DEFIC DEVELOPMENT FINANCE CENTRE | GSB Graduate School of BUSINESS UNIVERSITY OF CAPE TOWN | MCom

Alternative financing of teacher education in South Africa: Stakeholder affinity

A Dissertation presented to

The **Development Finance Centre (DEFIC)**
Graduate School of Business
University of Cape Town

In partial fulfilment
of the requirements for the Degree of
Master of Commerce in Development Finance

by

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February, 2018

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Table of Contents

Abstract - Open

Adequately prepared quality Maths and Science teachers are crucial to addressing South Africa's poor learner results and the associated skills development shortages. South Africa has been characterised by dismal and worsening matric SMT results over the past two decades, which jeopardises current and future prospects of a successful transitioning in the fourth industrial revolution. Critically underpinning this dismal performance are teacher quality and quantity. South Africa's public education sector is known for its ill-prepared and unqualified teachers who struggle specifically with contextual application abilities. While past scholarly research and policy interventions have focused on financing teacher education quantities with considerable success, little if anything has been documented about innovative project financing approaches to quality teacher training, and the potential for wholesale adoption in social entrepreneurship, public-private partnerships in resource constrained contexts. SIBs were identified as a potential complementary finance model mainly due to identified characteristics and associated benefits. A qualitative study was conducted in order to find out how South African stakeholders can navigate the operational and associated financial challenges of developing quality Maths and Science teachers for the public sector. The study, limited to the capacity building dimensions of teacher training in South Africa, endeavored to understand how alternate financing mechanisms could respond to some of the key challenges of developing quality teachers. Interviews were conducted with the relevant participants in a SIB which included Education government representatives, teacher training service providers and private sector financiers.

The research identifies that the value of implementing a SIB in teacher training is based on its ability to accommodate heterogeneous outcomes of an alternative holistic teacher training framework. This models strength lies in its reliance on strong partnerships for both implementation and financial outcomes. The SIB model finds its theoretical framework in project finance and has characteristics that can be seen as complementary solutions to the key challenges of developing teachers as well as a potential solution for wholesale implementation. From an operational perspective, the SIB creates a platform for the public educations lack of quality teacher infrastructure to leverage off private education's quality teacher infrastructure in capacitating current and incoming teachers into the public sector. Thus allowing for the education sectors to collaborate and cross pollinate skills, resources and knowledge for the benefit of boosting the public sectors teacher training implementation capabilities. This ensures that the right skills, competencies and platforms are utilised in tackling challenges emanating from insufficient, irrelevant and unsupported experiential learning. The model also places

outcomes at the centre and as a driving force for quality teacher delivery. This encourages stakeholders to earnestly consider quality teacher characteristics and include the associated key performance indicators at the different stages of development. This shifts the focus of teacher training delivery in South Africa to being outcomes driven rather than being inputs focused. This shift has proven to be a more cost effective method of addressing social challenges.

From a financial perspective, once the requirements from public and private financial sectors have been met, the model also taps into new capital sources for scaling the implementation of a holistic teacher training model. The additional resources also enables government to introduce social entrepreneurs into education delivery and scale funding innovative preventative teacher training solutions.

The PPP model is not without its challenges within the South African teacher education landscape. However conceptually, all the stakeholders appear keen to further engage and explore the merits of the holistic quality teacher framework, representing an emerging opportunity towards collaborative efforts in lure of a common social goal. Factors such as the alignment of objectives amongst stakeholders and additional revenue streams were identified as dominant stakeholder incentives affirming the desire to engage. Meanwhile, factors such as challenges with quantifying and measuring teacher quality, implementation and execution risk, and trust deficit issues were identified as dominant challenges that highlighted stakeholder key reservations with the framework.

LIST OF TABLES AND FIGURES:

CHAPTER 1: INTRODUCTION

1. 1 Research Area

Strong arguments suggest that teacher quality and quantity challenges are among the main reasons behind the poor Science Maths and Technology (SMT) learner results plaguing the majority of South Africa's black students. "Teacher quality" is globally acknowledged as central to learner outcomes and quality education (OECD, 2011). It is also closely associated with consistent growth levels in learner attainments (Hanushek & Rivkin, 2006). However it is noted that though teacher quality is strongly correlated to learner outcomes, education quality is also influenced by factors inside and outside the classroom. In South Africa those are predominantly lack of educational resources, large class sizes, lack of parental involvement, socio-economic background challenges, learning language being different from mother tongue (Dhurumraj, 2013; Lewin, 2004), poor ineffective school leadership and disruptive teacher unions. Given the strong relationship between dismal SMT learner results, quality teachers and their adverse effect on economic development, it is important to explore how quality SMT teachers can be developed within the context of South Africa's challenges. For the purposes of this research the focus will be on teacher quality as it is central to leaner outcomes (McKinsey, 2007).

It is understood that South African SMT teachers are of poor quality as they are ill-prepared and unqualified for the realities of teaching in the country. Research reveals that these teachers lack pedagogical, conceptual and content knowledge, especially in Maths, English, Science and Technology (DHET, 2011,2012; Taylor & Taylor, 2013; Taylor, Van der Berg & Mabogoane, 2013). These in most cases are due to poor preparation programmes, a lack of available teacher interest and lack of experiential time in the classroom (Makgato & Mji, 2006). Sadly, these teachers are predominantly located in black and rural schools (Taylor & Spaull, 2015). The challenge of teacher quality in recent years has been significantly attributed to the process and manner in which teachers are prepared in the country (Hendrickse, 2016). The lack of the relevant implementation of the necessary policies and processes, lack of innovation, inability to implement at scale alternative solutions is attributed to a resource constrained public purse. Since public education and its provision is seen as a public good, its funding and implementation has been the sole responsibility of government and public funds. Thus the

current traditional finance model is seen as an enabler and supporter to the status quo of teacher training in South Africa.

International researchers from developed and developing countries have looked into the different requirements and models for successfully developing quality teachers. Analysing this literature is important because it gives insights into how poor quality teaching can be addressed in different constituencies. The common requirements that have been identified for preparing quality teachers who value lifelong learning include rigorous recruiting of the right calibre of candidates and teacher programmes of high quality (curriculum and pedagogy). Additional factors, such as mentorship of teaching students throughout their training and after graduation, extensive professional learning, compensation and extensive practical learning are also fundamental (Darling-Hammond, Wei & Andree, 2010; Stewart, 2010/2011). This is of particular interest to a country like South Africa that is looking at improving its dismal SMT learner outcomes. The sheer scale of this challenge means that sole government intervention does not suffice.

At the same time the growing innovation in teacher training by the NGO (non-governmental organisations) and Private Education in partnership with the private sector through CSI (Corporate Social Investment) has been an important development. They have piloted the teacher-internship models, albeit on a small scale. These models allow for the building on of existing institutional structures whilst leveraging off other available structures for the necessary practical work experience. This dual training system enables an effective link between teacher training and work experience (Gill, Fluitman & Dar, 2000) which is highly lacking in South Africa. These teacher internship models have been identified to address issues of poor teacher candidates, offer academic support and class room coaching by highly qualified teachers, whilst based in exemplary learning environments. The models are strong reflections of Public Private Partnerships working together to address the social challenge of poor teacher training. However at the same time, government is considering alternatives to supplement the challenges of the current teacher training programs, by incorporating induction programs for beginning teachers who struggle with adjusting to classroom realities (Mulkeen, Chapman, DeJaeghere, & Leu, 2007). The efficiency of these inductions to tackle the South Africa teacher challenges remains to be seen. The teacher internship models effectiveness has not been tested at scale within the public sector due to financial constraints and the induction program also hasn't been implemented and tested due to lack of funding.

SIBs, who's theoretical framework is found in project finance, were identified as a potential complementary finance model mainly due to their characteristics and associated benefits. Project Finance which is predominately a PPP contractual relationship has been used for decades to scale infrastructural development programmes that government wouldn't ordinarily be able to implement due to lack of finances. Thus SIB's enable the consolidating of public and private sector resources and skills to fund and implement innovative teacher training solutions whether identified by government or social entrepreneurs. These additional resources can decrease the burden on the public budget whilst meeting the financial needs of wholesale implementation of optimal teacher training programs that address the challenges of teacher training. However there are other capital raising models such as diaspora bonds and social bonds used in other developing countries to fund the improvement of teacher quality. This brings into the debate whether increased resources alone suffice for improving quality education.

SIB's in education can also be used for dual training models by enabling different stakeholders, such as the public sector, private sector and communities, to collaborate in addressing skills challenges, promoting an integrated approach to education and training for the needs of the labour market, in a similar manner as a project finance PPP's (Euler, 2013). PPP's in the form of dual training models are particularly relevant for addressing South Africa's teacher quality challenges as they make on the job training and outcomes an intended part of their operations. These models allow for the building on of existing institutional structures whilst leveraging off other available structures for efficient wholesale operational implementation. Thus SIB's can be beneficial for efficient implementation of innovative teacher training models.

Despite their potential, PPP's face a number of distinct challenges due to their nature as PPP's, as well as the conflict between social and commercial objectives. Despite the potential that this model holds, several challenges arise from the involvement of a number of different stakeholders, namely the public and private sector (Euler, 2013). PPPs in South Africa are seemingly plagued by a lack of political will, mistrust between parties, inconsistent ideologies and the lack of skills to carry out the key mandate (Castalia Strategic Advisors, 2007; Kruss, Wildschut et al., 2012). Amidst all the noted challenges, dual training systems for vocational subjects have worked very well in countries such as Germany to meet their key objectives. The only challenge for South Africa will be whether there are genuine political and private sectors

which are willing to commit to new policies pertaining to the training of future teachers. Though this model has been effective for the funding of infrastructural development, the jury is still out on its ability to deliver on soft infrastructure, in this case improved teacher quality in the public sector.

1.2 Problem Statement and Research Questions

The strong relationship between the South African dismal learner results and poor quality teachers is a constant threat to South Africa's ability to successfully transition into the fourth industrial revolution. While past scholarly research and policy interventions have focused on financing teacher education quantities with considerable success, little if anything has been documented about innovative project financing approaches to quality teacher training, and the potential for wholesale adoption in social entrepreneurship, public-private partnerships and resource constrained contexts.

In order to assist the government and other stakeholders with an interest in education, as well as the economic trajectory of South Africa, with improving quality teacher training, researchers need to find answers to specific gaps that prohibit the current quality teacher training in SMT. Research into alternate innovative financing models, such as Social Impact Bonds (SIB) which are a project financing approaches, has been conducted prior, especially by the health fraternity (Dalberg Capital Partners, 2013). This research has indicated the success of using alternate innovative financing models in addressing health challenges, and questions have been raised about how these models can be replicated in other social sectors. Hence, alternate financing in education is starting to grow in some developing countries in areas such as the education of girls and funding of low fee-paying private schools (Dalberg Capital Partners, 2013). However, not much research has been conducted within the teacher education sector (Bellinger & Fletcher, 2014).

Hence, the core research question for this study is: How can South African stakeholders navigate the operational and associated financial challenges of developing quality Maths and Science teachers for the public sector? To assist in scoping the main research question, the following sub-research questions were the focal point; firstly, identification of the ideal characteristics of an alternative teacher education model, and secondly, identification of the

ideal characteristics of an enabling funding structure. The third sub-research question is identification of the incentives and challenges that would drive stakeholder engagement. The intended research is, however, limited to focusing on the capacity building dimensions of teacher training in South Africa.

1.3 Purpose and significance of research

Initial Teacher Training (ITT) in the form of teacher internships is the most commonly used model globally for combatting diverse teacher challenges, such as quality teacher shortages. However this model is described as a critical but expensive investment, due to the additional requirements of the model. In the current environment of growing financial constraints in education, increasing the use of this model or exploring alternative teacher training initiatives presents significant financial challenges which deter adequately meeting the obligation of developing quality teachers (Chapman, Chen, & Postiglione, 2000).

The findings of this research will extend existing theory by interrogating the missing gaps for solutions pertaining to poor quality teachers in the public sector. Initial teacher training for public basic education will be compared to the teacher quality of independent basic education, as well as in relation to global working models. Theoretical contributions will be made towards the development of a holistic, relevant teacher-training model for the public basic education sector that is innovatively funded by different stakeholders.

The key stakeholders that this research may benefit are the DBE and the Department of Higher Education and Training (DHET) as they navigate the terrain of improving learner results by improving teaching quality. The National Treasury, Corporate Social Investment divisions, social impact investors, foundations, NGOs, social entrepreneurs in education, and philanthropists. The information will enable them to derive value from the research as they seek projects to fund that will add value, make an impact and provide a meaningful contribution to the development of South Africa's education sector. The research will also contribute to global knowledge creation, as there is limited research on holistic teacher training models financed through innovative finance methods.

1.4 Research assumptions

The intended research is limited to focusing on the capacity building dimensions of teacher training in South Africa. This thesis will not endeavor to investigate the direct relationship between the learner and the teacher. There are a number of factors contributing to South Africa's perceived poor education status. This research will not be addressing all the challenges pertaining to the provision of education.

Financial constraints within the public education sector are seen as a hindrance to meeting the goals of quality education. The intended research is not designed to find an innovative financial solution that will solve all the monetary challenges within the education sector. However, it will endeavor to present itself as an alternative complementary funding method to government teacher training spending in education. Innovative finance mechanisms are to be perceived as a support to working teacher-training models rather than being the sole solution to teacher training challenges. The framing, design and analysis of the study also incorporates the following assumptions: (1) the participants will give valid and reliable information, as well as open and honest feedback; (2) the research will focus mainly on innovative finance instruments, with a specific focus on SIBs. SIBs are not the only alternative to funding solutions in education; and (3) the private sector is looking for ways to respond to the education and skills development crisis in South Africa.

1.5 Research ethics

This research was approved by the Commerce Faculty Ethics in Research Committee of UCT's Graduate School of Business. The participants were notified that their involvement in this research was voluntary. Due to the nature of the study, they were advised that they would need to provide the researcher with some minimal background information. They were further advised that all their responses would be treated as confidential and used for the purposes of this research only. They were informed that they did not have to answer any questions they did not want to answer. If at any time, they did not want to continue with the interview, they could decline. The entire interview would take approximately one and a half to two hours. To maintain the essence of their words for the research, each session was recorded. At any time, they could request to see or hear the information the researcher collected.

Excerpts from the interviews could be included in the final dissertation report or other later publications. However, under no circumstances would the interviewee's name, or the name of the organisation or identifying characteristics appear in these writings. If, at a subsequent date, biographical data became relevant to a publication, a separate release form would be sent to them.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Teachers can be viewed as the cornerstones of any education system. Teacher quality's strong correlation with learner outcomes has been globally confirmed and cannot be ignored. This is no different in South Africa, it seems. Since the advent of democracy in 1994, South Africa has been plagued with poor learner Maths and Science results; skills shortages - especially in Science Technology English and Maths (STEM); rising youth unemployment, which in 2015 sat at about 50%; and poor prospects for economic growth (Statistics South Africa, 2015, p. 6). At the same time, South African Maths and Science teachers are deemed to lack strong content knowledge, have poor approaches to pedagogy and – most importantly – struggle to contextualise theory in real-life schooling environments (DHET, 2011, 2012; Taylor & Taylor, 2013; Taylor, Van der Berg & Mabogoane, 2013). Thus, it is no secret that South African teacher quality plays a significant role in contributing to the challenges outlined above.

The current route for developing teachers in South Africa through tertiary institutions is seemingly inadequate and has been described, at times, as producing unqualified teachers who are not classroom-ready. However, the manner in which teachers are best developed is under constant theoretical review and reconstruction. Teacher preparation is heterogeneous in nature and requires a number of different inputs.

Some developed countries, such as Finland, Singapore and others which produce top learner numeracy results, have strong reputations for developing quality teachers and key lessons can be acquired from them. Certain developing Asian countries have now started focusing on alternative routes of developing quality teaching as well, although these practices are still in the early stages to be able to draw concrete lessons from. Some of the solutions used to develop quality teachers in other developed and developing countries around teacher education may not be directly applicable to South Africa. South Africa is analytically distinct from some of the identified developed and developing countries for several reasons. These include the lingering of the generational legacy of apartheid in society and the schooling system. The current education system is rigged with significant operational and contextual challenges, such as a high number of dysfunctional schools, disruptive unions, a lack of leadership, a lack of parental involvement, and learners who face significant socio-economic challenges (Makgato & Mji, 2006). South Africa also has a highly unionised teacher fraternity that tends to flex its muscle

in a disruptive manner. The unions weigh in on any proposed changes to matters that affect teachers. Nevertheless, if South Africa is to start working on producing better quality teachers who are classroom ready, alternative teacher education models will need to be explored with the key decision-makers in the room. The current conventional teacher education model would probably need changes that require additional funding. Thus, the traditional teacher training structure may require additional inputs and an alternative funding mechanism to compensate for the overall financial challenges in identified teacher development.

Though the South African budget for education is favourable in comparison to international standards, that budget is predominantly used for teacher salaries. There is thus not sufficient capacity in the budget alone to innovate and take on additional financial responsibilities such as training. In the same breathe, South African Treasury is consistently faced with matters of spending inefficiencies, and in most cases, it is unable to correlate investment spent and obtained results. In general, the inefficiencies are caused by a lack of the relevant skills in the different sectors. These reasons are explored further in the literature and findings section in Chapter 4. SIBs that find their theoretical framework in project finance and PPPs were identified as a potential complementary finance models, mainly because of their identified characteristics and associated benefits. SIBs have been previously used to alleviate social challenges in areas such as recidivism and girls' education, in both developed and developing markets. However, there are no teacher education models funded through a SIB model, hence the current study.

The study, endeavoured to determine from a number of different stakeholders, who have a direct or indirect vested interest in the identified teacher quality social issue, how we can address the operational and financial challenges related to the production of quality SMT teachers. It also explored the associated affinity levels.

2.2 Teacher quality: South African Context

The state of the South African education "crisis" is witnessed significantly amongst the disadvantaged black African population (Spaull, 2013). There is a growing concern and debate every year regarding learners' poor performance, specifically in Maths and Science, with international test results consistently re-affirming this issue. International literature clarifies the strong relationship between teacher quality and learner outcomes (McKinsey and Company,

2007). Though South Africa is aware of the strong link between learner outcomes and teacher quality, the country still produces teachers who are ill-prepared, under- or unqualified and not adequately trained. These teachers are significant contributors to the country's poor learner outcomes.

Annually, the following type of results are produced: the international assessment conducted by the Trend in International Maths and Science Study (TIMSS) tested basic numeracy levels in Grade 9 black African learners in South Africa using an international Grade 8 test. The test indicated that approximately 76% of learners do not understand the foundational fundamentals of Maths and Science. Over and above that, approximately 80% of those Grade 9 learners test approximately four years below their grade, with backlogs tracing back as far as Grade 1 (Spaull, Business Day Live, 2015). The World Economic Forum Report 2014/2015 rated the South African education system out of 144 countries at 140th, 133rd and 144th for quality of education in building economic competitiveness, quality of primary education and quality of Maths and Science respectively (World Economic Forum, 2014, pp. 458, 452, 459). Nationally, the DBE released the following results for the matric class of 2015: of the learners who undertook Pure Maths 31.9% obtained 40% and above, whilst 36.1% of those who undertook Science obtained 40% and above (DBE, 2016). Compare this to the Independent Schools' matric results for 2015: of the learners who undertook Physical Science 86% achieved passes of 40% and above, whilst 88.3% of those who undertook Maths obtained 40% and above (Karolia, 2015). The comparison of the private and public education matric results is important as it gives indication of a private sector that is producing good learner results.

It would be remiss to evaluate these results without taking into consideration some of perceived contributing factors. Exploratory research was conducted on Grade 11 and Grade 12 learners and teachers from the poorest performing schools in Maths and Science in Pretoria. The research aimed to explore the factors that contributed towards learners' poor performance in Maths and Science in public schools. The results revealed some direct factors such as poor teaching strategies, lack of teacher content knowledge, syllabus non-completion and lack of motivation and interest from the learners (Makgato & Mji, 2006). The research also noted some indirect influences such as parental role and language challenges (Dhurumraj, 2013; Makgato & Mji, 2006). But the quality of Maths and Science teachers at black schools was the biggest challenge affecting learners' results in those subjects. Black schools, especially those in rural areas, are plagued with underqualified or unqualified teachers who do not aspire to be lifelong

learning teachers (Gardiner, 2007). The teachers also need to consistently deal with overcrowded and minimally equipped classrooms (Makgato & Mji, 2006; Dhurumraj, 2013; Gardiner, 2007). Research further reveals that teachers in South Africa lack pedagogical, conceptual and content knowledge, especially in Maths, English, Science and Technology (DHET, 2011,2012; Taylor & Taylor, 2013; Taylor, Van der Berg & Mabogoane, 2013). For example, a dataset of SACMEQ test results, consisting of 401 Grade 6 teachers, suggested that 79% of Grade 6 learners were taught by teachers whose Maths content knowledge was below Grade 6 level, and 16% of these teachers had Maths content knowledge below Grade 5 (Venkat & Spaull, 2015, p. 126; Spaull, 2013).

In conclusion, poor quality Maths and Science teachers are a significant contributor to the poor quality of education in South Africa. These teachers are deemed to be either under-qualified, unqualified or ill-prepared (Centre of Development and Enterprise, 2011). The strong link identified above, between dismal learner SMT results and poor quality SMT teachers in South Africa's public education, drives the focus on the development policies, implementation and processes of the current teacher training capabilities.

2.2.1 *Teacher education*

The manner or form in which teachers should be best trained has been a rigorous debate throughout the history of the teacher development fraternity (Hendrikse, 2013). The argument lies in whether teachers are best developed in specialised teacher institutions or generalised institutions of knowledge and what the associated advantages and disadvantages of each choice are (Musset, 2010). This debate has significantly divided philosophical and ideological views on teaching (Hofmeyr, 2016). The South African government is still grappling with the challenge of finding and implementing teacher education programmes that produce quality Maths and Science teachers (Makgato & Mji, 2006). To best understand the ideal form of teacher training, one needs to understand the theoretical framework of teacher education.

"Teacher education", "teacher training" or "teacher development" has been a subject of radical debate for decades. In literature, these words have been used interchangeably to all basically mean the process of equipping teachers for the art of teaching and learning. Regardless of when teacher education became the centre of academic inquisition, what scholars agree on is that teacher education is a key contributing factor or process to well prepared, knowledgeable,

critically reflective, effective teachers for what some say is the fostering of "thoughtful citizenry" whilst improving learner results (Cochran-Smith, 2004, p. 298; Chivore, 1992; Eryilmaz & Aypay, 2016; Umalusi & CEPD, 2009).

The purpose of teacher education is multi-layered. The likes of Schwille and Dembele describe it as "all professional preparation before individuals take full responsibility for teaching one or more classes of pupils" (Musset, 2010, p. 15). The evolution of teacher education has been an ongoing debate since the 1950s, when the role of teachers in society was identified as contributing to learner outcomes (Cochran-Smith, 2004). For decades, teacher education has focused on developing different elements of teaching, noting these to be of significant importance. The different associated views are identified in the table below.

Table 1: Academic literature of the evolution pertaining to the definition of teacher education

Years	Era	Associated views	Literature
1950 -1980	Teacher training	Focused on formulating professional teacher behaviours, but devoid of skills for decision making.	Global
1980 – 2000	Learning focus	Teacher training programmes focused on teaching content and pedagogy with lifelong learning desires. However, highly criticised for selecting substandard teacher candidates.	Global
Late 1990 - late 2000	Policy	Political intervention was deemed to be the key driver in teacher preparation, with a keen focus between teacher and learner interaction and results. Focus on making a difference in the classroom i.e. changing school learning environments	Global and South African

1950-1980 era

This narrative mainly focused on how the behaviour of candidate teachers could be aligned or made to conform to effective professional teachers. This view highlighted a deep focus on teacher behaviour and its associated science. Thus, teaching programmes at the time were researched and designed in such a way as to ensure conformity of behaviour of prospective teachers to predetermined "acceptable norms". This view was heavily criticised for techniques that lacked substance and were devoid of the skills that enabled independent decision making (Cochran-Smith, 2004). It was during this period that teacher education was deemed to be nothing more than a "training problem" whose purpose was formalising teacher behaviour into an effective teaching narrative (Cochran-Smith, 2004). This way of defining teacher education perpetuated a simplified notion of teacher education being a technical science of conformity. Teacher training programmes were about professionalising the teachers and hence the profession, but criticised for lack of content, pedagogy and critical thinking skills.

1980-2000 era

Between 1980 and early 2000, the definitive conceptualisation of teacher education evolved into a learning challenge. This era assumed that an ideal teacher ought to not simply behave in a certain manner but be knowledgeable on subject and pedagogy matters, empowered to make decisions and taught to value lifelong learning (Cochran-Smith, 2004; Shulman, 1986). Teacher preparation programmes started focusing on organisational contexts that would be conducive for the era's ideal teacher. However, what was not taken into consideration was the fact that prospective teachers would interpret the acquired knowledge through their terms of reference, filtered with their own beliefs, values, prior experience, as well as how they were taught at school. These filters, at most times, influenced their contextualising abilities. The learning approach was also highly criticised for attracting substandard prospective teachers, implementing low standard programmes, programmes that lacked consistency, as well as programmes that were out of touch with learner requirements and highly devoid of classroom contextual links (Cochran-Smith, 2004).

Late 1990s and onwards

Whilst academics were still grappling with teacher learning challenges in the early 1990, policy matters started influencing the teacher education narrative. The increase in urgency to conduct research in teacher education in the 21st century was driven by several challenges that saw teacher education facing a number of conundrums. These were displayed through increasing complaints by graduates of teacher education programmes, school communities complained,

and parents and politicians also joined the disgruntled entities. The key issue at hand was how irrelevant and out of touch teacher education programmes had become with school realities (Cochran, King & DeRuiter, 1991). These complaints increased the need to re-evaluate and restructure teacher education programmes (Barone, Berliner, Blanchard, Casanova & McGowan, 1996). Hence the rise of the role of policy in quality teacher education processes. This was a period marked by political powers seeking involvement in redefining the teacher education narrative. Policy matters have since then, and till now, been a key feature in the definition and conceptualisation of teacher education.

Meanwhile in South Africa, one cannot delve into the definition of teacher education without exploring the country's educational, political and societal constructs over the past decades. Spaull and Venkat (2015) argue that it is impossible to discuss teacher education in South Africa without being cognisant of the country's apartheid political history. This is important as it prescribes contextual understanding. During the apartheid era, which began in 1948 when the National Party came into power, the education system played an integral part in ensuring successful racial segregation by introducing the Ministry of Bantu Education. The key ideology of apartheid was to economically exploit and politically oppress black people, and the apartheid government used the education system to further this ideological agenda (O'Brien, 2010). "Black, particularly African, pupils were largely to be given an education that prepared them for servitude, while white pupils were trained for overlordship" (O'Brien, 2010, p. 13). Hendrik Verwoerd, Prime Minister of South Africa from 1958-1966, popularly known as the architect of South Africa's apartheid policies, is often quoted as saying "Blacks should never be shown the greener pastures of education, they should know that their station in life is to be 'hewers of wood and drawers of water'" and "what is the use of teaching the Bantu child mathematics when it cannot use it in practice?" Hence, huge levels of inequality were introduced, with schooling being divided into racial and ethnic sub-systems, whereby teacher quality, subject content, fiscal resource allocation were all according to racial divide. Black South Africans got the worst out of all the racial groups (Department of Education, 2006). South Africa endured 46 years of a racially segregated education system, which produced fragmented teacher education provisions, mismatch in teacher supply and demand, as well as highly unqualified and under-]qualified teachers (Department of Education, 2006; Venkat & Spaull, 2015).

The results of the apartheid teacher education narrative in South Africa, as seen in a teacher quality audit conducted in 1995, were significant numbers of underqualified or unqualified

teachers (Department of Education, 2006). In 1995, post-apartheid, when political power moved from the National Party to the African National Congress, the Ministry of Education focused on re-evaluating and considering new curricula, ensuring greater professional proficiency, embedding content knowledge and applied competencies, as well as starting to include world class technologies in the classroom, and ensuring equitable fiscal resource allocation. The end goal for developing such teachers was to increase the learner results in the classroom (Department of Education, 2006,Venkat & Spaull, 2015). The new government dispensation has, over the years, consistently endeavoured to re-align teacher education definitions, norms and standards with international trends (Keevy, 2006). Therefore, though the South African educational history is riddled with apartheid segregation, in the new political dispensation it appears, in theory, that the researcher and practitioner definitions and purpose are consistent with those noted above. For the first time, South Africa's definition of teacher education is aligned with the international discourse of policy's role in developing quality teachers.

In conclusion, to date, the teacher education conceptualisation and framework is to develop teachers who exhibit professional behaviour, are able to critically reflect and make key decisions, who have content knowledge, and relate to the realities of the classroom contexts and hence produce learners with good results (Cochran, King, & DeRuiter, 1991). However, there appears to be a de-link between the accepted South African definition of developing quality teachers and actual results,. It is noteworthy that most developing countries lack the capacity and finances to effectively implement national teacher training programs aligned with international policy (Mulkeen, Chapman, DeJaeghere, & Leu, 2007). Thus in most cases, some developing countries end up failing to see the required teacher quality standards (Bima & Yusrina, 2018) (Davids, 2006), and South Africa is no different.

2.2.1.1 Traditional Model: South Africa

Teacher Education for first time teachers, also known as Initial Teacher Education, can be conducted through two main perspectives, namely the traditional route through universities or the alternative route based within a schooling environment known as the teacher internship (Lewin, 2004). However in recent years, additional pathways such as focused induction programmes, continuous professional development and unconventional practitioner selection methods have emerged as supplementary mediums of developing quality teachers in resource

constrained environments (Bridge, 2016; Musset, 2010). The traditional model is used globally as the main teacher education route, especially in developing countries and South Africa is no different (Hardman, 2011). As stated in the South African education policy, the majority of students study long distance at Unisa to either obtain a 4 year B.Ed degree or a 1 year PGCE (DHET, 2015). This traditional teacher training route is known for developing ill-prepared,unqualified and underqualified teachers who lack contextual application abilities. Three main challenges to the process of developing quality teachers in South Africa are are namely, the lack of selecting the right calibre of students, the low quality standard programmes delivered by tertiary institutions with poor content knowledge and the lack of practical pedagogical experience that enables contextual application (McKinsey & Company, 2007).

In analysing these challenges we find that firstly, though not extensively addressed in the teacher education framework, the selection of the right calibre of students is imperative. A review conducted by McKinsey on the best performing countries in education revealed that selecting the right caliber of students, who are internally motivated to teach, sets the tone for their future identity in the teaching profession (McKinsey & Company, 2007). Supporting that notion, there is a research brief by Darling-Hammond et al. (2010) on "how high achieving countries develop great teachers" which reviewed how countries such as Finland, Singapore, Korea and Israel develop quality teachers in lieu of identifying policy lessons. The researchers identified, amongst other factors, rigorous recruiting of the right, top calibre of candidates into the profession and ensured that the teacher programmes were of a high quality that develops students into effective teachers who value lifelong learning as a fundamental characteristic.

Finland, for example, has a very high entry-level requirement for its teachers whereby students are selected through a two-phased approach which reviews a candidate's academics, relevant work experience, as well as attitude and personal suitability to teaching through a process of interviews and actual class exposure (Malinen, Vaisanen, & Savolainen, 2012). However, developing countries such as Trinidad and Tobago have institutionalised "on-the-job training schemes" which enable teachers to be selected over a period of time after assessment as part of the selection process for teachers to enter the teaching profession (Lewin, 2004). South Africa, on the other hand, has not engaged sufficient effort in selecting the right calibre of students to become teachers, withteaching not being the first career of choice by quality students (Hislop-Esterhuizen, Maree, Swanepoel, & van der Linde, 2009). In most scenarios, the individuals who end up taking the teaching journey take it as a last resort, some with hopes of obtaining a

bursary in order to get a degree and leave the profession post qualification. Also adding to the first issue, in some instances, the entry academic requirements at some of the tertiary institutions are extremely low compared to the other faculties, and the only standard teachers have to meet are low academic requirements. These attributes lead to the wrong calibre of students being selected into teacher training programmes.

Secondly, according to the South African Department of Higher Education and Training, to qualify as a teacher, one can choose from three options through Tertiary Institutions before a "Bachelor of Education degree (NQF Level 7), a professionally-focused Postgraduate Certificate in Education (NQF Level 7), which caps an undergraduate Bachelor's degree (NQF Level 7 or 8) or an approved Diploma (NQF Level 6) (DBE, 2016; DHET, 2015). A study conducted by the South African Higher Education Quality Committee (HEQC) in 2011, aimed at assessing the quality of Tertiary Institutions' teacher education models, revealed programme quality challenges (Taylor, 2014). The study revealed only 32% and 40% that offered Post Graduate Studies and Bachelor in Education programmes respectively were approved by the DHET. Hence a shocking 68% and 60% of Post Graduate Studies and Bachelor in Education do not meet minimum quality standards and hence offer low standard teacher preparation programmes (Centre of Development and Enterprise, 2011). Three years later, another study was commissioned by the DBE, Deans of Education and the DHET known as "The initial teacher education research project" (Taylor, 2014). The study was commissioned to determine whether the traditional route of training teachers was adequately preparing quality graduate teachers who could address current school challenges and country demands. The study examined the curricula of five sampled higher education institutions with a specific focus on curricula for intermediate phase, Grade 5 Maths and English teachers. Findings of the study conclude that of the five selected higher institutions' teacher training programmes, none were adequately addressing the challenge of low quality education provision by teachers in South Africa (Taylor, 2014). This reiterates the fact that the traditional education route is producing underqualified teachers with zero to limited impact in changing learning environments at school (Umalusi & CEPD, 2009).

Lastly, the traditional route in South Africa has also been heavily criticised for educational programmes that have significant theory practice gaps, and lack of on-the-job training (Kiggundu & Nayimuli, 2009). Candidates appear to be insufficiently prepared for the realities of teaching in some of the harsh realities of developing countries. The realities in the South

Africa education system, for example, are the lack of educational resources, large class sizes, socio-economic background challenges, and learning language being different from mother tongue, which no theoretical knowledge can prepare one for (Dhurumraj, 2013; Lewin, 2004). Over the years, research has revealed that teacher development in tertiary institutions often has "theory-practice gaps" (Lewin, 2004; Musset, 2010). "Theory-practice gaps" mean that teachers may be insufficiently developed for their required educational competencies (Musset, 2010). The "theory-practice gap" is popularly known is the gulf between learnt pedagogical theory and practical application (Alvarez, 2015). Rousseau's research on important aspects of teacher development concludes that a balance between theory and practice is important for a well-structured, meaningful teacher development programme (Rousseau, 2015). Sampled teacher educators for the study agreed that integrating theory and practice in the actual classroom post qualification is a struggle. The teachers noted that the cause of the struggle was attributed to education programmes that did not take into consideration effective, meaningful integration of academic theory and classroom realities (Rousseau, 2015).

The gap in South Africa between university or traditional training and school context is big (Umalusi & CEPD, 2009). A research study conducted in the Vaal region of South Africa, to determine the effectiveness of the current levels of teacher practical as part of the current teacher programmes at a specific university, reveals that there are significant challenges with the system (Kiggundu & Nayimuli, 2009). As much as, theoretically, it is agreed that teacher practice is an important component of teacher training, it does not appear to get the attention it deserves. The challenges faced vary from the fact that the timing of the practical clashes with key school terms and is thus deemed inappropriate and ineffective (Kiggundu & Nayimuli, 2009). The mentors and supervisors that are allocated to guiding and training student teachers are either ill-prepared or not interested and hence make student teachers feel unwelcome in the school environment (Kiggundu & Nayimuli, 2009). There is a growing disconnect between qualified teachers and their ability to meet the demands of teaching within the school context, within the traditional pathway. Noted above are some of the reasons why there is increasing research and debate about new learning environments (Umalusi & CEPD, 2009). Hence this debate is important for South Africa if it is to develop quality teachers who can influence a change within the classroom with their learner results.

In essence, in South Africa, the traditional pathway shows that university-based initial teacher education is simply not yielding the required quality to meet the country's growing democratic need within a globalised market (Hofmeyr, 2016).

2.2.1.2 Alternative Models

This then leads to the exploration of the alternative models for teacher development. There are two main alternative models to the traditional teacher training model, namely school-based learning or internship models and the induction programme coupled with continuous professional development. The school-based learning, which is sometimes referred to as the teacher internship model. "Alternative initial teacher education is generally understood as a programme leading to a teaching certificate (or licence) designed for persons who have not followed a traditional path through a university or college-based initial teacher training" (Hofmeyr, 2016, p. 1). Whilst school-based learning simply means learning in schools and emphasizes on the job training (Eryilmaz & Aypay, 2016). Whether called alternative pathway or school-based learning, both these methods involve providing a different mix of professional knowledge and skills (Hofmeyr, 2016). These methods involve the recruitment into teacher assistant positions of students who are still completing their studies. In most instances, students study through distance learning while conducting the daily duties of a teacher, and learn to become a teacher through trial and error in a school environment supervised or mentored by teachers in the school (Umalusi & CEPD, 2009; Chivore, 1992; Eryilmaz & Aypay, 2016). According to international research, the effectiveness of alternative teacher education teachers is significantly influenced by previous classroom experience, formal training, mentorship, professional community and school placement context since the culture of teaching and learning is created within an actual school set-up (Umalusi & CEPD, 2009; Hofmeyr, 2016; Eryilmaz & Aypay, 2016).

In a developed country, the George Mason University, in 1991, decided to pilot an elementary education programme that was guided by the Professional Development School philosophy of integrating education and workplace experience (Commonwealth Secretariat, 1993). The programme included 30 elementary school sites. Schools partaking in the partnership were not randomly chosen but had an opportunity to apply to become a partner site every 4-5 years, having demonstrated commitment to the partnership and professional development. The programme relied heavily on committed, co-ordinated and formalised collaborative work amongst stakeholders. The programme showcased a number of benefits and hurdles that needed to be overcome in order for the project to be successful (Parsons, et al., 2016; Musset, 2010).

It appears that limited research is being done on the alternative teacher education model within developing counties. Emerging markets, such as Pakistan, have piloted some similar initiatives previously. Pakistan is a country facing significant challenges around literacy levels, especially amongst girls, insufficient investment in education and high dropout rates. In past years, growth in the supply of teachers has been slow and the training of quality teachers has been seen to be inefficient. The challenges contributing to poor quality teacher training programmes included the intake of poor quality students, teachers' bad attitude towards the profession, curriculum content appearing too theoretical and abstract, as well as a training system that emphasises rote learning and repetition. Therefore, due to financial constraints, Pakistan tried out three additional models – Bachelor in Education (B.Ed), field-based training and distance learning. The B.Ed degree, similar to the traditional teacher education model, had shortcomings relating to the duration of the degree and content quality, similar to those within the South African context. The field- based training is founded on the fact that the learner is the centre of learning processes (Commonwealth Secretariat, 1993). Further evaluation of the programme found that amongst other learnings, teachers who had attended field-based training were well prepared and delivered structured lessons. The teachers displayed an ability to keep the learners stimulated and interested in the subject matter, through clear communication and articulation. Upon comparison of subject matters, field-based teachers were seen as better teachers in Maths specifically, as they also displayed a more positive attitude towards the teaching profession and a great desire to improve learners' lives. In essence, the overall view was that field-based training of teachers increased the quality of teaching (Commonwealth Secretariat, 1993).

Research, as well as these articulated revelations, indicates a potential opportunity for the traditional teacher-training model to have strong professional linkages to schools that perform excellently, thus promoting the on-the-job training system (Behrstock-Sherratt, Bassett, Olson, & Jacques, 2014). Even the South African teacher union organisations, such as SADTU, also believe that "the science of teaching is such that on-the-job training where linkages between the education sector and the workplace are made possible" (Nkosi, 2015). The alternative teacher development model, therefore, requires the following factors in order for it to be successful, namely fully functional, well-structured and disciplined schools, specific supervision from qualified teachers, support and management, clearly defined roles and responsibilities, availability of relevant stakeholders and expertise, trustworthy partnerships. This type of model in South Africa would definitely be met by a number of different challenges. Primarily, one of South Africa's biggest education challenges is the large number of

"dysfunctional" schools, where there is lack of leadership, unconducive learning environments and low staff morale. Endeavoring to put students in such dysfunctional environments would have a negative effect on their learning journey (Hendrikse, 2013). However, this challenge could be subverted by ensuring candidate teachers are placed in highly functional schools even if teaching resources are limited. School leadership and staff professionalism are key components in choosing schools to work with.

The second challenge relates to a lack of qualified, excellent Maths and Science teachers in public schools who can act as mentors (Hendrikse, 2013). According to a report conducted by Parsons, et al. (2016) on the professional development schools philosophy used in London, school-university, and university partnerships are essential for developing quality teachers. The school-based mentor must be trustworthy with content and pedagogical experience who ensures each teacher intern meets the desired learning outcomes (Musset, 2010; Parsons, et al., 2016). The selection of the right calibre of teacher mentors is important to ensure that the on-the-job training of teacher candidates is relevant and of significant quality.

The third challenge is financial constraints. The alternative initial teacher education path is not without its own challenges. The programme at times is deemed to be time and labour intensive and hence perceived to be expensive. Schools find it difficult to navigate the balance between mentor teachers being volunteers and compensation, rewarding and incentivising for the additional work required. In a South African context, where unions are prevalent, mentor teachers would need to be paid for additional work that is over and above standard schoolwork. International research confirms the model's most common weaknesses as inadequate mentoring infrastructure and lack of individualised training (Hofmeyr, 2016).

In comparing the traditional and alternative model of teacher education for South Africa, one finds that the alternative model increases the chances of better preparing Maths and Science teachers. The missing elements from a traditional teacher education model include namely, process and time in selecting the right type of candidate teacher, upgrading the quality of content knowledge delivered at tertiary institutions, placing students in on-the-job training during their studies in highly functioning public and private schools, well fostered collaborative partnerships between the public and private sector, supporting teacher candidates with academic support through mentorship, and financial resources to enable the programme.

In South Africa, a number of non-profit organisations, mainly in the private sector, have begun innovating and implementing alternative teacher education models, known as "teacher internship programmes" in response to the challenges of the traditional teacher education model. Though there is limited research in South Africa pertaining to the impact of teacher internship models, these have been described as creating a platform for teachers to be developed under the supervision and guidance of a master teacher (Linn, Howard, & Miller, 2004; Hendrikse, 2013). Hendrikse notes that "it would seem that the student teachers coming through this system feel confident, well-informed and professionally ready to take on their own class", becoming teachers well-prepared to improve the quality of teaching in South Africa (Hendrikse, 2013). These models follow a similar framework to the alternative teacher education model discussed above. Though additional research to empirically conclude the impact on throughput rates is required, they have shown great strength, especially compared to the traditional teacher education models (Centre for Development and Enterprise, 2015). Some of these models are the ISASA Maths and English Programme, Leap Schools and Embury College to name a few.

The Independent Schools Association of South Africa Maths and English Programme is one teacher internship programme, which in particular, selects high quality Maths and Science candidate teachers. It places students in on-the-job training during the process of their studies in highly functioning private schools whilst they study through distance learning, build on a strong PPP between the public and private sector, providing teacher candidates with academic support and a strong mentorship. The ISASA M&E alternative teacher education initiative is deemed a quality teacher training model that is an example of a PPP funding and operational model, whereby the Department of Basic Education (DBE) through Fundza Lushaka, partners with a corporate organisation (Investec, 2016). The ISASA teacher internship model applies a strict process for recruiting candidates, placing interns in ISASA independent host schools for the duration of their undergraduate or postgraduate distance studies. The model exposes interns to excellent resources and role modelling through mentorship, and the expertise found in the host schools. The current funding model is that the DBE funds the bursary element which includes tuition, accommodation allowance, book allowance and a small stipend. The corporate organisation funds the value-add elements including mentorship, academic support, professional development and administration. This model has the potential to be scaled up and rolled out to public schools. At present, it is being rolled out on a small scale only in private schools (Hendrikse, 2013; Investec, 2016, p. 30).

Other possible alternatives for teacher education:

In ensuring an adequate supply of quality teachers in resource constrained environments, countries are required to be more creative with the use of their current resources. A report by the World Bank (2007) indicates that there are new and cost effective approaches to developing quality teachers without changing the traditional teacher training route based at tertiary institutions (Mulkeen, Chapman, DeJaeghere, & Leu, 2007; Musett, 2010). The second alternative of induction programmes for beginner teachers, coupled with continuous professional development seems to fit this criteria. This model endeavours to specifically bridge the identified gaps within traditional teacher training such as, lack of classroom readiness, lack of pedagogical strategies for teaching (Bertall, 2004) and inabilities to manage classroom discipline (Goodwin, 2012). In order to close the identified gaps and increase the quality of teaching, induction and mentorship as well as continuous professional development is recommended as an extension of the traditional route teacher training preparation (Bridge, 2016; Bertall , 2014; Musett, 2010). Bertall notes that learning to teach is not limited to a preparation pogramm of a defined length, however the journey is lifelong and continuous as a teacher interacts with learners on a daily basis (Bertall, 2004; Confait, 2015; Godwin, 2012). Literature from developed countries such as Canada and Germany indicate the importance of effectively equipping beginner teachers as part of initial teacher education. They indicate that capacitating beginner teachers through induction programs and continuous professional development can be as effective as school based learning. However it seems that the jury is still out on the effectiveness of the induction programme for beginner teacher. A study conducted in the Netherlands to determine the influence of induction on beginning teacher's ability to increase quality teaching identified that, most beginning teachers experienced limited positive influence from the support obtained from the induction programme (Kessel, 2010). In limited instances whereby beginning teachers were significantly positively influenced by the induction, it was noted that pedagogy was a strong focus and that the mentor teachers played a critical support and challenge role (Kessel, 2010; Kearney, 2014). However it is also key to note that the best outcomes are obtained when induction is well structured, context specific and includes extensive mentoring (CDE, 2015). One of the greatest advantages of this route is that it has also been hailed as a more cost effective route to developing quality teachers as it requires less time after the completion of their studies, less support infrastructure and no specific recruitment process (Mulkeen, Chapman, DeJaeghere, & Leu, 2007; Musett, 2010).

There are growing arguments for the South African government to rather focus on a national beginner teacher induction programme supplemented by continuous professional development as opposed to the more costly teacher internship model (Musett, 2010). Research reveals that this pathway can be more cost effective if the programms are conducted centrally and not school based and should be designed comprehensively within a South African context (CDE, 2015; Musett, 2010). However the effectiveness of the model, especially in developing markets has not been tested. In line with international educational policies, the South African government has included in the 2011-2025 Integrated Strategic Planning Framework the plan to induct beginner teachers into the world of work (King, 2016), indicating the desire to deal with capacitate beginner teachers. There is limited literature on induction work documented in South Africa, however what has been found is that despite governments intention to prioritise the policy documents and make induction mandatory, there is no large scale induction programme as there are significant challenges with the capacity to implement (CDE, 2015). A review conducted in South Africa to determine how these policies were progressing indicates a non-committal political will that is coupled with a significant lack of relevant capacity and skills to implement, a lack of mentorship infrastructure in public schools and the time allocated to the induction is insufficient (Maake, 2013) thus rendering this option of capacity building challenging (CDE, 2015).

The challenge of the effectiveness of teacher induction initiatives isn't only in South Africa, but seems to be a challenge for other developing countries due to country specific challenges. A study in the Seychelles, where quality of teaching was a concern, was conducted to explore the context and experiences of beginner teachers in an effort to improve the quality of their teaching, revealed that in order to sustain beginner teachers passion, adequate support systems that facilitate teacher development and professional competence are a necessity for teacher quality development (Confait, 2015). Another study conducted in Namibia to analyse how induction programmes influence personal growth and professional development, noted that though the induction programmes imparted classroom management skills, beginner teachers still experienced adaption challenges due to a lack of country contextual support (Nghaamwa, 2017). These indicate that unless country specific challenges such as lack of formalised support, availability of trained teacher mentors and skills and capacity to implement are dealt with even this alternative will not be able to see the desired results. However regardless of the challenges, there is a growing demand to consider more cost effective alternatives to teacher training without losing quality. Countries are required to deploy more creative teacher

preparation programs that involve supportive mentorship and supervision structures, in essence comprehensive programmes that supplement strong traditional route teacher training certification programmes (Mulkeen, Chapman, DeJaeghere, & Leu, 2007). It is noteworthy to indicate that the induction model addresses only one of the key challenges identified within the South African traditional route teacher training formats and faces the same challenges when it comes to the teacher mentoring infrastructure.

It has been proven through this study that the teacher internship model has an important role to play in improving teacher training in South Africa, especially for distance learning students. These alternatives to public provision of teacher education are, however, conducted on a small scale. In conclusion, the research reveals that in order to bridge the identified gaps in the traditional education model that facilitates poor preparation of Maths and Science teachers, certain elements of alternative teacher models would need to be further explored and possibly adopted. The teacher internship model has unempirically revealed that the teachers it produces are confident and can operate within a classroom context from day one. The research also acknowledges that the additional elements require additional financial resources, as demonstrated in the ISASA PPP model, as the custodians of teacher development have fiscal budget constraints. Thus implementation of a teacher internship model, would possibly require a PPP to enable the necessary additional elements. The reality is that substantial resources are required to develop quality teachers, and resources are a significant constraints in developing countries (Reid & Kleinheinz, 2015). A study in Nigeria revealed that there was a strong relationship between teacher adopting a learner centric approach and availability of resources.

Due to constrained resources for teacher development, other routes to improving quality teachers have been introduced in the South African literature. The purpose of these routes are to combat the identified challenges contributing to poor teacher quality namely, poor teaching strategies, ill preparedness for the classroom context. These are namely induction programmes for newly qualified teachers, continuous professional development and

2.2.2 Finance Model

2.2.2.1 Traditional financing: South Africa

Research reveals that financial resources dedicated towards teacher education, in most cases, are limited. In South Africa, government spends approximately 6% of the South African Gross

Domestic Production (GDP) in education (National Treasury, 2014). Of that budget, roughly 80% is utilised for teacher salaries, while the difference is split between infrastructural development, feeding schemes, stationery, curriculum development and teacher training. Meeting the challenges of improving teacher education in South Africa requires a number of enablers, namely productive collaborations with the Education, Training and Development (ETDP), Sector Education and Training Authority (SETA), teacher unions, National Education Collaboration Trust and finding alternative funding models (Basic & Higher Education, 2016). The private sector mainly funds educational programmes through Corporate Social Responsibility budgets. According to a Trialogue study, the total estimated CSI expenditure in 2013/14 was R8.2 billion (Trialogue, 2014, p. 36). Education receives the greatest and growing share of 49% of total CSI funding. This shows that the private sector is recognising the importance of education in addressing inequality (Trialogue, 2014, p. 42). However, there was limited breakdown regarding how much, if any, was spent on Initial Teacher Education, so empirical data is limited.

The current teacher education funding model leaves government with the following challenges: no correlation between education investment and learner results (Hofmeyr, 2016), funding which is solely designed to support the traditional teacher education model (Centre of Development and Enterprise, 2011,) and budget allocations which have limited room for teacher innovation (Centre of Development and Enterprise, 2011). Firstly, though the South African education budget compares favourably to global standards, the quality of education in South Africa is unsatisfactory, with learners performing significantly below basic numeracy and literacy global standards. There appears to be no positive correlation between what is spent on teachers' salaries and learner outcomes, hence fruitless expenditure (Spaull, 2013; Centre for Development and Enterprise, 2015). With all that is spent on education and teacher education, learner outcomes in Maths and Science remain rated last in the world, with poor teacher quality. The World Economic Forum Report 2014/2015 rated the South African education system out of 144 countries, at140th, 133rd and 144th for quality of education, in building economic competitiveness, quality of primary education and quality of Maths and Science respectively (World Economic Forum, 2014, pp. 458, 452, 459).

Secondly, all of the noted funds that have been made available are solely for bursaries to study at university (DBE & DHET, 2015). This implies that the teacher education funding structure currently favours and promotes the traditional or university route. It has, however, emerged

that ETDP SETA funds various forms of teacher learnerships and internships. In the pipeline, the DBE and ETDP SETA are working on improving the co-ordination of programmes to support sector training priorities. Meanwhile, the alternate teacher education route proposed additional value-add elements that require additional funding that is over and above bursary funding. Lastly, the current conventional financing method does not seem to be coping with the innovative demand required to come up with alternative teacher education models to improve maths and science teaching. As noted above, the current funding model for teacher education in South Africa is limited and any additional funding required for an improved teacher education model will certainly put pressure on an already ailing public purse. Research suggests that in order for South Africa to meet the quality demand, there is a need to open teacher development to market forces as well, and to encourage the development of more innovative scalable initial teacher initiatives that focus specifically on training quality teachers. "Both for-profit companies and institutions and not-for-profit organisations should use the private sector's entrepreneurial nature and flexibility to be innovative. They can experiment with alternative pathways to becoming a qualified teacher, different structures for ITE provision and a range of modes of delivery" (Centre for Development and Enterprise, 2015, p. 31). It is high time that alternative investible opportunities, such as teacher training, are explored as opportunities for investment for impact. Hence the need for further exploration of the utilisation of SIBs to encourage teacher training innovations, scaling, collaboration and leveraging that lead to efficient and better delivery of quality education (Filipp, Filmus, & Owens, 2013). This leaves no other alternative but to explore further funding alternatives. Alternative approaches are required to facilitate more private capital involvement in quality education development that goes beyond the current investment in low fee-paying schools (Dalberg Capital Partners, 2013). There is need to look at models that include PPPs.

Policies targeted towards improving the quality of teachers in most cases are restricted by resource constraints and hence there's no ability to scale teacher training initiatives (Bima & Yusrina, 2018). The above mentioned stats indicate that South Africa has allocated a significant budget to Education, meanwhile learner outcomes remain low. There is debate regarding whether additional funding has a positive correlation with improved quality of education, it's been revealed that money matters in the improvement of quality education, only to the extent that the funds are utilised productively and effectively (Baker, 2012). Research reveals that there is no direct correlation between increased funding for teacher education and improved impact on developing quality teachers. In Indonesia more than 60% of the national

budget is allocated to improve teacher welfare by raising salaries and providing allowances, however even those increases have not translated to the improvement of learner outcomes, hence the need for government to focus on developing qualified, competent teachers (Bima & Yusrina, 2018). Finances alone could never be the solution to any educational challenge, but are an important enabler in finding solutions. However, government is keen on exploring outcomes linked financing as a potential driver of Maths and Science learner results and quality teacher preparation. Therefore it's important to understand the impact finance models have on the ability to influence teacher quality once there are the relevant policies and programs in place together with the right set of skills and capacity to implement.

Taking these into consideration, the key traditional finance challenges can be summed up as follows. Firstly, an inability to link financial investment to outcomes and results, increasing inefficiencies in public purse spending. Secondly, financial constraints caused by the fact that approximately 80% of the Education budget is spent on teacher salaries leaving no additional funds for the value-add additional elements required for the alternative teacher education model. SIBs are being explored as an alternative complementary financing.

2.2.2.2 Alternative financing

Under-utilised innovative financing in education holds ample opportunities for much needed PPP innovation and the scaling of proven programmes. Innovative finance is extremely useful for countries that spend significant portions of their budget on salaries, and South Africa seems to fit this criteria (Filipp & Lerer, 2013). SIBs are an innovative financing platform used for driving social innovation and improving government performance through an outcomes based rationale (Bloomgarden, Eddy & Levey, 2014; Liebman, 2011). To better analyse and contextualise SIBs, one needs to review similar structured functional and structural contractual arrangements, in this case, Project Finance. When endeavouring to place SIBs within the relevant theoretical structure, one considers the characterising elements and areas of overlap between project finance and SIBs. I analyse the characterising elements of both products below.

Though there is limited agreed upon conceptual literature and clarity on the definition, Social Finance, a UK intermediary organisation, defines SIBs as an outcomes based financing contract between the public and private sector whereby the public sector commits to pay for improved social outcomes delivered by track-proven service providers, while the private sector agrees to

supply the upfront investment for the initiatives. This transfers the risk of intervention from the public sector to the private sector (Social Finance, 2013; Pasi, 2014).

The first SIB was launched in London in 2010 by an intermediary called Social Finance. However, as of March 2015, there are more than 44 implemented SIBs, with 33 still in design stage across the world (Instiglio, 2015). The growth of the use of these instruments can be seen, particularly in the United Kingdom and in the United States, where they are developing the SIB ecosystem with relevant infrastructure such as policies, funding, stakeholders and practices (Bertha Centre, Social Finance & Genesis, 2014). Even the range of issues where SIBs are applied has increased, from decreasing re-offending rates for prisoners to Early Childhood Development (ECD), workforce development, youth and homelessness, youth engagement, the elderly and education (Instiglio, 2015; Bertha Centre, Social Finance & Genesis, 2014). Despite this global growth, there are only two SIBs in Africa; one in Uganda and another in South Africa. This shows the potential for growth, especially as Africa struggles with the greatest poverty, investment challenges and inefficient use of resources. Although there is great opportunity for growth of these instruments, there is still limited empirical evidence regarding their ability to meet promise and expectation for outcomes funders and investors. SIBs have been used previously in the provision of education, however, the focus has mainly been on Early Childhood Education, with one or two focused on school performance, education and unemployment, as well as the dropout rates from higher education (Instiglio, 2015). With teacher quality forming an integral part of learner outcomes, it should be noted that teacher training has not yet been the subject of any SIB intervention. This may be due to a number of different reasons, however, *"teacher training, may also be a strong candidate for SIBs to help public and private schools to improve education outcomes in priority areas"* and is worth further exploration, analysis and research (Bloomgarden, Eddy & Levey, 2014, p. 16).

This outcomes-based contractual agreement usually involves investors, outcomes funders (government), intermediaries, service providers (NPOs) and an independent evaluator. In a basic direct deal structure, an SIB would be formed in response to a priority social need that government displays as having inefficient resources and results. The abovementioned stakeholders, in an attempt to solve the social issue efficiently, would form a private public partnership whereby clear, measurable outcomes would be set and agreed upon by all involved. Subsequently, investors would grant an upfront investment to the service provider to carry out a programme that would efficiently address the issue and meet outcomes. Upon completion of the programme and meeting the agreed upon outcomes, an independent evaluator would

confirm the outcomes. If these are satisfactory, the outcomes funder will pay the investors the upfront capital, and a financial return for the risk undertaken on behalf of government. This set-up enables an environment whereby government transfers a certain level of the budget management, fiduciary and execution risks to the investors. The investors then receive a financial return for the risk they carried on the government's behalf. Theoretically, the financial return paid out by government would be from the savings made from the reduced inefficiencies (Gustafsson-Wright, Gardiner, & Putcha, 2015).

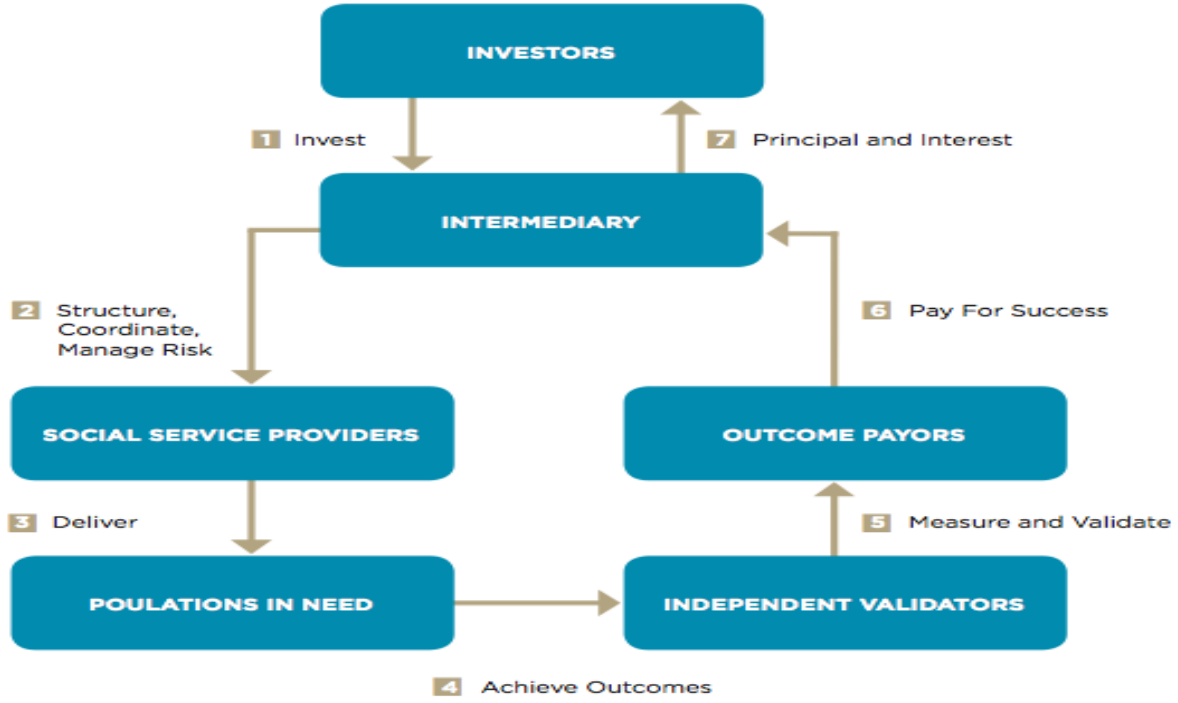


Figure 1: SIB illustration (Social Finance, 2013)

2.2.3 Stakeholder incentives and challenges

SIBs are a contractual arrangement between the public and private sector, where the public sector commits to reimbursing the private sector for improved outcomes. Payments are triggered by reaching agreed upon milestones known as outcomes. SIBs enable a refreshing dispensation of encouraging government and their delivery stakeholders to find and fund programmes that work (Instiglio, 2015). This facilitates a shift in mindset and execution practices that encourage programmes to be designed and piloted knowing that funds will specifically disbursed for meeting outcomes. This introduces a new theory of change of assuming incentivisation will lead to change in implementation abilities and better results,

although this theory will not be discussed in the ambit of this research. A performance-based contractual financial model enables governments, investors and service providers to relatively link investments and outcomes, thus decreasing spending inefficiencies and saving governments' financial resources (Gustafsson-Wright, Gardiner & Putcha, 2015, p. 1; Filmer & Pritchett, 1999; Bellinger & Fletcher, 2014; Dalberg Global Development Advisors, 2014; Sandors, Scott & Benn, 2009; Leading group on innovative financing for development, 2010). Also, the SIBs structure enables the transfer of operational and funding risks from the public sector to the private sector. The risk-sharing potential element is an attractive part of the instrument. Because government/outcomes funders only pay when outcomes are obtained, this means that a certain level of risk, attached to the project's implementation by a third party, is then transferred to the investors. This enables government to reduce the chances of paying for services not up to the quality agreed upon, paying for services that don't materialise, paying for services that are completely wrong, paying for projects that haven't been tested as yet or paying for services that need to be scaled by organisations that potentially don't have the relevant expertise. All these risks would be significantly cash-and time-consuming. However, SIBs create an opportunity to share the risk with organisations that have the know-how and track record in the area of implementation (Gustafsson-Wright, Gardiner & Putcha, 2015; Instiglio, 2015). Lastly, the following stakeholders are key and play different roles in the success of SIBs, namely, a private sector funder, an outcomes funder (being the organisation that is paying for the outcomes), a track-proven service provider, an intermediary, as well as an independent evaluator. Literature also reveals that SIBs have additional secondary benefits that characterise the instrument, such as a practical and ideological desire to increase revenue streams for government responsibilities and create room for market mechanisms that lead to the introduction of efficiency in program delivery respectively, while linking public sector funding to realised results (Bletsas, 2013).

Thus, it suffices to note that SIBs obtain their theoretical framework from the concept of Project Finance. When comparing SIBs and Project Finance operations and benefits, a number of similarities in the two instruments have been identified. These are subsequently defined, identified and discussed.

"Project Finance involves the creation of a legally independent project company financed with non-recourse debt (and equity from one or more sponsors) for the purpose of financing a single purpose, industrial asset" (Esty, 2004, p. 25). It is generally characterised by four main aspects:

structuring projects, valuing projects, risk management and financing of projects. The nature of these characteristics is defined below. Firstly, Project Finance is a form of contractual agreement whereby stakeholders distribute and manage risk through a PPP enabling it to embark on new asset classes (Pasi, 2014). The concept of risk management and distribution is extremely important for the success of a Project Finance initiative. The PPP's contracting element enables the re-assigning and diversification of risk to a number of different parties without carrying the risk themselves as the operations of development are delegated to the special purpose vehicle. In a PPP financing arrangement, the operations associated with the developed asset lie within a special purpose vehicle that is heavily guided through contractual agreement. It is in those contractual agreements that the terms of condition of contract are set, and the terms of fulfilment of payment obligation are also set (European Investment Bank, 2010; Esty, 2004). It is in these contractual arrangements that Project Finance and PPP manage to transfer risks such as outcomes risk, execution risk, financial risk, intermediary risk, reputational risk and political risks between the public and private sectors (Pasi, 2014).

Secondly, Project Finance initiatives are financed on the basis of future potential cash flows, and this process involves a number of different stakeholders. These stakeholders normally consist of the private sector funder, outcomes funder (the organisation that is paying for the outcomes), a track proven service provider and an intermediary. Lastly, "Financier cash flows are a source of re-imbursement of which the project asset is the collateral" (Pasi, 2014, p. 5). This indicates that cash flows are triggered by meeting specified project asset outcomes. Payments are triggered by the meeting of certain responsibilities outlined in the contracts (Esty, 2004; European Investment Bank, 2010). The achievement of the project asset needs to have a positive economic outcome for the financier, or else the transaction has limited economic value. Literature also reveals that Project Finance initiatives have additional secondary benefits that characterise the instrument, such as assisting government to embark on new assets they would not ordinarily engage with due to financial constraints. Project Finance and PPP structures are deemed to be a major strategy for increasing the financial base and human resource expertise from the private sector (Pasi, 2014; Tilak, 2016; Esty, 2004; European Investment Bank, 2010). Another secondary benefit relates to inducing operational efficiency and innovation in the public sector operations as the funding is said to be inefficient, rigid and does not promote efficiency and innovation. The inability to increase capacity for market forces leaves room for continued lack in service delivery (Tilak, 2016). The highlighted characteristics and benefits

of Project Finance will be applied in the understanding, explanation and, where necessary, challenge of the ideas and opinions of stakeholders in answering the sub-research questions.

Therefore, the key characteristic elements that overlap between Project Finance and SIBs are as follows: Firstly, both SIBs and Project Finance are contractual relationships that are established between the public and private sector to meet an industrial need or social services need. A collaboration of public, private and NGO sectors across expertise and skill, in alignment with the same vision and outcomes attainment, has the potential to lead to creativity, innovation and increased efficiencies (UN Global Impact, et al, 2015; Gustafsson-Wright, Gardiner & Putcha, 2015). Secondly, both Project Finance and SIBs are contractual relationships that set out the roles and responsibilities of all stakeholders. It is through this contractual relationship that risk transfer and distribution is outlined. All these risks would be significantly cash- and time-consuming. However, SIBs and Project Finance create an opportunity to share the risk with organisations that have the know-how and track record in the area of implementation (Gustafsson-Wright, Gardiner & Putcha, 2015; Instiglio, 2015). Thirdly, the determination of the outcomes is important, as well as how these will be measured. A performance-based financial model enables governments, investors and service providers to be able to relatively link investments and outcomes, thus decreasing spending inefficiencies and saving governments' financial resources where possible (Gustafsson-Wright, Gardiner & Putcha, 2015, p. 1; Filmer & Pritchett, 1999; Bellinger & Fletcher, 2014; Dalberg Global Development Advisors, 2014; Sandors, Scott & Benn, 2009; Leading group on innovative financing for development, 2010).

Lastly, the additional attractive forces for stakeholders to engage are additional financial revenue and efficiency added to the relevant processes. The application of SIB tools promises the much-needed ability to pool different forms of finances, such as impact investing from different spectrums (financial first or impact), foundation grants as charitable donations or part of program-related investments and leveraging off public funding. There are trillions of US dollars worldwide sitting as potential untapped funding resources for social challenges, and SIBs present tools to unlock these funds (Social Finance, 2009). The additional funding capabilities can "enable government to execute projects without increasing short-term public expenditure and taking on new debt" as noted by Werneck and Havemann, giving governments greater flexibility to focus on systemic issues (Mulvaney & Kriegler, 2014, p. 7; Gustafsson-Wright, Gardiner & Putcha, 2015). However, PPP have a number of identified operational

challenges, namely, the misalignment of developmental ideologies between the private sector and public sector (Tilak, 2016). Despite the potential this model holds, there are a number of challenges arising from the involvement of a number of different stakeholders, namely the public and private sector in a PPP (Euler, 2013). A review conducted by interviewing stakeholders involved in PPPs in South Africa unearthed a couple of challenges that made PPPs ineffective. PPPs in South Africa are seemingly plagued by lack of political will, mistrust between parties, inconsistent ideologies and the lack of skills to carry out the key mandate (Castalia Strategic Advisors, 2007; Kruss et al., 2012). Thus, one can then argue that the definition of Project Finance and SIBs is not necessarily inconsistent and can be relied upon.

Other possible alternatives for financing teacher education:

Another alternative route government can consider to raise capital to fund the elements that are required to either upscale teacher internship programmes or have decentralised induction programs with the necessary support is through raising capital by issuing education or social bonds or diaspora bonds.

Education Support Bonds or Social Bonds

The African development bank, a multilateral development bank, in order to fulfil their mandate on promoting socio-economic development issues Social Bonds to raise capital. The proceeds from these issuances are used for projects amongst which is development of quality education (Shukla & Peyraud, 2017). An example of this is when the African Development Bank offered Japanese retail investors Education Support Bonds. The funds were targeted for projects within Education with a key focus of producing human capital especially within STEM in order to address skilled labour requirements (African Development Bank, 2013). This is in line with the projects the African development Bank developed to assist African countries take a holistic approach to education development especially as it relates to getting better value for money from their education expenditure, as quality education and training does not come freely (African Development Bank, 2017). The proceeds from the social bonds are deemed to contribute positively to the different priority areas (Shukla & Peyraud, 2017). Though the real impact of the proceeds is yet to be seen as the Social Bond projects are still in progress, this route may be an additional route to consider for raising additional capital.

Diaspora Bonds

In recent years Israel, Ethiopia and India have raised significant funds from retail migrant investors for funding development. Israel specifically has been tapping into diaspora bonds

since 1951 and has raised over $34billion for financing gaps in development projects (Teferra, 2013, p. 242). Diaspora bonds are issued by government and targeted at its citizen community living abroad. Though this form of financing comes with the limitations of the country's citizens it can also be opened up to other citizens however ensuring that the country's citizens get preferential rates (Oji, 2015). The potential for these bonds in an African context is significant with approximately $53billion available in savings from African migrants (African Development Bank, 2013). Though Diaspora Bonds have traditionally been issued for financing infrastructural development, however skills development especially in STEM has a compelling narrative for long term development plan and can be marketed and communicated as such in order to contend for the raising of capital.

Diaspora Bonds and Education/ Social bonds are either issued by government or Development Finance Institutes and hence funds shall be used directly by governmental institutions in their ordinary course of business. The main objective of raising funds if successful, would be met and funds disbursed by the same agency that lacks capacity to implement. Literature reveals that it is critical to be transparent and accountable with the use of the proceeds as well as with the end use (Kayode-Anglade & Spio-Garbrah, 2012). Thus this funding structure has no additional value to the traditional financing model other than additional revenue. These bonds enable individual investors to directly support and foster economic growth with the comfort of knowing they can get their funding back. This form of funding does not equate to a grant where there is limited to zero accountability for institutions for the results. As noted previously, if this form of funding is considered, one would need to be cognisant of the fact that additional funding alone without the relevant policies and skills to implement does not yield tangible teacher quality result.

2.3 Literature review conclusion

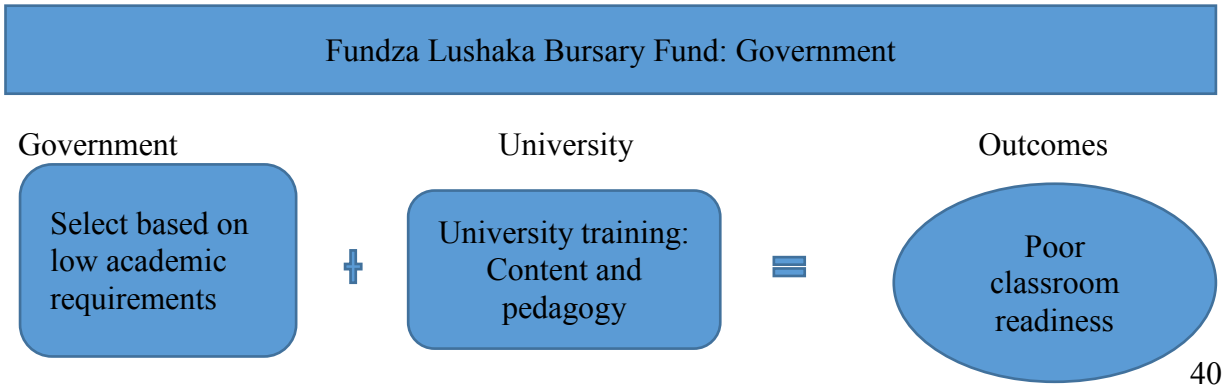
The challenge of poor quality Maths and Science is not a misnomer in South Africa. Literature consistently proves the strong relationship between the quality of learner results and the quality of teachers, and informs policy of the key areas of focus if countries are to work towards improving learner Maths and Science results. South African literature has shown that teachers are ill-prepared and that they themselves, at times, have Maths and Literacy levels that are

below the grades in which they teach. Recent studies reveal that the manner in which teachers are being developed in South Africa lacks content quality, poor pedagogy skills, and most importantly, no correlation between theory and real life contextual application. This literature has aimed to indicate the characteristics of a dual training system that enables effective links between teachers training and work experience (Gill, Fluitman, & Dar, 2000). At the same time, the literature has aimed to showcase that a PPP model that is ordinarily used within a Project Finance sector for infrastructural development can be adjusted slightly and extended to accommodate addressing soft challenges such as teacher quality.

A model that accommodates both teacher development and PPP funding through social investors and government is already being implemented in South Africa albeit on a small scale, with one model in particular being a strong PPP in operation and funding. However, this dual training model has not been adopted on a large scale due to public and private traditional funding constraints being mainly inefficiency and financial constraints. SIBs were identified as a potential complementary finance model mainly due to their identified characteristics and associated benefits. SIBs also meet the operational characteristic criteria of a dual training/ teacher internship training model that of being a PPP, and its added benefits appear to mitigate the current traditional finance constraints. SIBs showcase that they may have the capacity to take to scale appropriate teacher education models, in a similar manner as Project Finance PPP being used to fund infrastructural development government cannot fund on its own.

Therefore, the literature review concludes that the teacher internship model/alternate teacher education model reveals characteristics that are required for improving teacher training and SIBs could play an important role in enabling and scaling the identified model in its entirety. Chapter 4 explores through interviews the identified stakeholders affinity to engage in SIBs and what their push and pull factors would be.

Figure 2: Traditional Teacher Training and Finance Model



CHAPTER 3: RESEARCH METHODOLOGY

This chapter discusses the research methodology for the thesis. The purpose of this chapter is to reflect on the most appropriate method of collecting the relevant data to answer the research question. This chapter details the processes involved in deciding on the most appropriate research methods. The various issues discussed in the chapter are as follows:

i. Research approach
ii. Research design
iii. Sample and Sampling method
iv. Procedure for data collection
v. Data analysis and interpretation
vi. Limitations of the study

3.1 Research Approach

The study employs a qualitative research approach as opposed to a quantitative approach. The main research question and subsequent sub-research questions seek to subjectively explore and understand how stakeholders can navigate the operational and financial challenges of developing quality SMT teachers. Though majority of the constructs pertaining to the research have broad frameworks, there is limited robust theory available. Therefore a qualitative research approach is best suited for such instances and is designed to answer the "how" and "why" questions, which are a focus of this study (Yin, 2003). The qualitative approach also allows for the exploring and understanding of the meaning of individual perspectives that they associate with certain social or human challenges, thus will be most relevant in developing theory for this study (Ritchie, Lewis, Nicholls, & Ormston, 2013; Sofaer, 1999).

3.2 Research design

The type of qualitative research design applied was dependent on the nature of the sub-research question. The decision of which research design was best suited per sub-research question was

primarily dependent on the availability of previous knowledge and frameworks attributable to it . Therefore the sub-research question relating to the ideal alternative teacher education model applied a qualitative inductive design as a broad framework on teacher education and teacher quantity exists and the nature of the study seeks to use existing theory to assist in identifying patterns and relationships to build a theory on teacher quality. This was most suitable as preliminary relationships, had already been identified in the literature review. Thus a qualitative inductive approach has been applied in answering this sub-research question (Thomas, 2006). The research aimed to obtain textual data through in-depth interviews from interview participants that are active in teacher education and active teacher education financing. These interview respondents would give insights pertaining to what they have experienced whilst operating in the field. They have advantage of understanding through involvement what has worked and what hasn't worked. The financiers hat are linked to government will give insights into the key objectives of government as it pertains to the key objectives and mandate for teacher education.

The second sub-research question is to tackle an identified problem namely; the use of innovative project financing approaches to developing quality teachers. This field that the research question is trying to address, has little to no conducted previous research, thus the question is designed to assist us better understand the problem and offer further points of investigation. Thus a qualitative exploratory design was used to answer this sub-research question. The research aimed to obtain textual data through in-depth interviews from interview participants that are active and non-currently active in financing teacher education or education. This includes national treasury, social investors and finance investors. These interview respondents would give insights pertaining to their key requirements for financing a social project.

The last sub-research question relating to the incentives and challenges that drive stakeholder buy in and engagement, necessitated a qualitative inductive approach to be used. This was best suited as there is a broad framework of previous research conducted on the push and pull factors that drive stakeholder engagement for SIB's. This was most suitable as preliminary relationships, had already been identified in the literature review. Thus this research aims to use information from previous conducted research to assist in defining themes and patterns from interviews in order to build theory that is specific to the main research question. The research aimed to obtain textual data through in-depth interviews from interview participants that are required for the success of a SIB. This includes all participants noted in the literature

review of SIB namely; outcomes funders, service providers and financiers. These interview respondents would give insights pertaining to issues that are pertinent to them and their industry for stakeholder buy in.

The inductive approach was also used to formulate research questions and build the theory (Eisenhardt, 1989). The inductive approach is well suited to condensing raw textual data from focused interviews which are then transcribed, formulated into patterns which are eventually deduced into conclusions. Thus formulating theory and conclusions from primary data. It is worthwhile noting that the inductive qualitative approach has been heavily criticised or not being as robust as the other theory development tool, however the approach is accepted as a simple approach to qualitative data analysis (Thomas, 2006).

3.3 Sample and sampling method

Sub-sector level analysis interpretation has been conducted across the interview participants who meet the organisational criteria outlined in the literature review, namely; outcomes funders consisting of active participants in operational and financing matters relating to teacher education. These participants are represented by the National Department of Education and National Treasury. Secondly, participants that are grouped as current and potential financiers. These are represented by Social investors such as corporate social investment divisions, and finance investors such as asset managers and impact investors. The third set of stakeholders are service providers, represented by non-governmental organisations that are currently innovating in teacher education. These service providers are actively involved and have experience in traditional or alternative teacher education. The interview respondents were chosen with the purpose of their views representing their organisational and sub-sectors on identified matters in which they have actual experience and skills. This is to ensure direct and clear relevance to the question of quality teacher education through innovative project finance approaches so that a theory can be developed (Gorman and Clayton, 2005; Ritchie et al.; 2013. It is important to note that the selected interview respondents have actual experience levels ranging from five years to twenty five years. Their academic qualifications also range from diplomas through to PHDs. Thus their experience levels and academic qualifications means they are well versed to provide their views and associated examples when answering the

questions. Due to the varying experience of the participants, their views per sub-sector may be slightly different.

The purpose of the study is to contribute knowledge of how to improve teacher quality, so that it may be used towards developing more robust theory. The associated theory generation from the data will be used to answer the sub-research questions and ultimately the core research question, the theoretical sampling method has been used. I selected and interviewed for at least an hour and a half, two outcomes funders, two financial investors, a government representative from Departments of Education, a Treasury representative, two CSI representatives, a foundation representative and two teacher education service providers so as to obtain a multi-level understanding of social impact bond development and implementation for teacher education in South Africa. It is worth noting that at least two participants were chosen per sub-sector in order to build data and theory for each sub-sector. The number of interviewees sampled was chosen to be at the higher end of the rule of thumb for a qualitative research. Theoretical sampling recommendations note that in general, six to ten interviewees suffice for analytical generalisation for an identified pattern. The theoretical criterion underlying the rule of thumb estimates is theoretical saturation by Eisenhardt (1989) ((Wagner, 2003).

The setting of the study is within the teacher education and innovative finance industries in South Africa, as the study seeks to understand an alternative route to developing quality teachers through PPPs and innovative project finance approaches in the country. The participants were chosen on the basis of the skill and knowledge of their relevant sub-sector and as a representative of the required role players as per the literature review. The purpose was to get the most informative data based on experience and skill applied to the South African teacher education challenges and requirements for investments in SIB's or similar instruments. I selected all my respondents from the above described population given that I sought to understand how innovative funding models like social impact bonds can give rise to improved SMT teacher quality training in South Africa. The selected participants from the population had to meet a preselected criteria based on the literature review and sub-research questions. The first research question relating to teacher education requirements, interview participants were required to have extensive experience and be actively involved in either teacher education policy and or teacher education innovation. They also needed to be in decision making positions. This criteria chose participants who would give insights into the elements of a successful teacher education model based on experience and skills. For this purpose I chose

the participants from the National Department of Basic Education and teacher education service providers to have the most predominant voice in this sub-research question.

The second sub-research question relating to finance, required participants that had experience and can or not be currently active within innovative finance in general as well as teacher education financing. They also needed to be in decision making positions either in the social or finance investment sector and the relevant government sector. This criteria chose participants who would give insights into the key objectives of financiers in general and what they envisaged obtaining as a return for their financial involvement. For this purpose I chose the participants from the social investors, finance investors and National Treasury to have the most predominant voice for this sub-research question.
The last sub-research question required all the participant organisations identified in SIB literature review in order to answer the questions relating to participant buy in driving factors. This criteria chose participants who would give insights into the required participants fears and challenges with the proposed structure. Thus all participants noted above would have similar view weighting.

3.4 Data Collection

The main research instrument used across the three sub-research questions for primary data collection was the process of in-depth semi-structured interview questions. As there was an existing framework in place for both teacher education and innovative finance, there was an understanding of the issues to be explored.

The in-depth interviews were of 30minutes to 90minutes depending on different participants specialising experts in different relevant fields. The in-depth interview approach was used specifically using the general interview guided approach, this was so that a holistic understanding of the interviewees' expert opinion on the matter would be captured through open ended questions with probing by researcher where necessary to delve into participants individual experiences, perspectives and context (Berry, 1999). To limit subjectivity, two participants from each of the identified sub-sectors was interviewed. The data was collected in textual form on the basis of observation and interaction with the participants, in-depth interviews. The textual data was not converted into numerical form and hence not statistically analysed. The table below is a high level overview of the specifics pertaining to the interview respondents for all three sub-research question.

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Table 2: High level overview of interview respondents in relation to sub-research question

Code	Sub-sector	Area of activity	No. of years in sector	Title	Responsibility	Highest Education level
Sub-research question: Teacher education						
Outcomes Funder (OF1)	Basic Education	Teacher education	26yrs	Deputy Director	Initial Teacher Education	PHD
Service provider 1 (SP1)	Private Education	Teacher education service provider	7yrs	Programme Manager	Teacher Internship Programme	Masters
Service provider 2 (SP2)	Non-Profit in Education	Teacher education service provider	10yrs	Chief Executive Officer	Drive collaboration	Masters
Service provider 3 (SP3)	Private Education	Teacher education service provider	6yrs	Programme Manager	Teacher capacity increase	Bachelors
Sub-research question 2: Teacher education financing						
Outcomes Funder (OF 2)	National Treasury	Government teacher education financing	10yrs	Budget Analyst	Pubic Finance	Masters
Social Investor 1 (SI1)	Corporate Social Investment	Corporate Social investing in teacher education	13yrs	Head of Corporate Social Investment	Social Investment: Teacher Education	Masters
Social Investor 2 (SI2)	Corporate Social Investment	Corporate Social investing in teacher education	3yrs	Corporate Social Investment Consultant	Social Investment	Bachelors
Social Investor 3 (SI3)	International Philanthropy Foundation	Social investing in teacher education	16yrs	Operations Manager	Education Programme Officer	Bachelors
Financial Investor 1 (FI1)	Asset Management	Financial investor	7yrs	Investment Manager	Impact Investment	Bachelors and CFA

Financial Investors 2 (FI2)	Asset Management	Financial investor	15yrs	Relationship Manager	Impact Investment	Certificates
Sub-research question 3: Incentives and challenges for stakeholder engagement						
All the above noted participants were interviewed for the last research question						
Specialist	Social Finance	Social finance innovator	5yrs	Founder and Managing Partner	Outcomes Based Financing Modelling	Masters

I interviewed 11 highly knowledgeable interview participants at different hierarchal levels in their industry of operation. The interview process with the participants was conducted over a period of 2 months.

For the teacher education sub-research question; two service provider practitioners in teacher training were interviewed. One of the service providers is currently associated with the teacher internship programme that is already implemented on a small scale through an effective PPP. This interview participant is the programme manager and has been in the teacher training industry for seven years and worked as a teacher for a number of years. They were interviewed for their expertise pertaining to the teacher internship model and expertise as a teacher.

The second service provider is the managing director of teacher training knowledge hub. She has been in the teacher training industry for 10 years. The reason she was interviewed was for her researched and practical knowledge of the teacher training landscape in South Africa. Her views would contribute greatly towards assessing the industry's service provider capabilities.

Two government officials who act as Outcomes Funders- one from the Department of Education and the other one from National Treasury- were interviewed. The official from the DBE is a senior official in Initial Teacher Training. He has direct link to the Fundza Lushaka Bursary fund and has strong relations with Unisa. He has 25 years' experience in the teaching. He is also associated with the teacher internship model that involves the effective PPP. They were interviewed as they would give insight into outcomes funders' requirements and need for a SIB and expertise within the teaching industry.

For the teacher education financing subsection; the government official from National Treasury has 10 years in the industry. They have more than 10 years in the industry and were interviewed to gain insight into government's appetite, political and financial affinity as well as any

practical push and pull considerations for SIBs. Teachers were not interviewed as potential stakeholders as the identified interviewees have relevant experience in teaching.

Two CSI practitioners from different corporate organisations were interviewed. One was the head of CSI and associated with the teacher internship programme with the effective PPP. He has 12 years in the CSI and social development industry. The second CSI practitioner has 2,5 years' experience as a CSI consultant. The two CSI practitioners were interviewed to determine their associated affinity to investment and interest in being first-time adopters of the proposed instrument.

One Social Investor from a foundation that is involved in piloting a teacher internship model in rural areas with the provincial DBE was also interviewed, to gain insight into the push and pull factors for social investors. Two financial investors were interviewed. Both work as impact investors in different organisations', one for 6 years and the other in the financial services industry for 18years. They were interviewed for their expertise knowledge within impact investing in South Africa. They have knowledge that spans between social finance and pure financial and fiduciary duty requirements. One thought leader from one of the leading social finance institutions globally was interviewed. He is one of the co-founders of the organisation. He was interviewed to obtain an international perspective of SIBs, what is happening in the market, what is working and not working. The third sub-section, required all the above noted participants views.

Interviewees were contacted via email or telephonically to request time to meet with them face to face. Where impossible Skype was used as an alternative to conduct the interviews. Meeting dates, times and locations set were according to the interviewee's convenience. All interviewees were given the interview consent letter which had all the necessary information regarding ethics and confidentiality processes. Given that the participants had expertise in either the teaching fraternity or finance fraternity, they were emailed the SIB and teacher education frameworks for the research question. This helped give context and clarify the overall research question upfront.

The interview questions were then drafted primarily based on the theory obtained through the literature review process. However some of the input into the drafting of the questions was based on my experience as practitioner in the field with teacher education and alternative teacher education models. The interview questions were then reviewed by the supervisor who gave extra input, based on their extensive practical experience within the SIB field. The

interview guide is outlined below, with the interview request letter and actual questions attached as part of the addendum.

Once these tasks had been performed, interviews were conducted, during the interviews the participants were probed extensively to obtain in depth data and ascertain understanding of both topics at hand. It was key to interview individuals who have had personal experience as the stakeholder and had been faced at some point by either teacher education or its funding requirements. What was a bonus was interviewing candidates who were directly associated or involved with the operational and efficiently operating PPP for the teacher internship model, alas on a small scale. Some of the participants are associated with some of the key decision makers for a SIB engagement, so they gave key inside insight. The interviews enabled the participants to communicate their views and opinions openly thus enabling a rich holistic view to be obtained. The questions or line of questioning asked from each participant is in annexure A.

All the interviews were tape-recorded and the interviewer took notes as well to clarify understanding and draw idea and theme linkages where possible from prior interviews. This enabled follow up questions which were not necessary part of the original questions, as linkages arose. These additional questions allowed the interviewer to test and triangulate theories during the interview. This was done for ease of data analysis subsequently. The tapes were transcribed into written form by the interviewer and an external transcriber whose work was checked by the interviewer for accuracy. The transcriptions and tapes are kept confidential in a password-protected computer for ease of reference should the need arise. All individual identification has been removed from the hard copy of the transcript. Participant identity and confidentiality has been concealed using coding procedures.

Additional information was obtained from the DBE policy documents, company sustainability reports and Internship Teacher Training external review assessment documents. This information assisted in obtaining a more holistic view of the different stakeholder perspectives. Overall the information obtained from the different sources, different stakeholders, at least two stakeholders representing same stakeholder group has allowed for a multiple perspective on the issues. These views have allowed for valid data analysis.

3.5 Data analysis and interpretation

Patton is quoted as saying "Qualitative analysis transforms data into findings. No formula exists for that transformation. Guidance, yes. But no recipe. Direction can and will be offered, but the final destination remains unique for each inquirer, known only when—and if—arrived at (Patton, 2014: 521; Schutt, 1996). Schutt highlights that the process of data analysis starts during the process of collecting the data and notes jotted down during interviews. These notes mark the beginning of the analysis process as it contains interviewees' expressions, the themes that are emerging as one interviews different participants and starts drawing differences and similarities before incorporating the transcribed interviews. The process of qualitative data analysis mainly consists of data reduction, data displays, conclusion and verification (Schutt, 1996).

The adopted qualitative analysis per sub-research question was dependent on the chosen qualitative approach and the analysis procedures will be discussed as such. Analysis and theory building is thus an interactive process that occurs throughout the fieldwork journey. Hence no questions remain static, however these can change depending on the responses obtained from the interview respondents. Therefore during the data collection process, of in-depth interviews, initial data analysis occurred during note taking. After the interviews, notes and recoding was reviewed whereby the first set of themes were emerging. During the fieldwork process notes and codes were identified from interviews to identify additional questions that could be asked of subsequent interviewees. This allowed for the iterative testing of emergent theories, further exploration of initial conceptions and identify consistent themes. This occurred especially when comparing the emergent themes amongst participants within the same subsector. This constituted the first phase of data analysis.

The interview data was collected via audio format. The audio data was transcribed into written format. This allowed for preliminary observation of themes. The data was then looked at in detail identifying themes and making abstract notes keeping in mind respondents background and relevant experience. After transcription the data was coded from initial themes using a software programme called Nvivo to identify keywords. The codes were coded into three main groups namely; teacher education, finance model and stakeholder driving factors. The codes were applied to the data to determine a comprehensive analysis.

This process then led to the emergence of identified themes per sub-research question. Once the participant themes per sub-research question were identified, they were then grouped per sub-sector and compared to determine consistency and common themes and issues.

The relevant identified consistencies and differences amongst stakeholders as well as with literature have been summarised in tables in Chapter 4 with the associated condensed theories. Cross checking of views between stakeholders and with literature review occurred through data triangulation. Data triangulation is the collection of data from more than one respondent group (Adams & et al, 2015). Therefore the data in-depth interviews were cross checked through the process of interviewing more than one respondent group of participants in order to strengthen, validate, refute and compare data. Once themes, patterns, meaning and relationships were identified through exploratory analysis and conclusions are made, the conclusions were affirmed and authenticated for appropriateness (Patton, 2002).

The themes that emerged from the data collection and analysis enabled the development knowledge that contributes towards emerging theory relating to the use of outcomes based financing mechanisms for the improvement of education in South Africa. The collection of data emerging from questions given to participants, is exploratory analysed by the researcher in order to give meaning to emerging participant themes (Creswell, 2008) After seeing the data from multiple perspectives and having had it strengthened by secondary information and hence transformed, it then became quality information that was used to address the research questions.

3.6 Limitations of the study

It is argued that every research methodology has limitation inherent in the makeup of the approach, limitations that are beyond the control of any researcher. These limitations have the probability of limiting the extent of research or the ability to generalise extensively the outcomes of the study. Therefore it is important for researchers to be careful of the wording that is used to take into consideration associated limitations.

Qualitative research is faced with a number of limitations that need to be addressed so that the developed knowledge for the theory that is conceptualised can be relied upon. The main limitations associated with qualitative research is whether “data is socially valid, subjective, reflective, adequate and and appropriately interpreted” in essence consolidated into limitations

in validity, credibility, rigor and trustworthiness (Morrow, 2005). It is therefore imperative for the researcher to take into consideration in the research design techniques that endeavour to mitigate as far as possible the extent of the effect of the inherent limitations which the research incorporated.

Due to the limitation of the number of interviewed candidates and the fact that the study is qualitative the results are generally not generalisable. One of the common limitations of qualitative research is generalisability, especially to a wider exact group or population. Amidst the generalisability limitations the interviews however endeavoured to interview at least 2 representatives from different stakeholder groups in order to corroborate the views. The questions were kept open ended, so candidates could elaborate and add additional points that were not identified. However because of the way the stakeholder groupings were structured, this impacted on the generalisability of the findings. The findings may be used as a starting point and are suggestive of what may be found for other financing possibilities within the South African education sector. The findings can also be used as a starting point for engaging and executing teacher development enabled by innovative finance solutions in developing countries. However the findings were illuminative enough to be able to generalise within a narrower context. Therefore the findings were generalisable or transferable within the context of using innovative finance to solve social challenges in developing countries context. The execution criteria for the narrower market was defined as developing country, required alignment in objectives and vision for the social issue by all stakeholders and the social issue needs to be of such magnitude that the costs would outweigh the benefits associated with execution.

Reliability is the comfort of knowing that the research tool utilised to collect the data produces trustworthy and consistent results over a period of time. Joppe in 2000 defines reliability as: …'he extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable.' (Golafshani, 2003, p. 598). Reliability was built into the research instrument through interviewing multiple participants from different categories.

CHAPTER 4: RESEARCH FINDINGS AND ANALYSIS

4.1 Background context

The core research question as previously mentioned was, how can stakeholders navigate the operational and financial challenges of developing quality SMT teachers? The three sub-research questions that were asked to help answer the core research question, were the identification of the characteristics of the ideal alternative teacher education and an associated enabling financing model, as well as the incentives and challenges that would drive stakeholders. The potential themes that address the three research questions were in essence two-fold. The first overarching theme throughout relates to a holistic approach to teacher development, whereby wraparound support and correct candidate selection could be the catalysts to quality teacher development. The second dominant theme is associated with an enabling funding model, in this case an SIB, and the ability to address or mitigate the inherent challenges of teacher education funding in South Africa. Linked to the second dominant theme, I analysed the factors that could drive stakeholder affinity to engage in a SIB for the purposes mentioned above.

4.2 Findings

The findings are presented and analysed according to the dominant themes that emerged from stakeholder views in relation to the research questions. The teacher education research question is predominately addressed by the extensive literature review in Chapter 2 and supported further by the themes that emerged from the interviews. The remainder of the research questions have been addressed primarily by the themes that emerged from the interviews.
The table below indicates and clarifies the codes used for the quotes.

Table 3: Clarification of codes used. (Source of data: Interviews)

Code		Sector	Area of activity	No. of years in sector
OF1	Outcomes Funder 1	Basic Education	Teacher education	26yrs
OF2	Outcomes Funder 2	National Treasury	Government teacher education financing	10yrs
SI 1	Social Investor 1	Corporate Social Investment	Teacher education financing	13yrs
SI 2	Social Investor 2	Corporate Social Investment	Social development financing	3yrs
SI 3	Social Investor 3	International Philanthropy Foundation	Teacher education financing	16yrs
FI 1	Financial investor 1	Asset Management	Potential Financier	7yrs
FI 2	Financial investor 2	Asset Management	Potential Financier	15yrs
SP1	Service provider 1	Private Education	Teacher education service provider	7yrs
SP2	Service provider 2	Non-Profit in Education	Teacher education service provider	10yrs
SP3	Service provider 3	Private Education	Teacher education service provider	6yrs
Specialist	Specialist	Social Finance	Social Finance international	5yrs

4.2.1 Ideal characteristics of an alternative teacher education model

I observed that the different stakeholders highlighted a range of ideal focuses for an alternative teacher education model. These ranged from the selection of the right calibre of candidates, increasing the quantity of maths and science teachers, teacher professionalism and experiential learning. However, I focused the findings and themes on dominant themes that permeated from the majority of the stakeholders. The essence of these dominant themes presents that quality processes in a holistic, "cradle to the grave" approach to teacher development is required. The themes are noted in the table and discussed below.

Table 4: Ideal characteristics of alternative teacher education model, interviewee responses and associated quotes. (Source of data: interview respondents) The explanation of the codes used is on table 3

The table indicates the quotes from the different interview respondents. This table is also representative of the identified quotes per research question.

IDEAL CHARACTERISTICS OF AN ALTERNATIVE TEACHER EDUCATION MODEL	
SELECTION OF THE RIGHT CALIBRE OF STUDENTS	
Stakeholder	**Quote**
OF1 (national teacher education)	Most of the time the candidates use teaching as a last resort when they do not get admission to their preferred professions.
	The current recruitment processes have to be improved
	If we can spend more time and money in the recruitment, we will be able to get people who are fit for the purposes we are looking for.
	As an example, the ISASA model that is producing quality teachers has a strong selection process.
OF2 (government teacher education financing)	We shouldn't necessarily screen the students differently from the way they are currently screened.
SI3 (teacher education social financier)	I think the DBE is very willing to work with new partners and we have had very good experiences with the Department in terms of setting up the basic recruitment strategy.
	We are wary that a change in the selection processes would mean that only the cream of the crop are chosen which would not help governmental objectives.
FI2 (financial investor)	It is important to attract young people that are leaving school and want to study further to actually go into the education field.
	At the moment, teaching isn't a lucrative career.

SP1 (teacher education service provider)	Are we then producing the right kind of quality? In other words, fit for purpose.
EXPERIENTIAL TRAINING	
OF2 (government teacher education financing	Challenge exists with the quality of university programmes. There isn't enough emphasis on the readiness of graduates to teach.
	The mentorship aspect is key to helping to build teachers that are quality and ready for the classroom.
	Teacher unions can be a significant risk if we integrate increased practical time with mentoring teachers.
SI1 (teacher education social financier)	I think it is strengthening classroom practice and making sure that certain teachers are mentored.
SI3 (teacher education social financier)	Historically, with apartheid and the different education systems where teachers were still teaching in schools were never taught at the level they need to teach.
SP1 (teacher education service provider)	They then learn from those with expertise that are there are those professionals. They absorb good practice on a regular daily basis. Good practice is transferable through good practice. And so these students from day one enter into the environment where we put the students which is our schools. A lot of the ISASA member schools are quality assured; in that environment, they automatically learn, develop, grow.
SP2 (teacher education service provider)	We are in a different world now and we need a different style of teaching.
SP3 (teacher education service provider)	Our teacher development programmes are around apprenticeship or mentorship, where student teachers are in schools and spending time with teachers who are experienced. There isn't a huge percentage of Master/expert teachers or high quality experienced teachers to draw on to help with mentoring.
QUANTITY OF MATHS AND SCIENCE TEACHERS	
SI1 (teacher education social financier)	Quantity Maths and Science

SI2 (teacher education social financier)	Maths and Science as a subject. There is extensive research that supports the general importance of that particular field.
EXAMPLE	
OF1 (national teacher education)	ISASA model is worth replicating, as it is producing quality teachers on a small scale.
	The way the interns are funded is slightly different from the funding that has been offered to the conventional way of training teachers.
OF2 (government teacher education financing	ISASA internship model - mentorship aspect is key in helping to build teachers ready for the classroom.
SI1 (teacher education social financier)	The ISASA mentorship model is an example of an alternative teacher education model. The model's most valuable inclusion is the support element.
	Scalability is dependent on expanding resources, financial, expertise and it's not just about money.
SI3 (teacher education social financier)	Well got a partner in the DBE looking to train 100 students working with two cohorts each. It is very similar to the SASSA programs and the Fundza Lushaka bursaries … from South Africa during the mentoring and they are placed in functioning public primary schools. In the Free State Qwaqwa and that is Foundation Phase teachers with approximately 8 schools, 50 students schools
SP1 (teacher education service provider)	ISASA for example, don't have the capability and capacity to develop these kinds of outcomes? Oh no. It's huge. We have it in abundance. We probably have about eight years of experience around that area. Where we started small and made mistakes and we grew out of those mistakes.

Table 5: Analysis of interviewee quotes and responses in frequency of consistency (Source of data: Interview respondents)

The table below is representative of the interview respondents who had a view on a particular theme. The columns are representative of the identified themes, whilst the rows are indicative of the different interviewees. The totals at the bottom represented by certain number indicate the number of interviewees whose views contributed to the specific theme. The theme with the highest number of respondents indicates the dominant theme.

	Ideal characteristics of alternative teacher education model				
Stakeholders	*Selection of right calibre candidates*	*Experientia l training*	*Example model*	*Quantity of Maths and Science teachers*	*Teacher professionalism and Leadership*
OF1	✔		✔		
OF2	✔	✔	✔		
SI 1		✔		✔	
SI 2				✔	
SI 3	✔	✔	✔		
FI 1	No comment				
FI 2	✔				
SP1	✔	✔	✔		
SP2		✔			✔
SP3		✔	✔		
Specialist	No comment				
	5	6	5	2	1

I observed that the first dominant theme was a need for a quality process for the selection of the right calibre of prospective teacher students. Each of the stakeholder groups identified that the right calibre of students is important in developing quality teachers and that poor execution in this area ultimately leads to poor teacher quality. An outcomes funder noted that "*The current recruitment processes have to be improved, as they can either build or break the whole teacher education model. If we can get the recruitment and the screening right, the teacher training will go smoothly: OF1."* This is supported by a service provider who noted that, "*The problem of quality teachers begins at the starting point of selecting fit for purpose student teachers. SP 1"*. The right calibre of student was further identified by some stakeholders to incorporate factors such as students who are young, displaying excellent results and who have an innate desire to enter the profession. One financial investor said, *"It is important to attract young people that are leaving school and want to study further to actually go into the education field: FI 2."* The outcomes funder went on to further illustrate with an example which emphasises this point by saying, "A*s an example, the ISASA model that it is producing quality teachers has*

a strong selection process, choosing young academically excellent candidates who display the desire to teach: OF1". However, no specific details pertaining to the extent of the selection process were divulged. Since South Africa does not have a strong sense of what the ideal student teacher selection criteria would be, collaborations with outcomes funders, who are the ultimate custodians of quality teachers, have been suggested as an alternative to strengthen the selection criteria requirements and processes. A social investor confirmed this notion by using an example of an alternative teacher education model that is currently piloted in one of the South African provinces. She noted that "*the recruitment strategy has been effective, with the help of the DBE: SI3".*

However, certain negative concerns were observed particularly in the areas of government priority alignment and nuances relating to the South African market. In regard to government priority, an outcomes funder noted that, *"We shouldn't necessarily screen the students differently from the way they are currently screened, as we are weary that a change in the selection processes would mean that only the cream of the crop are chosen, which would not help government objectives: OF 2".* The view of not changing the current selection process in selecting teachers in South Africa seems to be in contrast with the other outcomes funder quoted above. The two outcomes funders' views are probably different as one works in direct operations with teacher development and the other works operationally with funding and progressing the national governmental agenda. The view also negates the current systemic teacher education challenges that were subsequently mentioned by other stakeholders.

The most dominant observed systemic challenge relates to the fact that the teaching career, especially amongst the youth, is not highly regarded and hence, in most cases, teaching is a student's last career choice in an effort to obtain funding from avenues such as the Fundza Lushaka Teacher Bursary Schemes. An outcomes funder noted that, *"Most of the time, the candidates use teaching as a last resort when they do not get admission to their preferred professions. We are constantly competing with engineering, medicine, etc. We find that the only people that we get are the ones who cannot pay for their studies in their preferred professions: OF1".* Another stakeholder noted that the perceived poor remuneration within the profession adds to the systemic challenge of poor perception and last resort choice by saying, *"At the moment, teaching is not a very lucrative field to be going into: F1 2".* Therefore, though there is the desire to increase candidate selection criteria into teacher development to align with international best practices, stakeholders would need to work on the identified systemic

challenges, like finding alignment with government objectives and the profession's desirability amongst the target market. This is particularly a concern, as one of the themes identified by the stakeholders is a need to focus on Maths and Science teaching, which are significant teaching challenges that require specific prior skill and knowledge in order to succeed.

The second emerging ideal teacher education characteristic theme argues that the lack of adequate practical experience time and wraparound support in a teacher education programme is a key contributor to poor quality teachers. I observed that stakeholders were concerned with this theme as it related directly to the lack of preparation, the lack of readiness for the classroom and the poor pedagogical practices of the student teachers; in essence, the overall development of quality teachers. All stakeholder groups, except financial investors, identified a lack of experiential training or the lack of practice time in the classroom as one of the key contributing factors to poor teacher development. Thus these stakeholders said, *"I think many of the university-based teacher education models lack being classroom based. Curriculum alone does not necessarily prepare teachers to be good teachers in the classroom: SI3".* Another service provider supported this by saying, *"The quality of teachers is missing out on sufficient practical time in the classroom: SI1".*

It is this identified challenge that has stakeholders suggesting a more school-based teacher education model, which enables student teachers to spend more time in the classroom through school-based teacher development models. A service provider supported this by saying, "*Let's do teacher development differently, by focusing on school-based teacher development: SP3".* However, additional time in the classroom alone cannot bring about the change and integration required for effective teacher development. I observed that stakeholders were of the view that teacher development requires trainees to be mentored by proficient teachers who are already in the system to help them with teaching pedagogy and best teaching strategies within different contexts. This assists graduate teachers to become adequately prepared for the classroom. Stakeholders supported this notion by saying, *"The mentorship aspect is key to help build teachers that are quality and ready for the classroom: OF2". A*nother stakeholder used a teacher development programme they are associated with as an example of school-based training that has mentorship, noting, "*Our teacher development programs are around apprenticeship or mentorship where student teachers are in schools and spending time with teachers who are experienced: SP3*".

However, key challenges were observed that could make the above case difficult to implement in a South African public school environment. The first challenge related to the disruptive nature of unions within the public school sector. An outcomes funder noted that, *"Teacher unions can be a significant risk if we integrate increased practical time with mentoring for teachers. OF2".* The second challenge related to the dearth of quality teachers in the current system who assist with mentoring the teacher graduates. This challenge reflected the fact that there are not enough quality teachers in the current education system, especially Maths and Science teachers whom graduate teachers could efficiently learn from. Proper mentoring is key as it helps teacher trainees acclimatise to the teaching environment whilst applying their theoretical knowledge. A service provider noted that, "*There isn't a huge percentage of Master teachers or high quality experienced teachers to draw on to help with mentoring: SP3".* A social investor gave context, noting that teachers can only teach what and how they know and what they have seen and not necessarily how they should be, saying *"Historically, with apartheid and the different education systems where teachers were still teaching in schools were never taught at the level they now need to teach: SI3".* Therefore, it is suggested that teachers in training should be based within a schooling environment, with wraparound support in the form of mentoring during the course of their studies, whilst studying through distance learning. This helps teacher trainees acclimatise to the teaching environment whilst applying their theoretical knowledge. However, challenges such as teacher unions and a dearth of quality teachers could make this a challenge within a South African public school setting. Therefore, an additional identified characteristic required for an alternative teacher education model is for a school-based education model that is more supported by qualified teachers. However, yet again, country specific challenges may render the identified characteristic difficult to attain.

Lastly, I observed that stakeholders were able to identify one or two teacher internship models that exhibited the identified ideal teacher education model characteristics. These models have been piloted on a small scale within the private education sector. One of the outcomes funders noted that, *"The ISASA model is worth replicating, as it is producing quality teachers but at a small scale: OF1".* This notion was supported by a social investor who noted that, *"The ISASA internship model is an example of an alternative teacher education model. The models most valuable inclusion is the support element. We have a degree of comfort with the model. Currently, the model is subjectively ready for scalability, however, subject to a commissioning review. SI 1".*

The challenge of scaling these similar types of models are funding and operation challenges. The social investor said that, *"Scalability is dependent on expanding resources, financial, expertise not cheap and not just about money. SI1".* This notion was supported by an outcomes funder who said, *"Although it is an alternative training model for the teachers, one cannot necessarily dissociate it from the funding because the way interns are funded is slightly different from the funding that has been offered to the conventional way of training teachers. OF1".* Therefore, though there is an identified teacher education model that seems to incorporate the identified required characteristic, replication on a national public school scale may pose a significant challenge financially and operationally. Some of these challenges are identified and discussed further by stakeholders.

4.2.2 Ideal characteristics of a finance model

The different stakeholder groups identified a number of characteristics that they deemed ideal for an enabling finance model for teacher education. These characteristics ranged from a need for additional financial resources, a link between the investment and results as the key drive is value for money. A sharing of risks was also a predominant feature, and on a smaller scale a need for an opportunity to be part of improving education. The identified characteristics are displayed in Table 2 below. For the purposes of the findings, section three key themes have been discussed below. I observed three dominant themes that detail the required financial needs. I observed that some of the additional characteristics that did not qualify as themes were linked to some of the identified theme and have been discussed accordingly.

Table 6: Ideal characteristics of an enabling teacher education finance model

The table indicates the quotes from the different interview respondents. This table is also representative of the identified quotes per research question. The explanation of the codes used is on table 3.

IDEAL CHARACTERISTICS OF FINANCE MODEL	
ADDITIONAL REVENUE	
Stakeholder	Quote
OF1 (national teacher education)	"The current conventional budget for funding teacher development only has room for bursaries that cover tuition, accommodation and books and that maximises the current budget."
	"The issue of sustainability of the Fundza Lushaka is serious."

OF2 (government teacher education financing)	"Additional funding is a big need."
	"Government is willing to explore feasibility of alternate funding model, due to tightness of funding."
SI 1 (teacher education social financier)	"Alternative revenue sources are much needed within social development which is already financially constrained. The current financial injection within the sector is through charitable finances that have no major expectation for a return, thus limited accountability."
SI3 (teacher education social financier)	"There are already a number of implementers who are doing teacher training internships who are ready to grow and want to scale. Additional revenue stream would facilitate this need."
SP1 (teacher education service provider)	"Additional revenue streams would create a financial cushion. One of the biggest challenges for us service providers has been going out there looking for funds."
SP2 (teacher education service provider)	"Collaboration of revenue from different parties is key for scale up."
SP3 (teacher education service provider)	"An ability to increase the pie of available funds that wouldn't ordinarily be available in order to fund different aspects that are a limiting factor currently preventing our ability to scale up."
IMPACT	
OF1 (national teacher education)	"The amount of money that is put aside for Initial Teacher Education through the fiscal budget, is approximately R1 billion per annum. But if you consider the quality of teachers that are produced, quality teachers are not always guaranteed."
	"The challenge that the government or department is having in getting sufficient return for the investment that they have made."
	"I think the main issue is the investment and I think to answer the concerns surrounding the investments is what type of guarantee are we going to have that if we are going to invest will indeed get the outcomes that we are envisaging."
OF2 (government teacher education financing)	"We are looking for a funding model that can improve the rate of quality teacher throughput, and pay for clearly defined outcomes. In our view, these would help us build in efficiency into public sector funding,"
	"Government is merely making money available. However, we are not pushing for efficient use of the money. We are looking at partnerships to ensure money is well spent in order to force efficiencies and not simply give money to poor students."

	"Need to be convinced of the value for money. Better value for money this way, than the current way what government is currently getting and expecting people to work back."
	"SIB must show delivery of the outcome in a manner more efficient and more effective than the state can do on its own."
	"What type of guarantee are we going to have?"
FI 2 (financial investor)	Our developmental suite of funds has identified Education as a key area. So our underlying investors would love exposure to make an impact in Education."
	"You know the mix of risk and returns must be correct in terms of you speaking and making it available to an institutional investment manager. So taking the appropriate risk but getting the return for it."
	"Commercial risk adjusted returns - that is first and foremost."
FI 1 (financial investor)	"Impact investors interested in funding the education space are looking at innovations that have solutions."
	"Even if you launch a successful SIB, it will be difficult to sell it to asset managers. They look at risk and return in ways that don't marry even with high unlisted credit impact investing."
SI 1 (teacher education social financier)	"Focus on clarity of impact and outcomes."
SI 2 (teacher education social financier)	"There must be some form of shared value or shared return. It would be critical for us. We should be able to measure impact, return and create wealth or value."
SI3 (teacher education social financier)	"So it obviously has an impact on children and education or health and they are our main focuses in Africa."
SP 2 (teacher education service provider)	"We would like to see what contribution we are making to the sector and a finance model that enables a much more defined contribution is needed."
SP3 (teacher education service provider)	"Impact on the quality of the teacher is more important."
Specialist	"SIB players are becoming more solution agnostic and problem driven and that's going to be an important movement in the way the people are approaching these instruments."
	"Any finance model is only relevant to the extent that it can really support and increase impact. So no matter how innovative and flashy the tool is, it doesn't matter in the long run if it's not able to scale the impact of programmes and to improve the impact and add value to the space."

	"The biggest challenge for now is to get governments to understand and be able to engage with the value outcomes based financing is providing."
	"Not commercial investors, by virtue of the critical mass that is needed in order for the players to start thinking of playing as they need to see track record, understanding the risk profile, so different players. It's still too early on in this practice, let alone engage in a new investment practice."
SHARING RISK THROUGH PARTNERSHIP	
OF 2	"We would like transfer outcome risk to external parties who have tested expertise."
SI 1 (teacher education social financier)	"Opportunity for partnership, it doesn't just allow for financial leverage. It allows technical experience leverage, allows for value-add support that wouldn't ordinarily be available and different perspective had it not been for all the entities coming together."
SP2 (teacher education service provider)	"I think that a greater commitment to collaboration and a greater commitment to reflection in collaborative spaces is important."
SP3 (teacher education service provider)	"Just the idea of kind of PPP. PPP, I think that is sort of the beauty of the SIB. If it is going to bring those three stakeholders to the table, I mean there is a success."

Table 7: Analysis of interviewee quotes and responses in frequency of consistency

The table below is representative of the interview respondents who had a view on a particular theme. The columns are representative of the identified themes, whilst the rows are indicative of the different interviewees. The totals at the bottom represented by certain number indicate the number of interviewees whose views contributed to the specific theme. The theme with the highest number of respondents indicates the dominant theme.

	Ideal characteristics of alternative finance		
	Additional revenue	*Outcomes, Impact and Value for money*	*Sharing risk through partnership*
OF1	✓	✓	
OF2	✓	✓	✓
SI 1	✓	✓	✓
SI 2		✓	
SI 3	✓	✓	
FI 1		✓	
FI 2		✓	
SP1	✓		
SP2	✓	✓	✓
SP3	✓	✓	✓
Specialist		✓	
	7	10	4

The first identified ideal finance characteristic theme related to an element that induces a certain level or type of impact for the stakeholders. I observed the required impact per stakeholder group was slightly different compared to others, yet in essence similar. Outcomes funders required a finance model that would enable them to do two main things, namely, link teacher quality development outcomes and investment, as well as realise efficiency in the way public funds are utilised. Primarily, significant investment is dedicated to the education portfolio. However, research consistently shows poor results associated with learner outcomes and quality teachers. Year after year, the outcomes funders struggle with improving the rate of quality teachers though the investment in teacher development remains the same. An outcomes funder noted that, "*The amount of money that is put aside for Initial Teacher Education through the fiscal budget, is approximately R1 billion per annum. But if you consider the quality of teachers that are produced, quality teachers are not always guaranteed: OF1".* Another outcomes funder noted that, "W*e are looking for a funding model that can enable the improvement of the rate of quality teacher throughput, and pay for clearly defined outcomes: OF2*". The outcomes funders are looking for a finance model that will assist them in driving quality throughput through clearly defined parameters of outcomes with their investments.

Secondly, I observed that outcomes funders are also looking for a funding model partnership that enables them to decrease wastage and better manage risks associated with the delivery of

the required outcomes due to lack of skill or expertise in those areas. They noted that, "*We are looking for a funding model that can help transfer outcome risk and any other associated delivery risks. In our view, these would help us build in efficiency into public sector funding: OF2".* Another outcomes funder confirmed that, "*Government is merely making money available. However, we are not pushing for efficient use of the money. We are looking at partnerships to ensure money is well spent in order to force efficiencies and not simply give money to poor students: OF2".* The key issue for outcomes funders is how they could have better value for money, as there was a lack of processed accountability when it comes to results and wastage of public spending. An outcome funder noted, "*SIBs must show delivery of the outcome in a manner more efficient and more effective than the state can do on its own. OF2".* The possibility of an ability to transfer risk and leverage off the different expertise of different stakeholders through strong partnerships was also noted as a requirement of the finance model, albeit, by few stakeholders. One of the outcome funders noted that, "*We would love to transfer outcome risk to external parties who have tested expertise in the relevant areas. OF 2*". Some stakeholders deemed shared responsibilities through strategic partnerships as decreasing the risk levels carried by one stakeholder. A social investor noted that, "*Opportunity for partnerships allows for financial and technical expertise leverage when different entities come together. SI1".* However, this may be a challenge in South Africa, mainly due to the poor trust levels between stakeholders, which has been discussed below as a stakeholder challenge theme.

Social investors, on the other hand, said the model would only work if the shared values for all stakeholders were identified. The social investors identified a need for a finance model that will have clear measureable social outcomes. Social investors emphasised that they were looking for more than simple goodwill when it comes to the social investments made. One of the social investors noted, "*There must be some form of shared value or shared return. It would be critical for us. We should be able to measure impact, return and create wealth or value for the beneficiaries we are working with: SI2".* Another social investor noted that, *"We need a finance model that will focus on clear impact and outcomes. SI 1".* It appears social investors are also looking for a finance model that will induce outcomes accountability with their social spending, which is different from prior years where social investors invested within the charitable sector simply for goodwill and/or driven by regulation.

Lastly, the service providers also required a finance model that could show a clear impact on the production of quality teachers. One of the service providers noted that "*we would like to*

see what contribution we are making to the sector and a finance model that enables a much more defined contribution is needed. SP 2".

In essence, it appears that the outcomes funders, social investors and service providers require an outcomes-driven financing structure to enable them to meet their core objectives. Their key requirement for a finance model is that it should assist them in meeting their key objectives of solving the identified challenge of quality teachers. This view is collaborated by the social finance specialist who noted that, *"SIB players are becoming more solution agnostic and problem driven: Specialist".*

However, one of the stakeholder groups, namely financial investors, were also looking for a finance model that would enable them to make an impact, but the impact is more about having the ability to diversify their investment portfolios into the education sector. It appears as though the traditional investors are looking for opportunities to invest and make an impact within the education sector. They noted that, "*Our developmental suite of funds has identified Education as a key area. So our underlying investors would love exposure to make an impact in Education: FI 1".* The financial investors' drive for impact was dependent on their investors' preferences at a given point in time. However, the challenge with financial investors is that they are seeking an opportunity to invest in the education sector only if the investment will yield a return associated with the risk of the investment. A financial investor noted *"The mix of the risk and return must be correct if you are to sell the investment opportunity to institutional investors": IF 2"*

However, I observed that stakeholders, such as outcomes funders, still required convincing of the true value of such a proposed funding model. Even though stakeholders, such as the outcomes funders and service providers, were willing to engage in a model that enhances their financial needs, there is major room for lobbying in order to get buy-in from all stakeholders. The social finance expert noted that "*the biggest challenge for now is to get governments to understand and be able to engage with the value outcomes based financing is providing: Specialist."* Other stakeholders also noted the need to first see the value of any new innovative finance model before commitment. This issue has been discussed further below.

Therefore, a majority of the stakeholders are looking for a finance model that will enable them to drive measureable impact associated with their investments in improving teacher quality,

whether that investment is funding or time. However, their commitment levels are dependent on their ability to buy into the true value of the instrument. Financial investors, on the other hand, are looking for a finance model that will give them an opportunity at an alternative investment instrument. However, their primary drive is financial return and not necessarily social return, a clear indication of contrasting investment ideologies. The implications of this have been discussed below as leading to a lack of trust between the private and public sectors. The majority of the stakeholder groups stated the need to first see the model's results prior to commitment.

The second identified theme relates to the lack of additional financial resources, for innovation, thorough candidate selection, stipends and wraparound support required by an alternative teacher education model. Quality teacher education is a government priority and has a strong correlation to governmental objectives. An outcomes funder noted that, *"Education is a priority of the ruling party, evidenced by the financial investment into the sector: OF 1".*

I observed that even though the funding for basic education is a significant investment by government, research shows that 80% of the funding is dedicated to teacher salaries and the remaining 20% to other elements of the sector, including teacher education. Hence the current conventional route of funding teacher education does not have extra capacity to dedicate to any additional elements. An outcomes funder noted that, *"The current conventional budget for funding teacher development only has room for bursaries that cover tuition, accommodation and books and that maximises the current budget: OF1.* Therefore, the additional characteristic of an ideal financial model is to have the ability to bring on board additional financial streams within the education sector to assist with the sustainability of the governmental mandate of developing quality teachers. An outcomes funder noted that, "*Additional funding is a big need.*: OF2". I also observed that the outcomes funders are concerned with the lack of sufficient finances that are affecting the sustainability of the current conventional funding avenue, Fundza Lushaka, and they mentioned that, "*The issue of sustainability of the Fundza Lushaka is serious: OF1."* Thus the outcomes funders were potentially looking for a finance model that would enable additional revenue to be available in order to sustain the current bursary programme, as well as having the ability to add on additional value-add elements to improve their current teacher education training model.

I observed that social investors were also interested in the additional revenue streams, albeit for different reasons. Their desire for additional revenue streams appears to be for the furthering of social development work within the sector through leveraging off private sector and public sector available funding. Social investors are also interested in the nature of the additional funding and the potential of introducing a missing level of accountability and efficiency within the charitable sector. A social investor noted that, "*Alternative revenue sources are much needed within social development which is already financially constrained. The current financial injection within the sector is through charitable finances that have no major expectation for a return, thus limited accountability SI1".*

Service providers on the other hand also deem that a finance model that brings additional revenue streams to the sector is key, as it will enable the charitable sector to have financial sustainability. One of the service providers noted that, "*Additional revenue streams would create a financial cushion. One of the biggest challenges for us service providers has been going out there looking for funds: SP 1".*

Therefore, one of the ideal characteristics of an enabling finance model for teacher education was noted by all stakeholder groups, except financial investors. All of the stakeholders who mentioned the need for additional revenue streams highlighted different yet complementary reasons for the requirement. The key theme was, in essence, across stakeholders, sustainability in order to continue pursuing the ultimate objective of developing quality teachers.

4.2.3 Stakeholder incentives and challenges

The table indicates the quotes from the different interview respondents. This table is also representative of the identified quotes per research question.

Table 8: Stakeholder incentives and challenges for engagement (Source of data: Interview respondents)

The table indicates the quotes from the different interview respondents. This table is also representative of the identified quotes per research question. The explanation of the codes used is on table 3.

STAKEHOLDER INCENTIVES AND CHALLENGES	
MEASUREMENT AND QUANTIFICATION OF OUTCOMES	
OF1 (national teacher education)	"It is very difficult to quantify the softer required skills of a teacher. Although the performance of the learners is one aspect that we can use to measure. The other aspect is, I do not know how you are going to. Because education is the totality of the learner, and performance is one aspect. How are we going to measure that? Indeed the learner is well educated in something else. Because we need a rounded person to come out of the system as to how we are going to measure that roundedness."
OF2 (government teacher education financing)	"Evaluation of outcomes - how you will measure that, however, needs clarity upfront on all instruments agreed upon by all parties."
	"Clearly stated outcomes, would have to be in line with government priority."
FI1 (financial investor)	"The entity you partner with is key to what entity is responsible for delivering the developmental objectives."
	"The outcomes need to be simple, easily measureable and easily auditable."
	"Suggestion of including auditing firms, as external auditors on an annual basis to give investors comfort. Objective external evaluators, whose findings can bind government to deliver."
SP1 (teacher education service provider)	"The key outcome is a pipeline of quality teachers who are passionate about education and about children and who feel the sense of the vocational importance of the profession."
	"Measurement of outcomes shouldn't be left towards the end. It's usually disastrous when you do that."
SP2 (teacher education service provider)	"So I think we need ways to measure things like passion, like resilience. You know we are limiting ourselves if we are only doing things like measuring learner results."
SP3 (teacher education service provider)	"I think it is a weakness in the sector. We do not have standard M&E framework."
SERVICE PROVIDER EXECUTION RISK	
OF1 (national teacher education)	"But the question is where are we going to get the most suitable and relevant people who will be able to come up with strategies in implementing the SIBs."
	"The question is, despite the reception being potentially good, the implementation may be a different challenge."

	"The reliability of the service providers. The whole issue of fly-by-nights, how reliable will the people providing the service to the system be."
OF2 (government teacher education financing)	"Depends on outcome written out, increase in numbers and quality. Quality difficult to measure, clear evaluation instruments however doable."
SI1 (teacher education social financier)	"There is a lot of expertise in the sector."
	"The nature of teacher education expertise is competitive. Thus not working with each other."
SI3 (teacher education social financier)	"You already have a number of implementers who are doing teacher training internships who are ready to grow and wanting to scale."
SP1 (teacher education service provider)	"My only concern would be the tendering process associated with this. Because obviously everyone would want to be in that comfort zone. The processes of selecting these service providers."
SP2 (teacher education service provider)	"I don't think that we are short of teacher education innovation."
	"With the collaboration of partners, one can start to have some kind of scaling effect."
SP3 (teacher education service provider)	"I think there are enough players to develop the capacity over a certain amount of time to bring initiatives to scale."
	"Well, I think a strong model with respect to service providers on the ground is huge."
Specialist	"The second biggest challenge, might be the biggest, is the implementation challenge of how do we get all these nuts and bolts ready from a service provision perspective to deliver results."
TRUST DEFICIT	
OF1 (national teacher education)	"I think the public-private relationship needs to be strengthened so that the confidence is built."
SI1 (teacher education	"Huge degree of a trust deficiency between government and business."

social financier)	
FI1 (financial investor)	"I think one would be deeply suspicious of whether government would deliver and not try to use jargon or an opportunity to avoid paying."
FI2 (financial investor)	"We had experiences actually with companies and contracts have not been met and the government has not paid on time."
SP3 (teacher education service provider)	"We are wary of the potential privatisation of education when there is the involvement of the private sector in a social issue."
BUY IN	
OF2 (government teacher education financing)	"Sector department needs to be fully on board. Would need to come from the sector department first."
SI1 (teacher education social financier)	"See an illustration where it has worked effectively and efficiently, to the extent that it can drive impact and monitor."
	"Need to determine whether we have the relevant infrastructure. Do proper stress test of model within the relevant conditions and variables."
SI2 (teacher education social financier)	"My key concern is - has it been tried and tried and trusted?"
	"The South African context, it has to be proven with real time data, recently published data, relevant samples being used. Relevant meaning its educational space not something that is extraordinary."
SI3 (teacher education social financier)	"There haven't been many examples that have been set up and are successful and have gone beyond design stage. So that is the main concern."
FI1 (financial investor)	"SIBs are very pioneering, and therefore my suggestion would be that the National Treasury should be funding the first SIB to prove the concept and to get the legal parameters in place so that thereafter you've got precedent to lean back on, in terms of driving the developmental objectives."
FI2 (financial investor)	"If government has the appropriate buy-in. However, currently, it is not being pushed by government at the moment and that is a problem."
SP2 (teacher education service provider)	"Because the risk for this would be, if you don't have stakeholders buying in, if you don't have political will behind this, those are the things that mean that the initiative would wither and die."

Table 9: Stakeholder incentives and challenges (Source of data: Interview respondents)

The table below is representative of the interview respondents who had a view on a particular theme. The columns are representative of the identified themes, whilst the rows are indicative of the different interviewees. The totals at the bottom represented by certain number indicate the number of interviewees whose views contributed to the specific theme. The theme with the highest number of respondents indicates the dominant theme.

	Quantification and Measurement of	Execution Risk	Trust deficit	Buy in
OF1	✔	✔	✔	
OF2	✔	✔		✔
SI 1		✔	✔	✔
SI 2				✔
SI 3		✔		✔
FI 1	✔		✔	✔
FI 2			✔	✔
SP1		✔		
SP2	✔	✔		✔
SP3	✔	✔	✔	
Specialist		✔		
	5	8	5	7

The first identified driving factor related to the difficulties associated with simplifying quantified outcomes and measurement ability of those outcomes as a significant challenge for most stakeholders. A concerned financial investor noted, *"The outcomes need to be simple, easily measurable and easily auditable: FI 1".* This view is supported by an outcomes funder who, yet again, re-iterated the importance of ensuring alignment of outcomes with government priorities, saying, *"Clearly stated outcomes, would have to be in line with government priority: OF2".* However, identifying simple, clearly stated and, most importantly, easy to measure outcomes is extremely difficult for teacher quality. This is because some of the required outcomes are difficult to measure, such as the soft skills element. A service provider offered an example of a potential outcome, saying, *"The key outcome is a pipeline of quality teachers who are passionate about education and about children and who feel the sense of the vocational importance of the profession: SP 1".* Using the proposed example, how would one measure passion for education and translate that into a quantifiable outcome?

On top of the previous factor, I also identified that the teacher development sector does not have strong frameworks for measuring identified outcomes, and in some cases, these frameworks are entirely deficient. A service provider noted that, *"I think it is a weakness in the sector. Not that we do not do it but a lot of our M&E frameworks come with funder requirements. I do not think we are doing really meaningful, comprehensive M&E that feeds back into our work. SP 3".* We also observed that outcomes and measurements are incorporated into the model at different times. A service provider and outcomes funder noted that, *"Measurement of outcomes shouldn't be left towards the end. It's usually disastrous when you do that. By the time you want to change and correct something it's too late. Measurement in my view should start from exactly the same time the project starts: SP 1"* and *"Evaluation of outcomes, how you will measure that, however needs clarity upfront on all instruments agreed upon by all parties: OF2".* Therefore, joint skills and the expertise of stakeholders are required to come up with a simple version of teacher quality outcomes and a standardised measurement framework. An independent external verifying organisation should be chosen by both the public and private sector to verify agreed upon outcomes. Therefore, stakeholders noted that there is a need for easily identifiable, quantifiable and measureable outcomes for a successful SIB. However, it is difficult to quantify some of the elements that make up a well-rounded quality teacher. Measurement of outcomes and associated key performance indicators, in most cases, are considered at the end of the initiative. There are also no standardised measurement frameworks to ensure consistency of measurement across all similar projects. This is a challenge as the outcomes and ability to reliably measure those outcomes are significant to the success of a SIB.

The second theme that emerged was regarding the inability of service providers to meet the service quality requirements that are required for successful operational execution. An international expert on social finance noted that, *"The second biggest challenge, might be the biggest, is the implementation challenge of how do we get all these nuts and bolts ready from a service provision perspective to deliver results: Specialist".* There are a number of service providers within teacher training; however, few of them have the skills, expertise and capacity to roll out a teacher internship model in the public sector education system. We observed that stakeholders, such as the financial investors, are particularly concerned with the matter as there is a direct link between service delivery and them obtaining their funding from outcomes

funders. A financial investor said, *"The entity you partner with is key to delivering the developmental objectives: F1".*

I observed that the stakeholders were of the view that there are sufficient service providers in the teacher education sector. Some stakeholders noted that, "*I don't think that we are short of teacher education innovation: SP2", "There is a lot of expertise in the sector: SI 1", "I think there are enough players to develop the capacity over a certain amount of time to bring things to scale: SP 3".* However, the capacity of the service providers has a couple of identified challenges, such as lack of collaboration, competitiveness and perceived ineffectiveness in using scarce resources. A social investor noted *"The nature of teacher education expertise is competitive. Thus not working with each other. SI 1".* Therefore, execution risk, mainly reliant on service provider capability, is a significant challenge. The service providers appear to be available. The challenge would be to get them to collaborate more efficiently to leverage better off their resources, especially if the model is to scale with a South African public education sector environment that is inundated with systemic challenges, as previously discussed.

The second last theme related to stakeholders' apprehension about entering into an SIB was the lack of testing. A number of stakeholders noted that the fact that the instrument had not been tested and tried yet, especially in South Africa, posed a challenge. They noted that they would be less uneasy if the instrument had been tested at least once. A social investor noted that, *"There haven't been many examples that have been set up and are successful and have gone beyond design stage. So that is the main concern: SI3".*

The last identified theme related to trust issues and the misalignment of social development ideologies between the public and private sector as a challenge for an effective and efficient PPP within education. An SIB has the possibility of engaging and bringing together complementary skills and leveraging opportunities for the benefit of teacher development. Partnership have a number of opportunities that can benefit all stakeholders. Some stakeholders noted that, *"With the collaboration of partners, one can start to have some kind of a scaling effect: SP 2".* However, I observed that there is key distrust from the private and public sector on fundamental issues such as probability of payment and developmental ideologies. Financial investors noted that, *"I think one would be deeply suspicious of whether government would deliver and not try to use jargon or any opportunity to avoid paying: FI 1"* whilst the developmental service providers noted, *"We are wary of the potential privatization of*

education when there is the involvement of private sector in a social issue: SP 3", and outcomes funders noted that*, "The public on the other hand is skeptical of the private because the private is more on the profit making: OF 1".* Therefore, it appears that collaboration of the different stakeholders has a number of merits including sharing of risks. However, history has shown a high degree of mistrust between the key stakeholders. The mistrust is due to the different stakeholders believing that the other stakeholders will not have the ability to line up with their objectives or meet their side of the obligation as agreed and discussed above.

4.3 Analysis and Discussion

When comparing the findings from the interviews to existing literature that related to the research questions, I found that a number of the evolving themes from the study were consistent with existing literature. The following section will discuss the linkages between the discussed theory in the literature review section and the emerging themes. The manner in which the study was operated was consistent with academic literature. The table below refers to the findings demonstrated in the study to global literature review. The findings and literature review demonstrate consistency with the definitions and requirements identified. The conclusion that can be drawn is that the different stakeholders do not require different criteria from global perspectives in order to engage in a SIB for teacher development. However, they do require certain South African contextual challenges to be addressed prior to engagement.

Table 10 : Consistencies between global literature and study findings (Source of data: Literature review Chapter 2 and Findings Chapter 4.2)

	Common characteristics of SIBs identified in global research	**Stakeholders that demonstrated this**
IDEAL CHARACTERISTICS OF AN ALTERNATIVE TEACHER DEVELOPMENT MODEL		
	Right selection (Darling-Hammond, et al., 2014; McKinsey and Company, 2007; Lewin, 2004; Hislop-Esterhuizen, Maree, Swanepoel & van der Linde, 2009)	Outcomes Funders Financial Investors Service Providers

	(Department of Education, 2006; Venkat & Spaull, 2015; Keevy, 2006; Mulkeen, Chapman, DeJaeghere, & Leu, 2007)	
	Experiential learning (Lewin, 2004; Musset, 2010; Parsons, et al., 2016). (Bridge, 2016; Bertall , 2014; Musett, 2010)	Outcomes Funders Social Investors Service Providers
	Example of alternative teacher education models (Investec, 2016; Centre of Development and Enterprise, 2011) (Duke, Karson, & Wheeler, 2006)	Outcomes Funders Social Investors Service Providers
IDEAL CHARACTERISTICS OF FINANCE MODEL		
	Outcomes, Impact and Value for money (Centre for Development and Enterprise, 2015; Dalberg Capital Partners, 2013; Filipp & Lerer, 2013)	Outcomes Funders
	Risk sharing (Pasi, 2014; Burand, 2013; Gustafsson-Wright, Gardiner & Putcha, 2015; Finance for good, 2013)	Outcomes Funders Social Investors Financial investors Service Providers
	Additional revenue stream (Dalberg Capital Partners, 2013; Mulvaney & Kriegler, 2014, p. 7)	Outcomes Funders Service Providers Social Investors
	STAKEHOLDER INCENTIVES AND CHALLENGES	
	Concerns with the quality of service provision by service providers (Finance for good, 2013)	Outcomes Funders Service Providers Financial Investors
	Quantification and Measurement of Outcomes	Outcomes Funders Financial Investors

	(Finance for good, 2013; Esty, 2014; Clist & Dercon, 2014)	Service Providers
	Trust deficit challenges (Castalia Strategic Advisors, 2007; Kruss, Wildschut, et al., 2012).	Outcomes Funders Financial Investors Social Investors

4.3.1 Ideal characteristics of teacher development model

The dominant view of a relationship between quality teachers and selecting students into teaching that are the right calibre, represented by academic excellence and internal motivation, is likely to lead to the production of quality teachers. According to theories developed from studies performed by McKinsey and Company (2007) and the likes of Darling-Hammond, et al. (2014), rigorous recruiting of the top calibre students is a pre-requisite for developing quality teachers. Though the studies were conducted in developed countries such as Finland, Singapore and Israel, similar results were obtained in developing countries such as Trinidad and Tobago (Lewin, 2004). These developing countries incorporated rigorous student teacher selection through formalising on-the-job training.

In keeping with this view, this study found that those stakeholders, who advocated for the selection of the right calibre of candidates, identified the required students as "fit for purpose". "Fit for purpose" was defined loosely in the study as students that are academically excellent, young lifelong learners, excited about becoming teachers, teaching ideally being their first choice, those having good communication abilities, as well as high levels of emotional intelligence. I observed that the need for the selection of candidates who are "fit for purpose" came from each of the stakeholder groups, highlighting that the basis for the success of the teacher education programme is the right selection. This showed that the different stakeholder groups identify the need for a good foundation of students, and that the programme's success is somehow linked to the calibre of students accepted into the teacher development programme. Even though this matter was identified as an ideal characteristic of an alternative teacher education model and a strong deficiency in the current conventional teacher education model to the contrary, governmental objectives are central to the any chosen selection criteria for funds associated with governmental disbursement. In South Africa, government objectives are

strongly linked to the ruling party's objectives, and in this case, granting bursaries to financially needy students. Although the academic criteria are important, it should, however, not be that financially needy students are discriminated against. The study found that although there are teacher internship models piloted, there is minimal empirical research conducted on the results of these teacher development programmes. However, the results that have been seen from these programmes have shown the difference of when thorough selection has been done and when selection has simply been based on academic results. The study found that the main advocators of thorough teacher selection are the stakeholders who have been operationally involved at some point, directly or indirectly in exploring teacher education, hence the conviction of their insights. The study found that the selection of the right candidates in South Africa in the current environment would either be unsuccessful or would require significant investment in elevating the teacher professional brand amongst the targeted desired group of students. Given this argument, our study is consistent with the insights from Hislop-Esterhuizen, Maree, Swanepoel & van der Linde (2009), by highlighting the challenge of the teaching profession not being the first career choice for candidates and deemed to be a choice of last resort, as well as the profession being one of the least lucrative. This is particularly a concern as one of the themes identified by the study is a need to focus on Maths and Science teaching, which requires specific prior skills and knowledge in order to be successful. The study found that the difficulty in attracting and finding "fit for purpose" students is an even greater challenge in the recruitment of Maths and Science teachers, as the current learner Maths and Science results are poor. This becomes a double challenge for a profession that has poor brand recognition and a small number of students available to choose from who have passed Maths and Science. The study found that there was no identified preferred route or selection process that the state or programmes should engage for the selection. The study simply identified the characteristics of the individual without applying itself to the details, which is a disadvantage.

Secondly, teacher education theories that advocate for school-based training note that adequately prepared quality teachers require sufficient practical time and mentoring executed by experienced teachers in order to address "theory-practice gaps" (Lewin, 2004; Musset, 2010; Parsons, et al., 2016). According to these theories, student teachers who train through school-based learning are likely to be well-prepared, deliver structured lessons and are agile in handling the harsh realities of the classroom environment in developing countries (Commonwealth Secretariat, 1993; Kiggundu & Nayimuli, 2009). In keeping with this view, the study highlighted the lack of effective experiential training as a significant gap in the current

conventional teacher education model and hence advocated for a more holistic alternative approach to teacher education. The current conventional teacher education model does not prepare teachers for the harsh realities and wide-ranging challenges of the South African classroom environment. The study could not identify the ideal time student teachers are to be allocated in the classroom. Stakeholders who have been exposed to current teacher internship models conducted by NGOs, concurred that experiential learning should be over the entire period of the students' academic career.

The study finds that time in the classroom would be more effective when merged with effective mentoring during student experiential learning. In most cases, these views yet again came through from stakeholders who have been exposed to the different current teacher internship models, whose classroom-based philosophies are in highly functioning private schools. Complexities of a teacher mentoring programme in a South African public school were identified, which is where most classroom-based teaching would take place if the Department of Basic Education would consider adopting a holistic alternative education model. Union disruption of such a programme in a public school was highlighted as a key systemic challenge of operating within the South African edducation sector, as teacher mentoring would increase a teacher's current workload and give them additional responsibilities. This would potentially translate into disruptions, but most importantly a potential increase of the Education fiscal budget, as additional responsibilities for teachers, in most cases, means additional financial pay. This challenge is not the case within the private sector, as teachers who mentor see mentoring as giving back and a honing in of their leadership skills. Thus the Department of Basic Education should consider mentoring time as part of the required professional development hours. In this way, mentoring teachers also see the value in giving up their time and expertise.

The theoretical view that the alternative teacher development model requires trainees to be mentored by proficient teachers, who are already in the system, to help them with teaching pedagogy and best teaching strategies within different contexts (Musset, 2010; Parsons, et al., 2016) has some significant South African contextual challenges. However, the study observed that the greatest concern in relation to these theories, was the dearth of quality teachers within the public education system to act as mentors (Hendrikse, 2013). A social investor, however, highlighted the fact that, using the public sector for such purposes would be challenging as the historical legacy of apartheid still lingers in most poorly functioning and dysfunctional schools.

The majority of the teachers in public schools who would be in the mentoring selection pool were taught under the oppresive apartheid regime. If the development of student teachers took place in a school-based environmnet, the issues raised concerning the high number of poor functioning or dysfunctional schooling environment would be a challenge for transferring good practice to student teachers. A service provider highlighted the fact that such inefficiencies would continue to lead teacher students to learn teaching in the negative, i.e learning what not to do rather than acquiring best practice. The study suggests that the Department of Basic Education should consider continued partnership and collaboration with the education private sector to assist in finding functional public schools in both urban and rural settings that could be used as teacher training schools of excellence. The Department of Education would need to identify good and willing teachers to do mentoring, and take these through the same training private school teachers attend, to ensure delivery consistency. A selected body, constituted of both the public and private sector, would to established to instill relevant development frameworks to be used across the board for ease and consistency of quality teacher development. It is suggested that teachers in training be based within a schooling environment, with wraparound support in the form of mentoring during the course of their studies, whilst studying through distance learning. This helps teacher trainees acclimatise to the teaching environment whilst applying their theoretical knowledge. However the literature also highlighted in (Mulkeen, Chapman, DeJaeghere, & Leu, 2007) that developing countries struggle to see the fruition of educational policies due to a lack of relevant skills.

Teacher internship models or school-based models have begun being implemented in South Africa, albeit, on a small scale, mainly in private schools by service providers, and mainly funded by social investors (Centre of Development and Enterprise, 2011; Hendrikse, 2013). Limited research has been conducted regarding the impact of these models. They have shown great progress compared to the traditional teacher education method (Centre of Development and Enterprise, 2011). These models were deemed, however, to be time-consuming and labour intensive, requiring significant investment (Commonwealth Secretariat, 1993), hence scaling these models into the public sector would require significant additional teacher education investments. In keeping with these views, I observed that certain stakeholders could identify pilot teacher internship programmes, though only three were specifically mentioned. Outcomes funders, service providers and, to some extent, the social investors were positive about scaling the concept, however, outcomes funders were concerned about financial implications. Other stakeholders were also concerned with the operational capacity at scale in the national public

schooling setting. Though there is an identified teacher education model that seems to incorporate the identified required characteristics, replication on a national public school scale may pose a significant challenge financially and operationally. Some of these operational challenges have been identified and discussed further by stakeholders as part of the incentives and challenges.

What findings mean for teacher training literature in South Africa:

These findings challenge current South African literatures' haphazard approach and lack of prioritisation of the entry criteria to the teaching profession. Though literature review and the findings indicate unanimous views regarding the importance of selection and the need for extended meaningful relevant experiential learning, we note that in South Africa these elements have either not yet been formalised, standardised nor included in teacher training policy or evens implemented. This is applicable for both proposed alternatives in the literature, namely teacher internship model and induction model. Even the 2011- 2025 integrated strategic plan for teacher development framework does not give strong direction with regard to selection, however haphazardly note that more students are to be encouraged to apply. This document simply focuses on demand and supply of teachers and not on the quality at the entry point into the teaching fraternity. This is not surprising as the findings note that the outcomes funders, namely government are in conflict with increasing the selection criteria due to clashing primary objectives between international policy and political imperatives. The findings indicate that there is a significant need from all stakeholders in South Africa to prioritise a standardised higher calibre selection criteria for entry into teacher training by government and relevant bodies. This can no longer be left to the opinion of the universities who train the students but should be formalised into policy and registered with the South African Council for Educators (SACE) as part of the Minimum Requirements for Teacher Education Qualifications (MRTEQ). The current literature could use and leverage off the empirical evidence obtained from the piloted teacher internship models to inform the increase and standardising of the teacher selection criteria. This has become important, as any chosen model whether traditional or alternative can no longer base its teacher base on the apartheid legacy if it intends on seeing a different calibre of teacher quality and learner results. The cycle of poor quality teachers needs to be broken at the base of teacher training.

When it comes to experiential learning and the proposed ideal teacher training models, the findings noted a stronger affiliation towards teacher internship models rather than the induction model highlighted in the literature review. The teacher internship model identified in the findings specifically identifies a collaborative teacher training programme between the public and private education sectors in order to transfer required skills such as mentoring, good classroom etiquette and subject matter pedagogy strategy. The induction model, unlike the teacher internship model as proposed in the findings, places reliance on the same dysfunctional teacher education system and does little in developing the teachers who are to be mentors and their current skill capabilities. Therefore current literature is challenged to consider mainstreaming, formalising into government policy teacher training partnerships between the private education and public education sector in order to leverage off each other's skills. The silo mentality of delivering on public education is flawed, as the relevant skills and environment for effective teacher mentoring and support are in short supply within the public sector.

In a country that still has an education system that has significant education disparities between the private and public education sectors, a teacher training program that leverages off available strengths within the education sector is worth further research on its implementation feasibility as the country endeavours to implement policies aligned to international standards in order to obtain the necessary teacher quality results in STEM.

4.3.2 Ideal characteristics of the finance model

Impact

According to the Project Finance framework theories, stakeholders that enter into the contractual partnership are highly likely to be driven by the need to finance an industrial asset (Esty, 2004) through the management and distribution of risk and reward across the stakeholders. In the case of SIBs, the contractual partnership agreement would be for tackling societal social challenges, in a similar manner to a Project Finance contractual contract. Stakeholders are interested in two main aspects of the contractual partnership, namely, the creation of an impact and the ability to pool additional sources of revenue. The study found that the first aspect of creating an SIB appears to be of interest to all the interviewed

stakeholders, however the characteristics and purpose of the impact differs slightly with one of the stakeholder groups. Outcomes funders specifically would like a finance model that enables them to drive predetermined outcomes relating to the solution of the societal challenge, with quality teachers, whilst sharing the outcome delivery risks through partnership with other stakeholders. Outcomes funders are challenged by the lack of correlation between public investment spending in learner results and hence teacher quality. Secondly, taking into consideration the significant investment in Basic Education and Teacher Education, the results demonstrated by learners in Maths and Science are extremely poor and the quality of teachers in peril. The current financing model does not have mechanisms to link governmental spending in teacher education and the tracking of desired outcomes. In the past, significant investments have been deployed by these departments to improve quality education, and the following key challenges have been noted with the current mode of financing teacher development.

The study found that these finance model characteristics are also appealing for service providers and social investors. This makes sense as both social investors and service providers are by their nature inherently designed to operate in the social development area to find replicable solutions. The industries of all these stakeholders, namely outcomes funders, service providers and social investors have had minimal specific outcomes driven investments, most of the investments funding or time have been through goodwill. The study is in line with literature that revealed that the stated requirements are in line with global literature and that SIBs enable stakeholders to construct a performance-based financial model enabling the relevant stakeholders to link investments and outcomes (Gustafsson-Wright, Gardiner & Putcha, 2015; Bellinger & Fletcher, 2014; Filmer & Pritchett, 1999). However, due to the partnership nature of SIBs sharing of risk between stakeholders and leveraging off each other's expertise, this allows for increased effeciency in service delivery (Gustafsson-Wright, Gardiner & Putcha, 2015; Instiglio, 2015).

The study found that financial investors on the other hand are seeking a finance model that will also enable them to make an impact. However, their impact is more sector investment driven with the primary objective of making a financial return. Financial investors' drive is more about risk and return, however, they are looking to diversify their investments into the education sector, but not at the risk of required financial return. This indicated a different impact ojective from the other three stakeholder groups, which may be a challenge for the other stakeholders to trust the financial investors' key motives for its interest in the development sector.

Previously within the social development sector, service providers and social investors and to a certain degree outcomes funders have been in relationships and have had the opportunity to cultivate the relationships in funder, service provider relationships. However there are very few partnerships between outcomes funders and financial investors specifically working together for the purposes of developing solutions for social challenges. Therefore the study found that there are strong trust deficit issues (Kruss, et al., 2012; Castalia Strategic Advisors, 2007) between the private sector and public sector, specifically on ideological views, but also lessons from historic participation. This would be a significant challenge for creating strong partnerships that enable risk sharing and ultimately efficiency building.

Additional revenue

Another one of the advantages of a SIB partnership is the ability to pool different sources of funding to alleviate the growing burden on the public purse, as well as having room for scale up of replicable innovative education initiatives (Mulvaney & Kriegler, 2014; Social Finance, 2009). The traditional funding model for Education spends approximately 80% of the allocated fiscal budget on teacher salaries, with the rest of the budget for infrastructure, food, teacher bursaries, transport and stationery. In keeping with this view, the study observed that the outcomes funders are concerned with the sustainability of the Fundza Lushaka Fund and the tightness of the public purse in general. Though they expressed interest in innovative alternative teacher education models, these are deterred by the noted fiscal constraints. Hence expanding alternate/internship teacher training models to public host schools would not be possible without additional sources of funding.

I observed that the social investors were enthusiastic about the ability to have additional sources of revenue to leverage off, in order to able to do more social good. In most instances, social investors undertake initiatives that are in line with government objectives. However, social investors in partnership with service providers have the liberty to innovate in order to get to efficient solutions for social issues, which helps government out with its inability to innovate due to a lack of capacity and budget. An additional revenue stream enables a greater possibility of scaling up replicable models piloted by social innovators and service providers that assists in meeting outcomes funders' priorities. Outcome funders have been in initiatives whereby they have seen a production of quality teachers. However, the funding models for those initiatives do not match the department's funding structure and budget.

What findings mean for financing model literature in South Africa:

The findings in many respects extend the literature indicating that the current teacher training funding regime is both insufficient and one dimensional where government is the sole funder and implementer of public teacher education in South Africa. Furthermore it is noted that funding alone does not drive social outcomes, but enables positive results if used productively and effectively (Baker, 2012). For the past two decades the findings and literature concur that the traditional model of financing in South Africa has been ineffective in enabling educational impact, outcomes and spend efficiency. The findings also indicate that the education stakeholders such as outcomes funders, in this case government, are particularly concerned by the output of their investment in education.

The findings challenge the current literature that a funding model for teacher training and teacher education can only be one dimensional and focus on spend. The findings indicate the required support infrastructure in ensuring the delivery of quality teachers. These requirements in prior education literature have been there, however have not been associated with the requirements of a teacher education finance model. In this case the findings challenge the role that funding models can play in supporting the delivery of required outcomes. Thus moving finances role from being viewed solely as a mere financing and capital producing mechanism but as a platform that can also induce and enable outcomes accountability, shared risk, skill leverage, partnerships and increase capital. These are elements that are significantly needed both in the delivery of education quality and teacher training. It is this light that the other proposed alternative routes of raising capital such as diaspora and social bonds will not be applicable within the South African context. Though the diaspora bonds induce and encourage a certain level of accountability, they lack in respect of assisting bringing on board the required skills for effective implementation and monitoring of a social service.

Financial models namely project finance that have played a heterogeneous role in project delivery have been used significantly by government and the private sector in delivering infrastructural development. The findings challenge literature to consider the use of these type of financial models, namely SIB's to play the required heterogeneous financial role in delivering better teacher quality outcomes in South africa.

4.3.*3* Stakeholder incentives and challenges

Implementation and execution risk

According to the SIB structure framework, there is a strong link between delivery of outcomes, as well as payment by outcomes funders to investors. The agreement for the diversification and redistribution of risk is based on a service provider's track record and ability to meet prescribed outcomes (Gustafsson-Wright, Gardiner & Putcha, 2015; Instiglio, 2015).

In keeping with the above noted views, the study found that that there was a strong concern by all stakeholders that there is a high risk associated with the implementation and execution of the structure. The Social Finance International expert re-iterated that the greatest untapped risk of SIBs pertains to the ability, capacity and quality assurance of service providers to deliver timeously. According to the study's observations, this challenge rings true for the South African service providers within the teacher development sector.

It is the quality of implementation of the initiative that will determine the success or failure of the use of SIBs for developing quality teachers. As previously mentioned, a number of the alternative teacher education models have been piloted in small scales, mainly within the private sector. Besides the fact that the service providers are working in isolation and being competitive in ways that are not inducing quality service, very few service providers have piloted their teacher development initiatives within the public South African teacher education sector. Unavailable collaboration amongst service providers means that it would be difficult to deliver quality service in a sector that is plagued with systemic generational challenges. This perceived competitiveness causes social investors to fund and develop similar skills and expertise, without giving room to fully understanding the missing skills that make teacher development innovation holistic. Lack of collaboration in the sector is a key concern for social investors, as a lack of holistic skills could compromise the scaling on a national platform, and the quality and delivery of service. However, the study finds that service providers are of the strong belief that there are enough organisations to develop the necessary skills and quality over time, in order to bring the identified alternative teacher development models to scale, even though concern remains regarding the capabilities of the service providers to meet and exceed

outcomes in an environment with engraved systemic challenges, which, once again puts outcomes and investment refund at significant risk.

The study found that outcomes funders are particularly concerned about the credibility and reliability of service providers as ultimate custodians of education and teacher development. Even though the partnership would enable risk sharing amongst stakeholders, the results remain the key responsibility of the outcomes funders. Financial investors are also concerned about the risk pertaining to implementation and execution risk as it has a direct impact on their probability to receive their investment back. As financial investors take on the financial risk of poor quality delivery, they would be the most affected by poor service delivery.

One of the additional challenges with the industry of service providers is that there are a significant number of service providers, both non-profit and profit-making, that are operating in teacher development, with limited regulation. Non-profit organisations are regulated through the Nonprofit Organisations Act of 1997 and registered through the Department of Social Development and, in most cases, the South African Revenue Service. These organisations mainly focus on regulating operational governance capabilities of non-profits and not quality deliverance standards. Interviewed service providers also questioned the quality delivery levels of some of the service providers.

A set of minimum operational standards, the regulation of quality, an establishment of basic measurement frameworks and the development of industry norms is missing from keeping service providers in check. As things stand, currently service providers are innovating in a vacuum with no regulatory external bodies responsible for ensuring quality assurance in relation to industry norms. Improved quality assurance processes within the education/teacher development sector could add credibility to implementation abilities and assist with enforcing certain levels of reliability of service providers thus professionalising the services offered. The study found that due to the nature of the impact that financial investors are looking for, they were more interested in the introduction of service providers that are social entrepreneurs as they deemed them to have a different delivery philosophy. Social entrepreneurs are driven by a revenue model that requires them to deliver at standard high quality if they are to obtain financial backing. There are a few social entrepreneur initiatives, like Embury College, which is an example of the type of service provider which can be used.

Quantification and measurement of outcomes:

An SIB is a form of a contractual agreement between stakeholders, and within the agreement the terms and conditions of the contract are set. These terms of operation include the terms of fulfilment of obligation (European Investment Bank, 2010; Esty, 2004). These terms and conditions for the purposes of an SIB relate to the stating of agreed upon outcomes that are the catalyst for payment conditions. Theories note that outcomes risks are managed through the terms and conditions laid out in the contractual agreement (Pasi, 2014).

Thus, if the outcomes are not clear within the contract, this would create a significant risk for the stakeholders. In keeping with this view, the study observed that the quantification and measurement of outcomes for quality teachers was identified as a fundamental element for most stakeholders. Whilst there are broad similarities in the nature of the concern, the reasons differ slightly. Outcomes funders and service providers note that there are complexities with determining measurable outcomes for quality teachers, as teaching is a heterogeneous profession. Academic results alone do not suffice, as a quality teacher is more than academic qualifications but also has an important provider of soft skills. Financial investors, on the other hand, require the outcomes to be as straight forward and simple as possible as this would ease the pressure of subjectivity and measurability. The social transformation space, education and the nuts and bolts of quality teacher development are foreign territory to most financial investors, hence the simpler and less subjective the quantification of outcomes, the more at ease they will be with the process.

Thus, measurement of a quality Maths and Science teacher remains a significant challenge. Outcomes funders carry the mandate of ensuring that the quality of teacher produced meets DHET standards. Though they have documents and certification qualification standards that teachers need to meet, they point out that most of the available standards mainly measure academic performance measured through tests and exams. In most cases, these are linked to SAQA (South African Qualifications Authority) accreditation qualifications. However, they are aware that a quality teacher has more attributes than mere academic performance, such as aptitude, attitude, professionalism and motivation. The only challenge with the additional qualities is the fact that they are subjective and difficult to quantify and measure. The findings concur with the views of Clist and Dercon (2014) that if the proposed programme is unable to

demonstrate measurable outcomes, then it defeats the whole purpose of an outcomes-based contract.

The study observed that stakeholders were aware that in most projects one finds that measurement of outcomes occurs briefly without significant thought at the beginning of a project and measurement is often done per chance at end of the project. Thus, in response to that challenge, the study found that the quantification of outcomes and associated monitoring and evaluation is to be determined at the beginning of the project. This will enable periodic check-in during the lifetime of the project to ensure that quality and service delivery is timeous.

Trust deficit between private and public sector:

Theories pertaining to Project Finance and SIB emphasise that the basis of the contractual agreement is a strong private public partnership (Euler, 2013; European Investment Bank, 2010). It is this relationship that has the potential to allow for the desired risk sharing and leveraging of assets between partners. However, these relationships in the past have shown to be difficult due to different challenges (Euler, 2013). In keeping with this theme, the study found that all stakeholder groups related to the poor relationship and trust deficit, specifically between financial investors and outcomes funders.

Castalia Strategic Advisors (2007) confirmed that PPPs in South Africa are challenged most times by mistrust and inconsistent ideologies between the public and private sectors. A study performed by the (Gill et al.;2000) states that South Africa struggles to design an effective financing model for education that involves the public and private sector, mainly due to the challenges mentioned below. The study found that PPP would be a challenge as outcomes funders and financial investors have trust challenges. Outcomes funders consistently doubt the financial investors' ideological mindset for development, questioning the financial investors' true intention for involvement. Financial investors, on the other hand, question outcomes funders political will and desire to commit to paying out to investors once outcomes have been met and verified by independent parties. The findings noted above are in agreement with some of the key challenges of entering into PPPs in South Africa as identified by Castalia Strategic Advisors (2007).

A commitment by stakeholders to buy into PPPs is driven by the need to be involved in solving societal challenges, in this case, quality teacher development. Outcomes funders, service

providers and social investors believe that collaboration by all stakeholders needs to be in alignment for tackling a societal issue. This coincides with the findings of Pasi (2014) and Burand (2013), and this needs to be the key driving factor. This study finds that financial investors, however, find themselves with conflicting priorities between the social transformation agenda and fiduciary duty of obtaining a financial return. Financial investor desire is not consistent with the above view, as they seek social transformation opportunities that have the correct mix of risk and return, hence the affinity to get involved in SIBs would be driven by investable opportunities. The study found that financial investors have a growing appetite to explore and invest in PPPs to tackle teacher education challenges. However, the determining factor will be an acceptable risk and return mix. Currently the study finds that financial investors perceive SIBs to be high risk as they are perceived as unlisted credit. This means that financial investors may not be initial investors in the SIBs, unless the model includes investment-ready opportunities. Social investors and service providers' belief of leveraging off the different stakeholders' expertise and skill in pursuit of the same vision and outcome of solving societal challenges is confirmed by UN Global Impact, et al. (2015).

What findings mean for stakeholder affinity literature in South Africa:

The findings extend our knowledge regarding the use of PPP's to deliver on governmental services however they also give insight on how a similar model and relationships would need to be adjusted for a soft social issue such as teacher training. The findings identify the specific challenges that stakeholders would need to take into consideration in order to deliver on teacher education specifically in South Africa. In previous education theory these elements were not a priority as the traditional teacher education and associated financing models hadn't deemed them as having the ability to add value to teacher training in South Africa. Thus the findings are challenging the current theory again on broadening the required elements for developing quality teachers, thus including elements like the roles of partners, intentionally associating outcomes with investment funding and building similar value structure between the private and public sectors. There is a requirement for holistic, heterogeneous literature encapsulating

The findings also challenge current literature that states that government's means alone can deliver on quality teachers, it appears that a formalised collaborative effort amongst stakeholders is required starting from the entry point of teacher education through to the

financing and delivering on quality SMT teachers. Thus, the findings indicate that there is merit and buy in from the necessary stakeholders to further investigate the implementation of a PPP, project finance arrangement.

4.4 Contributions

This research supports much of what is already known about teacher education and innovative financing mechanisms such as social impact bonds in global literature. Due to the lack of research pertaining to the use of innovative finance in teacher development in a resource constrained context like South Africa, this study contrib`utes to an understanding of the similarities in global literature and context specific local practicalities. There is limited global literature that speaks to the undertaking of project finance approaches to teacher education globally, let alone South Africa. What stands out in the findings and discussions pertaining to a teacher education model is the clear desire across stakeholders to change the teacher education status quo in South Africa. While teacher education has been examined before in South Africa for the increased quantity of SMT teachers, this research shows how teacher education models need to be modified to develop quality teachers whose content, pedagogy and interpersonal skills are relevant for the realities and challenges of the South African teaching environments. An increase in the quantity of SMT teachers needs to be coupled with an increase in quality and relevance of teachers. Rigorous processes need to be developed to select the right calibre of candidates who enter the teacher education pipeline in terms of academics and interpersonal desire to pursue teaching (McKinsey& Company, 2007; Hammond et al, 2010; Lewin, 2004). A dual training system through school based teacher education model is key to ensuring the relevance of the content and quality application across all types of teaching environments (Musset, 2004). This study promotes the need for collaboration between the private and public education sectors, sharing of skills and know-how. This in turn encourages an integrated approach to skills development. The expectation is that all school based produced teachers will ready to be deployed to any schooling environment in South Africa. A school based teacher education model will also require the capacity building of mentor teachers in public schools (Commonwealth Secretariat, 1993). Here in lies opportunities for this type of capacity building to count towards mentor teacher professional development. The research further supports findings that there are innovative alternative teacher education models currently piloted on small by NGO service providers (Centre for Development and Enterprise, 2015). However most of these service providers are in the private schooling sector funded by social investors. The study contributes to practitioners having an

existing framework upon which to pilot teacher development for the public schooling sector in the public schooling system, to increase contextual relevance. Aligned to that is a platform for education sub-sector cross pollination of good practices and learnings between the private and public schooling sectors. Therefore, the alternative teacher education model is worth piloting in the public sector in partnership with the private education sector to determine fit and iron out systemic challenges. Overtime once the 'teething" issues have been identified and solved, the alternative teacher education model should replace the traditional teacher education model.

The findings also contributed towards the understanding of the financial requirements of stakeholders to engage in teacher education. Though previous research has been conducted on the characteristics of a project finance approach, the findings of the study confirmed that the requirements of the financial stakeholders in teacher education are in line with global literature (Gustafsson-Wright, Gardiner & Putcha, 2015; Bellinger & Fletcher, 2014; Filmer & Pritchett, 1999). The study contributes towards understanding the mixture of financial and value add needs of the different stakeholders. The study showed that these needs range depending on the key objectives of the stakeholder however there is a point where they find common vision within the social issue. The project finance approach allows the stakeholders to cross pollinate risk to the stakeholder that has the expertise and skills to manage. This has positive implications for stakeholders who are struggling to meet their objectives due to a lack of risk management skills and cabilities. The study also introduced the concept of using social entrepreneurs as teacher education service providers within the model. Hence increasing the prospects of innovation, creativity and probability of a financial return. Therefore, SIB are worth exploring and piloting as a complementary alternative to the current teacher education traditional financing. Overtime, government could determine which elements can be used to modify the traditional financing model, to make this mode of teacher financing more main stream.

While SIB stakeholder engagement drive factors have been examined before (Finance for good, 2013) in other sectors, this research confirms that the driving factors are in line with global literature. However this study contributes towards academic and practitioner knowledge that the teacher education stakeholders are affected by similar factors. Due to the high levels of mistrust between the private and public financing sub-sectors as well as the private and public sector education sub-sectors the identified incentives and challenges would need to be well managed. This would mean strict checks and balances in place leading to high legal and transactional costs. Hence mistrust increases transactional costs. The next element to be on the

lookout for would be the cost benefit analysis of entering into these type of transactions, if the transactional costs would be high.

In conclusion, these contributions increase the understanding that a trust filled collaboration through PPP underpins the nature of a successful project finance approach within teacher education. The expectation is that this environment will enable leveraging of operational and financial expertise, through sharing of knowledge. This model doesn't only allow the financial and delivery risk transfer but is a platform for sharing good teacher practices across private and public education sub-sectors. The findings of this study also contribute to a new way of tackling social sector challenges, especially in resource constrained environments and where there is a lack of progress in addressing those challenges amidst high levels of investment. A project finance approach gives practitioners an alternative route to pursue social development, especially in cases whereby the sole responsibility is government.

As previously noted there is limited research and literature on using project finance approaches for developing quality teachers. This study shows initial establishment of how project finance characteristics are what is required for efficient roll out of effective teacher education. The identified alternative teacher education models that incorporate the additional required modifications, strongly correlate with the operations of the project finance approach.

CHAPTER 5: CONCLUSIONS

The findings showed that, in general, the South African stakeholders definition of the ideal teacher education model, enabling a financing model, as well as associated incentives and challenges, align with global literature. However due to the limited research available about how project finance approaches can be used within a social challenge such as teacher education, the study sought to contribute towards this area. Related to these objectives, the study also sought to establish the affinity of stakeholders in applying innovative project finance mechanisms in solving the social challenge of quality teaching. The initial objective was to provide recommendations on how South Africa should deal with some of the operational challenges of teacher education programmes that produce poor quality teachers, as well as financial challenges within a resource-constrained context.

Given the strong relationship between dismal SMT learner results, quality teachers and their adverse effect on economic development, it is important to explore how quality SMT teachers can be developed within the South African challenges context. There is little literature that has been documented about innovative project financing approaches to developing quality teachers. There is a need for more innovative, locally relevant information for tackling the social challenge of poor quality SMT teachers. A discussion of the main empirical findings in relation to each research question, as well as the exploration of their impact on theory and practice, are discussed below.

Prior knowledge suggests that teacher education and its associated financing models in South Africa are determined and operationalised primarily by government. The teacher education and financing models are still conducted in a conventional traditional sense that is one dimensional with foundations in the apartheid legacy, hence the associated unsatisfactory teacher quality and learner results. The teacher training policies previously adopted by government when transitioning into a democratic dispensation, appear be lacking in considering significant country specific systemic challenges. The associated implementation of those policies has also been a significant challenge. This is said to be due to a number of factors such as lack of skills and lack of resources. Hence it's been difficult to see the results of the policies and financial investments made in teacher training and ultimately in the basic education sector.

The current South African teacher training model has been plagued with poor selection of candidates, poor training programmes, insufficient experiential time for contextualisation, poor content knowledge, poor classroom readiness, programs that are out of reality with the South African classroom and teachers in the system that are unqualified. Meanwhile the current supporting finance model for teacher training is struggling to link the investments made to quality results and is resource constrained. In the mixture South Africa constantly finds itself unable to efficiently implement at scale innovative solutions or policies due to lack of relevant skills, capacity and resources. The findings and literature have indicated that the chances of quality teacher training improving in South Africa is limited if government continues with the silo mentality of solving challenges, hence both alternative teacher training and alternative financing centres on collaborative partnerships for improving the chances of success.

The findings indicated that the interview respondents' requirements for an alternative teacher education and finance model are similar to the benefits of an SIB model which finds its

theoretical framework in project finance. The identified characteristics of both the teacher education model and finance model are geared towards improving teacher training in South Africa. Project finance has been used over the years by government in delivering infrastructural development, however this research argues that the same principles may be applicable for use in delivering on quality teacher training. The novelty and value add of SIB's in teacher education is in discovering which of the principles of project finance can be applied to better deliver quality teacher training programs. The identified nuances and value add that this finance model can bring to enhancing teacher training in South Africa are discussed below.

Firstly, teacher training and education for the public sector has been predominantly financed and delivered solely by government. The private and public education sectors have been working independent of each other, meanwhile the private education sector is producing good learner results, and the public sector producing dismal learner results, notwithstanding other contributing socio-economic factors. These sectors over the years have missed out on opportunities of working together to improve the overall state and quality of education in South Africa.

The proposed finance model's most pertinent value add to the education sector is the use of PPP's in the wholesale implementation of teacher training for the public sector. The model's value add is in the combination of the infrastructure and capabilities of both the private and public education sectors to implement a public good, such as teacher training. The PPP model has multiple aspects that work together to ensure that due attention is given to the identified characteristics for improving teacher quality outcomes. Collaboration between the sectors ensures the transfer of good teacher practices from the private sector to the public sector. An example of this would be the transfer and exchange of the private sectors resources and intellectual property in training public sector teachers about effective subject matter pedagogy strategies and mentoring skills. This at times occurs within private education infrastructure during experiential learning.

This models' structure also allows a public good to be delivered through open market forces, such as social education entrepreneurs, who bring a strong culture of outcomes delivery to education which has been lacking. Social entrepreneurs and NGO' in this model get an opportunity to form part of the stakeholders who are tasked with delivering on certain aspects of the teacher training spectrum. This in turn frees up government to focus on elements that

they are capacitated in like policy making, ensuring accountability and regulating the industry so that capitalistic ideologies do not override social justice. The opening up to market forces ensures the transfer of implementation risk accordingly.

It is through the PPP model that the whole spectrum, cradle to the grave, of teacher training can be under the same administration, with different elements of the spectrum being delivered by the stakeholders who possess the most experience in the innovation and implementation. Each spectrum of the teacher training model, would include identified measureable outcomes that the stakeholders would be contractually responsible to deliver on. This drives all stakeholders to apply their minds to specific academic and teacher readiness outcomes and incorporate these into contractual delivery terms at each stage to ensure that the training program is focused on improving the outcomes of teacher quality.

The PPP arrangement does come without its own current challenges. One of the greatest challenges in South Africa is the lack of quality service providers for wholesale implementation, in each of the spectrum of education. Though the teacher training service providers are numerous, the challenge is to get them to collaborate more efficiently to better leverage off their resources. The study also found that it would be a challenge to simplify and quantify teacher quality characteristics into outcomes due to the nature of teacher quality. A strong distrust of motives amongst the public and private sectors is deterrent to stakeholder commitment. However a pilot model of a PPP teacher training program to test its feasibility would give the model more credibility and start testing out and alleviating some of the identified challenges. If the PPP model of delivering wholesale teacher quality would work, it has the potential to challenge the way teacher training and education as a whole for the public sector is implemented.

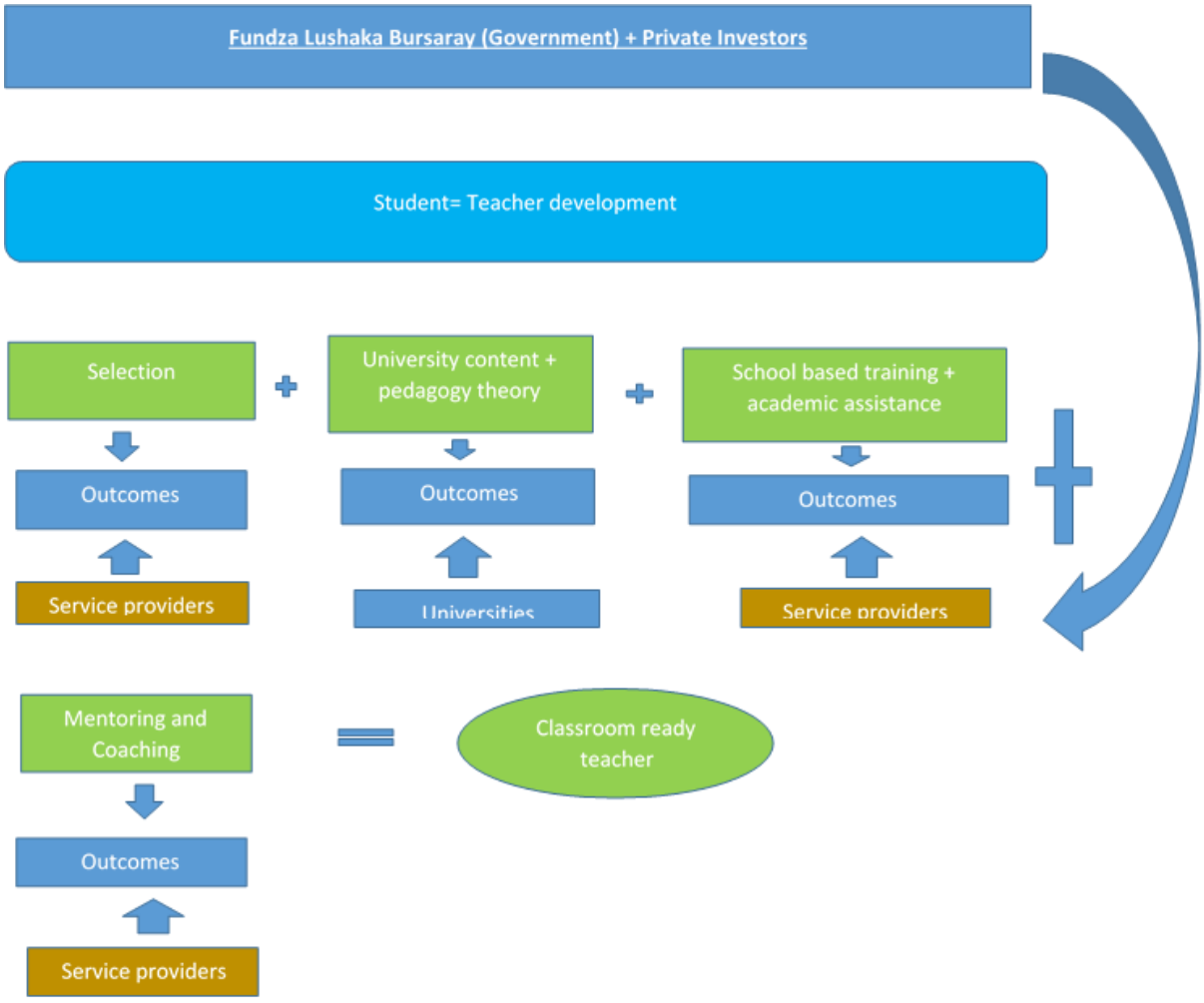
As previously mentioned, public education has been primarily funded through the public purse, with approximately 80% of the funding utilised for teacher salaries leaving resources constrained for teacher training and any form of upscaling of innovative teacher training solutions. Hence the second value of implementing an SIB in the education sector is important for improving teacher training, as it raises additional capital from private sector sources who are normally unlikely to invest in the social sector. An SIB arrangement enables the public and private finance sectors to combine their finances or raise additional capital to fund the wholesale implementation of a PPP teacher training model. It is additional resources that will

enable the wholesale incorporation of the above noted additional elements to improve the current teacher training model. The additional resources can also enable government to find and fund relevant innovative solutions for improved quality education more efficiently. It is the funding of these innovations that will create room for the growth of innovative teacher education solutions that can work as pipeline to supporting education quality in the future. Therefore an SIB showcases that it may have the capacity to take to scale appropriate teacher education models, in a similar manner as Project Finance in its bid to deliver better teacher training outcomes.

In the midst of the value a SIB can add to the delivery and outcomes of teacher training, it is important to be cognisant of some of the challenges that require further review. The challenge of trust issues between stakeholders, weak outcome quantifications and the inability to reliably measure them, causes greater anxiety. Though the findings are consistent with the use of a SIB as the best alternative for developing quality teachers, the findings highlight challenges that may damper the participation of the relevant stakeholders. Due to the identified challenges of the lack of trust between the private and public sector, the lack of quality service providers to take the replicable models to scale in a public schooling environment and, most importantly, the struggle to quantify required outcomes, stakeholders once again would be deterred to engage in a PPP arrangement. This is besides the fact that the findings have identified that the respondents had identified requirements for any form of initial buy-in.

Empirical evidence suggests that alternative teacher education and alternative financing partnerships have the potential of producing quality teachers who have better chances of producing quality maths and science learners. Addressing this gap, the study explores how South African stakeholders can navigate the operational and financial challenges of developing quality teachers by identifying the ideal characteristics of both teacher education and enabling finance models. Associated with these models, the study identified the incentives and challenges that may affect stakeholder affinity levels. Core contributions are insights into the complexities of developing relevant contextual homogenous teacher education models, as well as insights into forging the waters of complex relationships that operate in different sectors to operate effectively for the shared benefit of all and ultimately collaboratively meeting the social goal. The research study adds to theories of teacher education and associated enabling alternative financing model dynamics pertinent within a South African environment..

Figure 3:Holistic teacher training and SIB financing (Alternative financing of teacher training in South Africa)



CHAPTER 6: FUTURE RESEARCH DIRECTIONS

Below I identify some of the queries that emerged during the quest to answer the three main research questions. The future research direction will be addressed according to the research question from which it emerged.

Outcomes funders should seriously consider the need to have a strict process of candidate selection that is holistic in nature. Stakeholders should consider designing in collaboration an effective process of selecting candidates that meets the dual objectives of both meritocracy and financial need, in order to have candidates with a greater chance of being quality teachers.

Furthermore, the Department of Basic Education should consider mentoring time as part of the required professional development hours. In this way, mentoring teachers also realise the value of sharing their time and expertise.

The Department of Basic Education should consider continued partnership and collaboration with the education private sector to assist in finding functional public schools, in both urban and rural settings, that could be used as teacher training schools of excellence. The Departmet of Basic Education needs to identify good willing teachers to provide mentoring, and take them through the same training private school teachers attend, to ensure delivery consistency. A selected body, constituted of both the public and private sector, should be established to instill relevant development frameworks to be used across the board for ease and consistency in quality teacher development.

Stakeholders are keen to drive measureable teacher quality outcomes with their investments in the sector, and a finance model that enables them to do that is desired. Linked to the driving of outcomes comes the parallel requirement of increasing efficiency and decreasing wastage of public spending. If the teacher development model is to go to scale within the public sector, more stringent controls around outcomes and efficiency should be required, as well as sufficient additional financial resources.

Each stakeholder group is incentivised or challenged by similar or completely different circumstances from other stakeholder groups. However, my research found that there were three dominant features that all stakeholder groups had a consensus about, albeit, to different degrees. The identified features pertaining to execution risk, outcomes risk and trust deficiencies should be addressed as they run the risk of compromising this model.

Stricter standards of outcomes compliance and delivery should be derived from service providers and measured by reliable objective external parties. Regarding outcomes risk, all stakeholders should be able to simplify and agree on set criteria for a holistic quality teacher. An independent party should be established to ensure efficient subjective measurement. These issues need to be addressed, as it would be detrimental not to do so, especially as most stakeholders like the concept of the model, but would like to see a successful version of it as a pilot.

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ANNEXURE A

Table 11: Interview Respondent details

#	Code	Sector	No. of years in sector	Title	Responsibility	Highest Education level
1	OF1	Basic Education	26yrs	Deputy Director	Initial Teacher Education	PHD
2	OF2	National Treasury	10yrs	Budget Analyst	Pubic Finance	Masters
3	SI 1	Corporate Social Investment	13yrs	Head of Corporate Social Investment	Social Investment: Teacher Education	Masters
4	SI 2	Corporate Social Investment	3yrs	Corporate Social Investment Consultant	Social Investment	Bachelors
5	SI 3	International Philanthropy Foundation	16yrs	Operations Manager	Education Programme Officer	Bachelors
6	FI 1	Asset Management	7yrs	Investment Manager	Impact Investment	Bachelors and CFA
7	FI 2	Asset Management	15yrs	Relationship Manager	Impact Investment	Certificates
8	SP1	Private Education	7yrs	Programme Manager	Teacher Internship Programme	Masters
9	SP2	Non-Profit in Education	10yrs	Chief Executive Officer	Drive collaboration	Masters
10	SP3	Private Education	6yrs	Programme Manager	Teacher capacity increase	Bachelors
11	Specialist	Social Finance	5yrs	Founder and Managing Partner	Outcomes Based Financing Modelling	Masters

Table 12: Interview questions schedule outline:

Background information on the interviewee	• Educational background • Areas of expertise and number of years in the area of expertise • Involvement within education and Initial Teacher Education
Their understanding and role of the social issue as well as the need for finding an alternative innovative solution for it.	• View of the stakeholder on the social issue • What is their greatest concern pertaining to the issue at hand? • Why they would want to get involved in solving the social issue • Obtaining an understanding of their priority area within the social issue context • Why would the stakeholders be interested in finding a solution to the social issue
Concept of SIBs	• What is the current understanding of an SIB? • How can each stakeholder benefit from the SIB? • Determine the potential obstacles, enablers and future role of SIB in education development.
Preliminary feasibility assessment of a SIB for initial teacher training	• The appetite to structure an SIB for initial teacher education. • Is there are market for the instrument?

	• Financial opportunities and risks associated with the SIB instrument. • Understanding currently available solutions that can be scaled in order to meet initial teacher education challenges.
Opportunities and Challenges arising from a SIB for Initial Teacher Education	• What are some of the possible enablers and barriers that could arise by using SIBs • Exploration of possible opportunities arising from additional capital raised and induced efficiencies within certain processes.