015

Table 4.16 presents the results of the Mann-Whitney test conducted on gender (2015) to compare the self-efficacy and teacher efficacy beliefs of male and female pre-service teachers.

The nonparametric statistical procedure (i.e., Mann-Whitney test) was performed on the data (i.e., gender) since it is the appropriate statistical test when comparing two independent groups for Likert scale data (i.e., data that is not normally distributed).

Table 4.16

Summary of the p-values for Gender (2015)

	GENDER										
	Male				Female						
	N	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*U*	*p*	Significant diff
Self-efficacy items average	60	5.78	5.65	0.64	249	5.78	5.66	0.81	7012.00	.460	No
Teacher efficacy items average	60	6.00	5.90	0.60	249	6.00	5.86	0.91	7176.50	.636	No

As indicated in Table 4.16, there were no statistically significant differences between the self-efficacy and teacher efficacy beliefs of pre-service teachers' items for male and female pre-service teachers in 2015.

4.5.3.3 Summary of the *p*-values for enrolled pre-service teaching programmes 2015

Table 4.17 presents the results of the Kruskal-Wallis test conducted on the enrolled pre-service teaching programmes (2015) to compare the self-efficacy and teacher efficacy beliefs of pre-service teachers based on the teaching programme they were enrolled in. The nonparametric Kruskal-Wallis test was performed on the data (i.e., the enrolled pre-service teaching programme data). It is the appropriate statistical test when comparing three or more independent groups for Likert scale data.

Table 4.17

Summary of the p-values for Enrolled Pre-Service Teaching Programmes (2015)

	Foundation phase (FP)/Early childhood development (ECD)				Intermediate phase (IP)				Senior phase (SP)				Further education and training (FET)				Enrolled pre-service teaching programme not specified						
	N	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	KW	*p*	Significant diff
Self-efficacy items average	105	5.78	5.72	0.76	32	5.56	5.30	1.11	30	5.61	5.68	0.60	108	5.89	5.70	0.78	25	5.78	5.60	0.65	6.24	.182	No
Teacher efficacy items average	105	6.17	6.03	0.84	32	5.79	5.48	1.36	30	5.88	5.85	0.83	108	6.00	5.84	0.79	25	6.00	5.89	0.55	10.23	.037	Yes

There was a statistically significant difference for teacher efficacy items for the enrolled pre-service teaching programmes in 2015, for ad-hoc pairwise tests (i.e., Mann-Whitney tests), as indicated in Table 4.17. Table 4.18 also includes the Holm corrections with the indicated adjusted *p*-values. As discussed in Chapter 3, the Holm corrections, as a method of choice, are conducted for multiple comparisons (e.g., the Kruskal-Wallis test) to calculate multiple test adjustments (Aickin & Gensler, 1996).

Table 4.18

Summary of Ad-Hoc Pairwise Test for Enrolled Pre-Service Teaching Programmes (Teacher Efficacy) (2015)

Pairwise comparison	*U*	*p*	Adjusted *p*-value	Conclusion
FP/ECD vs IP	1159.00	.008	.081	Although the unadjusted *p*-value showed a statistically significant difference, the adjusted *p*-value showed no statistically significant difference
IP vs SP	409.00	.316	1.000	No statistically significant difference
SP vs FET	1601.50	.924	1.000	No statistically significant difference
FET vs UP Not specified	1331.00	.913	1.000	No statistically significant difference
FP/ECD vs SP	1318.50	.174	1.000	No statistically significant difference
IP vs FET	1492.00	.241	1.000	No statistically significant difference
SP vs UP Not specified	357.50	.767	1.000	No statistically significant difference
FP/ECD vs FET	4629.0	.020	.180	Although the unadjusted *p*-value showed a statistically significant difference, the adjusted *p*-value showed no statistically significant difference
IP vs Not specified	353.50	.454	1.000	No statistically significant difference
FP/ECD vs Not specified	1011.50	.075	.600	No statistically significant difference

As indicated in Table 4.18, there was no statistically significant difference for teacher efficacy items for the enrolled pre-service teaching programmes in 2015.

4.5.4 RESULTS OF THE FIRE TEACHER RESILIENCE MEASURE CASE 2 (2016): SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS (WITHIN-CASE COMPARISON)

4.5.4.1 Summary of the *p*-value for the self-efficacy and teacher efficacy beliefs of pre-service teachers in 2016

Table 4.19 displays the results of the Wilcoxon signed-rank test used on within-case data (2016) to compare the self-efficacy and teacher efficacy beliefs of pre-service teachers.

Table 4.19

Summary of the p-value for Self-efficacy and Teacher Efficacy Beliefs (2016)

Pairwise comparison	*Z*	*p*	Significant diff	Conclusion
Self-efficacy vs Teacher efficacy	-5.089	.000	Yes	The median for teacher efficacy of 6.08 is statistically significantly higher than the median of self-efficacy (*Mdn* = 5.89)

Table 4.19 indicated that the median in 2016 for pre-service teachers' self-efficacy equalled 5.89, and the median for teacher efficacy beliefs equalled 6.08. From the Wilcoxon signed-rank statistics (Z = -5.089, p < .001), it can be seen that the difference is statistically significant. Therefore, the null hypothesis, as depicted in Section 3.2.4.1, was rejected.

4.5.4.2 Summary of the *p*-values for gender 2016

Table 4.20 presents the results of the Mann-Whitney test conducted on gender in 2016 to compare the self-efficacy and teacher efficacy beliefs of male and female pre-service teachers.

Table 4.20

Summary of the p-values for Gender (2016)

	GENDER										
	Male				Female						
	N	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*U*	*p*	Significant diff
Self-efficacy items average	21	5.89	6.04	0.46	139	5.89	5.77	0.63	1152.50	.120	No
Teacher efficacy items average	21	5.83	5.93	0.55	139	6.08	6.06	0.57	1251.00	.292	No

As highlighted in Table 4.20, there was no statistically significant difference between the self-efficacy and teacher efficacy items for male and female pre-service teachers in 2016.

4.5.4.3 Summary of the *p*-values for enrolled pre-service teaching programmes 2016

Table 4.21 presents the results of the Kruskal-Wallis test conducted to compare the self-efficacy and teacher efficacy beliefs of pre-service teachers based on the enrolled pre-service teaching programmes in 2016.

Table 4.21

Summary of the p-values for Enrolled Pre-Service Teaching Programmes (2016)

	Foundation phase (FP)/ Early childhood development (ECD)				Intermediate phase (IP)				Senior phase (SP)				Further education and training (FET)				Enrolled pre-service teaching programme not specified						
	N	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	KW	*p*	Significant diff
Self-efficacy items average	45	5.89	5.86	0.63	17	6.00	5.92	0.54	14	5.88	5.83	0.52	60	5.78	5.76	0.66	20	5.78	5.68	0.60	2.44	.656	No
Teacher efficacy items average	45	6.17	6.20	0.52	17	6.08	6.04	0.38	14	5.92	5.95	0.56	60	6.00	5.96	0.58	20	6.08	5.96	0.74	4.41	.353	No

As indicated in Table 4.21, there were no statistically significant differences between the self-efficacy and teacher efficacy beliefs of pre-service teachers by teaching programme enrolled in 2016.

4.5.5 RESULTS OF THE FIRE TEACHER RESILIENCE MEASURE CASE 3 (2017): SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS (WITHIN-CASE COMPARISON)

4.5.5.1 Summary of the *p*-value for the self-efficacy and teacher efficacy beliefs of pre-service teachers 2017

Table 4.22 portrays the results of the Wilcoxon signed-rank test conducted to compare the self-efficacy and teacher efficacy beliefs of pre-service teachers in 2017.

Table 4.22

Summary of the p-value for Self-efficacy and Teacher Efficacy Beliefs (2017)

Pairwise comparison	*Z*	*p*	Significant diff	Conclusion
Self-efficacy vs Teacher efficacy	-8.092	.000	Yes	The median for teacher efficacy of 5.92 is statistically significantly higher than the median of self-efficacy (*Mdn* = 5.78)

As indicated in Table 4.22, there was a statistically significant difference between the self-efficacy (*Mdn* = 5.78) and teacher efficacy (*Mdn* = 5.92) beliefs of pre-service teachers within-case comparison during 2017. Based on the Wilcoxon signed-rank test statistics ($Z = -8.092$, $p < .001$), consequently, the null hypothesis, as depicted in Section 3.2.4.1, was rejected.

4.5.5.2 Summary of the *p*-values for gender 2017

Table 4.23 presents the results of the Mann-Whitney test conducted on gender in 2017 to compare the self-efficacy and teacher efficacy beliefs of male and female pre-service teachers.

Table 4.23

Summary of the p-values for Gender (2017)

	GENDER										
	Male				Female						
	N	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*U*	*p*	Significant diff
Self-efficacy items average	141	5.56	5.56	0.76	535	5.78	5.73	0.66	33087.00	.025	Yes
Teacher-efficacy items average	141	5.75	5.71	0.76	535	6.00	5.94	0.66	30969.50	.001	Yes

As indicated in, Table 4.23 the median for females of 5.78 was statistically significantly higher than the median for males of 5.56 for the self-efficacy items in 2017. In addition, the median for females of 6.00 was also statistically significantly higher than the median for males of 5.75 for teacher efficacy items in 2017.

4.5.5.3 Summary of the *p*-values for enrolled pre-service teaching programmes 2017

Table 4.24 presents the results of the Kruskal-Wallis test conducted on enrolled pre-service teaching programmes (2017) to compare the self-efficacy and teacher efficacy beliefs of pre-service teachers based on the teaching programme they were enrolled in.

Table 4.24

Summary of the p-values for Enrolled Pre-Service Teaching Programmes (2017)

	Foundation phase (FP)/ Early childhood development (ECD)				Intermediate phase (IP)				Senior phase (SP)				Further education and training (FET)				Enrolled pre-service teaching programme not specified						
	N	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	KW	*p*	Significant diff
Self-efficacy items average	160	5.89	5.89	0.54	107	5.88	5.77	0.70	56	5.83	5.67	0.73	266	5.67	5.62	0.69	89	5.78	5.49	0.80	18.06	.001	Yes
Teacher efficacy items average	160	6.17	6.09	0.58	107	6.08	6.01	0.70	56	5.95	5.87	0.71	266	5.79	5.77	0.70	89	5.75	5.75	0.72	31.26	.000	Yes

As highlighted in Table 4.24, there was a statistically significant difference between pre-service teachers' self-efficacy and teacher efficacy beliefs' items for enrolled pre-service teaching programmes for 2017. Since there was a statistically significant difference for self-efficacy items for the teaching programme pre-service teachers were enrolled for, an ad-hoc test (i.e., Mann-Whitney tests) was run to test pairwise for enrolled pre-service teaching programmes as indicated in Table 4.25. Table 4.25 also includes the Holm corrections (Aickin & Gensler, 1996) with the indicated adjusted *p*-values.

Table 4.25

Summary of the Ad-hoc Pairwise Test for Enrolled Pre-Service Teaching Programmes (Self-efficacy) (2017)

Pairwise comparison	*U*	*p*	Adjusted *p*-value	Conclusion
FP/ECD vs IP	7963.00	.333	1.000	No statistically significant difference between the medians
IP vs SP	2823.50	.546	1.000	No statistically significant difference between the medians
SP vs FET	6952.00	.433	1.000	No statistically significant difference between the medians
FET vs UP Not specified	10919.00	.273	1.000	No statistically significant difference between the medians
FP/ECD vs SP	3886.00	.139	.834	No statistically significant difference between the medians
IP vs FET	12485.00	.063	.441	No statistically significant difference between the medians
SP vs UP Not specified	2172.00	.193	.965	No statistically significant difference between the medians
FP/ECD vs FET	16762.00	.000	.000	The median for FP/ECD of 5.89 is statistically significantly higher than the median of FET (*Mdn* = 5.67)
IP vs Not specified	3884.50	.026	.208	Although the unadjusted *p*-value showed a statistically significant difference, the adjusted *p*-value showed no statistically significant difference
FP/ECD vs Not specified	5360.00	.001	.009	The median for FP/ECD of 5.89 is statistically significantly higher than the median of Not specified (*Mdn* = 5.78)

As specified in Table 4.25, based on the adjusted *p*-values for the ad-hoc pairwise test for enrolled teaching programme (self-efficacy) (2017), the median for the Foundation phase (FP)/Early childhood development (ECD) of 5.89 was statistically significantly higher than the median for the Further education and training phase of 5.67. In addition, the median for Foundation phase (FP)/Early childhood development (ECD) of 5.89 was statistically significantly higher than the median of Not Specified of 5.78. Furthermore, as demonstrated in Table 4.24, there was also a statistically significant difference for teacher efficacy items for the teaching programme pre-service teachers were enrolled for; ad-hoc tests (i.e., Mann-Whitney tests) was run to test pairwise for UP teaching programme enrolled for as indicated in Table 4.26. Table 4.26 also includes the Holm corrections (Aickin & Gensler, 1996) with the indicated adjusted *p*-values.

Table 4.26

Summary of Ad-hoc Pairwise Test for Enrolled Pre-service Teaching Programmes (Teacher Efficacy) (2017)

Pairwise comparison	*U*	*p*	Adjusted *p*-value	Conclusion
FP/ECD vs IP	8150.00	.507	1.000	No statistically significant difference between the medians
IP vs SP	2648.50	.224	1.000	No statistically significant difference between the medians
SP vs FET	6697.50	.236	1.000	No statistically significant difference between the medians
FET vs Not specified	11479.00	.669	1.000	No statistically significant difference between the medians
FP/ECD vs SP	3760.50	.073	.438	No statistically significant difference between the medians
IP vs FET	11081.00	.001	.008	The median for IP of 6.08 is statistically significantly higher than the median of FET (*Mdn* = 5.79)
SP vs Not specified	2223.50	.275	1.000	No statistically significant difference between the medians
FP/ECD vs FET	15275.00	.000	.000	The median for FP/ECD of 6.17 is statistically significantly higher than the median of FET (*Mdn* = 5.79)
IP vs Not specified	3657.50	.005	.035	The median for IP of 6.08 is statistically significantly higher than the median of Not specified (*Mdn* = 5.75)
FP/ECD vs Not specified	5055.50	.000	.000	The median for FP/ECD of 6.17 is statistically significantly higher than the median of Not specified (*Mdn* = 5.75)

4.5.6 RESULTS OF THE FIRE TEACHER RESILIENCE MEASURE CROSS-CASE COMPARISON (2015 TO 2017): SELF-EFFICACY AND TEACHER EFFICACY BELIEFS OF PRE-SERVICE TEACHERS

4.5.6.1 Summary of the *p*-value for the self-efficacy and teacher efficacy beliefs of pre-service teachers (2015–2017)

Table 4.27 shows the results of the Wilcoxon signed-rank test performed on cross-case data (2015–2017) to compare the self-efficacy and teacher efficacy beliefs of pre-service teachers. A nonparametric statistical procedure (i.e., Wilcoxon signed-rank test) was used since it was the appropriate statistical test when comparing two related groups for Likert scale data where normality cannot be assumed.

Table 4.27

Summary of the p-value for Self-efficacy and Teacher Efficacy Beliefs (2015–2017)

Pairwise comparison	*Z*	*p*	Significant diff	Conclusion
Self-efficacy vs Teacher efficacy	-5.089	.000	Yes	The median for teacher efficacy of 6.00 is statistically significantly higher than the median of self-efficacy (*Mdn* = 5.78)

Table 4.27 demonstrated the difference between the self-efficacy and teacher efficacy beliefs of pre-service teachers' cross-cases (2015–2017). The median for teacher efficacy equalling 6.00 was statistically significantly higher than the median of self-efficacy equalling 5.78. Given the Wilcoxon signed-rank test statistics (Z = -5.089, p < .001), the difference was shown to be statistically significant and, therefore, the null hypothesis, as depicted in Section 3.2.4.1, was rejected.

4.5.6.2 Summary of the *p*-values for gender (2015 to 2017)

Table 4.28 presents the results of the Kruskal-Wallis test conducted for a cross-case analysis between 2015 to 2017 to compare the self-efficacy and teacher efficacy beliefs of male and female pre-service teachers.

Table 4.28

Summary of the p-values for Gender (2015 to 2017)

	2015				2016				2017						
	N	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	KW	*p*	Significant diff
								Male							
Self-Efficacy Items Average	60	5.78	5.65	0.64	21	5.89	6.04	0.46	141	5.56	5.56	0.76	7.83	.020	Yes
Teacher Efficacy Items Average	60	6.00	5.90	0.60	21	5.83	5.93	0.55	141	5.75	5.71	0.76	3.41	.181	No
								Female							
Self-Efficacy Items Average	249	5.78	5.66	0.81	139	5.89	5.77	0.63	535	5.78	5.73	0.66	0.64	.725	No
Teacher Efficacy Items Average	249	6.00	5.86	0.91	139	6.08	6.06	0.57	535	6.00	5.94	0.66	3.18	.204	No

As indicated in Table 4.28, there was no statistically significant difference between the self-efficacy items or teacher efficacy items for female pre-service teachers for 2015 to 2017. Furthermore, there is no statistically significant difference between the teacher efficacy items for male pre-service teachers for 2015 to 2017. However, there was a statistically significant difference between the self-efficacy items for male pre-service teachers for 2015 to 2017. Given the *statistically significant difference for male pre-service teacher self-efficacy items*, an ad-hoc test (i.e., Mann-Whitney test) was run to test pairwise for self-efficacy indicated in Table 4.29. Table 4.29 also includes the Holm correction (Aickin & Gensler, 1996) with the indicated adjusted *p*-values.

Table 4.29

Summary of Ad-hoc Pairwise Test for Male Pre-Service Teacher Self-Efficacy (2015 to 2017)

Pairwise comparison	*U*	*p*	Adjusted *p*-value	Conclusion
2015 vs 2016	415.50	.020	.040	The median of 5.89 for 2016 is statistically significantly higher than the median of 5.78 for 2015
2015 vs 2017	4007.00	.553	.553	No statistically significant difference
2016 vs 2017	929.00	.006	.018	The median of 5.89 for 2016 is statistically significantly higher than the median of 5.56 for 2017

As illustrated in Table 4.29, the median for male self-efficacy in 2016 (5.89) was statistically significantly higher than the median for 2015 (5.78) when comparing 2015 with 2016, while the median for 2016 (5.89) was again statistically significantly higher than the median for 2017 (5.56) when comparing 2016 with 2017. Therefore, the results indicate that 2016 *had a significantly higher median for the self-efficacy of male pre-service teacher*s.

4.5.6.3 Summary of the *p*-values for enrolled pre-service teaching programmes (2015 to 2017)

Table 4.30 presents the results of the Kruskal-Wallis test conducted on enrolled pre-service teaching programmes (2015 to 2017) to compare the self-efficacy and teacher efficacy beliefs of pre-service teachers based on the teaching programme they were enrolled in.

Table 4.30

Summary of the p-values for Enrolled Pre-service Teaching Programmes (2015 to 2017)

	2015				2016				2017						
	N	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	*N*	*Mdn*	*M*	*SD*	KW	*p*	Significant diff
Foundation phase (FP)/Early childhood development (ECD)															
Self-Efficacy Items Average	105	5.78	5.72	0.76	45	5.89	5.86	0.63	160	5.89	5.89	0.54	2.11	.349	No
Teacher Efficacy Items Average	105	6.17	6.03	0.84	45	6.17	6.20	0.52	160	6.17	6.09	0.58	0.82	.663	No
Intermediate phase (IP)															
Self-Efficacy Items Average	32	5.56	5.30	1.11	17	6.00	5.92	0.54	107	5.88	5.77	0.70	7.43	.024	Yes
Teacher Efficacy Items Average	32	5.79	5.48	1.36	17	6.08	6.04	0.38	107	6.08	6.01	0.70	4.52	.105	No
Senior phase (SP)															
Self-Efficacy Items Average	30	5.61	5.68	0.60	14	5.88	5.83	0.52	56	5.83	5.67	0.73	0.23	.891	No
Teacher Efficacy Items Average	30	5.88	5.85	0.83	14	5.92	5.95	0.56	56	5.95	5.87	0.71	0.06	.972	No
Further education and training (FET)															
Self-Efficacy Items Average	108	5.89	5.70	0.78	60	5.78	5.76	0.66	266	5.67	5.62	0.69	2.98	.225	No
Teacher Efficacy Items Average	108	6.00	5.84	0.79	60	6.00	5.96	0.58	266	5.79	5.77	0.70	4.19	.123	No
Enrolled pre-service teaching programme not specified															
Self-Efficacy Items Average	25	5.78	5.60	0.65	20	5.78	5.68	0.60	89	5.78	5.49	0.80	0.55	.759	No
Teacher Efficacy Items Average	25	6.00	5.89	0.55	20	6.08	5.96	0.74	89	5.75	5.75	0.72	2.22	.329	No

Table 4.30 indicates that there was *only a statistically significant difference between the self-efficacy items of pre-service teachers for the Intermediate phase* (IP) for 2015 to 2017. Since there was a statistically significant difference for the self-efficacy items for the IP teaching programme enrolled for, an ad-hoc test (i.e., Mann-Whitney tests) was run to test pairwise for the IP phase as indicated in Table 4.31. Table 4.31 also includes the Holm correction (Aickin & Gensler, 1996) with the indicated adjusted *p*-values.

Table 4.31

Summary of Ad-hoc Pairwise Test for Intermediate Phase (IP) Self-Efficacy of Pre-Service Teachers

Pairwise comparison	*U*	*p*	Adjusted *p*-value	Conclusion
2015 vs 2016	150.00	.010	.030	The median of 6.00 for 2016 is statistically significantly higher than the median of 5.56 for 2015
2015 vs 2017	1251.00	.021	.042	The median of 5.88 for 2017 is statistically significantly higher than the median of 5.56 for 2015
2016 vs 2017	791.50	.390	.390	No statistically significant difference

As depicted in Table 4.31, the median for IP self-efficacy in 2016 (6.00) was statistically significantly higher than the median for 2015 (5.56) when comparing 2015 vs 2016, while the median for 2017 (5.88) was statistically significantly higher than the median for 2015 (5.56) when comparing 2015 vs 2017. Therefore, the results in Table 4.31 implied that pre-service teachers in the IP phase had a significantly lower median for self-efficacy in 2015.

4.6 CONCLUSION

In Chapter 4, I presented the results of the current study based on a statistical analysis of the data given the establishment of reliability and validity of the extant data available. I relied on the scores obtained from descriptive statistics and the Wilcoxon signed-rank test (i.e., comparison of self-efficacy and teacher efficacy beliefs), the Mann-Whitney tests (i.e., comparisons of gender) and the Kruskal-Wallis tests (i.e., comparison of pre-service teaching programme), to provide insight into the self-efficacy (i.e., confidence in recovery from setbacks) and teacher efficacy beliefs (i.e., confidence in teaching and behaviour management) of pre-service teachers within a challenged context.

I represented the within-case and cross-case results graphically and discussed the representations based on the main results. Below the main results in this chapter are listed:

- high self-efficacy (i.e., recovery from setbacks) and teacher efficacy beliefs (i.e., confidence in teaching and behaviour management) for pre-service teachers in a

challenged context, with teacher efficacy beliefs significantly higher (in-case and cross-case) than self-efficacy;

- female pre-service teachers' self-efficacy and teacher efficacy beliefs for Case 3 (2017) was significantly higher than male pre-service teacher self-efficacy and teacher efficacy beliefs, while male pre-service teachers' cross-case comparison demonstrated significantly higher self-efficacy during Case 2 (2016) compared to Case 1 (2015) and Case 3 (2017);
- pre-service teachers in the Foundation phase (FP)/Early childhood development (ECD) demonstrated significantly higher self-efficacy than the Further education and training (FET) pre-service teachers; Foundation phase (FP)/Early childhood development (ECD) and Intermediate phase (IP) pre-service teachers demonstrated significantly higher teacher efficacy beliefs than the Further education and training (FET) pre-service teachers (in-case comparison); Intermediate phase (IP) pre-service teachers demonstrated a significant lower self-efficacy in 2015.
- a significant positive correlation between the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context highlighting the possible interrelated relationship between the constructs.

In the final chapter, I revisit existing literature, as discussed in Chapter 2, to interpret the results given the chosen theoretical framework and determine findings to address research questions. Furthermore, I highlight the current study's potential contribution to the teacher resilience knowledge base and reflect on the current study's limitations. Finally, I craft recommendations for future research, training and development, and practice of pre-service teachers and well-being agendas for educational policy.

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Chapter 5
Findings, Conclusions and Recommendations

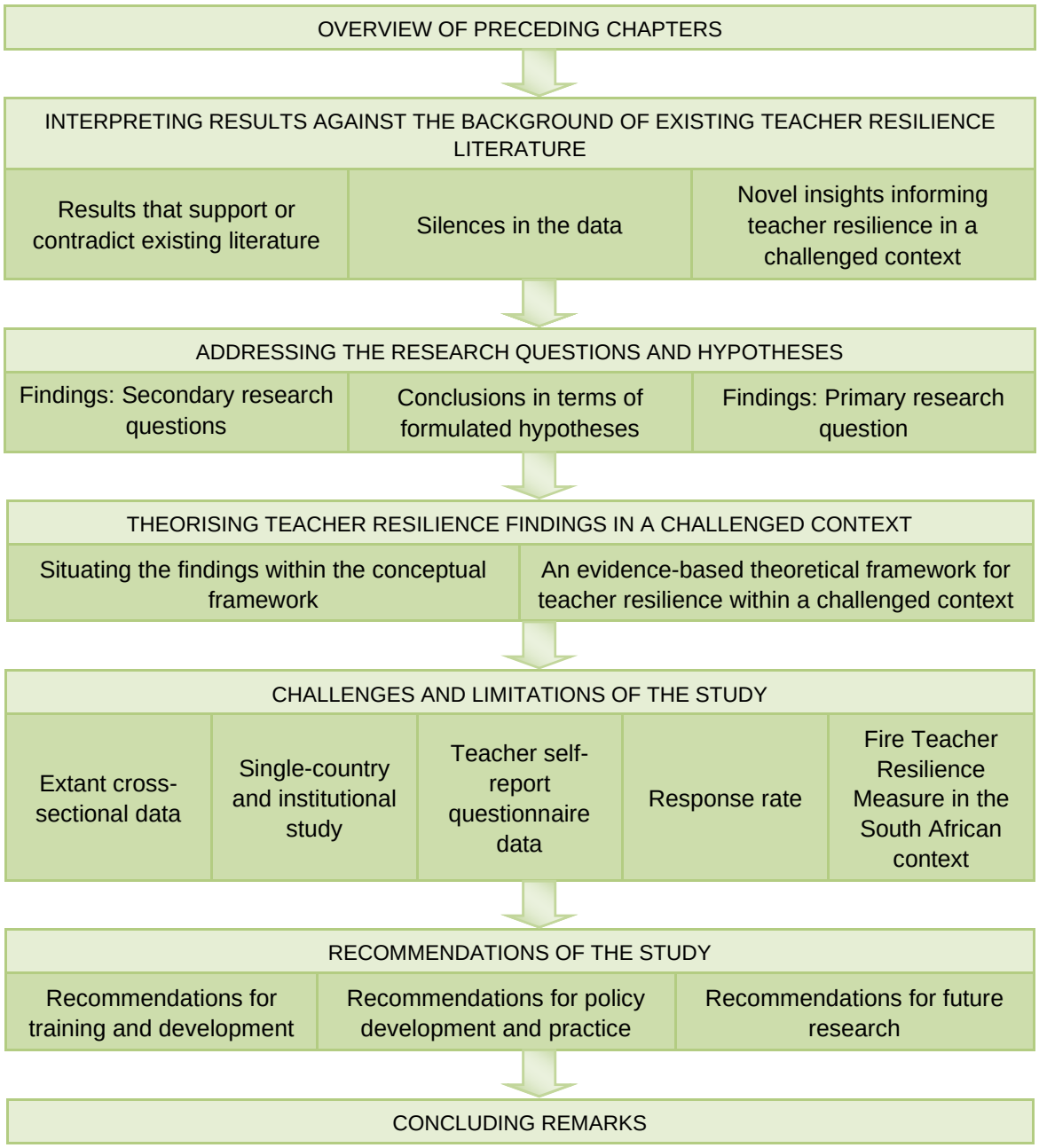
5.1 INTRODUCTION

Through a post-positivist lens, the current quantitative study aimed to inform knowledge on teacher resilience in a challenged context by comparing the self-efficacy and teacher efficacy beliefs of final year pre-service teachers. To this end, the previous chapter presented the results of the within-case and cross-case secondary analysis of the FIRE teacher resilience data.

In this final chapter of the thesis, I interpret the results against the background of existing literature. In addition, I present conclusions by addressing the primary and secondary research questions and the hypotheses that guided the current study. Next, I revisit the conceptual framework, as discussed in Chapter 2, and highlight insights into teacher resilience related to pre-service teachers in a challenged context, in relation to the findings. I then reflect on the challenges of the current study. Finally, I propose suggestions for training and development, policy development and practice, and future research on teacher resilience in a challenged context. Figure 5.1 presents a flow chart showing the organisational overview of Chapter 5, after which I commence the chapter by providing an overview of what has been presented in this thesis.

Figure 5.1

Flow Chart Showing the Organisation of Chapter 5



5.2 OVERVIEW OF THE PRECEDING CHAPTERS

5.2.1 INTRODUCTION

In Section 5.2, I provide an overview of what has been presented in the current study. The overview aims to provide a synopsis of the preceding chapters.

5.2.2 CHAPTER 1: INTRODUCTION AND OVERVIEW OF THE STUDY

The introduction to this study contained the background, rationale and the purpose for the current study titled, "*Pre-service teacher self-efficacy and teacher efficacy in a challenged education context*". Chapter 1, furthermore, introduced the formulated research questions and hypotheses which guided the current study. Subsequently, I clarified key concepts and presented the theoretical framework (i.e., Social Cognitive Theory). I also briefly described the paradigmatic perspectives and the methodological choices incorporated, standards or rigour employed and provided an overview of ethical considerations. An outline of the thesis chapters and results obtained concluded Chapter 1.

5.2.3 CHAPTER 2: LITERATURE REVIEW

Limited research is available on *quantitative methodology research* for *pre-service teacher resilience* in a challenged context given a Global South discourse. Therefore, in Chapter 2, I discussed the existing literature consulted, focusing on resilience, teacher resilience, self-efficacy, teacher efficacy, teacher education and pre-service teachers within a challenged setting given that teacher resilience, as a scholarly domain, is an emerging field with limited empirical research on resilience in teachers. Therefore, this study aimed to generate knowledge by quantitatively comparing pre-service teachers' self-efficacy and teacher efficacy beliefs in a severely challenged context to inform the teacher resilience field in a Global South space. I concluded Chapter 2 by explaining the conceptual framework employed in the current study.

5.2.4 CHAPTER 3: RESEARCH DESIGN, METHODOLOGY AND STRATEGIES

In Chapter 3, I described the empirical investigation I conducted. I discussed and justified my decisions to take a post-positivist, quantitative research stance and utilise a comparative case study design given extant data within the teacher resilience context. Throughout, I related my choices to the research questions, hypotheses and purpose of the current study. Subsequently, I included a description of data selection based on the availability of extant data obtained from the FIRE Research Project. For data analysis, I specifically focused on explaining which descriptive and inferential statistical procedures were performed on extant data obtained from the FIRE Teacher Resilience Measure. I concluded the chapter by considering the standards of rigour employed and ethical considerations I adhered to for quality assurance.

5.2.5 CHAPTER 4: RESEARCH RESULTS OF THE STUDY

In Chapter 4, I posed the results I obtained as background to the discussion in this chapter. The statistical results derived from quantitative secondary data analysis were presented and explained for the purpose of this study. Descriptive and inferential statistics were employed to compare final year pre-service teachers' self-efficacy and teacher efficacy beliefs in a challenged context. The results serve as background to the findings and conclusions put forward in this chapter against the framework of existing literature and the conceptual framework that guided the investigation.

5.3 INTERPRETING RESULTS AGAINST THE BACKGROUND OF EXISTING TEACHER RESILIENCE LITERATURE

5.3.1 INTRODUCTION

Section 5.3 focuses on a discussion of the results derived from the current study compared to existing literature and previous related studies in the education research field. Therefore, the section reflects on the results, as reported in Chapter 4, to provide findings. I discuss the implications of the results in terms of supporting or contracting existing literature. I also attempt to highlight silences in the data and present possible novel insights based on the results. Even though I presented the results, based on the secondary data analysis obtained from the FIRE Teacher Resilience Measure in Chapter 4, I reflect on the findings in this chapter to provide a comprehensive description.

5.3.2 RESULTS THAT SUPPORT OR CONTRADICT EXISTING LITERATURE

5.3.2.1 The self-efficacy and teacher efficacy beliefs of pre-service teachers

The current study found that the high indication (within-case and cross-case) of pre-service teachers' self-efficacy and teacher efficacy beliefs contribute to their teacher resilience in a challenged context. Final year pre-service teachers in the current study were thus able to employ specific internal traits as a protective resource. Other studies similarly found that confidence in recovery from setbacks in Australia and Europe (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) and confidence in teaching and behaviour management (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) were needed for teacher resilience.

Yokus (2015) likewise found that resilient traits of pre-service teachers were high in Turkey while Ee and Chang (2010) noted that pre-service teachers were not adequality prepared to deal with inevitable setbacks in Singapore. In addition, supporting findings of previous research in a challenged context (Bosch, 2020; Coetzee et al., 2017; Ebersöhn,

2014; Ebersöhn et al., 2020; Mansfield et al., 2018) indicated that teachers seem able to identify, mobilise and navigate intrapersonal resilience-enabling pathways (i.e., protective traits such as self-efficacy and teacher efficacy) to resile despite severe adversity and an unstable education system.

The confidence in recovery from setbacks, pre-service teachers reported in the current study (within-case and cross-case), is supported by literature (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) in Australia and Europe. The current study (within-case and cross-case) also denoted the presence of teacher efficacy beliefs as an important protective factor for teacher resilience supporting previous teacher resilience research in high-income countries (Beltman et al., 2011, 2018; Day & Gu, 2013; Gu & Day, 2007; Peixoto et al., 2018; Pendergast et al., 2011; Price et al., 2012; Sammons et al., 2007; Yada et al., 2021) and also in lower-income contexts (Bosch, 2020; Ebersöhn et al., 2020; Gu & Li, 2013; Hong, 2012; Mansfield et al., 2018).

Beltman et al. (2018) found that pre-service teachers in Australia reported similar levels of confidence in recovery from setbacks and confidence in teaching and behaviour management. On the other hand, Peixoto et al. (2018) indicated relatively higher confidence in recovery from setbacks than confidence in teaching and behaviour management of pre-service teachers in Germany, Ireland, Malta and Portugal. In the current study, the teacher efficacy of pre-service teachers is significantly higher (within-case and cross-case) than pre-service teachers' self-efficacy in a challenged context. Therefore, final year pre-service teachers are relatively more confident in teaching and behaviour management than in dealing with setbacks in schools.

The current study consequently provides novel data on the presence of significantly higher teacher efficacy for pre-service teachers in a challenged context, as discussed in Section 5.3.4. The significant result in the current study is supported by previous literature indicating the significance of teacher efficacy for pre-service teachers' confidence in recovery from setbacks in high-income countries (Morgan, 2011; Peixoto et al., 2018).

5.3.2.2 Gender differences between the self-efficacy and teacher efficacy beliefs of pre-service teachers

The current study (within-case and cross-case) reported high self-efficacy and teacher efficacy for gender (i.e., male and female pre-service teachers in a challenged context) supporting earlier studies in Australia and Europe (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018; Wosnitza et al., 2018). Case 1, Case 2 and cross-case comparison found no statistically significant difference for the recovery from setbacks for gender. These results support previous pre-service teachers' research in Australia (Beltman et al., 2018; Fischer et al., 2018) and Turkey (Çelik et al., 2018), indicating the resilient traits for male

and female teachers did not differ significantly. On the other hand, the current study (Case 3) found that female pre-service teachers' confidence in recovery from setbacks was significantly higher than males, corresponding with findings from another study in Turkey (Yokus, 2015). Male self-efficacy (cross-case comparison) was significantly higher in 2016 (Case 1) compared to 2015 (Case 1) and 2017 (Case 3). Pre-service male teachers' confidence in recovery from setbacks was highest during extreme systemic disruptions such as the #Fees-Must-Fall movement in a challenged context. Literature (Ee & Chang; 2010; Hartman et al., 2009; Pareek & Rathore, 2016; Peglar & Reker, 2008; Petersen, 2014; Yokus, 2015) substantiate that protective factors enabling resilience may vary across gender.

As with self-efficacy, teacher efficacy beliefs for pre-service teachers indicated no statistically significant difference for Case 1, Case 2 and cross-case comparison for gender. These results are consistent with literature for a challenged context (Murshidi et al., 2006; Ngidi & Ngidi, 2019) and are also highlighted in high-income contexts (Beltman et al., 2018; Klassen & Durksen, 2014; O'Neill & Stephenson, 2012b; Pfitzner-Eden, 2016a; Tschannen-Moran & Woolfolk Hoy, 2007) implying that gender does not influence the teacher efficacy of pre-service teachers. Contradictory, the current study (Case 3) reported a significantly higher teacher efficacy for female teachers compared to their male counterparts for Case 3. Özdemir (2008) and Üstüner (2017) also reported higher teacher efficacy beliefs for female pre-service teachers compared to male pre-service teachers in Turkey.

5.3.2.3 Enrolled pre-service teacher programme differences between the self-efficacy and teacher efficacy beliefs of pre-service teachers

The current study (within-case and cross-case) reported high self-efficacy and teacher efficacy for all enrolled pre-service teacher programmes (i.e., FP/ECD, IP, SP and FET) which support existing literature in privileged settings (Beltman et al., 2018; Brown et al., 2015; Moulding et al., 2014; O'Neill & Stephenson, 2012b; Peixoto et al., 2020; Woolfolk Hoy & Spero, 2005). Pre-service teachers' confidence in recovery from setbacks, however, was significantly higher for primary in comparison to secondary pre-service teachers for Case 3 verifying results from previous studies in developed (Bouillet et al., 2014; Perlman & Pearson, 2012) and developing countries (Kavita & Hassan, 2018) on teacher resilience differences between teachers at the primary and secondary level.

Although the teacher efficacy for all enrolled pre-service teacher programmes was high, the primary pre-service teachers' teacher efficacy was significantly higher than the secondary teacher efficacy for Case 3. The significant result is in agreement with Woodcock (2011) reporting significantly lower teacher efficacy beliefs for secondary pre-

service teachers in comparison with their primary counterparts in Australia. In addition, although Pendergast et al. (2011) obtained no statistically significant difference between primary and secondary levels in Australia, the mean for pre-service primary teacher efficacy was highest.

5.3.2.4 The relationship between the self-efficacy and teacher efficacy beliefs of pre-service teachers

The current study found a statistically significant correlation between self-efficacy and teacher efficacy for pre-service teachers in a challenged context. Similar results have been noted for the relationship in countries such as Australia, Germany, Ireland, Malta and Portugal in studies with pre-service teachers while employing the scales utilised in the current study (Morgan, 2011; Peixoto et al., 2018).

These results indicated that teacher efficacy is a main predictor of teachers' confidence in recovery from setbacks. In Ireland and Germany, teacher efficacy was the strongest significant predictor for teacher recovery from setbacks (Peixoto et al., 2018). Additional literature from high-income countries (Beltman et al., 2018; Ee & Chang, 2010; Gu & Day, 2013; Klassen et al., 2011; Peixoto et al., 2018, 2020; Pendergast et al., 2011; Thieman et al., 2014; Wosnitza et al., 2018) also highlighted the association between the internal enablers for pre-service teacher resilience.

5.3.3 SILENCES IN THE DATA

Some silences were evident in the data of the current study. As indicated in Chapter 2, current literature emphasises that resilience is not regarded as a stable or singular individual capacity alone, but as a dynamic, interactive process across and between systems that are successfully adapting to risk (Gu, 2014; Masten, 2018). Resilience is thus depicted as adaptation enabling individuals to respond stoutly to risk leading to developmental outcomes, despite monumental threats to adaptation in the system (Masten, 2001, 2011, 2014, 2018). Accordingly, resilience as a complex process acknowledges that enabling and constraining resources will vary contextually over time across an individual's life (Fletcher & Sarkar, 2013; Masten & Reed, 2005; Masten & Wright, 2010; Vanderbilt-Adriance & Shaw, 2008). The personal capacity to cope with a supportive environment; thus, a dynamic interrelationship within a social system, facilitate the ability to flourish collectively despite adversity (Ebersöhn, 2012; Ungar, 2010, 2011). A resilient disposition tends to be informed by intrapersonal resources and socio-ecological interaction with risk and protective (present or absent) mechanisms (Ungar, 2010; Ungar et al., 2013).

Regardless of the context, social ecologies may serve as protection even when assets are sparse, perhaps leading to non-normative or atypical nuanced pathways (i.e., unexpected positive outcomes) to resilience (Ungar, 2011). Previous literature on the influence of, for example, learner achievement (Caprara et al., 2006; Moulding et al., 2014; Tschannen-Moran & Johnson, 2011) and socioeconomic status or social background on pre-service teachers (Morgan, 2011; Moulding et al., 2014) was also not found in the results of the current study.

The current study did not present results on the exploration of systemic and contextual factors enabling or constraining resilience for pre-service teachers. Therefore, the current study could not contribute to teacher resilience knowledge by describing contextual resources. Furthermore, due to the cross-sectional nature of extant data available, any developmental trajectory regarding pre-service teachers' self-efficacy or teacher efficacy enabling teacher resilience in a challenged context was not evident in the results. Scholars (Brown et al., 2015; Clark, 2020; Klassen & Durksen, 2014; Mergler & Tangen, 2010; Pfitzner-Eden, 2016a; Swan et al., 2011) have noted differentiated developmental trajectories for pre-service teachers during initial teacher education as well as during the first year of teaching. Therefore, further research for development trajectories relating to teacher resilience is needed in a challenged context (see Section 5.7).

5.3.4 NOVEL INSIGHTS INFORMING TEACHER RESILIENCE IN A CHALLENGED CONTEXT

Section 5.3.4 discusses novel insights based on results obtained from this study. The results of the current study provided novel insights into the self-efficacy and teacher efficacy beliefs of pre-service teachers related to teacher resilience in a challenged context.

The measure utilised within the current study (i.e., FIRE Teacher Resilience Measure) has been employed in countries such as Australia (Beltman et al., 2018), the Czech Republic (Wosnitza et al., 2018), Germany (Peixoto et al., 2018; Wosnitza et al., 2018), Ireland (Morgan, 2011; Peixoto et al., 2018; Wosnitza et al., 2018), Malta (Peixoto et al., 2018; Wosnitza et al., 2018) and Portugal (Peixoto et al., 2018, 2020; Wosnitza et al., 2018). Ebersöhn et al. (2020) found that teachers in South Africa demonstrated confidence in recovery from setbacks and, teaching and behaviour management in a challenged context. However, up to date, the FIRE Teacher Resilience Measure has not been used with pre-service teachers in a Global South place such as South Africa on a large scale. Research within a Global South challenged education space, such as South Africa, thus provided a much-needed lens outside developed countries by delivering evidence on the use of existing teacher resilience scales and yielding comparative results for future studies.

The presence of intrapersonal resilience-enabling pathways such as self-efficacy and teacher efficacy in a challenged context, therefore, inform knowledge in the Global South of how teachers resile in the profession despite chronic and cumulative risk factors. The current study's results also found that the teacher efficacy of final year pre-service teachers in a challenged context is significantly higher than their self-efficacy. Thus, pre-service teachers feel more confident in their teaching and behaviour management than in their recovery from setbacks in schools. In addition, the description of final year pre-service teachers' confidence in recovery from setbacks in schools and confidence in teaching and behaviour management provided insights into the current self-perceived professional status of pre-service teachers in a challenged context. Although literature (Pendergast et al., 2011) indicated the pre-service teachers are prone to overestimate their abilities, it is crucial to explore the beliefs of beginning teachers entering the profession (Caprara et al., 2006; Tschannen-Moran & Woolfolk Hoy, 2007).

The varied results on gender differences in the current study may indicate that further research is needed regarding protective factors fostering resilience for male and female pre-service teachers in a challenged context.

Limited research is also available about significant differences for enrolled teaching programmes (i.e., FP/ECD, IP, SP and FET) for pre-service teachers during initial teacher training. Although literature (Kavita & Hassan, 2018; OECD, 2018; Perlman & Pearson, 2012) underlines differences between primary and secondary school teachers, the current study provided novel insight regarding the significant difference between pre-service teacher self-efficacy and teacher efficacy that is lower for secondary school pre-service teachers in a challenged context. The significant differences may highlight the need for differentiated teacher policy settings to effectively address specific challenges and needs of primary and secondary school teachers (OECD, 2018) in spaces of high adversity.

The result provides important insights to guide the development of teacher education training to respond adequately to the development of pre-service teachers in a challenged context. The identification and presence of intrapersonal resilience-enabling pathways (i.e., self-efficacy and teacher efficacy beliefs) can be further developed during initial teacher education programmes. Therefore, the results may guide international teacher training for developing countries.

The current study also contributed to teacher resilience knowledge by establishing the reliability and validity of the Teacher Resilience scale and Teacher Efficacy scale, of the FIRE Teacher Resilience Measure, for pre-service teachers in a challenged context. The results provide an opportunity to improve or amend the questionnaire to render it better suited to a South African context, as discussed in Section 5.7.4.4.

Both male and female self-efficacy and teacher efficacy scored higher during 2016 (Case 2). During 2016 the #Fees-Must-Fall movement disrupted activities at the University

of Pretoria. Since 2016 denoted the smallest sample size, caution should be taken when interpreting results. Nonetheless, the higher self-efficacy and teacher efficacy during this time, although not significant, may indicate how pre-service teachers positively respond and adapt to high risk. In addition, this positive response may also be indicative of a system (including HEI and staff) that rallied to provide additional support to students (including pre-service teachers) during adversity. Finally, novel insights are proposed as an evidence-based theoretical framework for teacher resilience within a challenged context, as discussed in Section 5.5.

5.4 ADDRESSING THE RESEARCH QUESTIONS AND HYPOTHESES

5.4.1 INTRODUCTION

In this section, I address the research questions and hypotheses posed for the current study. Creswell and Creswell (2018, p. 220) stated that “an interpretation in quantitative research means that the researcher draws conclusions from the results for the research questions, hypotheses, and the larger meaning of the results”. Therefore, the secondary research questions are addressed and conclusions drawn in terms of the formulated hypotheses I set out to test. These conclusions are followed by a discussion of the primary research question based on the findings I obtained before linking the results to the conceptual framework that guided me in undertaking the current study (see Section 5.5).

5.4.2 FINDINGS: SECONDARY RESEARCH QUESTIONS AND HYPOTHESES

In the following sections, I revisit the secondary research questions and related hypotheses. In this process, I attempt to draw conclusions, which in turn, addresses the primary research question.

5.4.2.1 Findings based on the comparison of self-efficacy and teacher efficacy beliefs of final year pre-service teachers

Secondary research question 1

How do self-efficacy and teacher efficacy beliefs of final year pre-service teachers within a challenged education context (within-case and cross-case) compare?

To compare the self-efficacy and teacher efficacy beliefs of pre-service teachers within a challenged context, descriptive and inferential statistics for each of the scales (i.e., Teacher Resilience scale [Morgan, 2011] and Teacher Efficacy scale [Morgan, 2011; Peixoto et al., 2018]) from the FIRE Teacher Resilience Measure were calculated.

Final year pre-service teachers *consistently demonstrate high self-efficacy and teacher efficacy beliefs* for within-case (Case 1 [2015], Case 2 [2016] and Case 3 [2017]) and cross-case (2015–2017). The results indicated that final year pre-service teachers, within a challenged context, are confident of their recovery from setbacks in schools (i.e., operationalised as self-efficacy in the current study) and feel confident in their teaching and behaviour management (i.e., operationalised as teacher efficacy beliefs in this study). Ee and Chang (2010) found that pre-service teachers did not feel sufficiently equipped to deal with inevitable setbacks in Singapore. While other high-income country findings (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) confirm the current results indicating high resilience traits in pre-service teachers. This result was also found in studies given a challenged context (Bosch, 2020; Coetzee et al., 2017; Ebersöhn, 2014; Ebersöhn et al., 2020; Mansfield et al., 2018; Yokus, 2015).

The formulated statistical hypotheses of the population difference for the current study included:

- H_0: $\text{Median}_{dif} = 0$ (median population difference between self-efficacy and teacher efficacy beliefs [within-case and cross-case] does not differ significantly from zero).
- H_a: $\text{Median}_{dif} \neq 0$ (median population difference between self-efficacy and teacher efficacy beliefs [within-case and cross-case] differs significantly from zero).

Table 5.1 presents an overview of the statistical hypotheses related to assumptions based on the population difference between the self-efficacy and teacher efficacy of pre-service teachers in a challenged context based on the hypothesis testing performed on data.

Table 5.1

Overview of the Statistical Hypotheses Related to Assumptions Based on the Population Differences Between the Self-Efficacy and Teacher Efficacy of Pre-Service Teachers

	Year	Significant difference between Self-Efficacy and Teacher Efficacy of pre-service teachers	H_0 vs H_a
Within-case	2015 (N = 313)	Yes: Teacher efficacy beliefs are significantly higher than self-efficacy	H_0 is rejected
	2016 (N = 169)	Yes: Teacher efficacy beliefs are significantly higher than self-efficacy	H_0 is rejected
	2017 (N = 711)	Yes: Teacher efficacy beliefs are significantly higher than self-efficacy	H_0 is rejected
Cross-case	2015–2017 (N = 1,193)	Yes: Teacher efficacy beliefs are significantly higher than self-efficacy	H_0 is rejected

As indicated in Table 5.1, the findings showed a significant difference between pre-service teachers' self-efficacy and teacher efficacy beliefs (within-case and cross-case) in a challenged context. *Teacher efficacy beliefs*, of final year pre-service teachers, were *significantly higher* than pre-service teachers' *self-efficacy when evaluating within-case and cross-case results*. Pre-service teachers in a challenged context may thus feel more confident in teaching and behaviour management (teacher efficacy) than in recovery from setbacks in schools (self-efficacy) which is supported by previous studies in Ireland and Europe (Morgan, 2011; Peixoto et al., 2018).

5.4.2.2 Findings based on the demographic information of pre-service teachers' self-efficacy and teacher efficacy beliefs

Secondary research question 2

What are the self-efficacy and teacher efficacy beliefs of pre-service teachers within a challenged education context based on demographic information (within-case and cross-case)?

For all biographical variables[58], descriptive statistics such as means, medians, standard deviations, frequencies and percentages were computed (see Chapter 4). Inferential statistics were performed for all biographical variables except for age and language. For a detailed discussion on the exclusion of age and language, see Section 4.2.3 and Section 4.2.5, respectively. Therefore, to address the second research question, descriptive and inferential statistics for each of the scales were calculated for gender (i.e., male and female) and enrolled pre-service teaching programmes (i.e., FP/ECD, IP, SP, FET and not specified/other) and reported along with an examination of the differences between groups.

Like results for previous research in developed countries (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018; Wosnitza et al., 2018), the findings demonstrated self-efficacy and teacher efficacy beliefs of both *male and female final year pre-service teachers were consistently high*. The high self-efficacy and teacher efficacy beliefs indicated that both male and female pre-service teachers, in a challenged context, is confident to recover from setbacks and feel confident in teaching and behaviour management.

Table 5.2 provides an overview of the statistical hypotheses related to assumptions based on the demographic difference between pre-service teachers' self-efficacy and teacher efficacy beliefs.

[58] Demographic information (as depicted in Section 4.2) available from the extant data, based on the completed FIRE Teacher Resilience Measure (see Table 1.5), included final year pre-service teachers' age, gender, language and enrolled pre-service teaching programmes.

Table 5.2

Overview of the Statistical Hypotheses Related to Assumptions Based on the Demographic Differences Between the Self-Efficacy and Teacher Efficacy of Pre-Service Teachers in a Challenged Context

	Year	*p*	Gender				Enrolled pre-service teaching programmes			
			Self-Efficacy	H_0 vs H_a	Teacher Efficacy	H_0 vs H_a	Self-Efficacy	H_0 vs H_a	Teacher Efficacy	H_0 vs H_a
Within-case	2015 (*N* = 313)	Adjusted *p*-values	No statistically significant difference	H_0 is not rejected	No statistically significant difference	H_0 is not rejected	No statistically significant difference	H_0 is not rejected	No statistically significant difference	H_0 is not rejected
	2016 (*N* = 169)	Original *p*-values	No statistically significant difference	H_0 is not rejected	No statistically significant difference	H_0 is not rejected	No statistically significant difference	H_0 is not rejected	No statistically significant difference	H_0 is not rejected
	2017 (*N* = 711)	Adjusted *p*-values	Yes • Females higher than males ↑♀	H_0 is rejected	Yes • Females higher than males ↑♀	H_0 is rejected	Yes • ↑FP/ECD vs FET • ↑FP/ECD vs Not enrolled	H_0 is rejected	Yes • ↑FP/ECD vs FET • ↑FP/ECD vs Not enrolled • ↑IP vs FET • ↑IP vs Not enrolled	H_0 is rejected
Cross-case	2015–2017 (*N* = 1,193)	Adjusted *p*-values	Yes: Male • 2016 higher than 2015 • 2016 higher than 2017 = *2016* ↑	H_0 is rejected	No statistically significant difference (Male and Female)	H_0 is not rejected	Yes: IP • IP - 2016 higher than 2015 - 2017 higher than 2015 = 2015 ↓	H_0 is rejected	No statistically significant difference	H_0 is not rejected

As indicated in Table 5.2, a significant statistical difference was found for the cross-case analysis (2015–2017) for male self-efficacy, which suggests that *pre-service male teacher self-efficacy was significantly higher in 2016* compared to 2015 and 2017. Although the result should be interpreted with caution due to the smaller sample of male pre-service teachers, the difference may be indicative of male pre-service teachers relying on different individual protective factors, such as inner strengths in taking charge and control to nature resilience during significant disruptions (e.g., the #Fees-Must-Fall movement) (Hartman et al., 2009; Peglar & Reker, 2008).

Statistically significant differences for Case 3 indicated that *2017 female pre-service teacher self-efficacy and teacher efficacy beliefs are higher than male pre-service teacher self-efficacy and teacher efficacy*. This result supports existing studies for pre-service teachers indicating higher female resilience traits in other developing countries (Özdemir, 2008; Üstüner, 2017; Yokus, 2015).

The literature in developed (Ee & Chang, 2010; Hartman et al., 2009) and developing (Pareek & Rathore, 2016; Petersen, 2014; Yokus, 2015) countries emphasised that female and male teachers can utilise different intrapersonal resilience-enabling pathways to foster resilience. Additional inquiry about the result for a challenged context would have been interesting without the limitation of extant data.

The differential result found on *no gender differences* (Case 1 and Case 2) is also highlighted in high-income countries (Beltman et al., 2018; Fischer et al., 2018; Klassen & Durksen, 2014; O'Neill & Stephenson, 2012b; Pfitzner-Eden, 2016a; Tschannen-Moran & Woolfolk Hoy, 2007). Lower-income countries such as Turkey (Çelik et al., 2018), Malaysia (Murshidi et al., 2006) and South Africa (Ngidi & Ngidi, 2019; Petersen, 2014) also found no gender differences.

The within-case and cross-case comparison for *enrolled pre-service teaching programmes also denoted high self-efficacy and teacher efficacy beliefs* for final year pre-service teachers within a challenged context. Therefore, all enrolled pre-service teaching programmes had a high recovery from setbacks and confidence in teaching and behaviour management.

Within-case comparison for Case 1 (2015) and Case 2 (2016) resulted in *no statistically significant differences* for enrolled pre-service teaching programmes. However, for Case 3 (2017), a *statistically significant difference* between the self-efficacy and teacher efficacy beliefs of pre-service teachers was indicated between primary and secondary pre-service teachers. Secondary school teachers may have higher stress and lower levels of supportive learning context (Kavita & Hassan, 2018; Molina et al., 2017; Perlman & Pearson, 2012; Zuma et al., 2016).

Results highlighting higher intrapersonal resilience-enabling factors for pre-service teachers enrolled in the primary phase is seen in the literature for developed countries (Bouillet

et al., 2014; Perlman & Pearson, 2012; Woodcock, 2011) and in a challenged context (Kavita & Hassan, 2018; Molina et al., 2017; Zuma et al., 2016). For the cross-case comparison (2015–2017), the only statistically significant difference for enrolled pre-service teaching programmes resulted from the IP phase. *IP pre-service teachers demonstrated a significantly lower recovery from setbacks* (i.e., self-efficacy) in 2015 compared to 2016 and 2017. Given the constraints of the available secondary data, further exploration of this result was not possible.

In summary, significant results for pre-service teacher demographic information were found for the self-efficacy and teacher efficacy for gender (Case 3), male self-efficacy (cross-case comparison), self-efficacy and teacher efficacy for enrolled pre-service teaching programmes (Case 3) and self-efficacy for IP enrolled programme phase (cross-case comparison). Conclusions in terms of formulated hypotheses are highlighted in Section 5.4.3.

5.4.2.3 Findings based on the relationship between the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context

Secondary research question 3

To what extent is there a relationship between self-efficacy and teacher efficacy beliefs among pre-service teachers in a challenged education context (within-case and cross-case)?

The association between self-efficacy and teacher efficacy beliefs responses were analysed to examine the relationship between the self-efficacy and teacher efficacy of pre-service teachers as measured by two scales to address the third secondary research question. The following statistical hypotheses of the population correlation coefficient were formulated testing for the relationship between the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context:

- H_0: There is no statistically significant correlation between self-efficacy and teacher efficacy beliefs.
- H_a: There is a statistically significant correlation between self-efficacy and teacher efficacy beliefs.

The findings indicate *a significant positive correlation between the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context*. The conclusion was based on the results discussed in Chapter 4 (see Section 4.5). The correlation indicated a significant positive relationship between final year pre-service teachers, within a challenged context, for self-efficacy and teacher efficacy beliefs. As discussed in Chapter 3, correlation does not imply causation (Field, 2018; Roni et al., 2020), but is intended to reflect the degree to which self-efficacy and teacher efficacy beliefs are associated. The results, therefore, imply that *pre-service teachers' confidence to recover from setbacks are significantly related to their confidence in teaching and behaviour management in a challenged context*.

The association between the self-efficacy and teacher efficacy beliefs for teachers has been established in previous studies. Studies in Australia (Beltman et al., 2018); Ireland (Morgan, 2011), Europe (Peixoto et al., 2018; Wosnitza et al., 2018) and South Africa (Ebersöhn et al., 2020) also employed similar scales with comparable outcomes as the current study. Other literature in high-income countries (Ee & Chang, 2010; Gu & Day, 2013; Klassen et al., 2011; Peixoto et al., 2020; Pendergast et al., 2011; Thieman et al., 2014) highlighted intrapersonal resources associated with teacher resilience. The established relationship between the self-efficacy and teacher efficacy can therefore enable pre-service teachers to resile despite significant risk factors (Ebersöhn et al., 2020).

5.4.3 FINDINGS: PRIMARY RESEARCH QUESTION

This section addresses the primary research question by drawing conclusions from the secondary research questions and hypotheses. Therefore, the primary research question is highlighted, namely:

How can insight into the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged education context inform knowledge on teacher resilience?

I have argued that there is a need for an evidence-based theoretical framework for teacher resilience within a challenged context given (i) the dearth of quantitative teacher resilience studies, (ii) knowledge overall on resilience in teachers, and (iii) specifically pre-service teachers in (iv) particularly developing countries. In addition, the current study generated global teacher resilience discourses from Africa to contribute to the lack of scientific knowledge from this region.

The respondents in the sample (2015–2017) were 1,193 final year pre-service teachers (i.e., 1,193 completed the FIRE Teacher Resilience Measure) at an HEI in South Africa (seen as an exemplar of a challenged context). Most respondents were female, and almost all respondents were fluent in English, while approximately half were fluent in Afrikaans and the majority were not fluent in African languages. Most respondents were enrolled in the FET and FP/ECD pre-service teacher programmes. The current study's reliability, validity, and statistical power were established to enhance the generalisation of findings to final year pre-service teachers at the University of Pretoria and contribute to the utility of an existing scale measuring intrapersonal resilience-enabling pathways to teacher resilience in a challenged context.

The findings demonstrated that pre-service teachers' self-efficacy and teacher efficacy beliefs in a challenged context are high (within-case and across case). Final year pre-service teachers in the current study were thus able to employ specific internal traits as a protective resource indicated in previous high-income countries (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018) and in a challenged context (Bosch, 2020; Coetzee et al., 2017; Ebersöhn, 2014; Ebersöhn et al., 2020; Mansfield et al., 2018; Yokus,

2015). Therefore, intrapersonal protective factors related to resilience (Ebersöhn, 2014; Ebersöhn et al., 2020; Ee & Chang, 2010; Peixoto et al., 2018; Tschannen-Moran & Woolfolk Hoy, 2001) may enable positive adaptation assisting pre-service teachers to recover from setbacks in a challenged context. The confidence in recovery from setbacks found in pre-service teachers in the current study may counteract adversity or lead to resilience within a high-risk ecology, assisting teachers to navigate obstacles successfully when facing challenging working conditions (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Waddell, 2007; Wosnitza et al., 2018).

The presence of teacher efficacy beliefs as a vital protective factor for teacher resilience (Beltman et al., 2011, 2018; Day & Gu, 2013; Gu & Day, 2007; Hong, 2012; Morgan, 2011; Peixoto et al., 2018; Pendergast et al., 2011; Price et al., 2012; Sammons et al., 2007; Yada et al., 2021) specifically in a challenged context (Bosch, 2020; Ebersöhn et al., 2020; Gu & Li, 2013; Jackson & Rothmann, 2005) demonstrated pre-service teachers' confidence regarding the teaching domain (Pfitzner-Eden, 2016a; Raath & Hay, 2016), engagement with teaching tasks (Lemon & Garvis, 2016; Morgan, 2011) and influence on learning and behaviour of learners (Beltman et al., 2018; Klassen et al., 2011; Kyriakides et al., 2013; Moulding et al., 2014; Ngidi & Ngidi, 2019; O'Neill & Stephenson, 2012b; Özdemir, 2008; Swan et al., 2011). Teacher efficacy plays a major role for pre-service teachers in overcoming challenges they encounter in their work (Tournaki et al., 2009).

The significantly higher teacher efficacy (Morgan, 2011; Peixoto et al., 2018) of pre-service teachers in the current study further indicated the importance of teacher efficacy for pre-service teachers' confidence in recovery from setbacks in a challenged context. As a result, pre-service teachers, in spaces of high adversity, may pursue goals as well as challenges, rebound from setbacks, persist or demonstrate grit, hardiness as well as optimism when faced with obstacles (Bandura, 1986, 1993, 1996, 1997; Fredrickson et al., 2003; Hewitt et al., 2017; Mansfield et al., 2018; Perkins-Gough, 2013). Therefore, even if there is adversity, self-efficacy and teacher efficacy can act as protective resources when pre-service teachers believe they can recover from setbacks and succeed (Hewitt et al., 2017).

Demographic statistical differences for gender provided mixed results (within-case and cross-case comparison) for the self-efficacy and teacher efficacy beliefs of pre-service teachers but compared effectively with literature regarding varied findings on pre-service teacher gender profiles in developed (Beltman et al., 2018; Fischer et al., 2018; Klassen & Durksen, 2014; O'Neill & Stephenson, 2012b; Pfitzner-Eden, 2016a) and developing (Çelik et al., 2018; Murshidi et al., 2006; Özdemir, 2008; Üstüner, 2017; Yokus, 2015) countries. On the other hand, the significant results for the enrolled pre-service teacher programme demographic underlined existing research (Bouillet et al., 2014; Perlman & Pearson, 2012; Woodcock, 2011) for higher intrapersonal resilience factors for primary phase pre-service teachers in a challenged context (Kavita & Hassan, 2018; Molina et al., 2017; Zuma et al., 2016).

Finally, the correlation analysis demonstrated a significant positive relationship between the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context. The current study's results thus signify the association of self-efficacy and teacher efficacy, which contribute to teacher resilience amongst pre-service teachers as with other studies in a challenged context (Ebersöhn et al., 2020) and high-income countries (Morgan, 2011; Peixoto et al., 2018). Therefore, based on the results from the completed FIRE Teacher Resilience Measure, pre-service teachers within a challenged context indicated self-efficacy (i.e., confidence in recovery from setbacks) and teacher efficacy beliefs (i.e., confidence in teaching and behaviour management) as significant protective internal factors for enabling teacher resilience in spaces of high social disadvantage.

The findings from the primary research question thus informed knowledge on teacher resilience in a challenged context through quantitative methodology. The current study indicated the utility of existing teacher resilience scales and provided comparable results for future studies in a challenged context worldwide. In addition, the findings provided much-needed evidence for pre-service teacher resilience in a challenged context. Furthermore, the current study generated knowledge for the Global South and African context, which lack teacher resilience research in comparison with the Global North and European countries.

5.5 THEORISING TEACHER RESILIENCE FINDINGS IN A CHALLENGED CONTEXT

5.5.1 INTRODUCTION

This section revisits the conceptual framework to situate the current study's findings within an evidence-based framework for teacher resilience in a challenged context. The insights for teacher resilience inform quantitative comparison of the self-efficacy and teacher efficacy beliefs of pre-service teachers in a disparate Global South place.

5.5.2 SITUATING THE FINDINGS WITHIN THE CONCEPTUAL FRAMEWORK

In this section, I interpret the findings of the current study within the conceptual framework, as discussed in Chapter 2 (see Section 2.8), to generate meaning and reflect on the choice of the conceptual framework.

The findings of this study indicate the presence of *high internal protective resources* (i.e., self-efficacy and teacher efficacy beliefs) that buoyed pre-service teachers to resile despite chronic and cumulative risk factors, including an unstable education system (such as the #Fees-Must-Fall movement). As postulated by Bandura in the Social Cognitive Theory (SCT) (Bandura, 1986), pre-service teachers' behaviour was the result of a reciprocal caution between experiences which develops through interaction with the environment (Bandura, 1986, 1989a, 1989b; Peixoto et al., 2018; Schunk, 2008).

Based on Banduras' view of self-efficacy (Bandura, 1977, 1986, 2001), the pre-service teachers' self-perceived beliefs on how capable or prepared they feel to organise or accomplish a specific goal, action or task to manage prospective situations or obtain a valued outcome, is high. The pre-service teachers in the current study, thus seem to actively contribute to their development through utilising individual traits (e.g., self-efficacy and teacher efficacy) as health-sustaining protective resources (Block & Block, 1980; Block & Kremen, 1996; Johnson & Down, 2013; Letzring et al., 2005; Mansfield et al., 2016). Given Bandura's (1977, 1986, 2001) view on self-efficacy, it is thus likely that pre-service teachers had an enthusiastic, positive, multi-perspective, confident outlook on life with confidence in their ability to recover from setbacks and regulate emotions, thoughts and actions (Bandura, 1986, 1993, 1996, 1997; Ee & Chang, 2010; Hewitt et al., 2017; Perkins-Gough, 2013). These findings can link with pre-service teachers' grit and hardiness (Kobasa et al., 1982; Maddi et al., 2017; Perkins-Gough, 2013; Prince-Embury, 2010; Von Culin et al., 2014), sense of coherence (A. Antonovsky's [1979] salutogenic theory), positive emotions (Fredrickson et al.'s [2003] broaden-and-build theory) and their adaptive coping processes (Skinner & Zimmer-Gembeck, 2011; Willers et al., 2013).

The choice of incorporating Bandura's Social Cognitive view on self-efficacy (Bandura, 1977, 1986, 2001), instead of, for example, Rotter's theory of the Locus of Control [1966]), has been confirmed by numerous researchers (Cassidy, 2015; Chesnut, 2017; Duffin et al., 2012; Hewitt et al., 2017; Lemon & Garvis, 2016; Morgan et al., 2010; Moulding et al., 2014; O'Neill & Stephenson, 2012b; Pfitzner-Eden, 2016a, 2016b; Raath & Hay, 2016; Skaalvik & Skaalvik, 2010; Snowman & McCown, 2013). However, the theory has been criticised for ambiguous definitions, methodological deficiency and inadequate evaluation or methods to validate conclusions (Biglan, 1987; Borkovec, 1978; Eastman & Marzillier, 1984; Kazdin, 1978; Teasdale, 1978; Tryon, 1981). A valid self-efficacy appraisal (Chesnut, 2017) is also only possible if pre-service teachers accurately recognise their abilities. Furthermore, although Bandura (1977) assumed that high self-efficacy provides the ability to cope with potentially aversive events, the Social Cognitive Theory does not adhere to a placed based argument needed in a Global South place. Due to this limitation, I also incorporated Ebersöhn's (2014) *contextualised structural disparity lens* in the conceptual framework to contextualise teacher resilience and teacher efficacy beliefs within a severely challenged context.

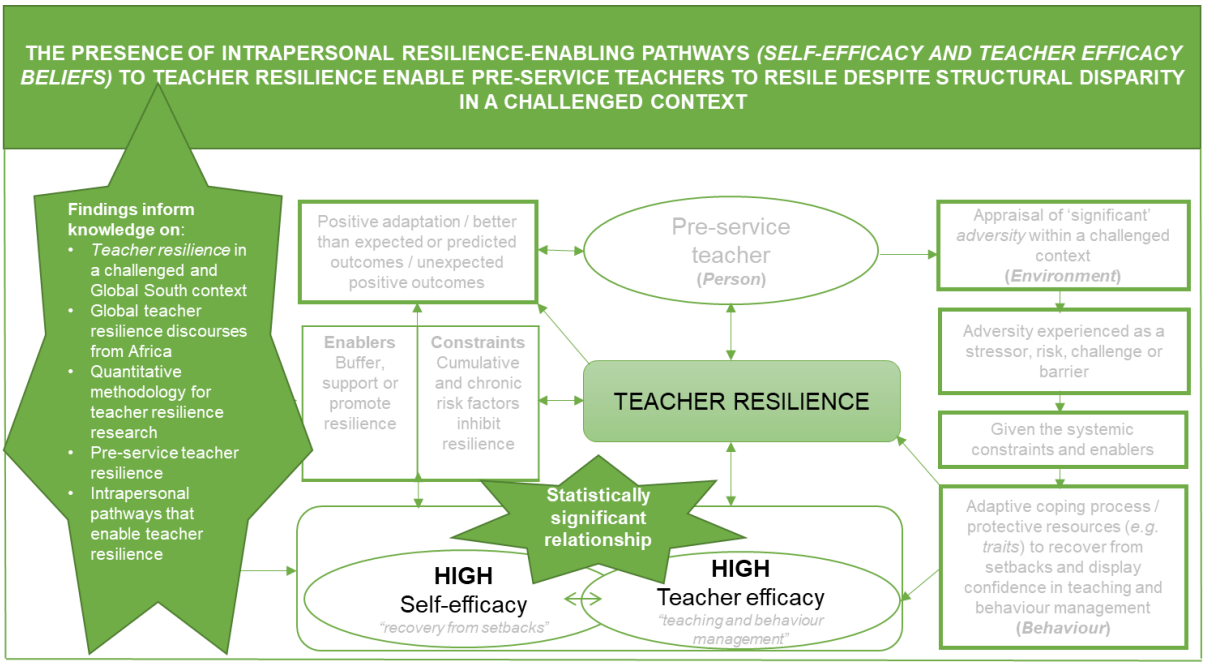
Ebersöhn (2015) argued for place-based (e.g., Global South) research through contextual lenses to provide the necessary needed evidence for teacher resilience. Most resilience studies originate from North America or Europe without an understanding of resilience at a local contextual level (Ebersöhn, 2017; Johnson & Down, 2013; Shean, 2015). Therefore, the following section emphasises an evidence-based framework for teacher resilience in a challenged context given the empirical findings of the current study.

5.5.3 AN EVIDENCE-BASED FRAMEWORK FOR TEACHER RESILIENCE IN A CHALLENGED CONTEXT

Given the significant gaps in teacher resilience knowledge in a severely challenged context (Ebersöhn, 2014, 2016; Ebersöhn et al., 2020; Ebersöhn & Loots, 2017; Mansfield et al., 2018; Ngidi & Ngidi, 2019), the need for an evidence-based theoretical framework for teacher resilience in spaces of high challenge is evident. Therefore, in Figure 5.2, I present an *evidence-based framework for self-efficacy and teacher efficacy as intrapersonal resilience-enabling pathways for teacher resilience in a challenged context*.

Figure 5.2

An Evidence-based Framework for Self-efficacy and Teacher Efficacy as Resilience-enabling for Teacher Resilience in a Challenged Context



The current study's findings provided novel insights into intrapersonal resilience-enabling pathways (i.e., self-efficacy and teacher efficacy of pre-service teachers) indicative of pre-service teachers resiling. The current study generated teacher resilience knowledge vital to discourses on protective resources (enablers) involved in processes relating to resilience while acknowledging the risk factors (constraints) (Ebersöhn, 2016).

The conceptual framework was thus adapted (see Figure 5.2) to indicate *pre-service teachers' high self-efficacy and teacher efficacy beliefs* as intrapersonal resilience-enabling pathways in spaces of structural disparity. Intrapersonal resources highlight *one pathway* to resilience in a challenged context. In spaces of severe challenge, teachers may therefore be able to *mobilise and employ* intrapersonal resources for *adaptive responses* to risks (Bosch, 2020; Ebersöhn, 2019a; Ebersöhn et al., 2020).

The current study established that, despite chronic and cumulative risk factors, the *significant relationship* between self-efficacy and teacher efficacy beliefs enables pre-service teachers to resile. Both male and female pre-service teachers are thus able to recover from setbacks in schools and feel confident in their teaching and behaviour management. The latter holds for all enrolled pre-service teaching programmes. Pre-service teachers also demonstrated significantly higher teacher efficacy. Teacher efficacy for pre-service teachers in a challenged context can thus support confidence in recovery from setbacks (Bandura, 1986, 1993, 1996, 1997; Hewitt et al., 2017; Mansfield et al., 2018; Perkins-Gough, 2013).

Pre-service teachers' ability to resile despite the structural disparity evident in Global South spaces, can thus lead to better than expected outcomes. Such outcomes include *job satisfaction, retention, commitment*, *well-being* and *quality teaching* (Ainsworth & Oldfield, 2019; Arnup & Bowles, 2016; Beltman et al., 2018; Bobek, 2002; Brouskeli et al., 2018; Brunetti, 2006; Cefai & Cavioni, 2014; Day & Gu, 2010, 2013; Gu, 2018; Gu & Li, 2013; Hong, 2012; Mansfield et al., 2016; Morgan, 2011; Peixoto et al., 2018; Peters & Pearce, 2012; Wosnitza et al., 2014). These outcomes are indicators of positive adaptation (Bobek, 2002; Day, 2012; Jackson & Rothmann, 2005; Mansfield et al., 2016) for pre-service teachers.

High levels of self-efficacy and teacher efficacy may therefore *buffer pre-service teachers against* predicted or expected outcomes (including teacher stress, burnout and attrition [Arends, 2011; Cefai & Cavioni, 2014; Fleming et al., 2013; Jackson & Rothmann, 2005; Mansfield et al., 2018; Thieman et al., 2012; Wosnitza et al., 2014]) when facing severe structural constraints. As a result, pre-service teachers whose contexts assume maladjustment and poor outcomes can negotiate unexpected or unpredicted beneficial outcomes (Masten, 2014; Morgan, 2011).

Pre-service teachers must be prepared for adversity (see Table 1.1) and the constant adaptation required in a challenged context (Ebersöhn, 2014). Therefore, well-being agendas, emphasising the *identification and mobilisations of resilience enabling pathways* are needed for higher and basic education. Pre-service teachers should be *continuously supported to develop as teachers* (Beltman et al., 2018). Teacher education policy and initial teacher education programmes can be adapted, given the findings of the current study, to *highlight intrapersonal resources* and include teacher resilience intervention programmes to promote resilience in pre-service teachers and training institutions. Since pre-service teachers felt more confident in their teaching and behaviour management (teacher efficacy), these beliefs can further be utilised to promote their recovery from setbacks in a challenged context.

Given the extreme adversity and inequality in the Global South (including South Africa), it is crucial that such identified traits (i.e., self-efficacy and teacher efficacy) are developed, in conjunction with contextual support, during teacher education training and throughout the teaching career. Although the current study was limited to intrapersonal resources due to extant data available, other enabling pathways to resilience (such as relational resilience

(Ebersöhn, 2012; Jordan, 2006, 2013) as well as transactional-ecological process thinking (Ungar, 2011; Ungar et al., 2013) must also be incorporated to sustain resilience on all systemic levels (i.e., micro, meso, exo and macro) over time (Bronfenbrenner, 1979). Through a teacher resilience paradigm, theorising demonstrated enabling pathways and well-being adaptation of pre-service teachers rather than focusing on disparities and risks only (Ebersöhn, 2016).

5.6 CHALLENGES AND LIMITATIONS OF THE STUDY

5.6.1 INTRODUCTION

The current study's results need to be interpreted considering the possible challenges and limitations of the research. Therefore, Section 5.6 acknowledge potential caveats.

5.6.2 EXTANT CROSS-SECTIONAL DATA

An identifiable restriction of the current study relates to the nature and extent of the data. Since I relied on extant data for data analysis and no further quantitative or qualitative data was obtained, the exploration of the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context was restricted. Since the available questionnaires (2015-2017) limited the results, the topic under investigation could not be explored further with enriched data. Consequently, further contextual information could not be incorporated into findings (Babbie, 2021; L. Cohen et al., 2018).

The current study was not engaged in the recruitment of respondents or the original data collection process (Johnston, 2017) of the FIRE project. Thus, any errors during the data collection phase and the original focus of the FIRE project restricted data analysis (Johnston, 2017; Pienta et al., 2011; Widaman et al., 2011). Purposive selection of extant data (i.e., completed FIRE Teacher Resilience Measure utilised in the FIRE project) was employed to acquire information on a particular phenomenon, namely teacher resilience. Although I used non-probability sampling that may limit the generalisability (L. Cohen et al., 2018; Maree & Pietersen, 2019a), it is reasonable to deduce that samples from one context can be representative of samples from other similar contexts (Gravetter & Forzano, 2018), leading to the assumption that generalisation of the findings may be possible to similar settings (i.e., final year pre-service teachers at the University of Pretoria).

The reliability (see Section 4.3.2), validity (see Section 4.3.3) and statistical power analysis (see Section 4.3.4) obtained may further strengthen the possibility of generalisability of the results. Nonetheless, the cross-sectional nature of the extant data did not allow inquiry of causation or a developmental trajectory since the cohorts (2015, 2016, 2017) of pre-service teachers did not represent a longitudinal sample. Therefore, longitudinal research is needed

in future studies to explore possible directionality between constructs such as self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context. Further exploration can enable conclusions about how the individual (and contextual) level may influence teacher resilience in spaces of high structural disparity.

5.6.3 SINGLE-COUNTRY AND INSTITUTIONAL STUDY

This study had a limited scope since it was a single-country or mono-national study (Esser & Vliegenthart, 2017). The current study employed an extant dataset from a single HEI teacher education programme in South Africa, possibly limiting the applicability to other programme types or institutions that are different from those of the initial teacher study programme in the current study. Furthermore, although, similar studies (Australia [Beltman et al., 2018], the Czech Republic [Wosnitza et al., 2018], Germany [Peixoto et al., 2018; Wosnitza et al., 2018], Ireland [Morgan, 2011; Peixoto et al., 2018; Wosnitza et al., 2018], Malta [Peixoto et al., 2018; Wosnitza et al., 2018] and Portugal [Peixoto et al., 2018, 2020; Wosnitza et al., 2018]) have been conducted with similar measures employed as in the current study, information about the FIRE Teacher Resilience Measure within the Global South context remain limited.

Since the current study only compared pre-service teachers' self-efficacy and teacher efficacy beliefs in one national teacher education programme, it limits the representation of diverse geographical regions or programme approaches. As a single-country study, the findings from the current study does inform knowledge on teacher resilience within a challenged context. Nonetheless, it would be beneficial to conduct similar studies across various institutions and the Global South context to build generalisability.

5.6.4 TEACHER SELF-REPORT QUESTIONNAIRE DATA

A self-report is any test, measure, questionnaire or survey that relies on respondents' estimation or perception of behaviours, feelings, beliefs, experiences or attitudes. Self-report data is prone to introduce bias and validity concerns relating to under-reporting (e.g., avoiding socially undesirable responses), over-reporting (e.g., providing socially desirable answers) or alone standing attitudinal data (e.g., teachers only reporting on behaviours and attitudes without comparable achievement data) (Chesnut, 2017; L. Cohen et al., 2018; Maree & Pietersen, 2019b, 2019c). Furthermore, when self-reporting is employed, respondents must understand the questions and wording as intended by the research (L. Cohen et al., 2018).

These requirements could not be guaranteed due to the extant data used in the current study. In addition, although teacher self-report data provides a quick, cost-effective and flexible procedure to gather large scale data, it may produce inaccurate results since respondents may consciously or subconsciously display what they believe to be the desired or socially preferred response (Maree & Pietersen, 2019b, 2019c). The data in this study were based on self-

perceived reporting from the FIRE Teacher Resilience Measure (i.e., Likert scale questionnaire). Pre-service teachers in the original FIRE project may have provided answers viewed as “acceptable” (i.e., social desirability bias) since most of the responses were above the midpoint of four (neutral on a seven-point Likert scale).

Given the extant self-report data employed from pre-service teachers and the results obtained, it is furthermore important to investigate the caveat of a possible Dunning-Kruger effect as highlighted in Chapter 4. The Dunning-Kruger effect (J. Kruger & Dunning, 1999) is described as a psychological concept based on the tendency of individuals to have overtly favourable (i.e., overconfidence) or optimistic views of their abilities in social, cognitive and intellectual domains (Al Sultan et al., 2018; Dunning, 2011; J. Kruger & Dunning, 1999). The miscalibration or misestimation (J. Kruger & Dunning, 1999) may stem from the differences between the self-perception or self-assessment and actual performance (across various domains and tasks) with poor performers overestimating abilities, while top performers (i.e., higher skill levels and knowledge) tend to be better-calibrated self-estimates or underestimate themselves or their ability to complete a task (Balážiková, 2018; J. Kruger & Dunning, 1999; Pavel et al., 2012).

The miscalibration may be due to limited insight into cognitive processes, meta-comprehension or self-monitoring skills (J. Kruger & Dunning, 1999) and a pervasive cognitive bias (Harvey, 1997) or meta-ignorance (i.e., ignorance of ignorance) (Dunning, 2011). Therefore, the Dunning-Kruger hypothesis postulated that the degree to which an individual can appraise their ability accurately depends, at least partially, upon possessing the ability in question (Gignac & Zajenkowski, 2020). Empirical research (Gignac & Zajenkowski, 2020) has estimated the association between self-assessed ability and objectively measured ability. Within teacher research, scholars (Al Sultan et al., 2018; Coutinho et al., 2020; Podgoršek & Lipovec, 2017; Tomczyk, 2020; Van Staden & Zimmerman, 2017) worldwide have noted the Dunning-Kruger phenomenon, also outside the Global North (Coutinho et al., 2020; Van Staden & Zimmerman, 2017). Within the national context (Van Staden & Zimmerman, 2017), the overly positive reporting of teachers on teacher questionnaire data due to possible aspects of social desirability or a lack of understanding about certain questions on a measure is also emphasised.

Van Staden and Zimmerman (2017) cautioned that teachers’ data, especially within a low-performance context such as South Africa, may yield unreliable, unrealistic or invalid results since teachers may feel vulnerable and defensive during a research process. The effect has also been reported with undergraduate students (Balážiková, 2018; J. Kruger & Dunning, 1999; Mahmood, 2016) and pre-service teachers (Al Sultan et al., 2018; Podgoršek & Lipovec, 2017), including studies directly related to pre-service teacher efficacy beliefs (Al Sultan et al., 2018). This reporting may thus indicate that pre-service teachers, in this study, have a false

sense of confidence given their ability to recover from setbacks in a school setting and their confidence in teaching and behaviour management or overestimate their abilities.

As mentioned in Chapter 2, for evaluation of self-efficacy, researchers depend on the respondent (pre-service teachers' respondents in the current study) to draw upon metacognition about the self, presented task and employable strategies that might lead to positive outcomes (Bandura, 1997). However, McIntosh et al. (2019) argued that meta-cognitive differences could contribute to the Dunning-Kruger effect but are neither necessary nor sufficient for it to occur. In addition, Gignac and Zajenkowski (2020) echoed that although the Dunning-Kruger phenomenon may be plausible to some degree or for some skills, the magnitude of the effect may be smaller than reported previously. Nonetheless, given the limitation, the current study may provide added insight for teacher preparation programmes seeking to identify pre-service teachers experiencing the Dunning-Kruger effect. In addition, Dunlosky and Rawson (2012) encouraged the self-reflection of undergraduates on their current competency levels to learn a set of abilities.

5.6.5 RESPONSE RATE

Given the pre-service teacher graduation data (2015, 2016, 2017), as presented in Chapter 2, and the demographic data on completed questionnaires (*N*), as depicted in Chapter 4, the response rate of the current study is portrayed in Table 5.3.

Table 5.3

Response Rate for the Current Study

Year	*N*	Graduates	Response rate (%)
Case 1 (2015)	313	697	44.91%
Case 2 (2016)	169	751	22.50%
Case 3 (2017)	711	794	89.54%

As illustrated in Table 5.3, the sample size and response rate for Case 2 (2016) was low (22.50%), possibly due to the #Fees-Must-Fall movement that emerged at South African public universities in 2016. The low response rate may have compromised data reliability, and caution should be used to draw conclusions. The response rates for Case 1 (2015) and Case 3 (2017) are higher, with L. Cohen et al. (2018) indicating that a response rate of 50% is satisfactory. The high response rate for Case 3 (2017) may enhance the reliability of the data. The rigorousness of statistical analysis was not affected due to the sample size (as reported by the power analysis in Chapter 4).

5.6.6 FIRE TEACHER RESILIENCE MEASURE IN THE SOUTH AFRICAN CONTEXT

As discussed in Chapter 1, the FIRE Teacher Resilience Measure was administered in English with final year pre-service teachers. Although English is a main language of teaching and learning at the University of Pretoria, with most pre-service teachers indicating English fluency, the questionnaire was not translated into any other home language of respondents. As such, potential language difficulties in understanding the questionnaire items should be contemplated as almost one-tenth of the respondents indicated that they were not fluent in the language that the questionnaire was presented to them. Furthermore, the language demographic question on the FIRE Teacher resilience measure (i.e., "List of languages you are fluent in") was an open-ended question with no clear indication of the meaning of "fluency". The possibility remains that respondents could misinterpret such questions and only indicate their dominant (home) language or indicate a conservative answer relating to language fluency (i.e., only indicate one language). However, even if the language demographic question on the Teacher Resilience Measure was a yes or no question across languages, the measure is not robust enough to make further meaningful inferences about the possible role of multilingualism.

Terms such as "student" used in the original ENTREE questionnaire (Mansfield & Wosnitza, 2015), was also depicted in the FIRE Teacher Resilience Measure despite the convention in SA to refer to "learners" which can make questions inherently ambiguous (L. Cohen et al., 2018) to respondents. Therefore, I interpreted the data with sensitivity by considering cross-cultural and socioeconomic factors influencing the data as the measure was not standardised for the South African context. Nonetheless, the reliability analysis of the measure compares well with reliability results from other studies (Beltman et al., 2018; Morgan, 2011; Peixoto et al., 2018, 2020; Wosnitza et al., 2018). Lastly, since extant data was employed in the current study, collected through an existing measure in the FIRE project (see Section 1.2) the literature discourses presented in Chapter 2 did not inform the design of the FIRE Teacher Resilience Measure.

Due to these challenges, conclusions drawn from the current study remain tentative but provide important knowledge for additional research in teacher resilience within the Global South. The following section provides the recommendations of the current study.

5.7 RECOMMENDATIONS OF THE STUDY

5.7.1 INTRODUCTION

The current study compared pre-service teachers' self-efficacy and teacher efficacy beliefs to inform knowledge on teacher resilience in a challenged context. Thus, it is also valuable to recognise the application of findings for the interplay between research, theory, and implications to benefit psychological science and educational practice (Creswell & Creswell,

2018). Therefore, Section 5.7 details the recommendations as consequences of the results of the current study for future research, practice and training as they relate to teacher resilience in a challenged context.

5.7.2 RECOMMENDATIONS FOR TRAINING AND DEVELOPMENT

The findings of this study could benefit initial teacher training programmes and pre-service teacher development in a challenged context. Teacher resilience research and interventions to promote resilience in pre-service programmes are limited (Beltman et al., 2018). The following is recommended for training and developmental purposes since initial teacher education programmes can play a vital role in novice teachers building resilience capacity (Beltman et al., 2011):

- Teacher training programmes and institutions should promote the identification and development of internal protective resources (e.g., self-efficacy and teacher efficacy) to enable teacher resilience in a challenged context.
- The training of pre-service teachers should include knowledge of possible internal protective resources and the development of resilience-related skills to identify and navigate towards resilience capacities.
- Enable pre-service teachers to examine existing beliefs regarding teacher resilience and integrating these with learning during teacher education.
- Develop teacher resilience-building modules or interventions for pre-service teachers during initial teacher education programmes for the Global South context.
- Involve pre-service teachers in developing, designing, applying, and assessing pre-service teacher resilience-building programmes in a challenged context.
- Pre-service resilience-building programmes should be streamlined for specific pre-service teaching programmes (i.e., FP/ECD, IP, SP and FET phase) to meet teachers' needs effectively given the statistical difference found between intrapersonal traits in different phases in the current study.
- Pre-service resilience-building programmes should be presented in the early stages of teacher training, continuing throughout the teacher training programme into the first years of teaching given the challenges faced in a Global South context.
- Pre-service teacher resilience-building programmes should include knowledge of how to support teacher resilience in schools and how teachers can facilitate this process in a challenged context.
- HEIs, including the teacher educators and cooperating or mentor teachers in placement schools, should support pre-service teachers to promote the identification and development of internal and contextual protective resources to nurture teacher resilience.

5.7.3 RECOMMENDATIONS FOR POLICY DEVELOPMENT AND PRACTICE

Based on the results and findings of the current study, the following is recommended for policy development and practice:

- Educational institutions (basic and higher education) may consider formulating resilience frameworks and agendas to enable teachers to thrive, not just survive in a challenged context.
- The current study urges policy, schools and school management to seek opportunities to nurture internal protective resources. As a result, teachers can be supported to maintain their teaching quality, job satisfaction and remain committed to the profession.
- Important role-players (including learners, parents, teachers, communities, organisations and institutions) should be involved in resilience-building efforts to enable adaptive outcomes to risk and barriers within a Global South setting.
- Teachers' understanding of their responsibility, within a given context, as resilience assets for learners can be highlighted.
- Continuous mentoring and support, through for example building resilience networks, to promote resilience-related experiences, competencies, traits and knowledge given challenges in the Global South. Therefore, school management training should also include ways in which school leadership may support teachers and promote the development of internal protective resources.

5.7.4 RECOMMENDATIONS FOR FUTURE RESEARCH

Given the findings, I suggest possible areas of future exploration for deeper insight into areas that have not been investigated in this study.

5.7.4.1 Teacher resilience-building programmes in a challenged context

Given that there are limited studies (Beltman et al., 2011, 2018) on the interventions to build resilience in pre-service programmes, research on the development and possible benefit of interventions or modules on teacher resilience within a Global South context seems necessary. Therefore, further research regarding the enhancement of pre-service teacher resilience through teacher resilience-building programmes is recommended.

5.7.4.2 Pre-service resilience studies within a Global South context

Up to date, there is seemingly no nationwide studies investigating pre-service teacher resilience informing resilience within a Global South landscape. Given the limited knowledge outside the Global North and the Global South teaching landscape challenges, it seems timely

to take a national approach to research in this field. This study could thus be expanded to other teacher preparation programmes that prepare students to teach within a Global South context. In this regard, areas of influence which I could not explore in the current study (as explained in Chapter 4) was the effect that other demographic variables (e.g., language) may have on pre-service teacher resilience. Furthermore, future researchers could seek to explore the extant data available from the additional domains (e.g. (i) teacher professionalism [TR-Prof], (ii) teacher emotion [TR-Emot], (iii) teacher motivation [TR-Mot], and (iv) teacher social capacity [TR-Soc]).

Future research on pre-service teacher resilience in a challenged context can benefit from a mixed-method design. Such a design may provide qualitative interpretations of pre-service teachers' internal protective resilience capacities (e.g., high levels of self-efficacy and teacher efficacy beliefs) in a challenged context. Since the current study focused on resilience as an internal trait only, future researchers could explore contextual factors and the resilience process of pre-service teachers in challenged contexts.

5.7.4.3 Longitudinal studies

Besides additional pre-service resilience studies within a Global South context to inform teacher resilience knowledge in a challenged context, longitudinal studies (or a combination of cross-section and longitudinal designs) are needed to understand pre-service teacher resilience better. A longitudinal study could benefit from multi-time measurements and multi-method approaches, including qualitative data. To administer the FIRE Resilience Measure longitudinally from the first to the fourth year for pre-service teachers, but then also during the first year of teaching and thereafter may allow the investigation of resilience's temporal and causal process dimensions (Ungar, 2011).

Inferential statistical procedures can also be performed on biographical variables such as age, which was not feasible in the current study as explained in Chapter 4. Such research may also provide the opportunity to explore the development of a pre-service teacher resilience trajectory in a challenged context which can assist in understanding transformation processes and clarifying different contexts affect results in different ways (Esser & Vliegenthart, 2017).

5.7.4.4 Questionnaire development and standardisation

Given the complex construct of resilience and suitable questions in a challenged South African context (e.g., language categories), teacher resilience measures should be further developed to conduct nationwide longitudinal research. Appraising resilience presents challenges due to resilience's multidimensional and dynamic nature (Beltman et al., 2018). As discussed in Chapter 1, the FIRE Teacher Resilience Measure consisted of items that were sourced from existing scales (Coetzee, 2013; Mansfield & Wosnitza, 2015; Morgan, 2011; Peixoto et al.,

2018; Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012). The scales indicated acceptable reliability and validity in preceding studies (Mansfield & Wosnitza, 2015; Morgan, 2011; Peixoto et al., 2018, 2020; Watt & Richardson, 2007, 2008, 2012; Watt et al., 2012; Wosnitza et al., 2018). Previous studies of the measure were discussed in Chapter 3, while the reliability and validity results of the scales utilised in the current study were described in Chapter 4.

The FIRE Resilience Measure has, however, not been standardised for the South African context. Further questionnaire development in this regard is necessary to consider the instrument used to determine pre-service teacher resilience in a challenged context given cross-cultural and socioeconomic influences in culturally diverse settings. Furthermore, the FIRE Teacher Resilience measure could be translated into isiZulu (indicated as the most spoken language in South Africa in Chapter 1) to be utilised in rural areas to investigate teacher resilience. Providing additional reliability and validity evidence may strengthen the appropriateness of worldwide use and allow for cross-cultural comparisons to expand the generalisability of the constructs. Future researchers could also seek to establish the reliability and validity of the FIRE Teacher Resilience Measures in settings other than South African pre-service teachers. Contextual factors influencing teacher resilience should also be incorporated into questionnaire development to provide necessary information for a challenged context.

5.8 CONCLUDING REMARKS

This chapter provided an overview of the chapters in the current study and compared the results with findings from existing literature. The overview and comparison were followed by addressing the research questions and forming conclusions from the statistical hypotheses. Furthermore, the adapted conceptual framework, based on the findings in the current study, was presented. The chapter was concluded by a discussion of the limitations of the current study and recommendations for further research, practice and training.

The current study contributed to teacher resilience knowledge by comparing the self-efficacy and teacher efficacy beliefs of pre-service teachers in a challenged context. Extant questionnaire data on teacher resilience were analysed, and traits that act as protective resources were identified. I found that the self-efficacy and teacher efficacy, as intrapersonal resilience-enabling pathways to teacher resilience, is high for pre-service teachers in a challenged context (within-case and cross-case analysis). In addition, the teacher efficacy beliefs of pre-service teachers are statistically significantly higher than their confidence to recover from setbacks in schools (within-case and cross-case analysis). Although no statistically significant differences were found between the demographic variables (i.e., gender and enrolled pre-service teaching programme) for the within-case analysis for Case 1 and Case 2, the within-case analysis for Case 3 (2017) demonstrated a statistically significant difference with female pre-service teachers' self-efficacy and teacher efficacy beliefs higher

than their male counterparts. A statistically significant difference was also identified for enrolled pre-service teaching programmes (Case 3) with FP/ECD pre-service teachers' self-efficacy and teacher efficacy beliefs higher than FET phase pre-service teachers. IP pre-service teachers' teacher efficacy was also significantly higher than FET phase pre-service teachers.

In conclusion, the findings of the current study highlight self-efficacy and teacher efficacy as high intrapersonal resilience-enabling pathways in this group. As intrapersonal pathways, self-efficacy and teacher efficacy plausibly enable pre-service teachers to resile despite chronic and cumulative risk factors. Therefore, the findings of this study advance the understanding of teacher resilience in a challenged context. Moreover, the current study informs limited knowledge on quantitatively derived teacher resilience findings from an often-under-represented Global South setting. Evidence from an African perspective is presented to inform global teacher resilience discourses. The current study also contributes to teacher resilience measurement knowledge with insights on the utility of acknowledged teacher resilience scales in South Africa. The findings act as a precursor for comparative teacher resilience results worldwide.

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Appendices

Appendix A:
Background and overview of ENTREE

Appendix B:
FIRE Teacher Resilience Measure

Appendix C:
FIRE Project ethical approval and extracts

Appendix D:
University of Pretoria BEd programme information

APPENDIX A: BACKGROUND AND OVERVIEW OF ENTREE

ENHANCING TEACHER RESILIENCE IN EUROPE (ENTREE): EUROPE & AUSTRALIA [2013-2015] [http://entree-project.eu/en/]

- **Aim:** Project aims to assist teacher face the everyday challenges in school life by enhancing their teacher resilience / To help teachers in Europe to build their capacity for resilience in the face of the increasing demands of a rapidly changing school environment.
- **Resilience definition**: Resilience is understood to be the process by which teacher mange the challenges of their everyday teaching practice and provide quality education for all students. Teacher resilience (within the ENTREE project) refers to the process of, capacity for, or outcome of positive adaptation and ongoing professional commitment and growth in the face of challenging circumstances. Resilience is shaped by individual, situational and broader contextual characteristics that interrelate in dynamic ways to provide risk (challenging) or protective (supportive) factors.
- **Population:** Pre-service and practicing teachers
- **Countries:** EU countries Germany, Ireland, Malta, Portugal and the Czech Republic as well as Australia
- **Funded:** European Commission's Lifelong Learning Programme and is supported by an international consortium of experts provide
- **Measures/framework incorporated/developed**: Created tools and methods to help teachers increase their capacity for resilience. Online and face-to-face training materials crated. Self-assessment tool developed and used. ENTREE teacher resilience measure
- **PI:** Marold Wosnitza [Project Team: Mark Morgan, Carmel Cefai, Matthias Henkel, Francisco Peixoto, Susan Beltman & Caroline Mansfield]

BUILDING RESILIENCE IN TEACHER EDUCATION (BRiTE) [2012-2015] [https://www.brite.edu.au/who-are-we]

- **Aim:** Enhancing teacher resilience. Collaborative project between 3 Australian Universities that developed 5 online modules to support pre-service teachers building resilience for the profession. The aim of this program is to help pre-service teachers build their awareness of the skills and practices that will help facilitate resilience in their teaching career. Develop pre-service teachers' capacity for resilience in Australia. Highlighting and developing strategies that pre-service teachers could use to harness their unique personal resources and resources in their varied contexts.
- **Population:** Pre-service teachers
- **Country:** Australia [Three Australian Universities: Murdoch, Curtin and the University of Wollongong]
- **Method:** Perceptions of 146 final year pre-service teachers were gathered regarding resilience, self-efficacy, commitment and coping before completing the BRiTE modules and their final professional experience school placement. Both pre- and post-school placement measures were completed by 49 participants
- **Measures/framework incorporated/developed:**
  - BRiTE online modules (based on the Keeping Cool) developed include: "**B**uilding Resilience", "**R**elationships", "Wellbe**i**ng", "**T**eaching skills and **E**motions"
- **PI:** Caroline Mansfield, Susan Beltman, Tania Broadley and Noelene Weathersby-Fell [Building on the success of the BRiTE project = 'Staying BRiTE https://www.stayingbrite.edu.au/]

KEEPING COOL: Building Teacher's Resilience Embedding resilience in the initial teacher education curriculum [2009-2012]

- **Aim:** Enhancing teacher resilience. Integrating resilience into teacher education programmes. How do pre-service teachers 'view' resilience?.
- **Population:** Pre-service teachers (98); Early career teachers (161) = N=259
- **Country:** Australia
- **Funded**: Australian Learning and Teaching Council Ltd (ALTC)
- **Method:** Extensive quantitative and qualitative data were gathered through the distribution of a paper-and-pen and online survey to pre-service and early career teachers in 2010 and 2011. Two versions of the survey were specifically designed by members of the project team. The first, tailored for graduate teachers assessed the following core constructs: (1) general teacher self-efficacy; (2) retrospective and prospective motivation for teaching; (3) satisfaction with teacher preparation; (4) self-perceived competency for core teaching skills; and (5) professional plans for the future. The second version, tailored for early-career teachers, measured respondents': (1) general self-efficacy; (2) motivation for teaching; (3) coping skills; (4) optimism and stress in the workplace; (5) general resilience; and (6) plans for the future.
- **Measures/framework incorporated/developed**:
  - Developed the four-dimensional (profession-related, emotional, motivational and social) framework of teacher resilience = capacities/personal resources
- **PI:** Caroline Mansfield & Anne Price [Project Team: Andrew McConney, Susan Beltman, Lina Pelliccione & Marold Wosnitza]
- **Publications**:
  - Literature review: Beltman, S., Mansfield, C., & Price, A. (2011). Thriving not just surviving: A review of research on teacher resilience. Educational research review, 6(3), 185-207.
  - Project summary: Mansfield, C.F. , Beltman, S. , Price, A. and McConney, A. (2012) Don't sweat the small stuff: Understanding teacher resilience at the chalkface. Teaching and Teacher Education, 28 (3). pp. 357-367.

ENTREE TEACHER RESILIENCE MEASURE:

- Global measure of teacher resilience [Teacher Resilience Scale, Morgan 2011]
- Multidimensional Teacher Resilience Scale (MTRS) [Mansfield & Wosnitza 2015]
- Personal Life (Morgan 2011)
- Rumination Scale (Morgan 2011)
- Teacher Commitment (Morgan 2011)
- Teacher Self-Efficacy [Teacher Self-Efficacy (TSE) Scale (Morgan 2011)]
- Social context (Cefai & Cavioni 2014)
- School Support (Morgan 2011)
- Conditions Provided by Institutions for job satisfaction (CPIJS) (Silva 2013)
- Administrative and Policy Demands

CURRENT STUDY FOCUS:
Pre-service teacher self-efficacy (question 114-122 of the *FIRE Teacher Resilience Measure*)

- **Scale:** Teacher Resilience Scale (Morgan, 2011)
- **Items**: 9 items
- **Assess**: Pre-service teachers' confidence in recovery from setbacks in school

CURRENT STUDY FOCUS:
Pre-service teacher efficacy (questions 123-134 of the *FIRE Teacher Resilience Measure*):

- **Scale:** Teacher Efficacy Scale (Morgan, 2011; Peixoto et al., 2018)
- **Items**: 12 items
- **Assess:** Pre-service teachers' confidence in teaching and behaviour management

SCALES UTILISED IN THE ENTREE PROJECT **(**Peixoto, F., Wosnitza, M., Pipa, J., Morgan, M., & Cefai, C. (2018). A multidimensional view on pre-service teacher resilience in Germany, Ireland, Malta and Portugal. In M. Wosnitza, F. Peixoto, S. Beltman, & C. F. Mansfield (Eds.), *Resilience in education: Concepts, contexts and connections* (pp. 73–89). Springer International Publishing. https://doi.org/10.1007/978-3-319-76690-4**)**	**DEVELOPED BY**
Global Measure of Teacher Resilience [i.e., Teacher Resilience Scale (Morgan, 2011)](9 items)	Morgan, 2011
Multidimensional Teacher Resilience Scale (MTRS)(16 items) [developed from BRiTE Project based on the KEEPING COOL Project]	Mansfield & Wosnitza, 2015
Personal Life (4 items)	Morgan, 2011
Rumination Scale (4 items)	Morgan, 2011
Teacher Commitment (8 items)	Morgan, 2011
Teacher Self-Efficacy (added items for ENTREE) (based on) [i.e., Teacher Efficacy Scale (Morgan, 2011)] (6 items)	Morgan, 2011 Peixoto et al., 2018
Social Context (18 items)	Cefai & Cavioni, 2014
School Support (4 items)	Morgan, 2011
Conditions Provided by Institutions for Job Satisfaction (CPIJS) (12 items)	Silva, 2013
Administrative and Policy Demands (6 items)	

SCALES UTILISED FOR THE CURRENT STUDY FROM THE FIRE PROJECT			
ORIGINAL SCALE	**ENTREE SCALE**	**ENTREE SYSTEM LEVEL**	**REFERENCES FOR SCALE DEVELOPMENT**
Teacher Resilience scale (Morgan, 2011) Items: 9	Global Measure of Teacher Resilience (Morgan, 2011) Items: 9	• Global measure of resilience	• Morgan, M. (2011). Resilience and recurring adverse events: Testing an assets-based model of beginning teachers' experiences. *The Irish Journal of Psychology, 32*(3-4), 92–104. https://doi.org/10.1080/03033910.2011.613189 • Peixoto, F., Silva, J. C., Pipa, J., Wosnitza, M., & Mansfield, C. (2020). The Multidimensional Teachers' Resilience Scale: Validation for Portuguese teachers. *Journal of Psychoeducational Assessment, 38*(3), 402–408. https://doi.org/10.1177/0734282919836853 • Peixoto, F., Wosnitza, M., Pipa, J., Morgan, M., & Cefai, C. (2018). A multidimensional view on pre-service teacher resilience in Germany, Ireland, Malta and Portugal. In M. Wosnitza, F. Peixoto, S. Beltman, & C. F. Mansfield (Eds.), *Resilience in education: Concepts, contexts and connections* (pp. 73–89). Springer International Publishing. https://doi.org/10.1007/978-3-319-76690-4
Teacher Efficacy scale (Morgan, 2011) Items: 6	Teacher Self-Efficacy scale (Morgan, 2011; Peixoto et al., 2018 (added items)) Items: 12	• Micro level: domain of beliefs • Understand the teacher's beliefs on which their behaviour is built like self-efficacy: ○ Teacher efficacy for teaching (6 items) ○ Teacher efficacy for behaviour management (6 items)	• Morgan, M. (2011). Resilience and recurring adverse events: Testing an assets-based model of beginning teachers' experiences. *The Irish Journal of Psychology, 32*(3-4), 92–104. https://doi.org/10.1080/03033910.2011.613189 • Peixoto, F., Wosnitza, M., Pipa, J., Morgan, M., & Cefai, C. (2018). A multidimensional view on pre-service teacher resilience in Germany, Ireland, Malta and Portugal. In M. Wosnitza, F. Peixoto, S. Beltman, & C. F. Mansfield (Eds.), *Resilience in education: Concepts, contexts and connections* (pp. 73–89). Springer International Publishing. https://doi.org/10.1007/978-3-319-76690-4

APPENDIX B: FIRE TEACHER RESILIENCE MEASURE

DATE:	
NAME AND SURNAME:	
STUDENT NUMBER:	
AGE:	**GENDER:**
UP PROGRAMME ENROLLED FOR:	
LIST OF LANGUAGES YOU ARE FLUENT IN:	

		Source	Scale	Item	Please choose your answer by circling the appropriate box ranging from: 1 = *Do not agree at all* to 7 = *Strongly agree*						
	The following statements express different views about teaching. Read each sentence and choose the option that better reflects your opinion, by checking the table below										
core	1	CM	TR-Prof	At school I can be flexible when situations change	1	2	3	4	5	6	7
core	2	CM	TR-Prof	I can quickly adapt to new situations at school	1	2	3	4	5	6	7
core	3	CM	TR-Prof	I am well organised in my school work	1	2	3	4	5	6	7
core	4	CM	TR-Prof	I reflect on my teaching and learning to make future plans	1	2	3	4	5	6	7
core	5	CM	TR-Emot	When something goes wrong at school I don't take it too personally	1	2	3	4	5	6	7
core	6	CM	TR-Emot	After reflection, I can usually find the funny side of challenging school situations	1	2	3	4	5	6	7
core	7	CM	TR-Emot	When I feel upset or angry at school I can manage to stay calm	1	2	3	4	5	6	7
core	8	CM	TR-Emot	I balance my role as a teacher with other dimensions in my life	1	2	3	4	5	6	7
core	9	CM	TR-Mot	I am generally optimistic at school	1	2	3	4	5	6	7
core	10	CM	TR-Mot	At school I focus on building my strengths more than focusing on my limitations	1	2	3	4	5	6	7
core	11	CM	TR-Mot	When I make mistakes at school I see these as learning opportunities	1	2	3	4	5	6	7
core	12	CM	TR-Mot	In my role as a teacher I set goals and work towards achieving them	1	2	3	4	5	6	7
core	13	CM	TR-Mot	I have realistic expectations of myself as a teacher	1	2	3	4	5	6	7
core	14	CM	TR-Mot	I believe that if I put my mind to something at school I can be successful	1	2	3	4	5	6	7
core	15	CM	TR-Mot	I am good at maintaining my motivation and enthusiasm when things get challenging at school	1	2	3	4	5	6	7
core	16	CM	TR-Mot	I enjoy learning when I am at work	1	2	3	4	5	6	7
core	17	CM	TR-Mot	I like challenges in my work	1	2	3	4	5	6	7
core	18	CM	TR-Mot	I am persistent in my work	1	2	3	4	5	6	7
core	19	CM	TR-Mot	I believe that I have control over my work life	1	2	3	4	5	6	7
core	20	CM	TR-Mot	It's important to me that I put in effort to do my job well	1	2	3	4	5	6	7
core	21	CM	TR-Soc	When I am unsure of something I seek help from colleagues	1	2	3	4	5	6	7
core	22	CM	TR-Soc	I am good at building relationships in new school environments	1	2	3	4	5	6	7
core	23	CM	TR-Prof	In my role as a teacher, i am a good communicator	1	2	3	4	5	6	7
core	24	CM	TR-Soc	in my work I can look at a situation a number of ways to find a solution	1	2	3	4	5	6	7
core	25	CM	TR-Prof	At work I can view situations from other people's perspectives	1	2	3	4	5	6	7
core	26	CM	TR-Soc	When I am at work I can generally resolve conflicts with others	1	2	3	4	5	6	7

		Source	Scale	Item	Please choose your answer by circling the appropriate box ranging from: 1 = *Absolutely not Confident* to 7 = *Strongly Confident*						
	The following statements express different views about teaching. Read each sentence and choose the option that better reflects your opinion, by checking the table below										
core	114	MM	Resilience	Getting over setbacks in school	1	2	3	4	5	6	7
core	115	MM	Resilience	Bouncing back, when things upset me	1	2	3	4	5	6	7
core	116	MM	Resilience	Carrying on with my school work when things go wrong	1	2	3	4	5	6	7
core	117	MM	Resilience	Carrying on in school when events upset me	1	2	3	4	5	6	7
core	118	MM	Resilience	Feeling certain that things will come right even if there are serious problems in school.	1	2	3	4	5	6	7
core	119	MM	Resilience	Managing negative events in school when I try	1	2	3	4	5	6	7
core	120	MM	Resilience	Coping with most problems on any school day	1	2	3	4	5	6	7
core	121	MM	Resilience	Some negative things that have happened in school have made me better able to deal with problems	1	2	3	4	5	6	7
core	122	MM	Resilience	Not getting disheartend even when children's circumstances make it difficult.	1	2	3	4	5	6	7
core	123	MM	TeachEff	Teaching all the subjects on the curriculum effectively	1	2	3	4	5	6	7
core	124	MM	TeachEff	Explaining difficult material in ways that the children will understand it	1	2	3	4	5	6	7
core	125	MM	TeachEff	Suggesting suitable examples when the children are having difficulty understanding	1	2	3	4	5	6	7
core	126	MM	TeachEff	Teaching in a way that my students will remember important information	1	2	3	4	5	6	7
core	127	MM	TeachEff	Applying the new developments in the curriculum into my teaching	1	2	3	4	5	6	7
core	128	MM	TeachEff	Helping children focus on learning tasks and avoid distractions	1	2	3	4	5	6	7
core	129	new	TeachEff	Managing inappropriate behaviour	1	2	3	4	5	6	7
core	130	new	TeachEff	Encouraging students to take responsibility for their behaviour	1	2	3	4	5	6	7
core	131	new	TeachEff	Dealing with the diverse learning needs of the students in my class.	1	2	3	4	5	6	7
core	132	new	TeachEff	Teaching students positive bahviour	1	2	3	4	5	6	7
core	133	new	TeachEff	Providing students with clear specific behaviour expectations	1	2	3	4	5	6	7
core	134	new	TeachEff	Communicating effectively with parents	1	2	3	4	5	6	7

Please rate how relevant each statement below is in terms of your career as a teacher												
		Source	Scale	Item	Please choose your answer by circling the appropriate box ranging from: 1 = *Do not agree at all* to 7 = *Strongly agree*						
	The following statements express different views about teaching. Read each sentence and choose the option that better reflects your opinion, by checking the table below										
core	1	LE	Contextual	I did not want to become a teacher.	1	2	3	4	5	6	7
core	2	LE	Contextual	I may get to love teaching in future.	1	2	3	4	5	6	7
core	3	LE	Contextual	Teachers have played a positive role in my life.	1	2	3	4	5	6	7
core	4	LE	Contextual	I want to be a teacher who instils hope in learners even in the face of many obstacles	1	2	3	4	5	6	7
core	5	LE	Contextual	As a learner, I attended a school with many challenges and few resources	1	2	3	4	5	6	7
core	6	LE	Contextual	I know how to teach in a school where there are many challenges and few resources	1	2	3	4	5	6	7
core	7	LE	Contextual	As a teacher I want to take initiative to solve problems in schools	1	2	3	4	5	6	7
core	8	LE	Contextual	As a teacher I will wait for government or officials to solve problems in schools	1	2	3	4	5	6	7
core	9	LE	Contextual	I will meet informally with other teachers to discuss ways to deal with challenges	1	2	3	4	5	6	7
core	10	LE	Contextual	I know that teachers have to teach in schools that face many, on-going challenges	1	2	3	4	5	6	7
core	11	LE	Contextual	My spirituality/religion helps me to be a teacher	1	2	3	4	5	6	7

Please briefly state your main reason(s) for choosing to become a teacher:

……
……
……

PART B – INFLUENTIAL FACTORS

For each statement below, please rate how important it was in **YOUR** decision to become a teacher, from **1** (not at all important in your decision) to **7** (extremely important in your decision).

Please **CIRCLE** the number that best describes the importance of each.

"I chose to become a teacher because…"

		not at all important						extremely important	
B1.	I am interested in teaching	1	2	3	4	5	6	7	B1.
B2.	Part-time teaching could allow more family time	1	2	3	4	5	6	7	B2.
B3.	My friends think I should become a teacher	1	2	3	4	5	6	7	B3.
B4.	As a teacher I will have lengthy holidays	1	2	3	4	5	6	7	B4.
B5.	I have the qualities of a good teacher	1	2	3	4	5	6	7	B5.
B6.	Teaching allows me to provide a service to society	1	2	3	4	5	6	7	B6.
B7.	I've always wanted to be a teacher	1	2	3	4	5	6	7	B7.
B8.	Teaching may give me the chance to work abroad	1	2	3	4	5	6	7	B8.
B9.	Teaching will allow me to shape child/adolescent values	1	2	3	4	5	6	7	B9.
B11.	I was unsure of what career I wanted	1	2	3	4	5	6	7	B11.
B12.	I like teaching	1	2	3	4	5	6	7	B12.
B13.	I want a job that involves working with children/adolescents	1	2	3	4	5	6	7	B13.
B14.	Teaching will offer a steady career path	1	2	3	4	5	6	7	B14.
B16.	Teaching hours will fit with the responsibilities of having a family	1	2	3	4	5	6	7	B16.
B17.	I have had inspirational teachers	1	2	3	4	5	6	7	B17.
B18.	As a teacher I will have a short working day	1	2	3	4	5	6	7	B18.
B19.	I have good teaching skills	1	2	3	4	5	6	7	B19.
B20.	Teachers make a worthwhile social contribution	1	2	3	4	5	6	7	B20.
B22.	A teaching qualification is recognised everywhere	1	2	3	4	5	6	7	B22.
B23.	Teaching will allow me to influence the next generation	1	2	3	4	5	6	7	B23.
B24.	My family think I should become a teacher	1	2	3	4	5	6	7	B24.
B26.	I want to work in a child/adolescent-centred environment	1	2	3	4	5	6	7	B26.
B27.	Teaching will provide a reliable income	1	2	3	4	5	6	7	B27.
B29.	School holidays will fit in with family commitments	1	2	3	4	5	6	7	B29.
B30.	I have had good teachers as role-models	1	2	3	4	5	6	7	B30.

"I chose to become a teacher because…"

		not at all important						extremely important	
B31.	Teaching enables me to 'give back' to society	1	2	3	4	5	6	7	B31.
B35.	I was not accepted into my first-choice career	1	2	3	4	5	6	7	B35.
B36.	Teaching will allow me to raise the ambitions of underprivileged youth	1	2	3	4	5	6	7	B36.
B37.	I like working with children/adolescents	1	2	3	4	5	6	7	B37.
B38.	Teaching will be a secure job	1	2	3	4	5	6	7	B38.
B39.	I have had positive learning experiences	1	2	3	4	5	6	7	B39.
B40.	People I've worked with think I should become a teacher	1	2	3	4	5	6	7	B40.
B43.	Teaching is a career suited to my abilities	1	2	3	4	5	6	7	B43.
B45.	A teaching job will allow me to choose where I wish to live	1	2	3	4	5	6	7	B45.
B48.	I chose teaching as a last-resort career	1	2	3	4	5	6	7	B48.
B49.	Teaching will allow me to benefit the socially disadvantaged	1	2	3	4	5	6	7	B49.
B53.	Teaching will allow me to have an impact on children/adolescents	1	2	3	4	5	6	7	B53.
B54.	Teaching will allow me to work against social disadvantage	1	2	3	4	5	6	7	B54.

PART C – BELIEFS ABOUT TEACHING

For each question below, please rate the extent to which **YOU** agree it is true about teaching, from **1** (not at all) to **7** (extremely). Please **CIRCLE** the number that best describes your agreement for each

		not at all						extremely	
C1.	Do you think teaching is well paid?	1	2	3	4	5	6	7	C1.
C2.	Do you think teachers have a heavy workload?	1	2	3	4	5	6	7	C2.
C3.	Do you think teachers earn a good salary?	1	2	3	4	5	6	7	C3.
C4.	Do you believe teachers are perceived as professionals?	1	2	3	4	5	6	7	C4.
C5.	Do you think teachers have high morale?	1	2	3	4	5	6	7	C5.
C7.	Do you think teaching is emotionally demanding?	1	2	3	4	5	6	7	C6.
C8.	Do you believe teaching is perceived as a high-status occupation?	1	2	3	4	5	6	7	C7.
C9.	Do you think teachers feel valued by society?	1	2	3	4	5	6	7	C8.
C10.	Do you think teaching requires high levels of expert knowledge?	1	2	3	4	5	6	7	C9.
C11.	Do you think teaching is hard work?	1	2	3	4	5	6	7	C10.
C12.	Do you believe teaching is a well-respected career?	1	2	3	4	5	6	7	C11.
C13.	Do you think teachers feel their occupation has high social status?	1	2	3	4	5	6	7	C12.
C14.	Do you think teachers need high levels of technical knowledge?	1	2	3	4	5	6	7	C13.
C15	Do you think teachers need highly specialised knowledge?	1	2	3	4	5	6	7	C15.

PART D – YOUR DECISION TO BECOME A TEACHER

For each question below, please rate the extent to which it is true for **YOU**, from **1** (not at all) to **7** (extremely). Please **CIRCLE** the number that best describes your agreement for each.

		not at all						extremely	
D1.	How carefully have you thought about becoming a teacher?	1	2	3	4	5	6	7	D1.
D2.	Were you encouraged to pursue careers other than teaching?	1	2	3	4	5	6	7	D2.
D3.	How satisfied are you with your choice of becoming a teacher?	1	2	3	4	5	6	7	D3.
D4.	Did others tell you teaching was not a good career choice?	1	2	3	4	5	6	7	D4.
D5.	How happy are you with your decision to become a teacher?	1	2	3	4	5	6	7	D5.
D6.	Did others influence you to consider careers other than teaching?	1	2	3	4	5	6	7	D6.

Helen Watt, Faculty of Education, Monash University, Clayton Campus, Melbourne VIC 3800, Australia. Tel: (+61 3) 9905-3276, Email: helen.watt@monash.edu. Paul Richardson, Faculty of Education, Monash University, Clayton Campus, Melbourne VIC 3800, Australia. Tel: (+61 3) 9905-2771, Email: paul.richardson@monash.edu

APPENDIX C: FIRE PROJECT ETHICAL APPROVAL AND EXTRACTS

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Education
Office of the Dean

18 March 2015

Dear Prof Fraser

PERMISSION FOR RESEARCH

Your request dated 18 March 2015 regarding the FIRE 2015 research project refers.

Permission is granted to conduct the research with fourth-year students, as described in the summary of the project.

Kind regards

Irma Eloff
Dean: Education

cc Prof L Ebersöhn

University of Pretoria
PRETORIA 0002
Republic of South Africa

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UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Education

Ethics Committee

4 September 2015

Dear Prof. Fraser,

REFERENCE: UP 14/03/01

Your application was considered by the Faculty of Education Ethics Committee and the final decision of the Ethics Committee is:

Your application is approved.

This letter serves as notification that you may continue with your fieldwork. Should any changes to the study occur after approval was given, it is your responsibility to notify the Ethics Committee immediately.

Please note that this is **not a clearance certificate**. Upon completion of your research you need to submit the following documentation to the Ethics Committee:

1. Integrated Declarations form that you adhered to conditions stipulated in this letter – Form D08

Please Note:

- ***Any*** *amendments to this approved protocol need to be submitted to the Ethics Committee for review prior to data collection. Non-compliance implies that the Committee's approval is null and void.*
- *Final data collection protocols and supporting evidence (e.g.: questionnaires, interview schedules, observation schedules) have to be submitted to the Ethics Committee before they are used for data collection.*
- *Should your research be conducted in schools, please note that you have to submit proof of how you adhered to the Department of Basic Education (DBE) policy for research.*
- *Please note that you need to keep to the protocol you were granted approval on – should your research project be amended, you will need to submit the amendments for review.*
- *The Ethics Committee of the Faculty of Education does not accept any liability for research misconduct, of whatsoever nature, committed by the researcher(s) in the implementation of the approved protocol.*
- *On receipt of the above-mentioned documents you will be issued a clearance certificate. Please quote the reference number:* ***UP 14/03/01*** *in any communication with the Ethics Committee.*

Best wishes,

Prof Liesel Ebersöhn
Chair: Ethics Committee
Faculty of Education

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Education
Department of Science, Mathematics and Technology Education
William.fraser@up.ac.za
18 March 2015

Prof Irma Eloff, Dean
Faculty of Education
Groenkloof Campus

Dear Prof Eloff

FIRE 2015: REQUESTING PERMISSION TO USE FOURTH-YEAR STUDENTS AS RESEARCH SUBJECTS

With the new 2015-NRF grant our focus will shift to fourth-year students' experiences in the development of teacher identities during teaching practice as a community of practice. In 2014, the focus fell on the opinions of principals, parents and mentor teachers on factors impacting on effective schools and effective teachers.

1. We hereby ask permission to engage approximately 800 student teachers during the second and third quarters in Participatory Reflection and Action interventions this year to achieve the following:

(a) Establishment and identification of their (student teachers) perceptions of teacher identities. The main elements of teacher identities will be established during the first phase of the PRA.
(b) During the second PRA session students will list factors contributing to their developing identities. The focus will be on the potential resources.
(c) Thirdly, students will indicate which components will further their development, and
(d) Finally list the action plans to engage the potential resources in the improvement of the teacher identities.

Prof Ferreira will lead the PRA intervention and participating researchers will be briefed by her prior to the commencement of the activities.

2. We also seek permission to apply a quantitative instrument to assess the development of their teacher identities by content validating the instrument against the eight educator roles.

An amendment to the 2014-ethics application will be submitted for approval to the Ethics Committee prior to the commencement of the fieldwork. At this stage we don't foresee engaging school staff members or parents in the research as had been the case in 2014.

Looking forward hearing from you soon.

Prof WJ Fraser
Research Co-ordinator

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Education

Reference:

PERSONAL DECLARATION OF RESPONSIBILITY

Title of research project:

How student teachers and mentor teachers contribute in making teaching more effective

1. I/we declare that I am/we are cognisant of the goals of the Research Ethics Committee in the Faculty of Education to
   - ❑ develop among students and researchers a high standard of ethics and ethical practice in the conceptualisation and conduct of educational research;
   - ❑ cultivate an ethical consciousness among scholars especially in research involving human respondents; and
   - ❑ promote among researchers a respect for the human rights and dignity of human respondents in the research process.
2. I/We subscribe to the principles of
   - ❑ *voluntary participation* in research, implying that the participants might withdraw from the research at any time.
   - ❑ *informed consent*, meaning that research participants must at all times be fully informed about the research process and purposes, and must give consent to their participation in the research.
   - ❑ *safety in participation* put differently, that the human respondents should not be placed at risk or harm of any kind e.g. research with young children.
   - ❑ *privacy*, meaning that the *confidentiality* and *anonymity* of human respondents should be protected at all times.
   - ❑ *trust*, which implies that human respondents will not be subjected to any acts of deception or betrayal in the research process or its published outcomes.
3. I/we understand what plagiarism entails and am/are aware of the University's policy in this regard. I/we undertake not to make use of another person's previous work without acknowledgment or to submit it as our own. I/we also undertake not to allow anyone to copy our work with the intention of using it as their own work.
4. I/we understand that the data collected in the course of our research become the institutional property of the University of Pretoria and I/we undertake to transfer all raw data and documents related to our research for safekeeping as required by the Faculty of Education.
5. I/we understand that any amendment to the approved protocol needs to be submitted to the Ethics Committee for review prior to data collection. Non-compliance implies that approval will be null and void.

Prof WJ Fraser

Applicant | **Signature** | 2014/03/01 **Date**

Supervisor (if applicable) | **Signature** | **Date**

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
Faculty of Education

Reference:	

Answer all questions honestly in full. The reviewers base their decisions on the information provided on this application form. Incomplete applications cannot be evaluated fairly. Please provide the Ethics Committee with a typed application that addresses the following ethical considerations.

Please only complete THE RELEVANT SECTION APPLICABLE TO YOUR RESEARCH PROJECT
SECTION A: RESEARCH PROJECT INVOLVING HUMAN RESPONDENTS
SECTION B: COMMUNITY ENGAGEMENT PROJECT
SECTION C: SECONDARY ANALYSIS OF EXISTING DATA
SECTION D: COMMISSIONED RESEARCH
SECTION E: AMENDMENTS TO APPROVED APPLICATION (INCLUDING CHANGES TO INSTRUMENTATION, CO-RESEARCHERS, PARTICIPANTS)

SECTION A: RESEARCH PROJECT INVOLVING HUMAN RESPONDENTS

1. DESCRIPTION OF RESEARCH PROJECT

1.1 Please provide a brief summary of the proposed research initiative. Include the main research question(s), rationale for this inquiry as well as its scientific importance. Mention the benefits which are likely to be derived from the project as well as its anticipated duration.

The literature is relatively silent regarding the student teachers' understanding regarding their own contribution in the classroom towards school effectiveness. Furthermore, the concept and construct of 'school effectiveness' in itself could remain problematic to many student teachers as the theory underpinning the phenomenon on 'school effectiveness' might not have been dealt with that comprehensively during the teacher training programme. However, students should understand that 'school effectiveness' is a culmination of multiple variables impacting on the classroom and school activities. These factors have been described very comprehensively by Bosker and Scheerens [s.a]; Creemers [s.a.]; Scheerens (2000); Scheerens (2013 and Scheerens and Creemers (1989). Students are also not that well informed regarding the theoretical frameworks describing the main elements and events leading to an effective school as many of them are not acquainted with aspects such as input factors (parents, teachers and learners), process factors (school management factors, classroom teaching and classroom learning) and output factors (test and examination scores, school successes and pass rates).

But there is another input factor we should consider carefully when looking at school effectiveness and that is the training and preparation of the student teacher when entering schools for the first time. We need to ask to what extent and how well these students teachers have been prepared when having to teach for the first time, how well are they acquainted with the subject content covered by the school curricula and how whell have they been prepared professionally to teach and to deal with the realities of the classroom and school environment?

The outcomes of this investigation will attempt to address and close this specific gap by informing student teachers and also teachers participating in the investigation on the theory and practice of the classroom and school factors impacting on school effectiveness. Not only will the outcomes inform student teachers and classroom teachers, but also teacher educators involved with the initial training of educators.

The study will attempt to address the following research question:

What are the opinions of mentor teachers and parents regarding the characteristics of an effective school, and what should be the qualities of student teachers visiting a school during teaching practice for the first time?

Supplemental to the main research question the following secondary research questions will contribute to achieve the outcomes envisaged with the primary research question:

The first sub-question deals with mentor teachers' perceptions of effective teachers.

1.1 What are according to mentors teachers the ideal characteristics of an effective teacher?

The second sub-question deals with mentor teachers' perceptions of an effective school.

1.2 What are mentor teachers' perceptions of an effective school?

The third sub-question requests parents to indicate what according to them should be the most ideal characteristics of an effective teacher.

1.3 What should be according to parents the characteristics of an effective teacher?

The fourth sub-question deals with mentor teachers' perceptions of the ideal characteristics of a student teacher entering a school for the first time.

1.4 What should be according to mentor teachers the ideal characteristics of a student teacher entering a school for the first time?

The last sub-question addresses principals' expectations of the qualities a student teacher should possess when entering the school during teaching practice for the first time.

1.5 What are according to principals the three most important qualities student teacher should possess when entering schools for the first time during teaching practice?

2. RESEARCH DESIGN/METHODOLOGY

2.1 Please provide a full description of the research design/methodology, and processes that will be used. Include details relating to the research sites and data collection protocols.

Both qualitative and quantitative approaches will apply to the investigation. The study will not rely on a classical integrated multiple (mixed) methods approach but more on a predominantly quantitative design, followed by a supplemental short qualitative investigation. The data collected by means of questionnaires (semantic differentials) will precede possible interviews to be conducted with the school principal.

All student teachers as part of JNM 410 received a short reading list covering the work by authors such as Bosker, Creemers and Scheerens who have worked very comprehensively on school effectiveness. These articles deal with school effectiveness from an input, process and output point of view and students were requested as part of Assignment 1, to compile a short but comprehensive synopsis of how different factors could impact on school effectiveness. The articles deal with the interpretation of school effectiveness results, a model of school effectiveness, monitoring school effectiveness in developing countries, the improvement of school effectiveness and the conceptualisation of school effectiveness.

Student teachers will be placed in 160 'controlled' Pretoria schools and in 100 other schools outside the Pretoria area during the second quarter of 2014. However these numbers are not fixed and could change.

Sampling should be regarded mainly as purposive although elements of convenience are also present as students from Block B (first quarter) and students from Block A (second quarter) will not engage with their mentor lecturers as they will not be assessed by them during the second quarter of 2014. All 680 students enrolled for JNM 410 and JNM 451 will participate in the study and the data collected, coded, transcribed and reported by the students will contribute towards the final mark for JNM 420. The JNM 451 students however will only collect information and return the questionnaires for processing as they are not further involved in JNM 420. The reader should note that for the purpose of JNM 420 the data collected will not be reported and published as Block B schools during the second quarter of 2014 will not be approached to participate in the study as many of these schools fall outside the jurisidiction of the GDE. However, permission will be sought from the GDE to conduct research in Block A schools (second quarter and third quarter) where student teachers will be controlled by mentor lecturers. Furthermore the GDE will be approach to grant permission and allow student teachers to engage with mentor teachers where mentor lecturers will participate with their students in responding to a number of questionnaires. One student

teacher leader per school will also conduct one interview with the school principal.

Because the study only focuses on the school effectiveness process factors and how these factors relate to school effectiveness, the content validation of the measuring instruments was dealt with from a management, administrative, teaching, monitoring and assessment point of view.

During the first activity of the study mentor teachers will use a questionnaire (semantic differential scale) (Instrument A) to indicate what according to them are the characteristics of an effective teacher.

During the second activity of the study mentor teachers will again use questionnaires (semantic differential scale) (Instrument B & C) to indicate what according to them should be the charateristics of an effective school, as well as the characteristics of a student teacher entering a school for teaching practice for the first time.

During the third activity of the study parents will use a questionnaire (semantic differential scale) (Instrument D) to indicate what according to them should be the characteristics of an effective teacher.

During the fourth activity of the study one student teacher leader per school will conduct a short interview with the principal to determine what according to her/him should be the three most important qualities a student teacher visiting a school for the first time during teaching practice should be able to demonstrate (Instrument E).

2.2 Should clinical data form part of the data sources in this study, detail the relevant processes for obtaining permission and informed consent to use such data.

n/a

2.3 If this is intervention research, describe the nature of the intervention and provide details about the scientific merit of the intervention you intend to study.

n/a

Please note that you have a responsibility to ensure that you disclose fully the scientific status of the intervention to your participants when you invite them to participate in your research. Participants have the right to know to which degree the procedures and instruments you intend to use are accepted by the scientific community.

3. HUMAN PARTICIPANTS

3.1 Describe who will be participating in the study. Mention any other special criteria that may apply to your study.

Role	Vulnerability status	Institutional affiliation	Justification for participation
Close to 680 Final Year Teaching Practice Students part of Block A (second quarter) and Block B (third quarter) (Controlled Students)	Low	University of Pretoria JNM 410 and JNM 451 Students	The student teachers will collect data by informing, distributing and collecting the different questionnaires that will be distributed to mentor teachers and parents.

Mentor Teachers	Low	Gauteng Department of Education Public schools (Greater Pretoria Area) and Gauteng Private Schools (Greater Pretoria Area) attended by student teachers during teaching practice	Complete questionnaires (semantic differential scale) regading their opinions of effective schools (Instrument B), teachers (Instrument A) and student teachers (Instrument C). The focus is not on a specific school, a specific student teacher or on a specific teacher, but on schools in general.
Parents	Low	Parents of learners taught by student teachers during teaching practice in Gauteng public schools (Greater Pretoria Area) as well as private schools in the same area where student teachers will be assessed by mentor lecturers.	Complete questionnaires (Instrument D - semantic differential scale) regading their perceptions of effective teachers. The focus is not on a specific teacher but on teachers in general.
Principals	Low	Gauteng Department of Education Public schools (Greater Pretoria Area) and Gauteng Private Schools (Greater Pretoria Area) attended by student teachers during teaching practice	Will respond to the questions (Instrument E) of the student teacher leader in a short interview regarding her or his opinion regarding the three most important characteristics students teachers should be able to demonstrate when visiting schools for the first time.
Student Teacher Leaders	Low	University of Pretoria JNM 410 and JNM 451 students.	Will to conduct one short interview (Instrument E) with the school principal regarding her or his opinion regarding the three most important characteristics students teachers should be able to demonstrate when visiting schools for the first time.

Please ensure that you attach to this application a draft letter of invitation to participate in the research on a UP letterhead for each group of participants in your study. Make sure that the content of the letter reflects the content of issues outlined in this application. The letter of invitation must be signed by the student and supervisor(s) but should not be signed by the participants yet.

3.2 Describe your sampling procedure. Include how you will recruit and select participants. Attach as addenda any draft versions of adverts/letters inviting participation in your project.

All student teachers listed as Block A (Second quarter) and Block B (Third quarter) undergoing their teaching pratice in public GDE schools and private schools in the Greater Pretoria Area will form part of the reseach sample. Could be regarded as purposive sampling and convenient sampling as the grouping of the students had been done in advance to match the availability of mentor lecturers able to visit and assess them during teaching practive.

3.3 Please provide additional information regarding the criteria that will be used as the basis for inclusion/exclusion of certain participants.

Technically no fourth-year student will be excluded from the first and third phases of the study (observation of classroom practice and observation of mentor teacher's classroom practice). The only fourth-year students excluded from the study will be those students who will not be joined by their mentor lecturers (subject methodologists) during the final phase (Phase 5) of the investigation. Many mentor lecturers have indicated that they would wish not to form part of the investigation this year. The JNM 451 pipeline students will only be collecting data during the second quarter of 2013 and return the completed questionnaires and interview schedules for processing. They don't do JNM 410 and therefore don't have to compile a final report.

APPENDIX D: UNIVERSITY OF PRETORIA BED PROGRAMME INFORMATION

Faculty of Education

Fakulteit Opvoedkunde
Lefapha la Thuto

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

2016
BEd PROGRAMME INFORMATION

GENERAL INFORMATION

REGULATIONS AND CURRICULA

The rules for the degrees published here are subject to change and may be amended prior to the commencement of the academic year in 2016.

The General Regulations (G Regulations) apply to all faculties of the University of Pretoria. It is expected of each student to familiarise himself or herself well with these regulations. Ignorance concerning these regulations will not be accepted as an excuse for any transgression.

1 Admission to degree studies

1.1 General

1.1.1 To register for a first bachelor's degree at this University, a candidate must in addition to the required National Senior Certificate with admission to degree studies, comply with the specific admission requirements for particular modules and fields of study as prescribed in the admission regulations and the faculty regulations of the departments.

1.1.2 The following persons may also be considered for admission:

- A candidate who is in possession of a certificate which is deemed by the University to be equivalent to the required National Senior Certificate, with admission to degree studies.
- A candidate who is a graduate from another tertiary institution or has been granted the status of a graduate of such an institution.
- A candidate who completed the Institutional Proficiency Test successfully, as prescribed by the University.

1.1.3 Senate may limit the number of students allowed to register for a module/ programme, in which case the Dean concerned may, at her/his own discretion, select from the students who qualify for admission those who may be admitted.

1.1.4 Subject to faculty regulations a candidate will only be admitted to postgraduate bachelor's degree studies, if he or she is already in possession of a recognised bachelor's degree or equivalent qualification.

2 Registration for a particular year of study

At the beginning of an academic year, a student registers for all the modules he or she intends taking in that particular year (whether these be first semester, second semester or year modules). A student may also only register for modules that will fit in the lecture, test and examination timetables.

3 Examination admission and pass requirements

A sub-minimum of 40% is required for the year and/or semester mark for admission to the examination in each module. A student who obtains a final mark of 40 – 49% in a module qualifies for a supplementary examination. If a pass mark has been obtained in a module, but the required sub-minimum of 40% has not been obtained in the examination, the student will have to write a supplementary examination. A final mark of at least 50% is required to pass a module.

3.1 Examinations

The examinations for first semester modules take place in May/June, while all other examinations (second semester modules and year modules) take place in October/November.

3.2 Ancillary examinations

After completion of an examination and before the examination results are published, the examiners may summon a student for an ancillary examination on particular aspects of the work of that module.

3.3 Aegrotat/extraordinary examinations

Students, who do not write their examinations on the scheduled day, may apply for an aegrotat /extraordinary examination at the Student Administration Offices. Lecturers are not allowed to grant any permission for this category of examination. It is the responsibility of the student to ascertain whether his/her request has been successful. If permission has been granted, the student must write the aegrotat/extraordinary examination during the supplementary examination. Such a student will not qualify for a further supplementary examination.

Application for the above examination must be handed in at the Student Administration Offices together with a valid medical certificate not later than three working days after the module should have been written.

A student who has been granted permission to write an aegrotat/extraordinary examination and who then fails to write the examination will not qualify to submit any such application at a later stage.

A medical certificate will not be accepted where it states that a student appeared ill or declared him-/herself unfit to write the examination.

1.5 Degree with distinction

1.5.1 BEd Foundation Phase teaching

The degree is conferred with distinction to a student who obtains an overall weighted average (GPA) of 75% or higher in the BEd programme, with the condition that the degree is completed in the prescribed 4 years.

1.5.2 BEd Intermediate Phase teaching

The degree is conferred with distinction to a student who obtains an overall weighted average (GPA) of 75% or higher in the BEd programme, with the condition that the degree is completed in the prescribed 4 years.

1.5.3 BEd Senior- and Further Education and Training Phase teaching

The degree is conferred with distinction to a student who obtains an overall weighted average (GPA) of 75% or higher in the BEd programme, with the condition that the degree is completed in the prescribed 4 years.

2 Packages in the BEd programme

2.1 Foundation Phase Teaching (Code 09133011)

Package coordinators: Prof JC Joubert and Dr JC van Heerden
Tel: 012 420 5636/5563,
email: Ina.Joubert@up.ac.za and judy.vanheerden@up.ac.za

Module description	Module code	Credits			
		Y1	Y2	Y3	Y4
Fundamental modules					
Academic information management	AIM 101 or AIM 111, 121	6 8			
Literacies in education	JLZ 110, 120 or JLZ 111, 121	12			
First aid	JNH 454				3
Core modules					
Education	OPV 112, 122 OPV 212, 222 OPV 312, 322	24	40	60	
Literacies in education	JLZ 300			12	
Research project	JNM 461, 464				24
Teaching practice	PRO 260 PRO 360 PRO 452, 453		6	6	56
Health and safety	JGV 210		6		
Foundation phase mathematics	JGS 121 JGS 211 JGS 212	6	12 12		
Literacy practices	JGL 110 JGL 200 JGL 311 JGL 461 JGL 464	6	24	6	6 6
Human movement studies	JMB 124	6			
Learning support	JLD 220		12		
ECD-studies	JVK 130	12			
Professional practice	JFP 111 JFP 451	6			12
Arts and culture	JLK 110, 120	12			
NS and technology	JST 320			12	
Life skills programme	JLP 220		12		
Methodology of learning support	JMD 351			6	
ECD-studies or Learning support	JVK 400 or JLD 400				24 24

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