Developing a framework of indicators to measure the impact of financial literacy interventions: A South African University case study

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ABSTRACT

In today's challenging financial environment, making the wrong financial decisions early in life can be costly. University students often find themselves carrying large amounts of student loans and debt. This hinders the accumulation of wealth, causes anxiety and influences major labour decisions. It is important to ensure that university students are financially literate as they embark on financial and life cycle events. In this regard, targeting students at the entry-level of adulthood will contribute to ensuring that the next generation is well-resourced and versed in finances.

In the South African context, university students and the unemployed have lower levels of financial literacy compared to the formally employed, self-employed and pensioners that have above-average financial literacy levels. Scholars found that financial literacy education does not capture changes in personal finance knowledge, perception and behaviour, and are inadequate for assessing the impact of finance literacy interventions.

Despite various financial literacy interventions being implemented by private and public institutions in South Africa, the level of financial literacy in South Africa is still low. Research on financial literacy education has increased since the 2000s. However, there is no means to test whether these interventions have an effective impact. Literature suggests there is a need to evaluate whether these interventions' efforts towards financial literacy are resulting in improved financial outcomes and overall financial well-being.

Furthermore, literature has not reached a consensus on what indicators should be used to evaluate financial literacy. Therefore, the purpose of this study is to develop a framework of indicators to evaluate the content and impact of financial literacy interventions.

A South African university financial literacy centre was used as a case study. The study's methodology consists of a comprehensive literature review to identify indicators; focus group discussions to confirm and rank the indicators, and interviews with university students to determine their understanding and perception of financial literacy.

The case study interviews and focus group discussions were analysed in ATLAS.ti to identify themes and codes. Based on this thematic analysis, the study proposes four components to evaluate a financial literacy intervention. These are the content (knowledge and skill), perception and behaviour change) of the intervention and internal and external factors that influence perceived financial literacy. The framework was developed using the four evaluation components, participatory action research and the alignment of financial literacy indicators.

The findings pave the way for the advancement of existing knowledge in financial literacy theory as well as the evaluation of financial literacy interventions in similar environments. The theoretical contribution of the study (social learning, life cycle and the human capital theories) highlights the interpretive lenses used to shed light on the study. The practical contribution is reflected in the development and application of the evaluation framework. Recommendations are made towards the improvement of the intervention used as the case study, as an example of the valuable insights that the application of the framework developed in this study can offer similar interventions.

This study also recommends that personal finance content should be added to tertiary-level education programmes geared toward creating well-rounded graduates who are future decision-makers, business owners, savers, taxpayers, parents and influencers in their communities. In line with the social learning theory and case study results highlighting parents' impact on children's personal finance literacy, each generation of parents should be encouraged to share their financial know-how and expertise with their children. This helps to promote behaviour change through a sustainable pattern of financial knowledge and skills transfer that benefit individuals, families, communities and the economy in general.

Keywords: Financial literacy, Financial behaviour, Financial knowledge, Financial capabilities, Financial inclusion, Conceptual framework development, Comprehensive Literature Review.

OPSOMMING

In vandag se uitdagende finansiële omgewing kan dit duur wees om die verkeerde finansiële besluite vroeg in die lewe te neem. Universiteitstudente vind dikwels dat hulle groot bedrae studentelenings en -skuld dra. Dit belemmer die opbou van rykdom, veroorsaak angs en beïnvloed groot arbeidsbesluite. Dit is belangrik om te verseker dat universiteitstudente finansieel geletterd is wanneer hulle finansiële en lewensiklusgebeure aanpak. In hierdie verband sal die teiken van studente op die intreevlak van volwassenheid bydra om te verseker dat die volgende generasie goeie hulpbronne het en vertroud is met finansies.

In die Suid-Afrikaanse konteks het universiteitstudente en werkloses laer vlakke van finansiële geletterdheid in vergelyking met die formeel werkende, selfstandige en pensioenarisse wat bogemiddelde finansiële geletterdheidsvlakke het. Geleerdes het bevind dat finansiële geletterdheidsopvoeding nie veranderinge in persoonlike finansies kennis, persepsie en gedrag vasvang nie, en onvoldoende is vir die assessering van die impak van finansies geletterdheidsintervensies.

Ten spyte van verskeie finansiële geletterdheidsintervensies wat deur private en openbare instellings in Suid-Afrika geïmplementeer word, is die vlak van finansiële geletterdheid in Suid-Afrika steeds laag. Navorsing oor finansiële geletterdheidsonderrig het sedert die 2000's toegeneem. Daar is egter geen manier om te toets of hierdie intervensies 'n effektiewe impak het nie. Literatuur dui daarop dat daar 'n behoefte is om te evalueer of hierdie intervensies se pogings tot finansiële geletterdheid verbeterde finansiële uitkomste en algehele finansiële welstand tot gevolg het.

Verder het literatuur nie 'n konsensus bereik oor watter aanwysers gebruik moet word om finansiële geletterdheid te evalueer nie. Daarom is die doel van hierdie studie om 'n raamwerk van aanwysers te ontwikkel om die inhoud en impak van finansiële geletterdheidsintervensies te evalueer.

'n Suid-Afrikaanse universiteit se finansiële geletterdheidsentrum is as 'n gevallestudie gebruik. Die studie se metodologie bestaan uit 'n omvattende literatuuroorsig wat gebruik is om aanwysers te identifiseer; fokusgroepbesprekings om die aanwysers te bekragtig en te rangskik, en onderhoude met universiteitstudente om hul begrip en persepsie van finansiële geletterdheid te bepaal.

Die gevallestudie-onderhoude en fokusgroepbesprekings is in ATLAS.ti ontleed om temas en kodes te identifiseer. Gebaseer op hierdie tematiese analise, stel die studie vier komponente voor om 'n finansiële geletterdheidsintervensie te evalueer. Dit is die inhoud (kennis en vaardigheid), korttermynimpak (persepsieverandering) en langtermynimpak (gedragsverandering) van die intervensie en interne en eksterne faktore wat waargenome finansiële geletterdheid beïnvloed.

Die raamwerk is ontwikkel deur die vier evalueringskomponente, deelnemende aksienavorsing en die belyning van finansiële geletterdheidsaanwysers te gebruik.

Die bevindinge baan die weg vir die bevordering van bestaande kennis in finansiële geletterdheidsteorie sowel as die evaluering van finansiële geletterdheidsintervensies in soortgelyke omgewings. Die teoretiese bydrae van die studie lê daarin om resultate te vind wat die sosiale leer, lewensiklus en die mensekapitaalteorieë bevestig. Die praktiese bydrae word weerspieël in die ontwikkeling en toepassing van die evalueringsraamwerk. Aanbevelings word gemaak vir die verbetering van die intervensie wat as die gevallestudie gebruik word as 'n voorbeeld van die waardevolle insigte wat die toepassing van die raamwerk wat in hierdie studie ontwikkel is soortgelyke intervensies kan bied.

Hierdie studie beveel ook aan dat persoonlike finansies-inhoud by tersiêre-vlak onderwysprogramme gevoeg moet word wat daarop gemik is om afgeronde gegradueerdes te skep wat toekomstige besluitnemers, sake-eienaars, spaarders, belastingbetalers, ouers en beïnvloeders in hul gemeenskappe is. In ooreenstemming met die sosiale leerteorie en gevallestudieresultate wat ouers se impak op kinders se persoonlike finansiële geletterdheid beklemtoon, moet elke generasie ouers aangemoedig word om hul finansiële kennis en kundigheid met hul kinders te deel. Dit help om 'n langtermyn, volhoubare patroon van finansiële kennis- en vaardigheidsoordrag te bevorder wat tot voordeel van individue, gesinne, gemeenskappe en die ekonomie in die algemeen sal wees.

Sleutelwoorde: Finansiële geletterdheid, Finansiële gedrag, Finansiële kennis, Finansiële vermoëns, Finansiële insluiting, Konseptuele raamwerkontwikkeling, Omvattende literatuuroorsig.

LIST OF ABBREVIATIONS

BASA: Banking Association of South Africa

CA: Chartered Accountant

CLR: Comprehensive Literature Review

FSB: Financial Services Board

FSCA: Financial Sector Control Authority

GDP: Gross Domestic Product

INFE: International Network on Financial Education

MODES: Media, Observation(s), Documents, Expert(s), Secondary Data

NCFEC: National Consumer Financial Education Committee

NCR: National Credit Regulator

OECD: Organisation for Economic Co-operation and Development

PAR: Participatory Action Research

PhD: Doctor of Philosophy

RDGC: Research Data Gatekeeper Committee

SAIA: South African Insurance Association

SMEs: Subject Matter Experts

Stats SA: Statistics South Africa

WCED: World Commission on Environment and Development

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CHAPTER 1
INTRODUCTION

1.1 BACKGROUND: IMPORTANCE OF FINANCIAL LITERACY

The financial landscape is fast-evolving, with more access to financial services consequently adding more responsibility on consumers, who face difficult financial matters and often lack the necessary skills and abilities to make financial decisions (Zokaityte, 2017:4). Economically active individuals are frequently faced with the responsibility of making financial decisions that may dramatically impact their financial well-being. Poorly informed consumers often fail to understand the financial products and services sold to them (Zokaityte, 2017:4). Consumers who are better informed about financial matters are shown to have the ability to participate in financial markets, plan for retirement and accumulate greater wealth (Lusardi & Mitchell, 2011:358).

The ability to practise financial knowledge and skills to effectively manage personal finances is subsumed under the term financial literacy. Financial literacy is defined by Lusardi and Mitchell (2014:6) as “people’s ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions”. Financial literacy received a great deal of attention after the global financial crisis that emphasised the importance of consumers’ financial knowledge and skills (Miller, Reichelstein; Salas & Zia, 2014:2; Zokaityte, 2017:5).

The financial crisis highlighted that individuals were not well equipped with the financial knowledge needed to cope with the changing economic circumstances (Hira, 2016:502). Later, the crisis led to a better understanding of how to promote savvier saving and borrowing behaviour, consequently directing attention to investing in financial knowledge (Klapper, Lusardi & Panos, 2012:2; OECD, 2008:9).

Since the 2000s, governments and international organisations around the world have invested in financial literacy programmes to address the low levels of financial literacy. As a result, in recent years, individuals are more aware of financial literacy (Lyons, Palmer, Jayaratne & Scherpf, 2006:208; OECD, 2008:10; Harrison, 2016:2). Financial education is recognised as necessary by policymakers to improve the levels of financial literacy (OECD, 2019:5). Financial education is defined by the Organisation for Economic Co-operation and Development (OECD) as the process of improving an individual’s comprehension regarding financial products in such a way that the individual develops the confidence to make sound financial decisions to improve their financial well-being (OECD, 2012).

Financial literacy programmes can be beneficial to society by helping individuals avoid financial pitfalls and preparing them for frequently encountered decisions about budgeting, managing debt and saving for retirement (Meyers, 2020:10). Financial literacy programmes improve community welfare (Dewi, Febrian, Effendi and Anwar, 2020:35) and contribute to the formulation of a new generation of financially educated society (Philippas & Avdoulas, 2020:379). Financial education should be considered a measure that promotes financial literacy and socio-economic independence (Singhal & Singh, 2020:2).

Human capital investment in the form of financial knowledge of university students is crucial, as the financial needs of these individuals change throughout their life cycle. In this regard, Moloi and Madikizela (2018:63) argue that targeting students at the entry-level of adulthood will contribute to ensuring that the next generation is well-resourced and versed in finances. Given the importance of financial literacy in today's economic environment, helping university students acquire financial knowledge can prove beneficial as former studies conclude that a lack of financial literacy among employees leads to a decrease in work productivity. Alternatively, higher levels of financial literacy are associated with positive financial behaviour such as increased savings and higher retirement fund contributions (Volpe, Chen & Liu, 2006:82; Lusardi & Oggero, 2017:1).

In today's demanding financial environment, making the wrong financial decisions early in life can be costly. University students often find themselves carrying large amounts of student loans and debt, which hinders the accumulation of wealth, causes anxiety and influences major labour decisions (Lusardi, Mitchell & Curto, 2010:1).

The economic theory of human capital contributes to the importance of financial literacy and underlines the general outcome of financial literacy programmes. The investment in human capital empowers consumers and improves their well-being. This, in turn, increases productivity and firm performance, encourages economic growth, and promotes development (Marimuthu, Arokiasamy & Ismail, 2009:270). The investment in human capital spills over into economic growth, which, in turn again, incentivises investment in human capital (Vogl, 2012:1).

To conclude, financial illiteracy is a global problem and contributes to slow economic growth, hence becoming of interest to governments (Shambare, 2012:583) who, together with public and private institutions, have invested in financial literacy interventions to improve the population's human capital in the form of financial knowledge and financial behaviour.

Despite various international studies about financial literacy education and the recognition to improve the levels worldwide, the impact thereof is inconclusive (Harrison, 2016:2). This is due to a lack of an evaluation component as part of the design of financial literacy programmes (Sconti, 2020:3). This research study will contribute to the literature by developing a framework of indicators to evaluate the impact of interventions. This study will also address the importance of improving financial literacy among university students, since they will potentially have a greater contribution in terms of value, as future taxpayers, savers, decision-makers and participants in the economy. The university students are used as the target group in the applied case study during the course of the research. The study is also relevant to the present time and financial challenges.

1.2 BACKGROUND: FINANCIAL BEHAVIOUR IN SOUTH AFRICA

The South African finance sector successfully weathered the global financial crisis. Nonetheless, it used the crisis to recognise the need for coordinated international efforts to secure global financial and economic stability, and has committed to important obligations to try to prevent a similar crisis in the future (National Treasury, 2011:1). The Minister of Finance during the financial crisis, Pravin Gordhan, stated in a 2009 address: *"The need for more comprehensive efforts to improve the financial literacy of consumers has been high highlighted during the current economic crisis and is evident by high debt levels of many consumers"* (Roberts, Struwig, Gordan & Radebe, 2018:1).

In the same way, the emergence of the 2019-nCov, Coronavirus pandemic, highlighted the importance of being financially literate and knowing how to budget and manage personal finances in the case of a sudden loss of income (Kurowski, 2021:1). In times of emergency, loans may be taken by individuals who are unable to repay them, consequently leading to over-indebtedness (Kurowski, 2021:1).

South Africa is an emerging country, characterised by a well-developed and growing financial sector (Sibanda & Sibanda, 2016:1). By contrast, the country carries a high personal debt burden (Sibanda & Sibanda, 2016:1) and is confronted with financial inclusion challenges as many South Africans do not have access to financial services to manage finances, obtain credit or save for unforeseen events (National Treasury, 2011:1). The Financial Services Board (FSB) conducted a study on financial capabilities, knowledge, attitudes and behaviours of South African consumers and found that a significant part of the population cannot make sound financial decisions and have low levels of financial literacy (Sibanda & Sibanda, 2016:6).

Over-indebtedness in South Africa is a major challenge. A FinScope SA study on "Credit and Borrowing" (2014) revealed that 4.9 million people are showing signs of over-indebtedness, an increase from 4.7 million in 2013 (Sibanda & Sibanda, 2016:6). The National Consumer Act (NCA) (2005), states that "A consumer is over-indebted if the preponderance of available information, at the time a determination is made, indicates that the particular consumer is, or will be, unable to satisfy in a timely manner all the obligations under all the credit agreements to which the consumer is a party, having regard to that consumer's financial means, prospects and obligations; and probable propensity to satisfy in a timely manner all the obligations under all the credit agreements to which the consumer is a party, as indicated by the consumer's history of debt repayment" (Sibanda & Sibanda, 2016:1).

During 2013 and 2014, 86% of South Africans had borrowed money, which resulted in the population being more indebted than any other nation and these high levels of borrowing worsened poor repayments (Sibanda & Sibanda, 2016:1). The National Credit Regulator reported in 2014 that 44.2% (9.6 million) of active credit consumers in South Africa had impaired records (Sibanda & Sibanda, 2016:1). By contrast, many South Africans do not have access to financial services and are trapped in poverty (National Treasury, 2011:1). Financial inclusion envisions that all South Africans have access to the financial services sector to encourage them to manage finances, use credit wisely and save for unforeseen events (National Treasury, 2011:1).

South Africans are characterised as net borrowers as opposed to net savers (Kapingura & Alagidede, 2016:703). According to Statistics South Africa (Stats SA), household debt as a percentage of household income in 2015 was approximately 80% including loans, overdrafts, accounts, and credit card debt (Erasmus, 2015). This is reconfirmed in the South African Reserve Bank's Quarterly Bulletin of June 2019, where household loans in 2018 accounted for R88.9 billion, 56.71% of gross domestic product (GDP). Gross savings by households in the same year were R67.1 billion, 14.88% of GDP (SARB, 2019).

This suggests that, although South Africa has a well-developed financial sector, financial literacy is underdeveloped among a large proportion of the population (Sibanda & Sibanda, 2016:1). Financial education is conceptualised by Anderloni and Vandaone (2011:113) as a preventative measure, as it allows the individual to gain financial knowledge and make sound financial decisions, thereby eluding indebtedness. The latter highlights the importance of effective financial training programmes to inform and equip consumers (Sibanda & Sibanda, 2016:5).

For a country like South Africa, with slow growth and high levels of unemployment, financial literacy should be a particular priority. Factors such as savings and investments are crucial for any country to meet its growth and development goals (Investec, 2020). Poor financial decisions in South Africa diminished savings and investment, which led to lower levels of growth and higher levels of unemployment (Investec, 2020).

The National Treasury (2016) report estimated that only 6% of South Africans will be able to retire financially independent. Financially illiterate individuals are not likely to make sufficient provision for their retirement, being dependent on a government pension, which is indirectly funded by taxpayers (Botha, 2013:6). Against this background, financial literacy programmes are proposed by the government and firms to address high debt burdens and the lack of financial literacy.

Sibanda and Sibanda (2016:1) found various financial literacy programmes implemented in South Africa by public and private institutions (see Table 4-1[1]). The public institutions are Financial Services Board (FSB), National Consumer Financial Education Committee (NCFEC), National Credit Regulator (NCR) and the private institutions are the Banking Association of South Africa (BASA), South African Insurance Association (SAIA) and Stanlib. Given the monetary resources and time invested by different stakeholders into these interventions (Botha, 2013:6), the impact of these programmes needs to be measured to adapt existing or newly developed programmes in such a way that the consumer, community and the economy can benefit from the use of financial literacy programmes.

The rest of this chapter has been organised in the following way: Section 1.3 presents the problem statement of the study, followed by Section 1.4 which comprises the research motivation. Section 1.5 gives a brief overview of the case study description used in the study, followed by the research questions and corresponding objectives in Section 1.6. Section 1.7 provides the research design and methodological procedure used in the study, while Section 1.8 addresses the contribution of the research study to the broader field of academic work in financial literacy. The chapter concludes with ethical considerations in Section 1.9, demarcations in Section 1.10 and a description outline of each chapter in Section 1.11. Importantly, Section 1.12 includes the notes to the reader.

1.3 PROBLEM STATEMENT

Financial literacy skills are important, yet underdeveloped among a large share of the population (See sub-section 3.4.2[2]) (Sibanda & Sibanda, 2016:1). Worldwide studies indicate that university students demonstrate low levels of financial literacy and are susceptible to making financial mistakes, which is of great concern as they will potentially have a greater contribution, in terms of value, as future taxpayers, savers, decision-makers and participants of the economy (Lusardi & Mitchell, 2011; Klapper & Panos, 2012; Louw *et al.,* 2013: Artavanis & Karra, 2020).

The South African government, together with institutions, departments, financial services providers and organisations implemented financial education programmes to improve the financial literacy levels of the country (See Table 4-1[3]). Nevertheless, these measures do not capture changes in personal finance knowledge, perception and behaviour, and are inadequate for assessing the impact of personal finance literacy interventions (Swart, 2005:48; Louw et al., 2013:439). Sibanda and Sibanda (2016:31) state that financial literacy programmes are scattered

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[1] See Table 4-1 – Chapter 4; page 92.
[2] See sub-section 3.4.2 - Chapter 3; page 71.
[3] See Table 4-1 - Chapter 4; page 72.

with low levels of coordination and have been either inappropriate, marketing-focused or duplicating existing programmes.

There is a need for evidence on the impact and effectiveness of financial literacy programmes at a country level and further academic research is required to determine the efficiency of financial education interventions (FinMark Trust, 2005:2; Swiecka, Yesildag, Ozen and Grima, 2020:16). Bell and Lerman (2005:6) claim that targeted research is necessary to learn about the actual benefits of financial interventions. Also, financial education training complements institutional structures that make sound financial strategies and decisions easier (Bell & Lerman, 2005:6).

Although there is a growing body of literature about financial literacy interventions and the recognition to improve the levels worldwide, the impact thereof is inconclusive. This is motivated by various literature that highlights that good evaluation is lacking. Authors, such as Fernandes, Lynch and Netemeyer (2014:1861) have embraced 168 papers covering 201 prior studies and found that financial literacy interventions only explain 0.1% of the variance in financial behaviours.

Totenhagen, Casper, Faber, Bosch, Wiggs and Borden (2015:66) report that a systematic review resulted in only 10 per cent of 200 financial educational programs included an evaluation component. Bongini, Iannello, Rinaldi, Zenga, and Antonietti (2018:2) acknowledge that an assessment approach is crucial to identify educational gaps and for evaluating the success and impact of the interventions.

Lusardi (2019:7) emphasise that even though many countries have implemented and provided financial education, the financial literacy levels across the world is continuously low. “A piece of the puzzle is missing”.

Bongini et al., (2018:2) highlight that methods used to measure financial literacy vary substantially according to the conceptual definition adopted, the content of financial issues and the number of questions used for assessment.

The lack of a universal definition stamps its mark on financial literacy programs, set up not as a dynamic process but as a final measure to eliminate financial illiteracy. But unlike the alphabet, the science of finance is constantly developing and implemented into practice, which requires a reassessment of the financial literacy concept (Belousova, Gryzenkova, Kirillova, Vasyakin & Pozharskaya, 2019:146).

In conjunction with the aforementioned, research has showed that providers of financial education are faced with the challenge of evaluating such programmes effectively and that here is a cluster of studies on the ineffectiveness of financial education initiatives (Goyal & Kumar, 2021:92).

There is a need for studies that evaluate perception change and improved financial outcomes since most studies do not include the evaluation component as part of the research design (Glaser and Walther, 2013).

Fox, Bartholomae and Lee (2005:203) state that one of the main challenges of financial literacy interventions is the lack of an evaluation component that indicates a change in the individual's financial perception or behaviour. Birkenmaier and Maynard (2016:6) argue that intervention should report at least one of the following outcomes: behavioural or perception change (money management, paying bills on time, emergency savings, having a budget) or change in use to a financial product or service (having a bank account, retirement fund, college savings account).

To summarise, the literature suggests that there is a need to improve the financial literacy levels of South Africans. However, there is no means to test whether interventions implemented in South Africa have an efficient impact.

1.4 MOTIVATION

Based on the literature, there were three motives for the research study. These included the need to evaluate financial literacy interventions. to improve implemented initiatives in the South African context and, lastly, to improve the level of financial literacy of university students.

1.4.1 Need to evaluate financial literacy interventions

Scholars suggest there is a need to evaluate whether the efforts of financial education interventions are resulting in improved financial outcomes and overall financial well-being (Lyons et al., 2006:208; Glaser and Walther, 2013). Various studies report how to measure the level of financial literacy, however, there is a need to measure the impact of financial literacy interventions. This disconnect between evaluation and measurement of evaluation emphasises the literature gap between various studies measuring the levels of financial literacy (confirmed by Klapper*,* Lusardi & van Oudheusden, 2015; OECD, 2016; Sibanda & Sibanda, 2016; Astuti, Tanjung Putri, 2019; Artavanis & Karra, 2020; Sconti, 2020), and the need for studies evaluating the impact of financial literacy interventions (confirmed by Lyons et al., 2006:208; Huston, 2010; Harrison, 2016:2; Swiecka et al., 2020:16).

Sukumaran (2015:64) emphasised that while the significance of financial education is well recognised, financial education programmes face challenges in design, implementation, and evaluation. In addition, Sukumaran (2015:64) argues that the content of these specific programmes has operational issues.

Fernandes et al., (2014) and Miller et al., (2014) argue that the effectiveness of financial education remains mixed. Continued study is needed to advance the field of financial literacy education research and evaluation. This is line with Swiecka et al., (2020) who suggested that further studies should be conducted to determine the effectiveness of special and common education programs.

Lusardi (2019:7) emphasise that even though many countries have implemented and provided financial education, the financial literacy levels across the world is continuously low. “A piece of the puzzle is missing” (Lusardi, 2019:7).

An indicator framework will act as an evaluation tool to evaluate the content of the intervention in terms of financial literacy indicators (see section 5.2.1), perception change (see section 5.2.2) and behaviour change indicators (see sections 5.2.4) and influences (see section 5.2.4).

1.4.2 Motivation for South African focus

Although various financial literacy interventions are being implemented by private and public institutions in South Africa, Sibanda and Sibanda (2016:31) state that many existing government-funded financial literacy interventions have not been effective and the level of financial literacy in South Africa is still low. In addition, FinMark Trust (2005:2) points out that the landscape of financial intervention in South Africa has been undertaken with a considerable monetary contribution from the government, indirectly funded by taxpayers (Botha, 2013:6). Addressing the evaluation component of South African financial literacy interventions would be helpful in effectively improving the level of financial literacy in South Africa and will result in more resourceful use of stakeholder time and monetary resources.

To deliver a financial intervention, information about a variety of general financial concepts and behaviours targeted to a specific financial topic, specific product or specific service must be delivered (Birkenmaier & Maynard, 2016:5).

The South African approach towards addressing the need for financial literacy has taken off since the late 1990s and includes the government, the financial industry, non-profit organisations, the housing sector and private companies (Piprek, Dlamini, & Coetzee, 2004:18). Accordingly, several stakeholders have developed initiatives to improve financial literacy and facilitate financial inclusion in South Africa (Sibanda & Sibanda, 2016:3). Table 1-1 describes the different initiatives or interventions of key stakeholders in South Africa

Table 1-1: Financial education initiatives of key institutions in South Africa

Institution	Name of programme and type of material	Target Group						Delivery Channel
		IY	W	E	F	B/IC	G	
Financial Services Board	Financial education Awareness & special programmes		√				√	TV screens in public places, radio on a train station, taxis and web-based material Training Workshops, training trainers
National Credit Regulator	Credit consumer protection						√	Awareness campaigns, training workshops, TV and radio interviews
KZN Financial Literacy Association	High school annual competition	√		√				Research and presentation by students Training workshops
BANKSETA	Consumer education focused on credit (offered mainly to institutions) Consumer education material						√	Financing and training service provision
BASA	In school teach children to save initiative	√						Incorporated in the Economic Management Science subject, Ambassadors and competition
South Africa Insurance Association	Teacher development, promotion of savings culture	√				√	√	Community radio and industrial theatre
Old Mutual	Fin 360 and on the money programmes		√			√	√	Modular based training
Stanlib	Movie on Financial Education	√				√		Movie screens in the theatre
ABSA	Bubomi (it is life) initiative		√			√	√	Classroom training
Standard Bank	Workshops for low-income consumers	√				√	√	Classroom training and radio programmes for awareness-raising.
FNB	Money smart concept packaged in 10-unit courses					√	√	Volunteers who are retired bankers provide the training to communities.
Nedbank	My financial life and my money Map	√				√	√	Online courses
FinMark Trust	Institutional and organizational development; has developed a financial education tool kit		√				√	Research training workshops and online training
Avocado Vision	Financial literacy		√				√	Training workshops
Sanlam	Money fo Sho!	√					√	Social Media
World Bank-IFC	Small- and medium-sized toolkit			√				Online SME tool kit
Hollard	Training courses					√	√	Training workshops

Source: Adapted from Sibanda & Sibanda, (2016:11).

The target groups are a sub-segment of the population and include workers (W), entrepreneurs (E), in-school youth (IY), farmers (F), general consumers (G), bank or insurance clients (B/IC). The delivery channel is the method the initiative is employed to the target group, online platforms, TV series and movies, which favour the youth and adults in the cities. Different educational materials used in financial education range from printed materials to videos and competitions (Sibanda & Sibanda, 2016:10).

There are three important limitations to current financial literacy evidence. Firstly, there is a lack of published studies regarding the impact of financial literacy interventions. Secondly, it is difficult to isolate the interventions' effects from other exogenous elements. Lastly, it is challenging to draw causal inferences about the role of financial literacy (Robson, 2012:3).

1.4.3 Motivation for university students focus

In the South African context, university students and the unemployed have lower levels of financial literacy compared to the formally employed, self-employed and pensioners that have above-average financial literacy levels (Nanziri & Leibbrandt, 2018:6).

It is important to ensure that university students are financially literate as they embark on financial and life cycle events such as employment, buying a car or renting a property (Cull & Whitton, 2011:100). Past literature has shown that students are susceptible to making financial mistakes and exhibit low levels of financial literacy across different groups (Lusardi & Mitchell, 2011; Klapper & Panos, 2011 & Artavanis & Karra, 2020:6). If one generation of young adults can be impacted, the positive influence will be passed on to their children (Meyers, 2020:7).

University students often find themselves carrying large amounts of student loans and debt, hindering the accumulation of wealth, causing anxiety, and influencing major labour decisions (Lusardi, Mitchell & Curto, 2010:1). This hinders the accumulation of wealth, causes anxiety and influences major labour decisions. It is important to ensure that university students are financially literate as they embark on financial and life cycle events. In this regard, targeting students at the entry-level of adulthood will contribute to ensuring that the next generation is well-resourced and versed in finances. University students should be equipped with the financial skills to have a well-informed starting point for their personal financial choices throughout their adult lives (Meyer, 2020:3). Students need to be empowered financially, since the national student debt in South Africa rose to R5.5 Billion between 1990's and 2000's (Naidoo and McKay, 2018:161). More recent numbers show that South African universities are owed R10.4 billion in fees between 2010 and 2020 (Research Professional News, 2021). This is also motivated in the literature by Lusardi and Mitchell (2017:5) that expressed university students must have the necessary financial literacy since almost all students entering the labour market are burdened by student loan debt.

On the other hand, NSFAS funding increased by 107% between 2018 and 2021. The total number of university students funded increased from 346 966 students in 2018 to 504 366 students in 2020 (Minister of Higher Education, 2021).

This study can address the research gap presented in the problem statement and motivation of this study by performing a qualitative investigation and case study analyses of the financial literacy intervention at a South African university to develop a conceptual framework towards measuring the impact of financial literacy interventions.

1.5 CASE STUDY: FINANCIAL LITERACY CENTRE ON A SOUTH AFRICAN UNIVERSITY CAMPUS

1.5.1 Background and aim of the financial literacy centre

A South African university established a financial education programme in 2017 that attempts to facilitate the learning of core personal finance concepts using visual illustrations, relatable examples, videos and interactive games. The centre forms part of the Economic and Management Sciences faculty’s community engagement initiatives. The Financial literacy centre reaches out to community members, schools and young adults on a voluntary basis and attempts to facilitate the learning of core personal finance concepts.

The financial literacy centre facilitates the learning of core personal finance concepts using visual illustrations, relatable examples, videos and interactive games. The centre aims to teach important economic and financial literacy principles to young adults and community members so as to contribute to better-informed citizens, who make better economic and financial choices, impacting their welfare and, ultimately, the welfare of the country. Also, practicing financial skills at a younger age makes the management of personal finances much easier when becoming financially independent (Caplinska & Ohotina, 2019:1736). The centre is intended for high school groups, young adults from community projects, young entrepreneurs and workers of businesses in the community.

It should be emphasized that the candidates do not graduate from the financial literacy centre as it is a community engagement initiative and not a graduation program.

As pointed out in the problem statement, the impact and effectiveness of these programmes has been limited. Similarly, the financial literacy centre’s impact has not yet been measured and the validity of some of the key concepts has not yet been tested (expert opinions) and embedded in the literature. Furthermore, there is no recorded data on previous groups who have participated in the financial literacy centre.

1.5.2 Financial principles and characteristics of the centre

The literacy centre has stations with interactive games or simulators that illustrate and teach basic economic and financial concepts and principles such as: spending less than you earn, budgeting and managing your money, saving early and often, paying debt first, the power of compound interest, good *versus* bad credit, inflation, consumer choices and opportunity cost.

The financial literacy centre is also visually appealing with individual touch screen computers, built-in cinema-like chairs, and flat-screen presentation screens. Figure 1-1 displays the computers used to play interactive games in the financial literacy centre. Appendix D includes the four interactive games performed during the intervention.

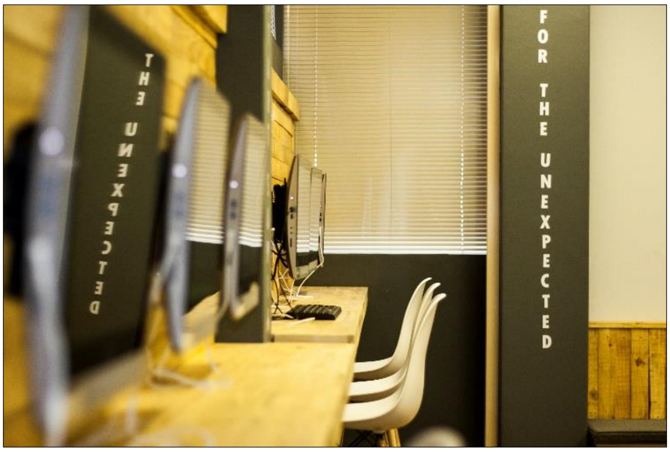

Figure 1-1: The financial literacy centre
Source: Documents from the centre

The proceedings during a visit to the financial literacy centre follow a three-step process. Firstly, the participants receive a brief introduction to the centre, as well as an interactive lecture on important financial principles. Secondly, the participants proceed to the computers to receive teaching through interactive games and, lastly, the participants have a feedback session. The research study will use the financial literacy centre during the different methodological phases of the study (see section 1.7[4]).

1.6 RESEARCH QUESTIONS AND OBJECTIVES

The general objective of the study is to develop a framework of indicators to evaluate the content and impact of financial literacy interventions using a case study. Impact evaluation provides policy-relevant information for the redesign of current and future programmes (OECD, 2010:2). The research study seeks to address the research questions in Table 1-2.

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[4] See section 1-7 - Chapter 1; page 14.

Table 1-2: Research questions and objectives

Preliminary research questions and objectives	
Research Questions	**Research Objectives**
1. What are the content indicators of financial literacy based on the literature?	1. Identify financial literacy indicators from the literature.
2. What is the impact of a financial literacy intervention on perceptions regarding personal finance?	2. Determine how the intervention changed perceptions of the importance of basic personal finance literacy principles.
3. What are the most important indicators of financial literacy within the South African context?	3. Confirm and rank the content indicators identified in the literature based on the knowledge and experience of South African subject matter experts.
4. What process can be followed to evaluate a financial literacy intervention?	4. Develop a framework to evaluate the impact of financial literacy interventions.
5. How can the content and impact of a financial intervention in the case be enhanced?	5. Evaluate the case study against the developed framework to make adaptions and recommendations.

The study set out to identify financial literacy indicators and to develop a framework to evaluate the impact of financial literacy interventions. The first research question of the study seeks to identify the content indicators of financial literacy by means of a CLR. The second research question aims to determine the immediate impact after the financial training intervention. The third research question confirms the most important indicators of financial literacy based on the literature review and the experience of subject matter experts. The forth research question develops a process or framework to use as an evaluation tool for personal finance literacy interventions, while the last research question evaluates the case study against the framework to identify areas for improvement.

During the data analysis in Chapter 5, the research objectives of the study were reached, and the study lent itself to the re-evaluation of the research objectives. As a result, Table 1-3 contains the additional and unintended contributions of the study, that designates indicators of behaviour change as well as indicators of sustainable development.

Table 1-3: Additional research questions and objectives

Additional contribution and research objectives	
Additional research question	**Additional research objective**
6. What is the impact of a financial literacy intervention on personal finance behaviour?	6. Evaluate the behaviour change of participants over time.
7. Can the financial literacy intervention (case study) be considered sustainable?	7. Evaluate the financial literacy intervention (case study) against the indicators of sustainability.

Source: Author’s compilation.

To reiterate, the additional contributions were unintended and not initially part of the research study.

1.7 RESEARCH DESIGN AND METHODOLOGY

This research study is embedded in a case study specific context; since the study set out to develop a framework to evaluate the impact of the financial literacy centre at a South African university by utilising a non-experimental evaluation design (pre-post design). This study tends to be more qualitative than quantitative. Qualitative validity and reliability were ensured through triangulation. Triangulation involved the examination of different data sources used in the study to formulate the thematic analysis for impact evaluation.

Impact evaluation is an assessment of how the intervention being evaluated affects outcomes, whether these effects are intended or unintended (Hearn & Buffardi, 2016:8). The study focuses on participants' perception of financial literacy before receiving training and once again after receiving training. The latter highlights a perception change outcome of an intervention.

Case study research is one of several forms of social science research (Yin, 2014:2). The definition of a case study is two-fold: it is firstly an "investigation of a contemporary phenomenon (case) in its real-world context, especially when the boundaries between the phenomenon and context may not be visibly evident and secondly the data and design collection features, such as how data triangulation helps to address the distinctive technical condition whereby a case study will have more variables of interest than data points" (Yin, 2014:2).

A case study can be single or multiple cases, can be limited to quantitative evidence and can be a useful method in doing an evaluation (Yin, 2014:2). The research design used in this study is a single case embedded case study. This means that the study will evaluate different groups within the same financial literacy intervention in the financial literacy centre, for instance, students from different faculties. The grouping of different students will provide this study with more depth.

1.7.1 Study population

The research population is university students studying at a specific South African university (with a financial literacy centre). Various reasons justify the decision to use university students studying at a South African university for this study:

- There is a lack of South African studies conducted on financial literacy and especially in the academic environment.
- According to Maconi (2016:41), financial literacy is difficult to acquire without basic literacy, therefore any individual participating in the commencement of financial literacy interventions should be able to read and write.

- Lusardi and Mitchell (2011) reported that educated individuals are more prone to answer questions correctly.
- Financial literacy is especially important for students in ensuring that the next generation is well versed in finances and that they have a well-informed starting point for their personal financial choices throughout their adult lives.
- In the South African context, the formally employed, self-employed and pensioners have above-average financial literacy whereas university students and the unemployed have low levels of financial literacy in the occupation category (Nanziri & Leibbrandt, 2018:6).

Louw, Fouche and Oberholzer (2013:448) suggest that universities take responsibility to provide students with adequate training in this regard. University students should be equipped with the financial skills to have a well-informed starting point for their personal financial choices throughout their adult lives (Meyer, 2020:3). Past literature has shown that students are susceptible to making financial mistakes and exhibit low levels of financial literacy across different groups (Lusardi & Mitchell, 2011; Klapper & Panos, 2011 & Artavanis & Karra, 2020:6).

The university students will receive an opportunity to invest in their human capital through financial literacy training. The study will also employ focus groups to contextualise financial literacy indicators identified through intensive literature study, to add expert opinions and feedback on indicators as well as to rate the indicators through an online survey.

1.7.2 Research procedure

The methodological procedure is divided into six phases, Phase A – Phase F and is illustrated in Figure 1-2 and discussed in Table 1-4. Figure 1-2 uses colours for the different phases as means of identification throughout the research study and where the specific phase was relevant to the chapter, the corresponding phase was highlighted to indicate the phase of the study.

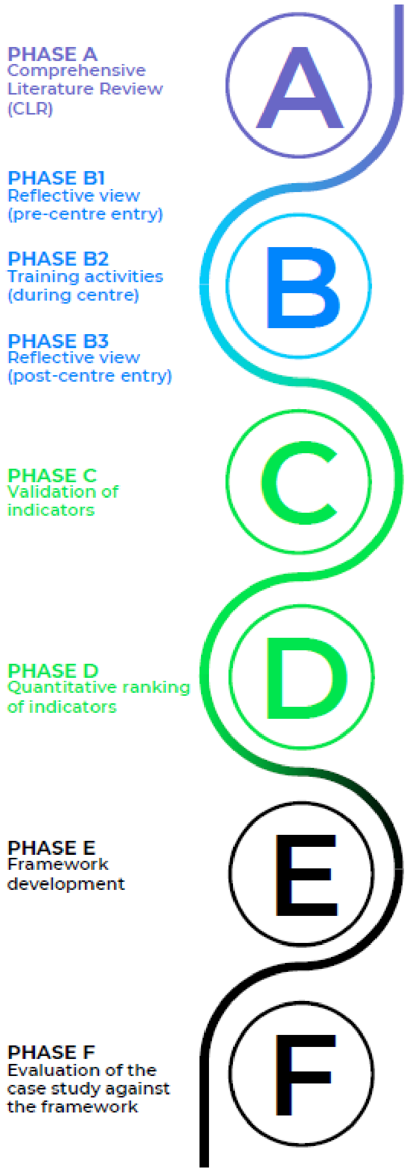


Figure 1-2: Research procedure phases
Source: Author's construction.

Table 1-4 summarises the research process from Phase A to Phase F. The table includes the phase, data source, research approach, sampling data analysis and intended outcome linked with each phase. The convergence of the phases and the direct link to the thematic analysis highlights the qualitative nature of this study.

Table 1-4: Different phases of the study

PHASE	METHOD	DATA SOURCE	RESEARCH APPROACH	SAMPLING	DATA ANALYSIS	INTENDED OUTCOME
Phase A	**Comprehensive Literature Review (CLR)**	Literature review of financial literacy indicators, financial literacy documents/ reports and relevant economic theories.	Qualitative	Journal articles and academic textbooks.	Method of literature review (Seven-Step Model, see Section 2.3.1)	Identification of content indicators from the literature.
Phase B1	**Reflection audio recording (pre-intervention)**	Interviews and target group demographics.	Qualitative	Audio recording Google Form	Transcribed through Otter.ai and thematic analysis in ATLAS.ti.	A reflective view of the student's current perception of their financial literacy.
Phase B2	**Training activities (during intervention)**	Financial training intervention: the student will actively take part in the training activities of the literacy centre.	Qualitative and Quantitative	Convenient sampling (on-campus training).	Interactive game results.	To teach participants important financial concepts using lectures and interactive games.
Phase B3	**Reflection audio recording (post-intervention)**	Interviews	Qualitative	Audio recording	Transcribed through Otter.ai and thematic analysis in ATLAS.ti.	Recognise a perception change in the student's perception as a result of the training.
Phase C	**Focus group Contextualisatio n**	Focus group discussions to confirm the financial literacy indicators. Researcher observation and field notes.	Qualitative	Internal (student participants): Random assignment. External (subject matter experts):	Thematic analysis.	Confirm and contextualise the indicators identified in the literature study.

PHASE	METHOD	DATA SOURCE	RESEARCH APPROACH	SAMPLING	DATA ANALYSIS	INTENDED OUTCOME
				Purposive sampling.		
Phase D	**Quantitative ranking of indicators**	SMEs and students rate the baseline indicators.	Quantitatively ranked indicators and qualitative.	Internal: Random assignment. External: Purposive sampling.	Google Form rankings.	Determine the relative importance of the content indicators.
Phase E	**Framework development**	Case study results, literature, and financial literacy indicators.	Qualitative	A variety of types, such as books, articles, newspapers, essays, interviews, and case study results of participants (PAR).	Multi-disciplinary approach. A constant comparison across types of evidence to control the conceptual level and scope of the emerging theory.	Develop a framework of indicators to evaluate the impact of financial literacy interventions.
Phase F	**Framework application**	Case study results and the conceptual framework of indicators.	Qualitative	Case study results Literature	Applied framework to intervention.	Evaluate the case study against the developed framework and make recommendations.

1.7.2.1 Phase A: Comprehensive Literature Review (CLR)

As a starting point, in Phase A, the study identifies indicators of financial literacy from a widespread review of the literature. Specific attention is given to the South African context and its relevance to university students. Sources used to conduct the literature review includes electronic journals, books, newspapers, and articles on related subjects. The literature study also provides the foundation of the study on which the remaining concepts and methods of the study will be constructed.

The indicators evaluating the impact of a financial literacy intervention will contribute in three ways. Firstly, indicators will be identified using a comprehensive literature review in Phase A. Secondly, the indicators will be confirmed by focus group discussions to construct some baseline indicators in Phase C. Lastly, the list of indicators will be rated by two focus groups in a quantified process to form the base of the indicator framework in Phase D. In Phase B, the intervention will allow for comparison between the financial literacy indicators identified in the CLR and the concepts of the educational programme, in this case, the case study.

In addition, this research study will employ a non-experimental evaluation design, denoting a pre- (Phase B1) and post (Phase B3) design commonly used to measure impact as a result of the intervention through evaluating the specific topic before and after the intervention (OECD, 2010:9).

1.7.2.2 Phase B1: PRE-intervention

Phase B reflects the actual case study and is divided into three sections; Phases B1, B2 and B3. The first part of Phase B involves reflection interviews of participants responding to two open questions to code the nuanced; their understanding of financial literacy and how they experience their own financial literacy. In Phase B1, the researcher identifies participants' perceived knowledge before receiving training to determine whether perception change occurred after training.

The interviews will be analysed through a thematic analysis in ATLAS.ti, which is a computer program for the qualitative analysis of large bodies of textual, graphical, audio and video data. ATLAS.ti provides sophisticated tools to help arrange, reassemble, and manage data in systematic ways.

1.7.2.3 Phase B2: Entering the centre (intervention)

The second part of Phase B is where students actively take part in the training activities of the literacy centre. The aim is to examine key financial concepts used during training against indicators embedded in the literature. The financial literacy centre is located on university grounds. The training activities include interactive games, watching videos, lectures and explaining the infographics in the centre. Having students learn through interactive games, personal finance has immediate relevance and can improve the financial literacy levels found in university students (Meyers, 2020:9).

1.7.2.4 Phase B3: POST-intervention

The third and last part of Phase B is an audio reflection from the participants of their understanding of financial literacy after receiving training in the main concepts and principles as well as their learning experience post-intervention. The interviews will be analysed through a thematic analysis to identify themes across the data set.

1.7.2.5 Phase C: Focus group discussions

The content indicators identified in Phase A will be verified by focus groups in Phase C. The study employed two focus groups; internal (students that received training in Phase B) and external (SMEs) knowledge providers.

1.7.2.6 Phase D: Quantitative ranking of indicators

Phase D determines the relative importance of the indicators and assign weights to the indicators. The focus groups will be asked to rate or rank the indicators emanating from Phases A and C two weeks after the intervention. This will be used to assign a weight to each indicator.

1.7.2.7 Phase E: Development of a framework

After identifying indicators in Phase A, verifying the indicators in Phase C and rating the indicators in Phase D, a framework can be developed in Phase E to evaluate the impact of the financial literacy centre on financial literacy levels. Triangulation rather than data saturation is relevant as different data sources confirmed the findings used to develop the framework. For instance, the CLR confirmed the indicators of financial literacy, in addition, the indicators are confirmed by the focus group discussions. Therefore, the focus groups are not the only data source in the study and triangulation is present.

Jabareen (2009:49) proposes a new qualitative method for building conceptual frameworks for phenomena that are linked to multidisciplinary bodies of knowledge. The conceptual framework analysis is beneficial for its flexibility, it's capacity for modification, and its emphasis on understanding instead of prediction (Jabareen, 2009:49).

Jarabeen (2009:53) proposes an eight-step procedure for developing a conceptual framework analysis:

- Step 1: Mapping the selected data sources
- Step 2: Extensive reading and categorising of the selected data
- Step 3: Identifying and naming concepts
- Step 4: Deconstructing and categorising the concepts
- Step 5: Integrating concepts
- Step 6: Synthesis, re-synthesis, and making it all make sense
- Step 7: Validating the conceptual framework
- Step 8: Rethinking the conceptual framework

This study will follow a conceptual framework procedure as set out by Jarabeen (2009:53). Multiple sources of evidence strengthen this study and include; an extensive literature study, the pre-and post-intervention audio reflections of students' understanding of financial literacy, the training data, all documents and reports pertaining to information on the financial literacy centre, quantified indicator rankings and the researcher's reflection of capturing data. ATLAS.ti will be used to capture and code the data of the reflections and focus group discussions.

The primary purpose of the study is to develop a framework to evaluate the impact of an intervention. The term 'impact' and 'impact evaluation' has received much attention recently and has become common phrasing among development practitioners and agencies (Hearn & Buffardi, 2016:8). The impact can be evaluated before, during or after a programme to (i) determine whether and how the intervention was successful in achieving the goals set out at the beginning; (ii) determine whether the impact was positive or negative and whether to stop, continue or adapt the intervention; and (iii) draw lessons for other similar interventions (Hearn & Buffardi, 2016:6).

The conceptual framework of indicators will be presented as a creative illustration representation. The framework used Participatory Action Research (PAR) as a method in the development process aligned with financial literacy indicators. PAR is a qualitative research methodology or process for the primary purpose of impacting social change (MacDonald, 2012:34). PAR is used as a method for understanding contextual issues and guaranteeing realistic interventions (Sendall, McCosker, Brodie, Hill & Crane, 2018:1). Using a PAR method ensures qualitative features of an individual's views and feelings without control or manipulation of the researcher (MacDonald, 2012:34). The PAR will be employed in this study as a framework to evaluate the impact of an intervention.

1.7.2.8 Phase F: Evaluation of the case study against the framework

After developing a conceptual framework of indicators to evaluate the content and impact of financial literacy interventions in Phase E, the case study is evaluated against the framework in

Phase F. The case study is a financial literacy centre at a South African University that used university students as the target group.

1.8 ETHICAL CONSIDERATIONS

1.8.1 Data storage

All sources of evidence were saved on a password encrypted folder on the researcher's server at the university. The data will be stored for five years and then destroyed.

1.8.2 Confidentiality

The researcher asked each respondent to sign a consent form (Appendix C), thereafter replacing his or her name with an identification number. The researcher emphasised the purpose of the study as an introduction to the pre-intervention entry and again at the beginning of each focus group discussion, to increase trust and encourage a sense of purpose in the respondents. The participants were also informed that they can withdraw from the research at any point. The researcher ensured trust, firstly through informed consent and the right to withdraw and, secondly, privacy such as confidentiality, anonymity, and sensitive use of information.

1.8.3 Pre- and post-intervention entry interviews

In the beginning, the interviews were planned to be audio-recorded in the financial literacy centre. However, the interview process changed to audio recording responses over WhatsApp due to the limitations posed by Covid-19 regulations. The respondents were informed that all audio-recording responses are kept in confidence and anonymous. Written consent from the respondents to record and use the data was obtained and, in circumstances where the respondent refused permission to send an audio recording, notes were used.

The pre-intervention interview questions (see Appendix A) included two open answer questions to code the nuanced; the participant's understanding of financial literacy and how they perceive their own financial literacy. The post-intervention interview questions were similar to the pre-intervention questions, to determine how the perception of the respondent's financial literacy has changed after participating in the intervention.

Demographic information was obtained and motivated to the participants to assure that they are well informed as to why this information is collected and what will be done with it. The standard demographic questions aimed to pool different students together.

1.9 DEMARCATION

The study is not claiming that the case study is generalisable for all South African university students. The study sets out to develop a framework that can be applied generally to evaluate the impact of any similar financial literacy intervention.

1.10 OUTLINE OF THE STUDY

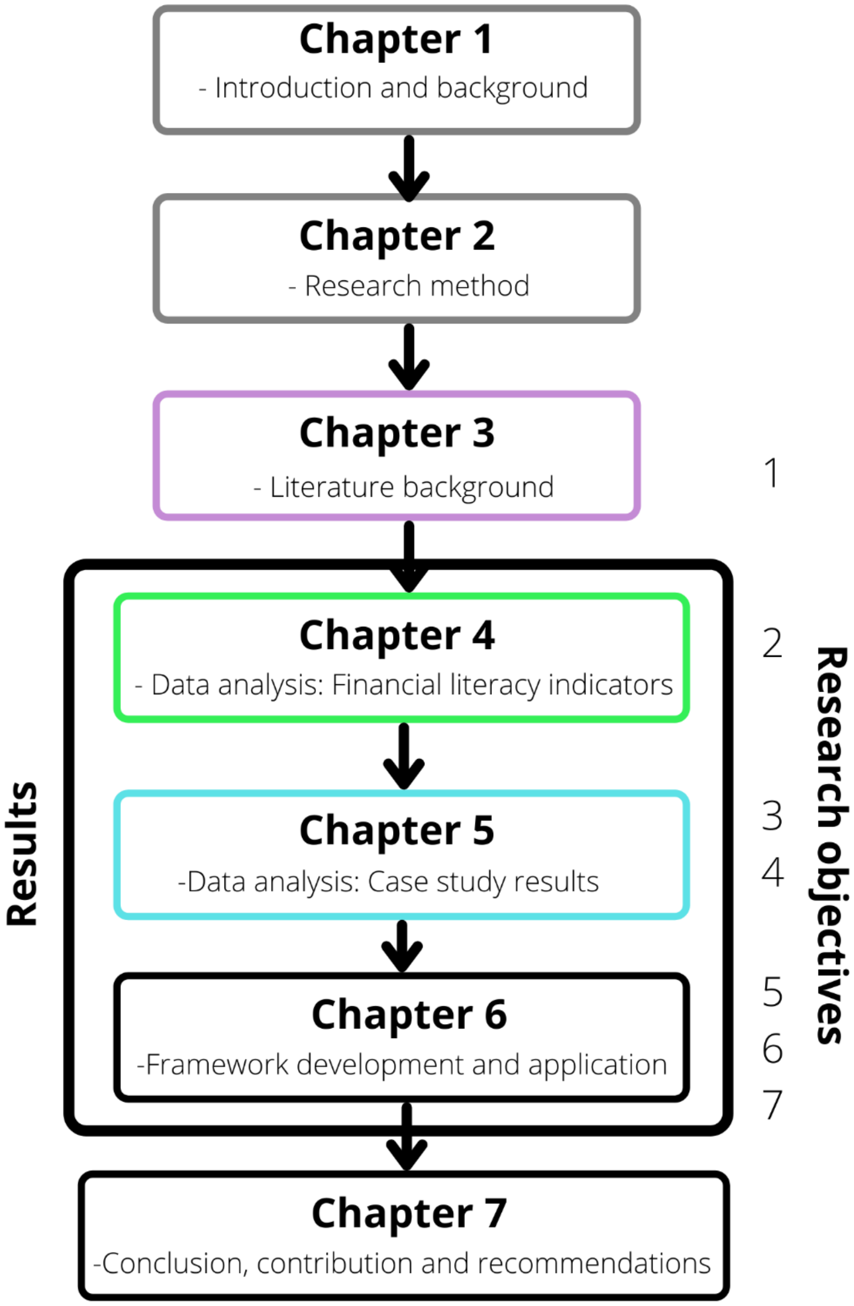


Figure 1-3: Outline of the chapters of the research study
Source: Author's compilation.

Figure 1-3 is a visual depiction of the order of chapters in this research study. It is worthy to note that Chapter 2 is the Methodology Chapter. The researcher explicitly changed the order of the chapters to guide the reader through each phase of the research study. The outline of the research study is described in Table 1-5.

Table 1-5: Overview of chapters

CHAPTER	PHASE	PURPOSE	Research objective
Chapter 1: Introduction		Chapter one provided the background, literature review, problem statement, motivation, objectives, case study design and division of chapters.	
Chapter 2: Research method		A detailed description of the research design including the philosophical worldview of the researcher, the research approach, and methods. Chapter 2 serves as a roadmap for the rest of the study.	
Chapter 3: Literature background	A	The literature review chapter contains qualitative data and describes the definition and different theories relevant to the study. Since the comprehensive literature review forms part of the process to develop an evaluation framework for financial literacy interventions, the literature review is placed in Chapters 3 and 4.	Identify financial literacy indicators from the literature.
Chapter 4: Data analysis: Financial literacy indicators	C D	Chapter 4 presents the financial indicators identified in the CLR, confirmed and ranked by the focus groups.	Confirm and rank the content indicators identified in the literature based on the knowledge and experience of South African subject matter experts.

Chapter 5: Thematic analysis: Case study results	B	CASE STUDY: The findings of the thematic analysis will be reported in Chapter 5, including the audio reflections on perception change and training notes/observations taken during training.	Determine how the intervention changed perceptions of the importance of basic personal finance literacy principles.
Chapter 6: Framework development and application	E	FRAMEWORK DEVELOPMENT: The purpose of Chapter 6 is to firstly, develop the framework of indicators to evaluate the content and impact of financial literacy interventions.	Develop a framework to evaluate the impact of financial literacy interventions.
	F	FRAMEWORK APPLICATION: Secondly, Chapter 6 evaluates the case study against the framework and recommend changes or adaption to the content of the financial literacy centre in the case study.	Evaluate the case study against the developed framework to make adaptions.
Chapter 7: Conclusion, contribution, and recommendation		Chapter 7 concludes the study with a summary, contribution, recommendations for future research and a reflection of the study.	

1.11 NOTES TO THE READER

The reader must note the following:

- The overall structure of the study takes the form of seven chapters. However, the thesis does not follow a traditional structured outline due to the complex process followed to conduct the study.
- Chapter 2 is concerned with the methodology used in this study and Chapter 3 presents the literature review. The chapters are intentionally rearranged since the comprehensive literature review (CLR) in Chapter 3 forms part of the process of developing an evaluation framework for financial literacy interventions. The method of conducting the CLR is introduced to the reader in Chapter 2. Therefore, Chapter 2 provides a roadmap to guide the reader through the rest of the study.
- It should be noted that literature refers to a collection of information from different sources and signifies data in qualitative research. The role of literature in qualitative research is to continuously validate observations from the thematic analysis with literature. Therefore, literature will be presented in different chapters of the study for its dual purpose.
- Within the context of this study, the term “financial literacy” and “financial content” mostly relate to personal finance.
- The reader should also take into account that the Coronavirus pandemic (COVID-19) has created a challenging environment to conduct a qualitative case study. The research study was challenged with issues related to student engagement and student entry due to travel restrictions, travel permits and entry into the university. All safety protocols were adhered to throughout the study. The qualitative study also lost the richness of facial-expression observations during in-person interviews and focus groups due to the use of facial masks and the right to not activate their webcam in cases of online communication platforms. Data methods were also changed to favour online platforms for data collection.
- Throughout this thesis, the term interviews refer to reflection audio recordings from students who participated in the intervention. In the light of transparency, the data collection of the interview process varied from the process initially planned, due to Covid-19 regulations. Even though the reflections were one-sided recordings, the participants responded to the open-ended questions posed to them. In addition, a reflection is regarded as a component of an interview and can be used in different ways.

CHAPTER 2

RESEARCH METHOD

2.1 INTRODUCTION

The problem statement of this study suggested that a large share of the South African population lack financial skills and that there is no means to evaluate whether financial literacy interventions implemented to improve financial literacy levels are efficient and have the desired impact. The research procedure of the study is divided into six phases, Phases A – F (see Table 1-4[5]). This chapter gives an account to the research procedure adopted in the study.

Various data sources attributed to the development of the framework in different phases of the study. Data triangulation is the use of different data sources to increase the validity and reliability of results since any weaknesses in a specific data source can be compensated for by the strengths of other data sources (UNAIDS, 2010:14). Data triangulation strengthens conclusions and confirms findings by means of different sources, methods and theories (UNAIDS, 2010:18).

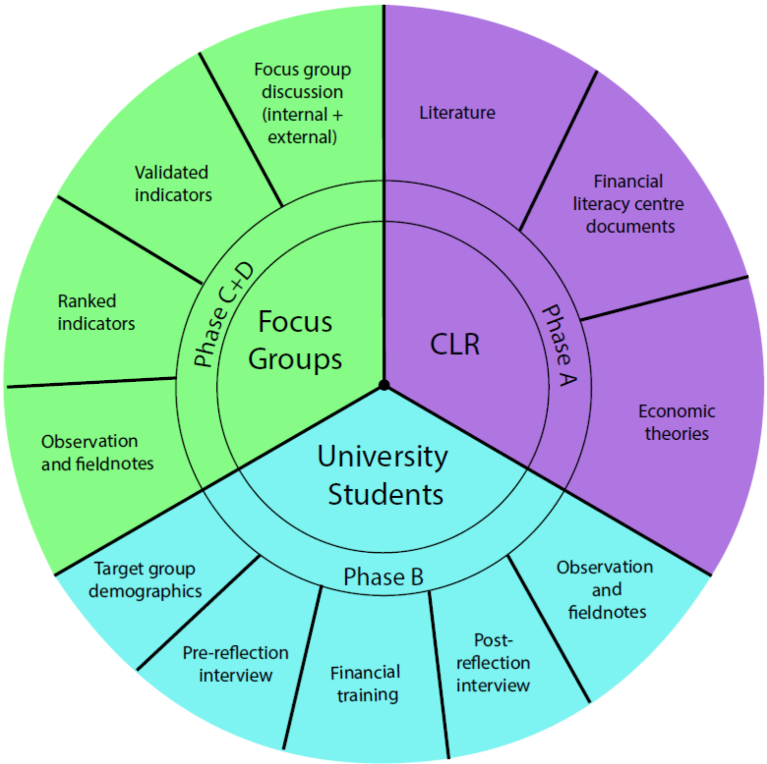


Figure 2-1: Data sources used in the research study
Source: Author's compilation

Figure 2-1 illustrates the different phases and corresponding data sources used in the research study according to the CLR, university students and focus group. The colours of the wheel will also guide the rest of the research study.

[5] See Table 1-4 - Chapter 1; page 17.

2.2 RESEARCH DESIGN

This section included four sub-sections namely, philosophical worldviews, research approach, research design and research methods. Figure 2-2 explain the interconnection between research approaches, design and methods.

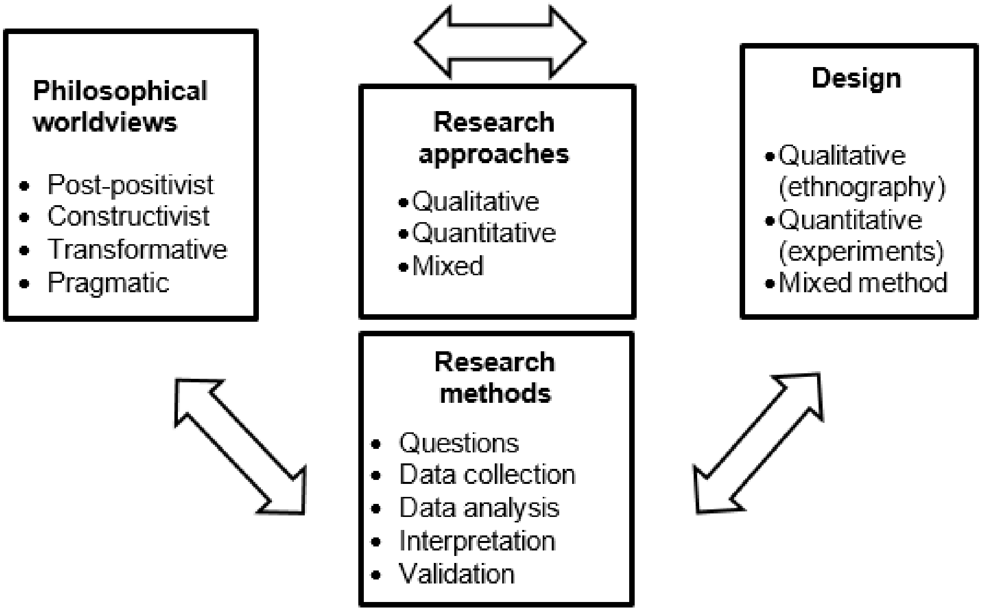


Figure 2-2: A framework of research

Source: Creswell, 2014:5.

To conduct an empirical investigation, the researcher's paradigmatic worldview should be considered together with the research design related to the worldview and the research methods (Creswell, 2014:5).

2.2.1 Philosophical worldviews

As noted by Creswell and Clark (2018:34), researchers should mention their philosophical assumptions in their study as philosophical positions guide the research process. The starting place of philosophical contemplation is how the researcher views the world (Farquhar, 2012:2). Divergent views and arguments exist which emphasises how the study is interpreted and hence the way the research is conducted and presented (Farquhar, 2012:2).

Philosophical assumptions include acknowledging the worldview that provides the foundation of the study and consists of a basic set of beliefs and assumptions (Creswell & Clark, 2018:34). The first element in Figure 2-2 is philosophical worldviews which consist of a basic set of beliefs and assumptions (Creswell & Clark, 2018:34). The philosophical worldview of a researcher reflects his or her general philosophical view of the world and the influence on and approach to their research (Creswell, 2014:5). Table 2-1 provides the four worldviews and their assumptions, followed by the researcher's scientific belief that justifies the methodological adoptions in the study.

Table 2-1: Four worldviews

Worldview	Assumptions
1. Post-positivist Worldview	• Often associated with quantitative approaches • Determination or cause-and-effect thinking • Reductionism • Empirical observation and measurement • Theory verification
2. Constructivist Worldview	• Often associated with qualitative approaches • Understanding of phenomena • Multiple participant meanings • Social and historical construction • Theory generation
3. Transformative Worldview	• Focused on the need for social justice and the pursuit of human rights • Political and activist • Empowerment, marginalization • Collaborative • Change, emancipatory orientated
4. Pragmatist Worldview	• Often associated with mixed-method approaches • Consequences of actions • Problem centred • Pluralistic • Real-world practice-orientated

Source: Adapted from Creswell & Clark (2018:35).

Philosophically, the researcher is a constructivist since the worldview seeks an understanding of the world in which one lives and works (Creswell, 2014:8). Constructivists develop subjective meanings of their experiences, leading the researcher to identify the complexity of outlooks rather than narrowing views into a few categories (Creswell, 2014:8). The constructivist worldview also relies on the participant's view of the situation, focusing on the participant's setting or context and interpreting findings based on the researcher's own beliefs (Creswell, 2014:8).

The constructivist researcher intends to interpret others' outlook of the world by making use of open-ended questions so that participants can share their views (Creswell, 2014:8). This worldview is typically seen as a research approach to qualitative research. The philosophical assumption aligns with the case study since it follows a subjective approach with necessary interaction between people to gain an in-depth understanding of the context.

When considering the type of study (referring to Table 1-4) the majority of the research design, Phases A-C, is qualitative research, in addition to rating the indicators in phase D which aligns with a quantitative approach. Therefore, the researcher will also rely on her previous scientific research background which reflects a post-positivism worldview, used in quantitative research and based on theory. The post-positivism researcher collects information used as data or evidence on instruments based on measures completed by the participants (Creswell, 2014:7). Validity and reliability are also important for qualitative research (Creswell, 2014:8).

2.2.2 Research approach

The second element of Figure 2-2 is the research approach and includes a qualitative, quantitative and mixed method (Creswell, 2014:3). Qualitative and quantitative should not be viewed as distinct categories but instead, as the study tends to be more qualitative than quantitative or *vice versa* (Creswell, 2014:3). Conversely, mixed methods include both qualitative and quantitative approaches (Creswell, 2014:3). Even though the basic distinction between qualitative and quantitative research is, using non-numerical data and using numbers respectively, a more comprehensive way to view the differences is by observing philosophical assumptions, types of research designs and specific methods employed (Creswell, 2014:4).

For this study, a qualitative research design was implemented in Phases A-C while Phase D has a quantitatively ranked list included (See Table 1-4[6]). However, the results are qualitatively measured as part of the entire process of evaluation. Baškarada (2014:1) describes the qualitative research approach as "Understanding a research problem through interpretation and contextualisation of the realities and beliefs of people due to the qualitative assumption that social reality is human creation". The research approach was adopted due to the limited number of studies in the South African context and the lack of previous research done on this subject. Table 2-2 discusses the characteristics of qualitative research.

Table 2-2: Characteristics of qualitative research

1. Natural setting	Collect data at the site of the research, face-to-face interaction.
2. Researcher as a key instrument	A qualitative researcher collects the data themselves through examining documents, observing behaviour interview participants.
3. Multiple sources of data	Such as interviews, observations, documents, audio-visual information. The researcher combines the data resources into categories and themes.
4. Inductive and deductive data analysis	Inductive process: The researcher comprises a set of themes by working backwards and forward between themes and databases. Deductive process: The researcher identifies more evidence from the data and literature that can assist the themes.
5. Participants' meaning	The researcher is focused on studying the participant's problem or issue.
6. Emergent design	The research process cannot be precisely arranged, as the different phases of the research and data collection process may transform after the researcher starts assembling data.
7. Reflexivity	Reflects how the background of the researcher holds potential for shaping the study.
8. Holistic account	Qualitative researchers try to develop a complex idea of the problem in the study, which includes reporting multiple perspectives and identifying many factors in the situation.

Source: Creswell, 2014:185.

The characteristics mentioned by Creswell (2014:185) will be applied to this case study. In qualitative studies, the research design is often considered concurrently at the beginning of a

[6] See Table 1-4 - Chapter 1; page 17.

research project (Bryman, Bell, Hirschsohn, Dos Santos, Du Toit, Masenge, Van Aardt & Wagner, 2011:42).

2.2.3 Justification of the research design

The third element of Figure 2-2 is the research design. This section informs the reader about the qualitative research design. After the researcher explored the research question and conducted a literature background, the next step is to decide on a research design. To justify the use of a qualitative research design in this study, the different types are constructed in Table 2-3.

Table 2-3: Types of qualitative designs

Narrative research	Narrative research is a design from humanities where the participant provides stories about their life, which is then retold by the researcher combining the views of the participant and the researcher.
Phenomenological research	This design has strong philosophical underpinnings and involves conducting interviews. The researcher describes the lived experiences through the eyes of those individuals.
Grounded theory	The researcher develops a theory based on data collected from the views of participants.
Ethnography	The researcher studies the shared patterns of behaviour, languages and actions of a cultural group within their community over a prolonged period.
Case studies	Case studies are a design of evaluation in which the researcher develops an in-depth study of a case, often a programme or event.

Source: Creswell, 2014:14.

The research design of this study is a case study. To reiterate, a case study enables the researcher to explore the subsurface of a single unit to holistically understand the larger group at a specific time or over a specific period (Baškarada,2014:1).

The single case study used in this study is *the intervention of a South African university literacy centre*. The specific case study was a good fit for the study as it provided an in-depth understanding of the issue researched (Creswell et al., 2007:239). The financial literacy intervention at a South African university was used as a vehicle to collect and confirm financial literacy indicators and to make recommendations towards adapting the content of the centre. Important to note is that the study sets out to develop a framework that can be generally applied to evaluate the effectiveness and impact of any similar financial literacy intervention.

Boodhoo and Purmessur (2009:6) argue that qualitative research is valuable to organisations as it provides a more realistic feel to studies that cannot be experienced in numerical or statistical power used in quantitative research. Boodhoo and Purmessur (2009:1) argue that even though quantitative research provides better findings due to its objective nature, qualitative research can be used to explore human attitude, behaviour and observing the nuances which cannot be quantified yet important to organisations. Qualitative research enables the study to include flexible methods of collecting, analysing and interpreting data. Primary data gives qualitative research a descriptive capability (Boodhoo & Purmessur, 2009:6).

The latter gives the justification of the research design and proves that qualitative and quantitative research approaches are complementary.

Bongini, Iannello, Rinaldi, Zenga, and Antonietti (2018:2) motivate that across studies, both performance test (knowledge-based) and self-reported methods have been employed to measure financial literacy. Self-reported tend to assess perceived knowledge (Bongini et al., 2018:2).

2.2.4 Research methods

The last element of the research framework is research methods. Qualitative methods include data collection (Table 2-4) analysis and interpretation (Table 2-5) (Creswell, 2014:17). The researcher's role is to collect data themselves through examining documents, observing behaviour and interviewing participants (Creswell, 2014:185). The data collection procedure includes purposefully selecting sites and participants that will best help the researcher with the research question (Creswell, 2014:189).

Moreover, the idea of saturation is considered for the number of participants involved in the study, meaning that the data collection stops when the categories or themes no longer reveal new properties (Creswell, 2014:189). The data collection procedure includes four basic types listed in Table 2-4.

Table 2-4: Qualitative data collection types

1. Observations	The researcher gathers field notes on the behaviours and activities of individuals at the research site. *Direct observation* is the observation of a situation without influencing or participating in any way. *Participant observation* is when the researcher participates in the community or situation being studied.
2. Interviews and surveys	Face-to-face interviews with participants, telephone interviews, open-ended surveys such as written questionnaires and focus group interaction. During *qualitative interviews*, participants can answer freely without the interviewer probing.
3. Documents	The documents include public and private documents, such as official reports and e-mails.
4. Audio and visual materials	Language-based method and includes photographs, sound, videotapes and film.

Source: Bryman *et al.,* 2011:42; Creswell, 2014:190.

For the case study analysis, all four qualitative data collection types are utilised since the researcher will observe the entire process to gather additional data points, semi-structured interviews will be held with the participants and with focus groups, researcher observations and fieldnotes and lastly, public documents from the financial literacy centre will also be used as data. Table 2-5 presents the various ways to analyse and interpret data to answer the research question and generate theories.

Table 2-5: Qualitative data analysis methods

1. Coding	Categorising noticeable themes, ideas and patterns in your data.
2. Statistics	After coding, summarising and analysing patterns, using descriptive statistics and correlation analysis.
3. Narrative analysis	Focusing on speech and content, such as grammar, word usage, themes and meanings of situations, and establishing the social, cultural and political contexts of the narrative.
4. Content analysis	Analysing printed or visual texts and documents to construct emerging themes and meanings by identifying, for example, frequencies of words.

Source*:* Bryman *et al.,* 2011:42

The remaining sections of chapter two are structured according to the six phases of the study as illustrated in Figure 2-3.

2.2.5 Validation of the research design

The quality of empirical studies depends on the validity of the study. Triangulation is ensured through qualitative validity and includes the examination of different data sources in this study. Types of validity include construct validity, internal validity, external validity and reliability (Baskarada, 2014:5):

2.2.5.1 Construct validity

Construct validity deals with concept operationalisation, that is, the process of defining concepts through a set of variables to develop a measurement through empirical observations. Yin (2009) provides some strategies for improving construct validity of case studies: numerous sources of evidence and an evidence trail. This study is embedded in multiple sources of data.

2.2.5.2 Internal validity

Internal validity is present in justifying causal relationships. Data source triangulation leads to improved internal validity. Regardless, data sources should be validated by continually evaluating cases against it. Internal validity is also enhanced by pattern matching. Pattern matching was utilised in the thematic analysis of this study.

2.2.5.3 External validity

External validity is emphasised in cases of generalisable findings. External validity also highlights the researcher's goal to expand and generalise theories and not enumerate statistical generalisation. This means that case studies are generalisable to theoretical propositions and tot to populations. This study refrains from generalisation as pointed out in the demarcation: The study is not claiming that the case study is generalisable for all South African university students.

2.2.5.4 Reliability

Reliability demonstrates that similar findings can be obtained by repeating the data collection procedure by standardising the investigation. All relevant documents of this study and an overview of the Financial literacy centre is saved on Atlas.ti and the process is documented in the Memo tool of the program.

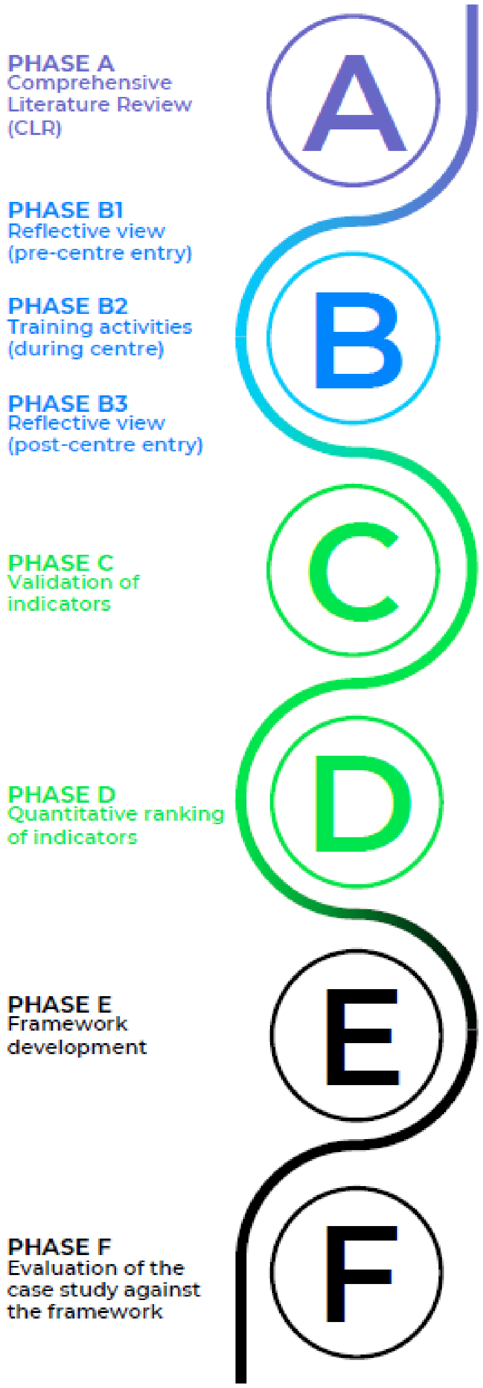


Figure 2-3: Research procedure phases
Source: Author's construction.

Section 2.3 discusses Phase A of the study about the Comprehensive Literature review (CLR). Phase B (Case study intervention with university students) and Phase C (Focus group contextualisation) are explained in Sections 2.4 and 2.5 respectively. Phase D (Quantitative ranking of indicators) is presented in Section 2.6. Lastly, Phase E (Framework Development) and Phase F (Framework application) conclude the chapter in Section 2.7

2.3 PHASE A: COMPREHENSIVE LITERATURE REVIEW (CLR)

Section 2.3 includes a background discussion of the CLR, followed by literature sampling and lastly method of data collection.

2.3.1 Background of the CLR and the seven-step model

The general research objective of the study is to develop a framework for measuring the content and impact of financial literacy interventions. As a starting point to evaluate the impact of financial literacy interventions, a comprehensive literature review (CLR) was employed to identify financial literacy indicators for an evaluation framework.

The methodology presents specific approaches and procedures used in the research design and data aspects such as data sampling, collection and analysis (Onwuegbuzi & Frels, 2016:65). In the same way, the comprehensive literature review represents a method of procedures and steps for identifying, comprehending and conveying literature relevant to a topic of interest (Onwuegbuzi & Frels, 2016:65). Onwuegbuzi and Frels (2016:56) propose a seven-step model for performing a CLR;

- Step 1: Exploring beliefs and topics of financial literacy.
- Step 2: Initiating the search for the CLR.
- Step 3: Storing and organizing literature on indicators.
- Step 4: Selecting and deselecting information on financial indicators.
- Step 5: Expanding the search to include one or more MODES (Media, Observation(s), Documents, Expert(s), Secondary Data).
- Step 6: Analysing and synthesizing the list of indicators.
- Step 7: Present the CLR report in Chapter four.

The CLR is in summary an in-depth literature review focusing on indicators used to measure financial literacy in a South African context and relevant to university students.

The financial literacy indicators identified in the CLR are presented in Chapter 4.

2.3.2 Literature sampling

The CLR utilised international and national sources from electronic journals, textbooks, and articles in related subjects. The search strategy included terms such as financial literacy, financial literacy interventions, financial literacy and students, financial literacy in South Africa, financial inclusion, human capital theory, life cycle theory, economic literacy, financial education, financial behaviour, financial knowledge and financial capability.

The main search tools were:

a. Online database: Through the library catalogue, electronic journals including: Sage Journal Online, Elsevier.
b. Web searches: Google Scholar, Google Books.

Table 2-6 discusses the inclusion and exclusion criteria when doing the initial literature search.

Table 2-6: Inclusion and exclusion selection criteria

Inclusion criteria	Exclusion criteria
Publication date from 2000 till present	Publication date before 2000
International and national accredited journals	Expensive article fees/ in cases of limited access to articles
English language	Other languages
Academic sources	Non-academic sources

Source: Author's construction.

The justification for the inclusion and exclusion criteria follows; The researcher focussed on more recent academic studies for the relevance of the problem statement. The study also includes international and national studies to give the reader a broad understanding of the studies measuring financial literacy and the gap in the research study. In cases where the articles were not easily accessible to the researcher, or the librarian could not give the researcher access, the article was excluded from the literature search. The English language allows the reader to communicate with almost any reader in the world and lastly academic journals contributed to credibility, transferability, dependability and confirmability.

2.3.3 Method of data collection

The methodology is an abstract process and needs some type of mechanism, or process, to bring it to fruition. This would be a meta-framework. Therefore, the CLR is a meta-framework, and the core of the meta-framework is the core of the Seven-Step Model, the cultural progressive approach that drives the literature review process (Onwuegbuzi & Frels, 2016:55).

The CLR process can be viewed as a data collection tool since the concept 'data' refers to a collection of information from different sources and the indicators collected from the literature review represents data (Onwuegbuzi & Frels, 2016:65).

2.4 PHASE B: PRE – AND POST INTERVENTION REFLECTION AUDIO RECORDINGS AND TRAINING

The outcome of Phase B1 and B3 is to generate a reflective view of the student's current perception of their financial literacy before and after training, respectively. In Phase B2 the students received important financial education through lectures and interactive games.

Section 2.4 includes four sub-sections about the case study, the role of the researcher, the study setting and sampling, data collection procedure and the case study analysis. The aim of a case study, as described by Harrison, Birks, Franklin and Mills (2017:6), is to conduct an in-depth analysis of a case, often a programme, activity or event to better understand the context from the perspective of the participants. The data collection procedure is bounded by time and activity and includes researcher generated data from observations, interviews and focus groups (Harrison et al, 2017:6).

2.4.1 Role of the researcher as observer

As explained earlier, qualitative research is interpretative research. A qualitative researcher collects the data themselves by examining relevant documents and observing the behaviour of interview participants (Creswell, 2014:185). With ethical concerns in mind, the researcher will observe the case study, practising a reflexive stance within the study, journaling each step of the process. The researcher should be explicit, comment on connections between the researcher and participants that may influence the interpretations and indicate steps taken to obtain permission to protect the rights of human participants (Creswell, 2014:188).

As far as the human rights of the participants are concerned, the researcher obtained an ethics reference number as well as signed informed consent letters from participants before the intervention (see Appendix C). Participants understood that they also benefitted from the intervention as they increased their human capital. Essentially, the researcher’s perception and interpretation are also a data source and as a result, a subjective and interpretive orientation flows throughout the inquiry.

2.4.2 Study setting and sampling

The setting of the research study is at a literacy centre, on a South African university campus. The centre is equipped with all the necessary resources for the training phase (Phase B2) of the study. Furthermore, secure permission was gained from the Research Data Gatekeeper Committee (RDGC) to enter the research site.

The centre is located on university grounds and for practical reasons, convenient sampling was applied. The research study also had time constraints and convenient sampling allowed data collection to be facilitated in a short duration of time, in addition, the research sample is also readily available and accessible for the researcher.

The financial literacy training was scheduled by using timeslots to determine a date and time, furthermore, the training lasted approximately 90 minutes. According to Amagir et al, (2018:74) short and narrowly defined programs are appropriate to reach and motivate college students and affordable for college educators.

Before the training, a reflection audio with questions about the student's current perception of their financial literacy was recorded. After the financial literacy training, a reflection audio with similar questions was asked to recognise a perception change. An independent group facilitator facilitated the audio recordings of the pre-and post-intervention interviews, whilst the researcher observed from a distance.

The voluntary participation in the financial literacy training was advertised on an e-learning platform. The study aimed to include students from all faculties to improve the representation of university students in general. The faculties include Economic and Management Sciences, Education, Engineering, Health Sciences, Humanities, Law, Natural and Agricultural Sciences and Theology. Six of the eight faculties of the university concerned were represented. Due to limitations presented by Covid-19, only the faculties of Engineering and Law were not represented. Due to limitations presented by Covid-19, only the faculties of Engineering and Law were not represented. See Table 2-7 for the inclusion and exclusion criteria for the research population.

Table 2-7: Inclusion and exclusion criteria for the research population.

Inclusion criteria	Exclusion criteria
Undergraduate and postgraduate students.	Any individual not studying at the South African university.
Students ≤ 28 years of age.	Distance learners.
Students studying at a specific South African university.	Students that are not allowed back on campus grounds due to Covid-19 restrictions.
Students from all available faculties.	Refusal of informed consent.

Source: Constructed by author.

The study sample size included 30 participants from which the distribution by faculty is indicated in brackets. For the faculty of Economic and Management Science (18), Education (2), Engineering (0), Health Sciences (5), Humanities (2), Law (0), Natural and Agricultural Sciences (2) and Theology (1).

2.4.3 Data collection procedure

To re-emphasise, case study researchers use a wide variety of sources for evidence, this includes written and visual documents, field notes and recordings and archival records. Some case evidence includes qualitative data, such as surveys (Bryman et al., 2014:357).

Yin (2009:118) constructed a well-organised database to support and enhance the reliability of a study:

1. Notes – Handwritten or typed notes and audio recordings.
2. Documents – Physical or electronic documents should be included in an annotated bibliography to facilitate cross-referencing.
3. Tabular materials- Qualitative summaries of observations or results from surveys.
4. Narratives – Reflection of the researcher after each phase of the case study.

The data collection of the case study is shown in Table 2-8 and includes data collected before, during and after the financial literacy intervention.

Table 2-8: Data collection procedure

Pre-intervention	During intervention	Post-intervention
• Demographic surveys. • Pre-intervention reflection audio-recording (Phase B1). • Qualitative public and private documents.	• Researcher field notes on the behaviour and attitude of the participants. • Written communication: Who influences the way you perceive money? • Four interactive games; the Millionaire game, Budget game, Savings and Credit game (Phase B2).	• Written communication: Has your perception and attitude changed after the financial literacy training? • Researcher field notes on the general feeling of the group about the experience in the centre and the content of the games. • Post-intervention reflection audio-recording (Phase B3). • Focus group interviews (Phase C) and rating of indicators (Phase D). (See Section 2.6)

Source: Author's construction.

As far as the data collection before the intervention is concerned, the demographic survey was designed on Survey Monkey® and was sent to the respondents to complete before entering the financial literacy centre (see Appendix A). Qualitative documents of the financial literacy centre were also shared with the researcher via Google Drive.

With regards to the data collected during the intervention, all written unstructured and semi-structured field notes and reflections from the researcher were collected for additional data points. The field notes included the physical site where the intervention was held, the time and date along with the sociodemographic characteristics of the participants. In addition, the field notes included the participants and the researcher's attitude as well as quotes from participants that caught the researcher's attention. Field notes were also compared to the focus group discussion transcriptions.

The proceedings in the financial literacy centre followed a three-step process. Firstly, the participants received a brief introduction to the centre, as well as a lecture on important financial principles. Secondly, the participants proceeded to the computers to receive teaching through interactive games and lastly, the participants had a feedback session.

During the intervention, the participants were asked to write down who influences the way they perceive money. The social learning theory brought a rich lens to the research that cohered well with the research design of the study (see Chapter 3). Afterwards, the interactive financial games determined the financial literacy level of the participant. Each interactive game is scored out of 100 points (See Appendix D for the interactive game questions).

The final data sources post-intervention included written communication about perception change, feedback on participant experience, post-reflection interviews and focus group interviews (see Appendix B). The use of various data sources in the research study strengthened the validity of the research findings.

2.4.4 Case study analysis

The aim of a case study, as described by Harrison et al., (2017:6), is to conduct an in-depth analysis of an issue to better understand the context from the perspective of the participants. The researcher sought to interact with the participants to generate data. Usually, the methods used to facilitate the latter includes observations, interviews and focus groups (Harrison et al., 2017:6).

Creswell (2014:196) suggests a six-step hierarchical approach to thematic analysis. Figure 2-4 illustrates the linear and interrelated stages of analysing qualitative data.

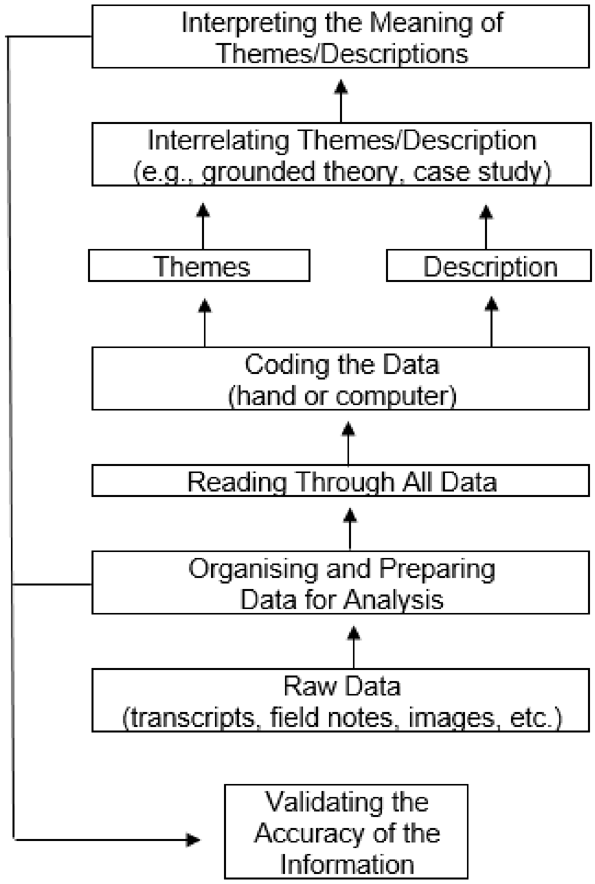


Figure 2-4: Interactive stages of thematic analysis
Source: Creswell, 2014:197

a. Step 1: Transcribe and organise raw data (field notes, interviews, visual material) for analysis.
b. Step 2: Reading through all data and collecting general ideas and thoughts.
c. Step 3: Start coding and segmenting all the data.
d. Step 4: Use the coding process to generate detailed descriptions for the case study such as themes and build additional layers of complex analysis (perhaps five to seven themes for a research study).
e. Step 5: Present the themes in a qualitative narrative (convey description information about each participant in a table).

f. Step 6: Interpret the qualitative research of the findings and compare findings with theories and the general literature on financial literacy.

Prior to coding the case study data, the study paradigm should be considered (Bryman et al., 2014:357). The study paradigm can be a deductive approach relying on theoretical propositions or developing a description of the case (Yin, 2009:118). Accordingly, the case study formed the basis for research questions and an analytic framework to emerge inductively to organise the case (Bryman et al., 2014:357).

Thematic analysis was utilised as the qualitative data analysis method in this study. A thematic analysis aims to identify and analyse themes across the data set and is more suited to investigating meaning in context (Bryman *et al.,* 2011:350). Thematic analysis can be conducted inductively or deductively (Bryman *et al.,* 2011:351). The researcher identified themes from the data without trying to fit them into a pre-conceptualised theoretical framework, the analysis was approached inductively compared to the deductive approach where the analysis is guided and informed by themes identified in previous research on the topic (Braun & Clarke, 2006:87). Yin (2009:121) employed five analytic techniques:

- Pattern matching: This includes comparing patterns in the empirical data with one or several alternatives, predicted from the theoretical literature.
- Explanation building: Type of pattern matching to establish causal links in the empirical data.
- Time-series: Presents a chronological sequence of events to track changes over time.
- Logic models: Focuses on a complex chain of events over some time to identify cause-effect-cause-effect patterns.
- Cross-case synthesis: Used in multiple case studies to treat each case alone.

ATLAS.ti assisted in documenting the case study and focus group data. ATLAS.ti serves as a container for the project's documents, coded segments, codes, memos, hyperlinks, groups or networks and supports raw data, such as field notes from observations, reflective notes whereby the researcher documented ideas, thoughts and concerns and coding participant nuance. The audio-recording interviews and focus group discussions were also analysed in ATLAS.ti.

2.4.4.1 Coding practices in ATLAS.ti

The coding practice in ATLAS.ti consists of categorising or grouping similar elements (Friese, 2019:69). Coding in a technical sense means assigning a label to a data segment (Friese, 2019:70). A code can be a concept, description or single word (Friese, 2019:104). Essentially, codes are grouped to form tentative categories (through memo writing) and finally, categories are grouped to form main themes. The emerging themes are discussed in Chapter five.

The aim of coding the interviews was to identify (i) the perception of financial literacy, (ii) perception change and (iii) financial literacy indicators.

2.4.4.2 Memo writing in ATLAS.ti

Memo writing in ATLAS.ti can be used as a tool to capture ideas and write the findings chapter (Charmaz, 2014:163). Memo writing also provides a link between codes, categories and evidence on how themes were developed (Friese, 2019:124).

2.4.4.3 Theoretical saturation

Theoretical saturation is when the gathering of data does not produce new insights in the main categories (Charmaz, 2014:213). To achieve saturation, sufficient data should explain the properties of the main categories (Charmaz, 2014:213). Theoretical saturation emerged from triangulation and different data sources confirmed the findings used to develop the framework.

2.5 PHASE C: FOCUS GROUP CONTEXTUALISATION

In Section 2.5 the method of expanding the literature search to include one or more MODES (Media, Observation(s), Documents, Expert(s), Secondary Data) was discussed and includes focus group sampling, data collection and contextualisation. The purpose of Phase C is twofold; the subject matter experts help to evaluate the indicators identified in the CLR, identifying indicators that should be added to the content checklist, and those that can be omitted (from a practical, South African perspective). Secondly, the participants contribute their views and perceptions on the content which is also utilised provided an interactive perspective on the student experience and content of the training.

Focus groups are defined by Yin (2011:309) as “A form of data collection whereby the researcher convenes a small group of people having similar attributes, experiences, or focus and leads the group in a nondirective manner. The objective is to surface the perspectives of the people in the group with as minimal influence by the researcher as possible.”

Focus groups have attained unprecedented popularity with researchers (Barbour & Schostak, 2005:41). The increasing use is justified by the access group models that offer insights into the formation of views which cannot be willingly attained with one-on-one interviews (Barbour et al., 2005:42). Besides, moderators also have an opportunity to observe how individuals react to others’ views and seek to defend their views (Barbour et al., 2005:42).

2.5.1 Focus group sampling

Similarly, to other types of data, the nature of focus group data analysis should be determined by the research question and the aim for which the data is collected (Stewart, Shamdasan & Rook, 2007:109). Therefore, the purpose of Phase C is the collaborative input of focus group members to contextualise the financial literacy indicators identified in the literature study.

A focus group should not exceed six or seven (maximum eight) participants and should not be fewer than three members (Adams et al., 2008:24). The reason for these restrictions is as follows; too large groups will be subdivided into smaller groups and too small groups can limit the conversation and in-depth views (Adams et al., 2008:24). A homogeneous focus group is also favoured since the focus group will find it easier to talk to each other (Adams et al., 2008:24). The focus groups were divided into an inclusion group (students who previously received training and participated in the intervention) and an exclusion group (i.e. subject matter experts (SMEs) in the field).

The purpose of the internal and external group is that each individual in the specific group can represent a particular demographic, lifestyle or attitudinal segment, which encourages within-person rather than across-person analysis (Stewart et al., 2007:116). Random assignment was used to determine who forms part of the internal knowledge focus group and might involve tactics such as flipping a coin, drawing names out of a hat, rolling dice, or assigning random numbers to participants.

The external focus group used the sampling technique, purposive sampling where the researcher identified respondents who can best answer formulated questions, ultimately those sampled are relevant to the research questions. In qualitative research, the researcher is focused on studying the participant's problem or issue (Creswell 2014:185).

The purposive sampling technique is a non-random technique, which deliberately chooses a respondent or participant due to the qualities the participant possesses (Etikan, Musa & Alkassim, 2016:2). The technique does not need any underlying theories or a set number of participants (Etikan *et al.,* 2016:2). Purposive sampling techniques is the most proper utilisation of available resources (Etikan *et al.,* 2016:2). The researcher sets out to find participants who are available and are willing to provide information by virtue, knowledge or experience (Etikan *et al.,* 2016:2).

The students were randomly selected by rolling dice (random assignment) and the SMEs were chosen based on their experience and field of work (purposive sampling). The focus group discussions were transcribed by Otter.ai and exported to ATLAS.ti to be analysed for coding. The use of different sources of data strengthened the comprehensive understanding of the data as well as increased the validity of the data.

Bearing in mind that the focus groups are not the only data source of the study, triangulation rather than data saturation is relevant. To re-emphasise, the purpose of the focus groups was to confirm and rank the financial literacy indicators identified in the CLR.

2.5.2 Data collection procedure for focus groups

The focus group data consisted of an online-based co-creation of knowledge from both internal knowledge providers (students who received training) and external knowledge providers (SMEs in the field) as well as hand taken notes and interviews. The focus group members were informed about the guidelines and opening questions (See Appendix B).

Focus group members were contacted through email and a date and time were scheduled depending on different time slots. The focus group discussions were scheduled using time slots that best fit the participants two weeks after the financial literacy training. It is expected to last approximately an hour. The focus groups were held virtually via an online platform, Zoom, and the size was four members for each group in total.

The focus group discussions were recorded and transcribed using Otter.ai, which documented a permanent written record of the recordings and assisted the basis for additional analysis.
Each focus group is dynamic and needs a moderator to manage it (Adams & Cox, 2008:17). The role of the moderator in a focus group is to facilitate the discussion of several topics and to record the data (Adams & Cox, 2008:24).

The researcher also reflected on the entire process of this study as a source of evidence and additional data. Morgan (2002:141) points out that focus groups do not only explore the views of individuals but also provide insights into complex behaviours and motivations of the group.

2.5.3 Verifying indicators

Financial literacy indicators were identified in Phase A to evaluate the impact of an intervention. The framework of indicators provided a structured foundation as well as an evaluation component for human capital investments. Validity is used to evaluate the quality of research and the accuracy of a measure (Middleton, 2019). Validation occurs throughout the steps in the research process (Creswell, 2014:201). Qualitative validity is when the researcher reviews the accuracy of the findings by using certain measures, in this case, focus groups, while qualitative reliability indicates that the researcher’s approach is consistent (Creswell, 2014:201).

According to Bockstaller and Girardin (2003:639), any tool developed by research should be validated. Bockstaller and Girardin (2003:639) present three types of validation: “design validation” to evaluate if indicators are scientifically identified, “output validation” to assess the reliability of the indicator outputs and the “end-use validation” to ensure the indicator is a useful decision aid tool. Therefore, an indicator can be validated if it is scientifically designed, displays relevant information and is a valuable tool used by the end-users (Bockstaller & Girardin, 2003:641).

For this study, the type of validation best fit is “output validation”, to validate that the financial literacy indicators are relevant in practice (Bockstaller & Girardin, 2003:647). Students were chosen to participate in the focus group discussions to signify participant feedback as well as to verify the concepts taught in the financial literacy centre. The subject matter experts were chosen to participate in the focus group discussion to capture their judgement on the relevance of each indicator based on their knowledge and experience.

Focus group discussions commonly start with open-ended questions that seek to obtain participants' overall orientation toward a topic (Stewart et al., 2007:114). The focus group discussions commenced with two open-ended questions (See Appendix B), followed by commenting on the relevance, importance and implementation of the preliminary list of indicators in financial literacy interventions. The focus group discussions were held using Zoom software and lasted approximately an hour. A list of financial literacy indicators identified from the CLR was utilised as a data source (See Appendix B). From the focus group discussions, the confirmed list of financial literacy indicators was ranked according to importance in Phase D.

2.6 PHASE D: QUANTITATIVE RANKING OF INDICATORS

The quantitative ranking or weighting of indicators are not present in current literature (Béres & Huzdik, 2012:298). After identifying the content indicators in Phase A (CLR) and contextualising the indicators in Phase C, Phase D ranks the identified financial literacy indicators.

Each focus group member received a link to a Google Form questionnaire after the focus group discussions (see Appendix B), where the confirmed list of indicators can be ranked from first (most important) to fifth (least important). The results from the SMEs focus group and the student focus group were analysed to present the average importance of each indicator. The ranked indicators are used to evaluate the financial concept content of financial literacy interventions such as the training provided in the literacy centre.

2.7 PHASE E: FRAMEWORK DEVELOPMENT

After identifying practical indicators that measure financial literacy in Phase A, verifying the indicators by internal and external knowledge providers in Phase C and quantitatively rating the indicators in Phase D, a conceptual framework will be developed in Phase E to evaluate the impact of the financial literacy centre case study.

The practical contribution of this study is a conceptual framework to evaluate the content and impact of financial literacy interventions. The framework will provide a structured foundation as well as an evaluation tool for human capital investments that promote better decision-making, well-being, greater productivity and ultimately economic growth. The framework is focused on university students as the sample population and is motivated by next-generation well-being. Madikizela (2018:63) states that targeting university students will contribute to ensuring that the next generation is well-resourced and versed in finances.

There are different evaluation types: outcome and impact, cost-effectiveness and cost-benefit analysis, design evaluation and lastly implementation evaluation (OECD, 2010:8). Each type of evaluation has a specific type of focus (OECD, 2010:8). This study applied the evaluation type, “outcome and impact” to evaluate whether the programme has desired effects or unintended (positive or negative) effects (OECD, 2010:8).

Participatory action research (PAR) is an “outcome-and-impact evaluation” designed to answer the overall question “are we making a difference?”. Participatory action research (PAR) consists of three components; research, education and action and two objectives; create knowledge that results in direct impact, empowerment as well as action and knowledge creation processes (Botha, Van der Merwe, Bester & Albertyn, 2007:10). PAR is used as a development approach to facilitate the evaluation process and allows participant inputs and active involvement (Botha et al., 2007:10). The PAR was employed as a development methodology to assist in developing the conceptual framework and is presented as the outcome of the research study.

As mentioned in Table 1-4, curriculum integration which focuses primarily on the different disciplines and the diverse perspectives they bring to illustrate a topic, theme or issue. A multidisciplinary curriculum is one in which the same topic is studied from the viewpoint of more than one discipline” (International Bureau of Education, 2021).

Multiple sources of evidence strengthen this study and include; an extensive literature study, the pre-and post-intervention interview of students’ understanding of financial literacy, the training data, all documents and reports pertaining information of the financial literacy centre, contextualised and quantified indicator ratings, and the researcher’s reflection of captured data.

A conceptual framework measuring the impact of an educational programme should include practical indicators demonstrating impact. According to Birkenmaier and Maynard (2016:6), intervention studies should report at least one of the following outcomes: perception or behavioural change (money management, paying bills on time, emergency savings or having a budget) or change in use to a financial product or service (having a bank account, retirement fund or college savings account). The research study employed a non-experimental evaluation design, meaning a pre-post design commonly used to measure change.

2.8 PHASE F: EVALUATION OF THE CASE STUDY AGAINST THE FRAMEWORK

In Phase F the case study was evaluated against the framework of indicators. The evaluation components included the content of the intervention as well as the impact of the intervention aligned with the financial literacy indicators. Recommendation or adaption of the financial literacy centre content followed the application of the framework.

2.9 CONCLUSION

Chapter 2 set out to discuss the research method and procedure of the research study and more specifically the financial literacy case study. It is especially important to inform the reader about qualitative research methods and research designs since the approach have only become more prominent during the 1990s and into the 21st century (Creswell, 2014:13).

The introduction underlined the three elements of the research procedure, the philosophical worldviews, research design and research methods. This research study is embedded in a case study specific context; since the study is set out to evaluate the impact of the financial literacy centre at a university. The research design used in this study is a single case embedded case study. This means that the study will evaluate different groups within the same financial literacy intervention, for instance, students from different faculties.

Chapter 2 provided a detailed description of the research procedure and different phases implemented in this study to elucidate the problem statement and research objectives. The following chapter, Chapter 3, presents the Literature Review of the study and discusses relevant literature on definitions, theories and current studies about financial literacy.

CHAPTER 3
LITERATURE BACKGROUND

3.1 INTRODUCTION

The increased importance of financial literacy is motivated by the ever-changing and costly financial landscape. Financial literacy has become the research focus of economists and other academics (Allgood & Walstad, 2016:675). Financial literacy has a direct impact on the way individuals earn, manage, and spend their money (Shambare & Ruglmbana, 2012:582). Therefore, the welfare of individuals is heavily impacted by their financial decisions.

The 2008 global financial crisis has provoked global concerns for financial literacy and financial education (Boshara, Gannon, Mandell, Phillips & Sass, 2010:2). Similarly, the emergence of the 2019-nCov, Coronavirus pandemic, emphasised financial vulnerability (Mogaji, 2020:59).

These precarious periods underline the importance of sound financial decisions as they carry the consequences of unemployment, possible damaging effects on mental and physical health and vulnerability since individuals have little control over their immediate financial situations (Mogaji, 2020:59). The concept 'financial vulnerability' is best described as a feeling of being exposed to financial insecurity when individuals are not in a position to manage financial matters (Van Aardt, Moshoeu, Risenga, Pohl, & Coetzee, 2009; Mogaji, 2020).

During adverse financial situations, economic prospects such as economic growth, income distribution, unemployment rates, inflation, and market volatility all have an impact on the country's vulnerability (Mogaji, 2020:59).

As noted by Engelbrecht, (2008:1) financial vulnerability can be improved with increased levels of financial literacy. Effective financial literacy interventions can equip vulnerable individuals to better navigate complex financial systems (Robson, 2012:3). Even in an uncertain environment where factors are outside the individual's control, financial literacy interventions can help reduce risks associated with financial decisions as well as capture valuable consumer information to advise policymakers (Robson, 2012:3).

Financial education is a process by which consumers can improve their understanding of financial concepts and products and develop the skills to make informed decisions and improve financial well-being (Lusardi & Mitchell, 2007:1). The implication on financial education is that the financial literacy intervention participants should acquire a level of conventional literacy before participating in the intervention (Maconi, 2016:151).

According to Maconi (2016:41), financial literacy and the attainment thereof is dependent on conventional literacy, that is, the ability to read and write. Hence, without literacy, there is no financial literacy. Financial knowledge is difficult to acquire without basic literacy, therefore any individual participating in financial literacy interventions should be able to read and write (Maconi, 2016:41).

Financial literacy is particularly important in developed countries for avoiding risk, as well as for developing countries to benefit from recent global efforts to increase access to financial products and services (Calderone, 2014:1). Financial literacy interventions are a primary step towards financial inclusion, which creates awareness in financial products and services provided by financial organisations (Refera, Dhaliwal & Kaur, 2016:189).

Financial inclusion denotes financial services that are available to all individuals. Financial inclusion contributes to the community's financial literacy and reduces inequalities (Calderone, 2014:1). The government should have structures in place to protect the financially vulnerable and ensure financial inclusion (Mogaji, 2020:60). The need to evaluate financial literacy interventions has also been increasingly recognised with the Coronavirus pandemic since effective financial education allows individuals to account for events that may adversely affect their personal finances and financial decisions (Kurowski, 2021:2).

The question arises as to what needs to be done to improve the level of financial literacy. In addition, there is a need for research on the evaluation component of financial literacy interventions, investigating what difference it made in the overall financial behaviour of an individual (Fox, Bartholomae & Lee, 2005:203). Subsequently, evidence of the efficacy of financial education interventions in developing countries is needed (Calderone, 2014:2).

As was pointed out in the introduction to the research study, the comprehensive literature review (CLR) is Phase A of the research procedure. The chapter starts by explaining the various definitions, financial concepts and relevant theory in Section 3.2. Section 3.3 highlights the economic importance of financial literacy. Section 3.4 gives an overview of studies measuring financial literacy levels, including limitations. Section 3.5 concludes the chapter with a summary.

3.2 DEFINITION AND THEORETICAL BACKGROUND OF FINANCIAL LITERACY

This section provides an overview of the definition and theoretical background of financial literacy. The first part discusses the definition of financial literacy and different financial concepts. The second part moves on to describe the theoretical relationship between different financial concepts; the social learning theory, life cycle theory and the human capital theory.

3.2.1 Definition of financial literacy

Researchers have not reached a compelling consensus on the definition of financial literacy. Seventy-one financial literacy studies published between 2000 and 2010 were analysed by Huston (2010:297) and only 28% included a definition of financial literacy, from which 15% included some discussion beyond identifying the specific elements and 13% provided a formal constructed definition. As such, the definitions focused primarily on financial capability and knowledge (Huston, 2010:303).

The most basic definition of financial literacy reflects from the 1900s and relates to an individual's competency for managing money (Remund, 2010:279). Table 3-1 presents the simplest foundation for the financial literacy definition.

Table 3-1: Conceptual definitions of financial literacy

Conceptual financial literacy definition	Source
"The ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being"	The United States' President's Advisory Council on Financial Literacy (PACFL, 2008:10)
"Measuring how well an individual can understand and use personal finance-related information."	Huston (2010:306)
"Financial literacy is a measure of the degree to which one understands key financial concepts and possesses the ability and confidence to manage personal finances through the appropriate short-term decision making and sound, long-range financial planning, while mindful of live events and changing economic conditions."	Remund (2010:284)
"The possession of financial knowledge on interest rates, inflation, and risk diversifications, and numeracy skills."	Xu and Zia (2012:4).
"A consumer's ability to process economic information and make informed decisions about financial planning, wealth accumulation, pensions, and debt."	Lusardi and Mitchell (2014:2)
"A combination of awareness, knowledge, skills, attitude and behaviour necessary to make sound financial decisions and ultimately achieve financial well-being."	(OECD, 2013:7)
"A financially literate individual should have a positive attitude toward his/her (personal) finances and learning, the understanding to take control of his/her finances, the ability to discern good from bad financial decisions, and the skills to make it practical."	Louw, Fouche and Oberholzer (2013:440)
"Financial literacy is a form of human capital that includes knowledge and skills related to personal finances including mathematical ability, knowledge of financial instruments and financial theory, and the ability to apply knowledge effectively."	Finke and Huston (2014:1)
"One's capacity to make effective financial decisions, where capacity refers specifically to knowledge, skill and self-efficacy."	Warmath and Zimmerman (2019:1623)
"Financial literacy is the term for individuals who are well-versed in finance and can make beneficial financial decisions for themselves."	Meyers (2020:3)

Source: Authors own construction.

Remund (2010:279) reviewed research studies since 2000 and summarised the multitude of financial literacy definitions into five categories: knowledge of financial concepts, ability to communicate about financial concepts, ability to manage personal finances, skill in making appropriate financial decisions and confidence in planning effectively for future financial needs.

As the Financial Sector Conduct Authority report, financial literacy is a complex multi-dimensional concept of a few overarching concepts as discussed in Table 3-1. These are, capability (ability); knowledge; financial behaviour and financial decisions (choosing appropriate financial products and services) (Roberts, Struwig, Gordan & Radebe, 2018:8).

As a starting point to understanding financial concepts, the following subsections provide a brief overview of financial capability, - knowledge, -behaviour and -wellbeing.

3.2.1.1 Financial capability

Financial capability is defined by Xiao and O'neill (2014) as "a consumer's ability to apply financial knowledge and perform desirable financial behaviours to achieve financial well-being". A model by Robson (2012:6) divides financial capability into five distinct domains namely, making ends meet; keeping track; choosing products; planning ahead; staying informed/ getting help. Financial capability is also divided into three aspects, namely, related knowledge; attitude and behaviour. Table 3-2 describes the five domains together with each aspect for financial capability.

Table 3-2: Five domains and three aspects of financial capability

Domain	Making ends meet	Keeping track	Choosing products	Planning ahead	Staying informed/ getting help
Related knowledge	Understanding how to make ends meet	Understanding how to keep track	Understanding how to choose products	Understanding how to plan ahead	Understanding where to get information and help
Attitude	Motivation and confidence in making ends meet	Motivation and confidence in keeping track	Motivation and confidence in choosing products	Motivation and confidence in planning ahead	Motivation and confidence in getting information and help
Behaviour	Making ends meet in practice	Keeping track in practice	Choosing products well in practice	Planning ahead in practice	Staying informed and seeking help in practice

Source: Adapted from Robson, 2012:5.

The theory of capability by Sen (1999) postulates that people's choices reflect both their knowledge and their real opportunities within their lived environment. Similarly, Table 3-2 indicate that the link between financial literacy and financial capability since financial literacy is the ability to act on financial knowledge and financial capability includes financial knowledge with the opportunity to act (Aprea *et al.,* 2016:6). The term financial literacy, however, lacks the external factor of the opportunity to act through financial inclusion (Cera, Khan, Mlouk & Brabenec, 2021:1270). Financial interventions allow individuals to develop capabilities and ensure that individuals can understand, assess and act in their best financial interest (Johnson & Sherraden, 2007:123). Financial capability is influenced by an individual's confidence and can be elucidated as a mindset or attitude about the individual's financial affairs and decisions (Arifen, 2018:90).

An individual with financial capabilities has the confidence to make sound financial decisions. In the same way, improved confidence in an individual increases financial capability (Cera et al., 2021:1270). Confidence is a significant predictor of behaviour across all financial knowledge level groups (Asaad, 2015:102).

3.2.1.2 Financial knowledge

Theoretically, financial literacy represents financial knowledge in the form of investment in human capital (Lusardi & Mitchell, 2014:6). Every individual has an endowment of capital, that is, the human capital or talent with which they are born with. Successively, individuals with greater endowed human capital will invest more in themselves compared to others (Mielitz, MacDonald & Lurtz, 2018:318).

Lack of financial knowledge and poor financial decisions can lead to financial trouble in an individual's lifetime and spill over to their family and the rest of the economy (Mitchell & Lusardi, 2015:8). Investing in financial literacy is not without cost. However, the investment is likely to have high returns and will not only benefit the economically vulnerable, but also society at large (Lusardi & Mitchell, 2017:8). Furthermore, having financial knowledge is essential to make sound financial decisions that contribute to financial well-being (Philippas & Avdoulas, 2020:360). An individual with more financial knowledge faces a lower cost of thinking beneficially about retirement (Delavande, Rohwedder and Willis, 2008:3).

Confidence in financial knowledge is better known as perceived financial knowledge and reflects a self-perceived level of financial literacy (Asaad, 2015:102). A considerable amount of literature suggests that an individuals' actual and perceived financial knowledge influences financial decisions (Kyrychenko & Shumb, 2009; Parker, Bruin, Yoong & Willis, 2011; Allgood & Walstad, 2013). Asaad (2015:102) argues that self-perceived knowledge or confidence is good, but not in situations where confidence exceeds actual financial knowledge.

Asaad (2015:104) explains that overconfidence is a positive illusion for most financial decisions, but harmful in risky financial decisions. Furthermore, when actual financial knowledge is low and perceived financial knowledge is high, individuals are more likely to engage in risky and costly financial behaviours (Asaad, 2015:104).

3.2.1.3 Financial behaviour

The OECD (2013) points out that financial behaviour is an important component of financial literacy. Positive financial behaviour includes appropriate planning for expenditures and financial management (Kostini & Raharja, 2020:133; Atkinson & Messy, 2012:40). More recently, literature shifted to decision making related to financial management that is measured by the dimensions of overconfidence, problem-solving and risk perception (Kostini & Raharja 2020:133). Negative financial behaviour is assumed when an individual depends on credits and loans that weaken their financial well-being (Atkinson & Messy, 2012:48).

Sages and Grable (2009:64) concluded that individuals with a lower risk profile face difficulty with financial decisions and, in essence, their financial management competency. The latter underpins the relationship between financial attitude and financial behaviour (Rai, Dua & Yadav, 2019:53).

Interestingly, women manage their money better, with budgets and keeping track of their finances, compared to men. However, they lack financial knowledge, which affects their financial behaviour (OECD, 2013). According to Bonga and Mlambo (2016:31) improving financial literacy can result in a long-term behavioural change for women.

Lastly, Rai, Dua and Yadav (2019:53) stated that government initiatives should focus on building financial behaviour and attitude together with financial education to improve an individual's financial literacy.

3.2.1.4 Financial well-being

Brüggen, Hogreve, Holmlund, Kabadayi and Löfgren (2017:229) define financial well-being as: "The perception of being able to sustain current and anticipated desired living standard and financial freedom". The definition is subjective as it focuses on the individual's perceived financial well-being rather than how it is objectively denoted. It also has a time dimension meaning that it includes the current and future situation (Brüggen *et al.,* 2017:230).

This is motivated by a future-based assessment, which implies that anticipated financial well-being is affected by an individuals' behaviour in the present (Brüggen *et al.,* 2017:230). Also, the time dimension of financial well-being is dynamic since the evaluation of an individual's financial well-being can change over time (Brüggen *et al.,* 2017:230). Considering the life cycle theory explaining the different stages an individual goes through in life, it is important to note that an individual's assessment of their well-being will change in each stage of the life cycle (Brüggen *et al.,* 2017:230).

The concept 'desired living standard' in the definition refers to a preferred quality of life, subsequently maintaining a specific living standard is closely related to financial behaviour and attitude (Brüggen *et al.,* 2017:230). Finally, the importance of financial freedom is emphasised in the definition since it implies that an individual can make financial decisions about necessary expenses without financial constraints (Brüggen *et al.,* 2017:230).

An array of literature studied the relationship between financial literacy and financial well-being. Hogarth (2006) and Shim, Xiao, Barber, and Lyons (2009) indicate financial literacy, financial knowledge and financial behaviour impact financial well-being (Philippas & Avdoulas, 2020:362).

Chan, Chau and Kim (2012) found a significant relationship between good financial management and financial well-being. Correspondingly financial literacy is significantly and positively related to retirement planning and private pension funds (Klapper & Panos, 2011). Moreover, an increase in financial literacy is positively correlated with financial contentment, which converts into financial well-being (Joo & Grable, 2014) (Philippas & Avdoulas, 2020:362).

Financial literacy is necessary for the financial well-being of society and especially for young adults off to university since they assume full responsibility for managing their finances and make life-shaping financial decisions that affect all aspects of their financial futures (Breitbach & Walstad, 2016:81).

Financial well-being is relevant and important to theorists and policymakers for its multifaceted application (Mahendru, Sharma & Hawkins, 2020:1). Financial well-being is used as a measure of the success of economic prosperity by governments and policymakers, for decisions regarding new products, market segmentation and market entries by companies and for preparing lending policies of financial institutions according to customer financial well-being (Mahendru et al., 2020:1). Consequently, consumers want to improve their financial well-being to attain eligibility and improve their quality of life in the socio-economic environment (Mahendru et al., 2020:7).

The concept of 'financial inclusion' denotes financial services that are available to all individuals and contributes to equal opportunities and reduce inequalities (Calderone, 2014:1). To further operationalise, financial inclusion means providing affordable and suitable financial services to all people of working age to ensure inclusive economic growth and development (Refera, Dhaliwal & Kaur, 2016:6).

Financial inclusion is important for improving living standards; therefore, individuals should be able to have access to and understand financial products that meet their needs (Mogaji, 2020:61). Governments and policymakers have encompassed financial literacy interventions to address low levels of financial literacy (Harrison, 2016:2).

Financial education and financial inclusion are determinants of an individual's financial well-being (Birkenmaier & Maynard, 2016:2). The World Bank identifies two elements, financial education and access to financial products and services, as essential for interventions to be targeted and relevant (Birkenmaier & Maynard, 2016:2). Financial interventions are an effective way to motivate economic consumers to engage in desirable financial behaviours and make it possible for policymakers to affect financial well-being (Brüggen *et al.,* 2017:231).

Furthermore, the whole community benefits from the social capital of consumers, since an individual surrounded by knowledgeable people positively impacts his/her financial well-being and consequently increases the financial well-being of community members (Mahendru et al, 2020:11).

Collectively, the definitions of financial literacy, - capability, -knowledge and wellbeing, together with the theoretical background of how individuals acquire financial literacy (Sub-section 3.2.2) provide important insights into the study.

3.2.2 Theoretical background

The theories provide an overview and better understanding of how individuals obtain stocks of financial knowledge to make financial decisions and who influences their ability to manage financial matters.

3.2.2.1 Social learning theory

The ability to manage financial matters is dependent on parental experiences or influenced by people in your surroundings (Vovchenko *et al.,* 2018:18). The theory underlying the latter is the social learning theory of Maloch and Deacon (1966) that suggests individuals learn through their interactions with their environment, especially from those with whom they spent time within the early years of life (Jorgensen, 2007:47).

The social learning theory is especially useful to describe the impact of students over the years as their home environment has an important influence on financial literacy development (Jorgensen, 2007:5). Through social and environmental interaction, such as family, friends, community and social media, university students begin to form financial behaviour, knowledge and attitude (Jorgensen, 2007:6). Table 3-3 further operationalises the financial literacy definition by explaining how an individual acquires and deploys financial knowledge to undertake complex financial decisions and economic calculations (Lusardi & Mitchell, 2014:7).

Table 3-3: Conceptual characteristics of financial literacy

Conceptual characteristic	Implication
Congenital	The ability to estimate personal income and expenditure as well as to manage finances and rely, as a rule, on parental experiences.
Acquired	The ability to adopt methods of personal finance management from people in your surroundings, for example, work or university.
Rejected	The term explains the rejection of knowledge as a subconscious consequence of entering an independent life and making decisions.

Source: Vovchenko, Danchenko & Kostoglodova (2018:18).

Table 3-3 explains that financial literacy can be congenital (influenced by parents), acquired (influenced by surroundings/environment) or rejected (independent decisions) (Vovchenko *et al.,* 2018:18). As noted by Lusardi and Mitchell (2009:2) financial literacy is strongly correlated to sociodemographic characteristics, such as gender, ethnicity and race, and family financial sophistication.

Hira (2016:505) points out that most human behaviour is learned by observing others and the important role of parents, as their children learn by observing the behaviour of their parents. Financial literacy in middle-income households is a well-known concept as parents educate their children about personal financial welfare, whereas children of lower-income households rarely learn the consequences of poor financial decisions (Meyers, 2020:7). This means that parental financial knowledge correlates positively to an individual's financial literacy more than formal education (Meyers, 2020:7). Therefore, if one generation of young adults can be impacted, the positive influence will be passed over to their children (Meyers, 2020:7).

Deacon and Firebaugh (1981) developed a family resource management model to explain individuals' financial behaviour and decision-making processes (Jorgensen, 2007:5). Jorgensen (2007:6) combined the social learning theory with the theoretical framework of family resource management in a way that considers environmental influences. Figure 3-1 illustrates the four stages of the model namely, inputs, throughputs, outputs, and feedback loop.

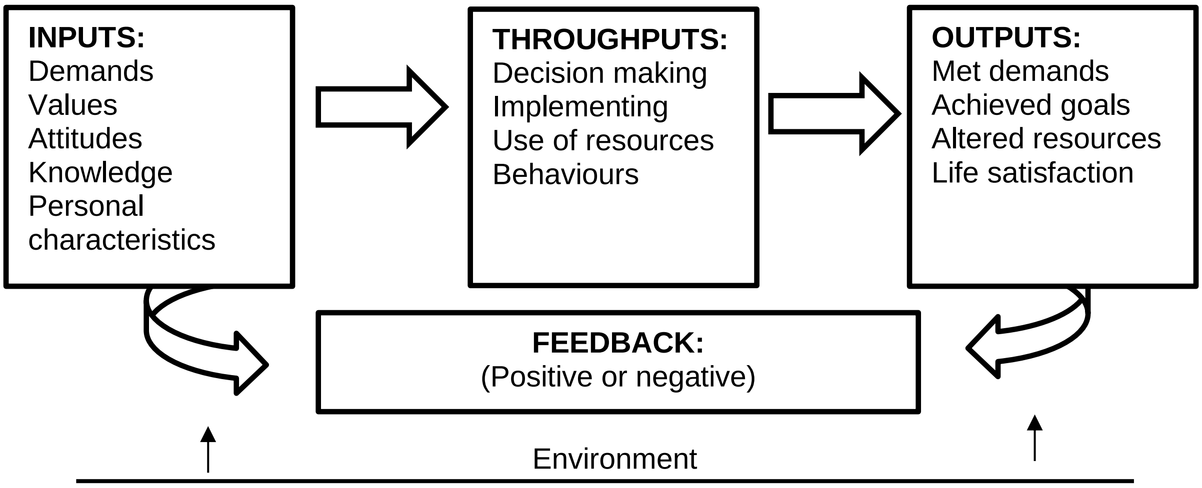


Figure 3-1: Family resource management model

Source: Jorgensen, 2007:6.

The input or first stage of the model reflects the resources and demands of individuals at any given time. Demands include life goals, marriage, education, finances, or relationships. University students will develop wealth through environmental influences such as financial knowledge, financial attitudes and personal characteristics (Jorgensen, 2007:7).

The second stage, the throughputs section, focuses on decision making based on individual demand with available resources. Throughputs are viewed as the student's financial behaviour and include planning, implementing, decision making and communicating (Jorgensen, 2007:7). Resource inputs enter the throughputs and emerge as increased knowledge, better attitudes or achieved goals (Jorgensen, 2007:7).

The next stage is the output section. Outputs are the realised result and reflect whether demands were met. Lastly, both positive and negative feedback is continuously used in all stages of the model, which allows the process to happen again with new resources (knowledge) (Jorgensen, 2007:8). The four stages of the model, input, output, demands and feedback loop, can be easily applied to understand the decision-making process of an individual (Hira, 2016:5).

Financial behaviour is influenced by available resources (attitude, knowledge) and available resources increase with environment interaction such as parental and peer influences. Parents tend to have a greater influence on students at a younger age while peer influence increases at an older age (Jorgensen, 2007:9). Figure 3-2 illustrates the two key environmental influences that impact university students' financial inputs as parents and peers.

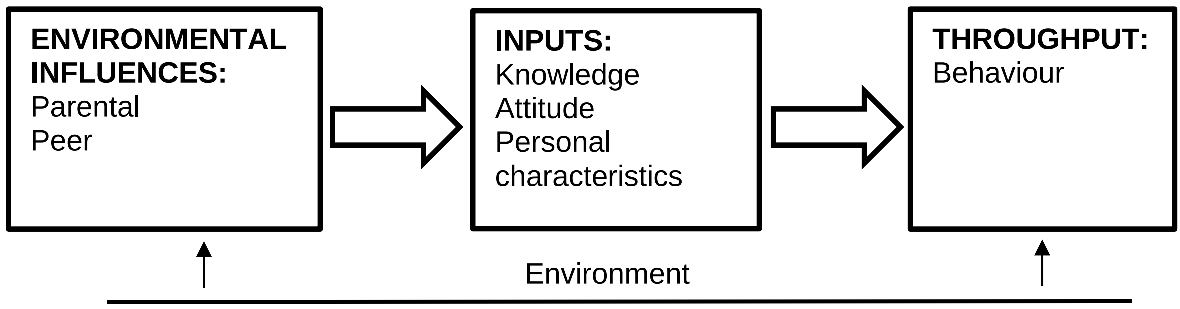


Figure 3-2: Family resource management model and environment influences
Source: Jorgensen, 2007:6.

The relationship between financial literacy and social structure is a noticeable feature. Béres and Huzdik (2012:301) summarised and compared the characteristics of low and high levels of financial literacy in Table 3-4.

Table 3-4: The demographic characteristics of financial literacy

Low financial literacy	High financial literacy
Women compared to men	Men compared to women
Low-level schooling and unskilled workers	Degree
Individuals younger than 24 and over 74	Individuals between the ages of 45 and 59
Low-income level	High-income level
Unexperienced in field	Experienced in field
Persons with little or no savings	Persons with high levels of savings
Workers in the agricultural sector	Business owners
Single persons, minorities and immigrants	Couples without children

Source: Beal and Delpachitra (2003), Lusardi and Mitchell (2007), Hung, Meijer, Mihaly & Yoong (2009).

According to the authors, the majority of research conducted on financial literacy contains demographic segmentation (Béres & Huzdik, 2012:300). Béres and Huzdik (2012:301) argue that financial literacy should not be measured independently of demographic characteristics. The relevant differences will serve as a basis for the data analysis.

3.2.2.2 Life cycle theory

In the present-day financial environment, making the wrong financial decisions early in life can be costly. University students often find themselves carrying large amounts of student loans and debt, hindering the accumulation of wealth, causing anxiety, and influencing major labour decisions (Lusardi, Mitchell & Curto, 2010:1). University students should be equipped with the financial skills to have a well-informed starting point for their personal financial choices throughout their adult lives (Meyer, 2020:3).

Lusardi and Mitchell (2011:377) argue that it is difficult to evaluate the effectiveness of financial literacy among university students due to the life cycle theory of saving. Specifically, the microeconomic approach to saving and consumption suggests that a fully rational and well-informed individual will consume less and save more in times of high earnings to support consumption when income decreases, for instance after retirement (Lusardi & Mitchell, 2014:6).

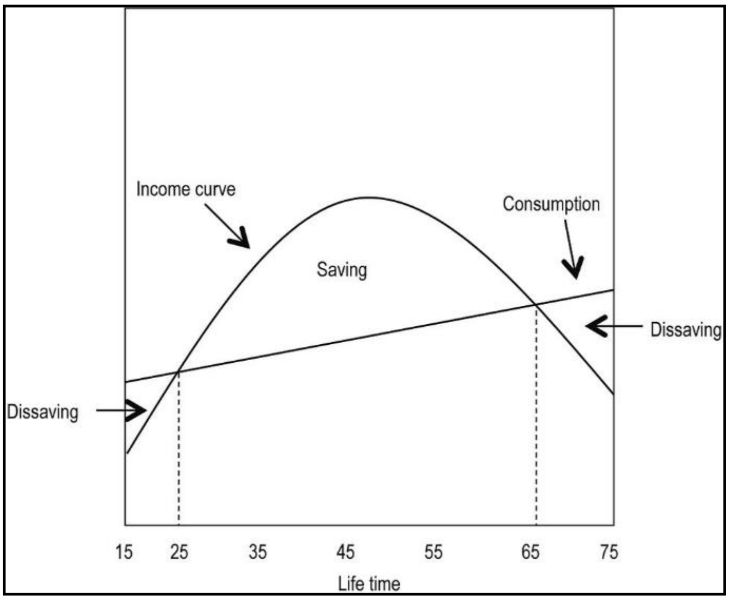


Figure 3-3: The life cycle theory
Source: OECD *iLibrary*, 2020.

The life cycle theory of Friedman and Kuznets (1945) explains how individuals consume and save over their entire lifetime, by earning and accumulating wealth and dissaving when they retire and assumes all individuals choose to maintain stable lifestyles (Lusardi & Mitchell, 2011:377). Figure 3-3 presents the life cycle theory hypothesis. The ages 15 - 25 is considered an individuals' younger years in which more money borrowing transpires whilst they study in anticipation for future earnings (OECD *iLibrary*, 2020).

Subsequently, during their working life, they pay off the debt incurred in their youth and save for their retirement (OECD *iLibrary*, 2020). Finally, throughout retirement, individuals do not earn income and tend to dissave (OECD *iLibrary*, 2020). Saving is negative (or small) for university students and increases towards the retirement age consequently, increasing net worth. The slope curves and net worth decreases in retirement (OECD *iLibrary*, 2020). Similarly, Jappelli and Padula (2011) argue that financial literacy and wealth are strongly correlated over the life cycle, with both increasing until retirement and decreasing thereafter (Lusardi & Mitchell, 2014:9).

When considering the life cycle theory, it is clear that Lusardi and Mitchell (2011:377) reason that the evaluation of financial literacy of university students is not useful since they will rather borrow than save to smooth out consumption over the life cycle. The success of financial literacy interventions is often assessed by whether the participants' savings increased after the intervention. However, when considering the life cycle theory, university students will rather borrow than save (at least until they graduate) (Lusardi & Mitchell, 2011:377). Effective and realistic financial education should reflect core financial concepts that are relevant to the challenges students face in reality (Hira, 2016:506).

Therefore, researchers should develop new ways to assess the impact of financial literacy interventions on financial literacy levels of young individuals (younger than 25 years) (Lusardi & Mitchell, 2011:377).

The early years of adult life will prepare individuals to assume full responsibility for managing their financial matters (Breitbach & Walstad, 2016:81). Young adults also face multiple life-shaping financial decisions that affect their financial futures, such as the tertiary education they want to pursue after school and how to finance it or entering the workforce for financial security and once they are established decide on insurance, health care and retirement (Breitbach & Walstad, 2016:81). These formative years of financial responsibility will affect university students' current and future well-being which is also motivated by the human capital argument (Breitbach & Walstad, 2016:81).

The life cycle theory is also linked to the time profile of human capital (Ben-Porath, 1967:352). Individuals invest in human capital when they are young and, to a large extent, by foregoing current earnings (Ben-Porath, 1967:352). Observed earnings are therefore relatively low at the beginning of the life cycle and increase as investment declines and as returns on previous investments realise. The basic model of life cycle earnings has an initial period of no earnings followed by a period in which earnings increase at a diminishing rate and eventually decline, that is, dissaving at retirement (Ben-Porath, 1967:352).

3.2.2.3 Human capital theory

Huston (2012:568) defines human capital as "the stocks of knowledge and skills that provide individuals with the potential for productive output. In terms of human capital specific to personal finance, individuals' knowledge about personal finances as well as their skills is of critical importance in determining their level of financial literacy."

Human capital has a lasting impact on financial knowledge, behaviour, and the current financial situation, for that reason, individuals with greater stocks of human capital are more inclined to make informed financial choices (Huston, 2012:567).

Formal education is used to increase a student's human capital. Financial education can also help enhance financial literacy by increasing financial knowledge, skills, and attitudes which, in turn, contributes to the individual's participation in the financial, economic and social welfare of life (OECD, 2015:1). The acquirement of financial literacy can also be demotivated by generous social welfare systems that indirectly discourage individuals from saving and investing as there will be less incentive to accumulate wealth and, in turn, less reason to invest in financial literacy (Lusardi & Mitchell, 2014:7).

Similarly, there is a noteworthy relationship between education, an investment in human capital, and income (Wolla & Sullivan, 2017:2). In general, individuals with more education are financially literate and earn higher income or have a stable income (Wolla & Sullivan, 2017:2). In a competitive labour market, higher-paying jobs refer to this as a “degree wage premium” and research shows that this premium has a positive growth rate (Wolla & Sullivan, 2017:2). The economic theory underlying the latter is the more education and skills an employee has, the more employable they are (Wolla & Sullivan, 2017:2).

Individuals with higher income tend to make financial decisions that contribute to building wealth (Wolla & Sullivan, 2017:3). Educated families also tend to practice good financial behaviours principles at home such as having some liquid assets, investing in various financial instruments to reduce risk and keeping debt low relative to assets (Wolla & Sullivan, 2017:3).

There is a strong correlation between parent and child financial knowledge formation (Ermisch, Jantti, & Smeeding 2012:122). The human capital theory explains that a child or individual’s investment in capabilities leads to further skills development and capacity building. Mutual benefits across generations within the same family translate from human capital investments as parents improve their education and get better jobs with higher earnings, they will have more financial resources to invest in their children (Sommer, Sabol, Chor, Schneider, Chase-Lansdale, Brooks-Gunn, Small, King, & Yoshikawa, 2018:121). This is known as a two-generation human capital approach.

In an intra-household setting, one partner in a household (usually the husband) attains financial knowledge and the other (usually the wife) increases their acquisition of financial knowledge when it becomes relevant to them, for instance prior to the death of their spouse (Lusardi & Mitchell, 2014:7).

An individual will optimally invest in financial knowledge to identify better-performing assets and gain access to higher-return assets (Lusardi & Mitchell, 2014:7). According to Lusardi & Mitchell (2014:9), consumers invest in financial knowledge to the point where the marginal time and money costs of doing so are equated to their marginal benefits. Also, financial knowledge differs across educational groups because of different life cycle income profiles.

Finally, financial literacy interventions should not be expected to produce great behavioural changes among the least educated, as it would not be efficient to incur investment and opportunity costs given that their consumption needs are better ensured by social welfare systems (Lusardi & Mitchell, 2014:9). Jappelli and Padula (2011) suggest that individuals will be less financially informed in countries with a more generous social welfare system (Lusardi & Mitchell, 2014:9).

The capability theory differs from the human capital theory, as it is not specific to the individual in the sense that considers the external environment, or an individual’s internal capabilities (Johnson & Sherraden, 2007:123). Therefore, the same quality inputs do not necessarily achieve the same degree of outputs due to internal reasons such as physical or intellectual ability and external reasons such as gender discrimination and cultural differences (Johnson & Sherraden, 2007:123).

3.3 ECONOMIC IMPORTANCE OF FINANCIAL LITERACY

After familiarising with the definition and theoretical background of financial literacy, this section sheds light on the economic importance of financial literacy. There is growing evidence of the strong relationship between financial literacy and economic outcomes. For instance, low levels of financial literacy are associated with debt problems (Lusardi & Tufano, 2009), limited participation in financial markets (van Rooij, Lusardi & Alessie, 2007), lower budgeting and financial management skills (Maconi, 2016:27), no planning for retirement (Hastings & Tejeda-Ashton, 2008; Hilgert, Hogarth and Beverly (2003) and individuals are less likely to accumulate and manage wealth (Stango and Zinman, 2007; Lusardi and Mitchell, 2009:22).

Refera *et al.,* (2016:3) found that financial literacy is important and beneficial to three main categories, individuals, the economy, and the community. Also noteworthy is that financial literacy in one of those categories (individual, economy, and community) has spillover effects into another category. Table 3-5 summarises the practical importance of financial literacy.

Table 3-5: Practical importance of financial literacy

Category	Financial literacy benefits
Individuals	• Increased savings and retirement planning. • More realistic assessments of financial knowledge by consumers. • Life skills and bargaining power. • Activity in financial markets. • Investing and choosing the right financial products with confidence. • Consumer rights and regulatory intervention.
Financial system and the economy	• Greater competition, innovation and quality products, market efficiency. • Coverage of risk • Self-funding of retirement
Community	• Financial inclusion • Understanding government financial policies.

Source: Refera, *et al.,* (2016:3).

Table 3-5 indicates that the three beneficiaries have economic importance and contribute to economic growth and development, highlighting the importance of financial literate individuals and households. The relevance to economic importance and spillover effects is further explained henceforth in subsections 3.3.1 and 3.3.2.

Even though it is difficult to establish a causal relationship between financial literacy and economic behaviour, the basic explanation underlining the relationship is that both concepts are instrumental variables and experimental approaches suggest that financial literacy influences financial decision making, and the causality goes from knowledge to behaviour (Lusardi & Mitchell, 2014:21).

3.3.1 Individuals/ consumers and the financial system

Financial literacy equips investors with the necessary knowledge to manage and compare financial products and make optimal decisions as well as enables households to create household budgets, initiate saving plans and evaluate investment options (Adomako, Danso & Damoah, 2016:43).

Financially literate consumers will demand formal financial products that, in turn, will reduce the time in explaining basic features of different financial products as well as reduce the costs incurred by financial service providers in acquiring new clients (Refera *et al.,* 2016:6). Similarly, an increase in the level of savings will occur together with an increase in the take-up of financial products which stimulates economic activity (Refera *et al.,* 2016:6).

Financial literacy improves financial decisions and behaviour, supporting financial planning and enabling individuals to choose products that suit their needs. In this regard, if financially literate individuals can manage their finances, they will be able to evaluate business risks and help improve economic performance (Refera *et al.,* 2016:6). Financially literate consumers also contribute to the development of the financial system and sustainability of an economy through encouraging competition among financial service providers to be innovative and improve their system efficiencies (Refera *et al.,* 2016:6).

Herawati and Dewi (2020:133) mention that it is important to develop investment activities among university students. Developing countries can especially benefit from investments such as labour absorption, higher production outcomes, foreign exchange, saving and economic growth. The lack of understanding of investment activities discourages university students' interest in investing (Herawati and Dewi, 2020:133).

On the other hand, low levels of financial literacy negatively impact personal well-being and the financial potential of a household, as well as hindering financial market development and investment processes in economics, which leads to the aggravation of the socio-economic situation of the country (Vovchenko, Danchenko & Kostoglodova, 2018:17). This discussion reconfirms the importance of financial literacy for individuals, households and the consumer.

3.3.2 Financial system and community

Improving access to financial services is a national policy concern in developing countries. Financial education also complements financial inclusion and consumer protection as it restores confidence and trust in financial markets that, as a result, support financial stability (OECD, 2015:1).

Financial literacy interventions support financial knowledge and improve community welfare (Dewi, Febrian, Effendi and Anwar, 2020:35). Financial literacy education contributes to the formulation of a new generation of financially educated society (Philippas & Avdoulas, 2020:379). Higher education levels promote financial decisions and socio-economic independence (Singhal & Singh, 2020:2). There is also a noteworthy relationship between education and income (Wolla & Sullivan, 2017:2). In general, individuals with more education earn a higher income and individuals with a higher income also tend to make financial decisions that contribute to building wealth (Wolla & Sullivan, 2017:3). Educated families tend to practise good financial principles at home. such as having some liquid assets, investing in various financial instruments to reduce risk and keeping debt low relative to assets (Wolla & Sullivan, 2017:3).

Various stakeholders have a role in promoting financial literacy education. The government has the biggest active role in promoting financial literacy and includes setting financial literacy policy and strategy and organising and coordinating other stakeholders for efficient and effective financial education at a national level (Refera *et al.,* 2016:7). Similarly, the Department of Education, financial institutions and associations, bilateral and multilateral organisations, the Media, Information and Communication Technology sector can also play a vital role in promoting financial education in developing countries (Refera *et al.,* 2016:7).

Financial literacy education contributes to the formulation of a new generation of financially educated society (Philippas & Avdoulas, 2020:379). Higher education levels promote financial decisions and socio-economic independence (Singhal & Singh, 2020:2) As previously discussed, individuals with more education earn a higher income and tend to make sound financial decisions contributing to the building of wealth (Wolla & Sullivan, 2017:3).

Apart from the personal benefits of financial literacy, financially educated citizens benefit the economy by increasing competitiveness, innovation and the quality of financial products and services (Philippas & Avdoulas, 2020:379). Inclusive development in the financial sector improves access to financial services for individuals, households and small and medium-sized enterprises and has substantial benefits for the economy, including job creation, boosting economic growth, relieving poverty and improving income distribution (National Treasury, 2011:60).

Financial illiteracy is a global problem and contributes to slow economic growth, hence becoming of interest to governments (Shambare, 2012:583). Poverty is associated with low rates of saving, high vulnerability, high unemployment and low education enrolment (Refera *et al.,* 2016:3). Poverty remains a challenge in developing countries, even after the implementation of poverty reduction and welfare improvement programmes. Refera *et al*. (2016:3) recommend that personal finance training be incorporated into these programmes to improve personal financial management that, in turn, will be manifested through better financial behaviour and financial outcomes.

Lusardi (2012:2) conceptualises financial literacy as the “attainment of knowledge and skills to manage finances, utilise financial services and plan the consumer market effectively to achieve the financial objectives of a firm”. These skills comprise budgeting, account management and payments, debt acquisition and repayment, management of consumer problems, and comparison shopping (Adomako *et al.,* 2016:44). The attainment of these skills is also important for small- and medium-sized enterprises in developing countries.

Small and medium-sized enterprises contribute to economic growth since the industry generates jobs and contributes to innovation. However, in developing countries, small and medium-sized enterprises lack adequate and timely banking finance, have limited capital, financial knowledge and capacity to identify new financial products (Adomako *et al.,* 2016:43). These enterprises face significant financial management constraints that undermine their contribution to employment, productivity growth and innovation (Adomako *et al.,* 2016:44).

Also noteworthy is the relationship between access to finance and firm performance (Adomako *et al.,* 2016:54). Empirical findings indicate that financial literacy positively moderates the relationship between access to finance and firm performance (Adomako *et al.,* 2016:54). The authors drew insight from empirical studies and found that flexible resources and access to financial capital improve the performance of firms. Furthermore, access to financial capital as well as financial development contributes to the reduction in poverty by improving accessible financial services and reducing income inequalities through economic growth (Kaidi, Mensi & Amor, 2019:132).

The advantage of being financially literate at a national level includes effective functioning of markets as more consumers demand a better deal from financial providers as well as less regulation because governments can shift more responsibility onto individuals for personal risk, retirement, debt, and the accumulation of assets (van Nieuwenhuyzen, 2009:203). The implications for being financially illiterate at an organisational level include financial stress, health concerns and unproductive employees (Volpe, Chen & Liu, 2006:87). As such, financial literacy and the acquisition thereof contributes to economic growth and development.

So far, this chapter has focused on the theoretical background of the term financial literacy and the economic importance of financial literacy. The following section will discuss international and South African studies measuring financial literacy levels.

3.4 STUDIES MEASURING FINANCIAL LITERACY LEVELS

3.4.1 International literature

Having defined what is meant by financial literacy and the economic importance thereof, the following section will discuss international literature on financial literacy levels. The level of a consumer’s financial literacy is usually determined using tests, questionnaires, and surveys

(Zokaityte, 2017:5). The Standard and Poor (S&P) Global Financial Literacy Survey is the most comprehensive global measurement of financial literacy.

The survey measures the four fundamental concepts of financial decision making. These are knowledge of interest rates; interest compounding; inflation and risk diversification (Klapper, Lusardi & van Oudheusden, 2015:5). The participants interviewed during the 2014 calendar year included 150 000 randomly selected adults, aged 15 and above, from 140 economies (Klapper, *et al.,* 2015:5).

Figure 3-4 maps the percentage of adults who are considered financially literate by the following definition: "when he or she correctly answers at least three out of the four financial concepts in the S&P Global FinLit Survey" (Klapper, *et al.,* 2015:6). Australia, Canada, Denmark, Finland, Germany, Israel, the Netherlands, Norway, Sweden, and the United Kingdom had the highest financial literacy rates. On the other hand, South Asia is home to countries with some of the lowest financial literacy scores, where only a quarter of adults or fewer are financially literate (Klapper, *et al.,* 2015:7).

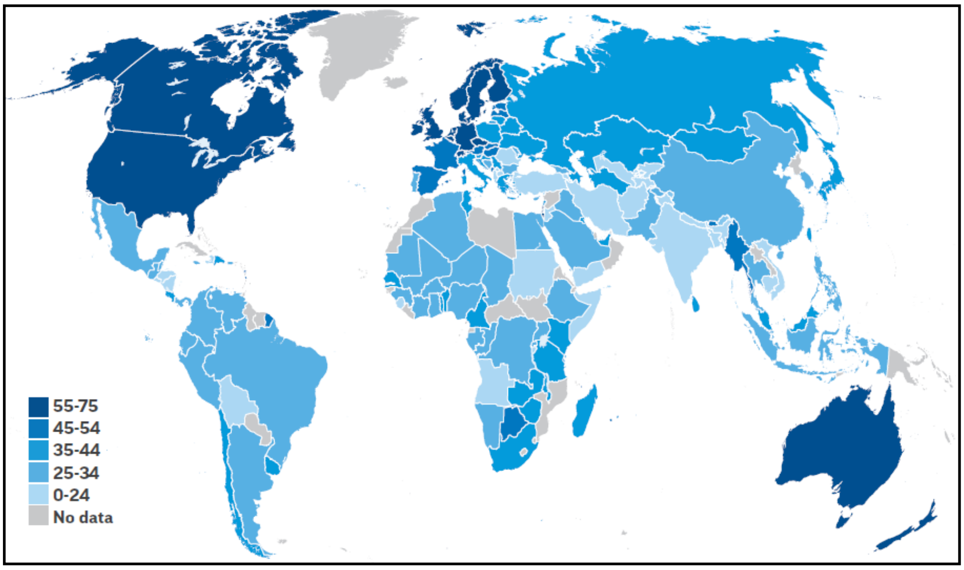


Figure 3-4: Map of the global variations in financial literacy
Source: Standard & Poor's Ratings Services Global Financial Literacy Survey, 2014.

The S&P Global Financial Literacy Survey indicates significant differences in financial literacy between major advanced and emerging economies. Australia, Canada, Denmark, Finland, Germany, Israel, the Netherlands, Norway, Sweden, and the United Kingdom had the highest financial literacy rates, while on the other hand, South Asia is home to countries with some of the lowest financial literacy scores, where only a quarter (or fewer) of adults are considered financially literate (Klapper, *et al.,* 2015:7).

On average, 56% of adults in the major advanced economies such as Canada, France, Germany, Italy, Japan, the United Kingdom and the United States are financially literate while, in contrast, major emerging economies, BRICS, have on average 33% financially literate adults (Klapper, *et* *al.,* 2015:8). Figure 3-5 illustrates the percentage of adults who are financially literate among the major advanced and emerging economies.

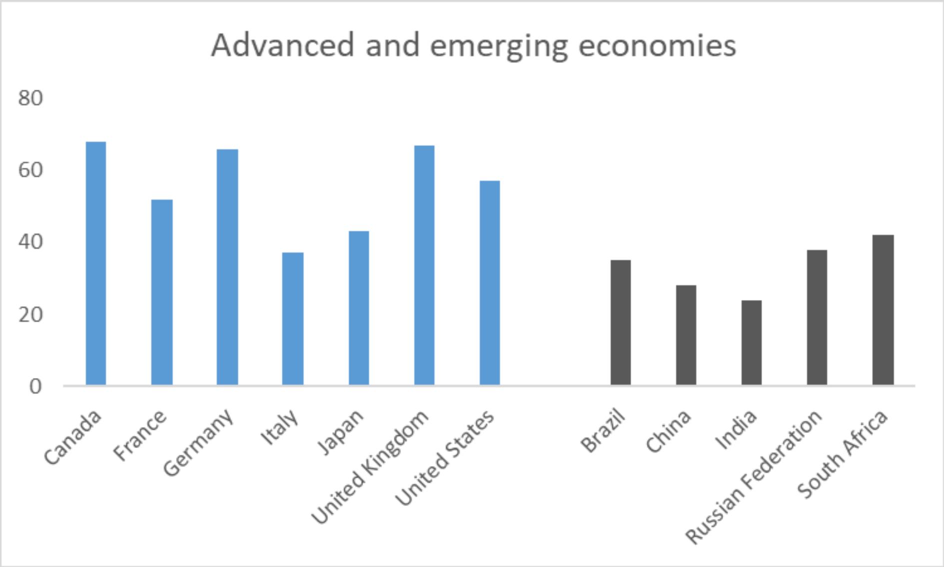


Figure 3-5: Financial literacy among major advanced and major emerging economies
Source: Standard & Poor's Ratings Services Global Financial Literacy Survey, 2014.

Figure 3-5 displays the major advanced economies' financial literate adult percentage with Canada (68%), France (52%), Germany (66%), Italy (37%), Japan (43%), United Kingdom (67%) and United States (57%) and major emerging economies' adult financial literacy with Brazil (35%), China (28%), India (24%), Russian Federation (38%) and South Africa (42%). Klapper *et al.,* (2015:21) conclude that 1 in 3 adults globally have the basic financial knowledge and billions of individuals are not prepared to deal with rapid changes in the financial landscape.

The Organisation for Economic Co-operation and Development (OECD) International Network on Financial Education (INFE) has also developed an internationally comparable financial literacy questionnaire that takes into account financial knowledge, behaviour and attitude and includes short and long-term financial planning, budgeting and financial management, and the choice of financial products (Atkinson & Messy, 2012:657). In addition, the questionnaire takes socio-demographic details into account, providing the age, gender and income details of the participants (Atkinson & Messy, 2012:657).

The OECD INFE explains financial knowledge as the ability to apply numeracy skills to financial circumstances and includes questions concerning concepts such as simple and compound interest, risk and return, and inflation (Atkinson & Messy, 2012:12). Atkinson and Messy (2012:23) argue that financial behaviour is a very important element of financial literacy since positive outcomes are driven by planning and saving. Conversely, certain behaviours, such as overusing credit, reduce financial welfare. Lastly, attitude is considered equally important as individuals will be more inclined to save for the future if they have a positive attitude towards saving (Atkinson & Messy, 2012:33). The questionnaire also reports attitudes toward money and towards planning for the future (Atkinson & Messy, 2012:33).

The questionnaire is intended for individuals aged 18 and older and included 19 financial literacy questions grouped according to a theme and required a minimum of 1 000 face-to-face or telephone interviews (Atkinson & Messy, 2012:661). The OECD financial literacy survey was developed by capturing and combining 26 existing surveys originating from 18 countries that test financial knowledge, behaviours and attitudes (Atkinson & Messy, 2012:659).

The overall levels of financial literacy of 30 countries, including 17 OECD countries, that participated in the international survey of financial literacy using the OECD/INFE questionnaire are relatively low (OECD, 2016:7). Figure 3-6 reports the survey findings focusing on relevant aspects of financial knowledge, behaviour and attitude.

On average the OECD countries' financial literacy levels are 13.7 out of a possible 21 (a combination of a maximum of 7 for knowledge, 9 for behaviour and 5 for attitudes), compared to the average of all the participating countries of 13.2 (OECD, 2016:8). The overall low levels of financial literacy stress the importance of starting financial education early to ensure that future generations have the knowledge, skills and attitudes to necessary strengthen their financial well-being and build positive habits from a young age (OECD, 2016:12).

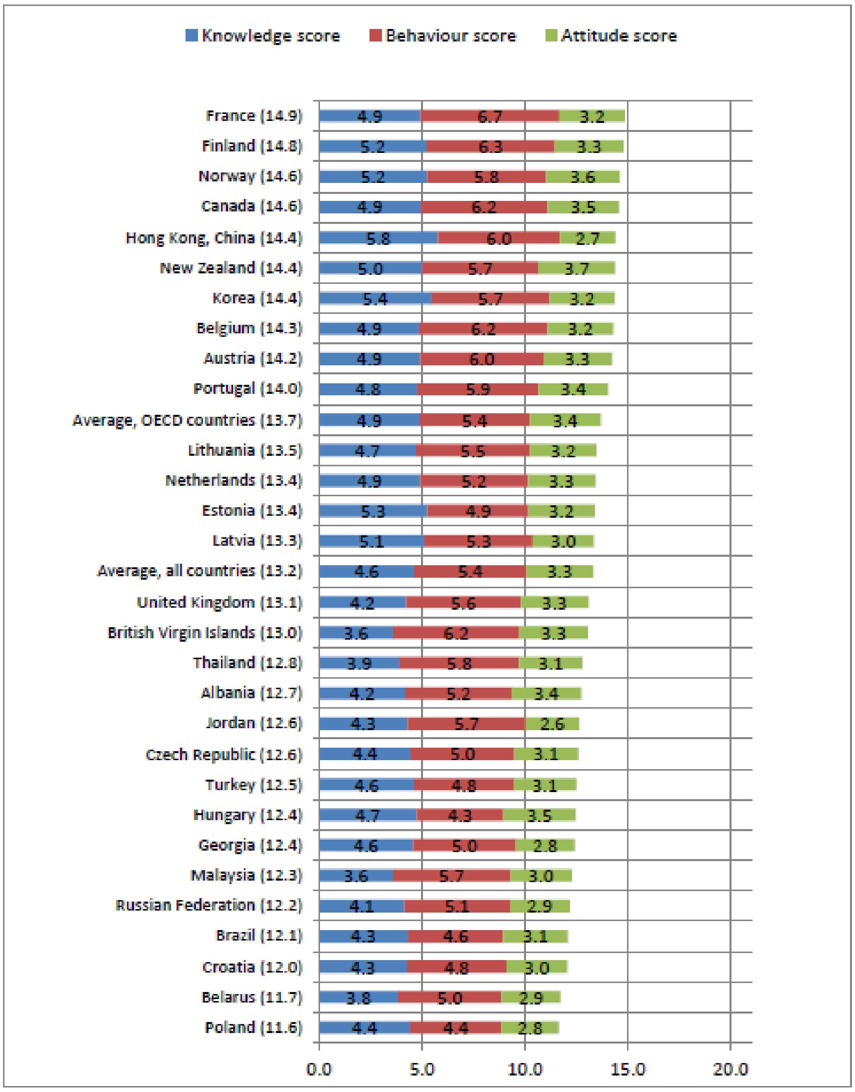


Figure 3-6: OECD/INFE International Survey of adult financial literacy competencies results.
Source: OECD, 2016:8.

3.4.2 South African literature

Empirical studies, such as that conducted by Nanziri and Leibbrandt (2018:3), have shown that South Africa presents an interesting case study for financial literacy research, with the potential for more rigorous empirical work due to the challenge of measuring financial proficiency for a country with both low and high-income characteristics and broad-based financial access. The authors constructed a financial literacy index for South Africa to determine how proficient individuals are to draw up saving and spending plans and how this proficiency is distributed amongst different populations in South Africa for the period 2005-2009 (Nanziri and Leibbrandt, 2018:1).

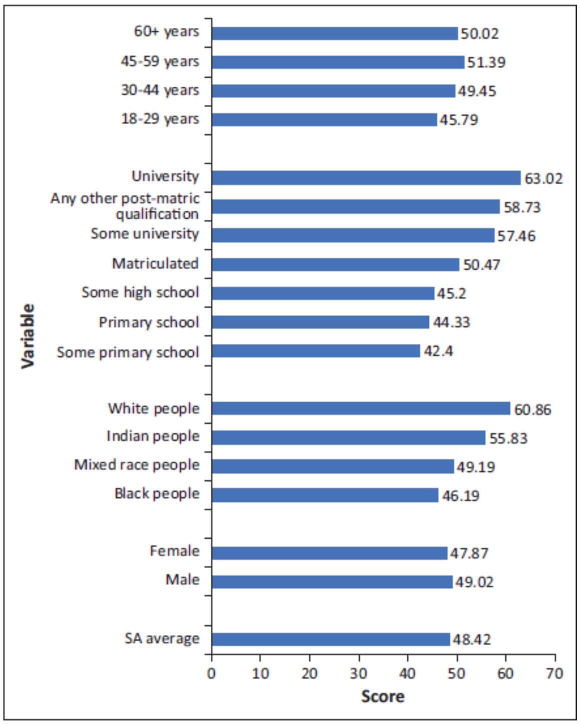
In the South African context, such data is collected by FinMark Trusts' FinScope surveys using face-to-face interviews (Nanziri and Leibbrandt, 2018:3). Financial literacy incorporates knowledge, skills and behaviour in five areas. The five areas are: making ends meet; planning in advance; choosing financial products and services; staying informed and keeping track of one's finances (Nanziri and Leibbrandt, 2018:3).

The authors used questions based on the two domains from FinScope surveys together with a Principle Component Approach to combine responses to these questions and obtain a score for each individual. The constructed financial literacy index score ranges between 0 - 100 and a score of zero indicates that an individual has no financial knowledge or capabilities, whilst a score of 100 indicates that an individual is financially sophisticated. The index revealed substantial variation in the levels of financial literacy amongst South Africans (Nanziri & Leibbrandt, 2018:2).

South Africa's results indicated a national average of 48.4 for the period 2005-2009 with a below-average score among, women and young adults (Nanziri & Leibbrandt, 2018:2). Provincial and regional results indicated that demographic characteristics account for up to 10% variation in financial literacy while geographical location only explains an additional 0.7% of the variation (Nanziri & Leibbrandt, 2018:10).

Index values were also disaggregated by economic variables such as sources of money, occupation and different income categories. In the South African context, the formally employed, self-employed and pensioners have above-average financial literacy whereas university students and the unemployed have low levels of financial literacy in the occupation category (Nanziri & Leibbrandt, 2018:6).

Nanziri and Leibbrandt discovered that individuals who receive money from formal sources have higher levels of financial literacy whilst individuals who receive money from informal sources and grants have below-average financial literacy levels (Nanziri & Leibbrandt, 2018:6). This finding is also in line with Lusardi and Mitchell, (2014:7) that argues social welfare systems indirectly discourages individuals from investing in financial literacy. Besides, Nanziri and Leibbrandt, (2018:6) highlight that formally employed individuals are required by formal employers to have some sort of financial education.



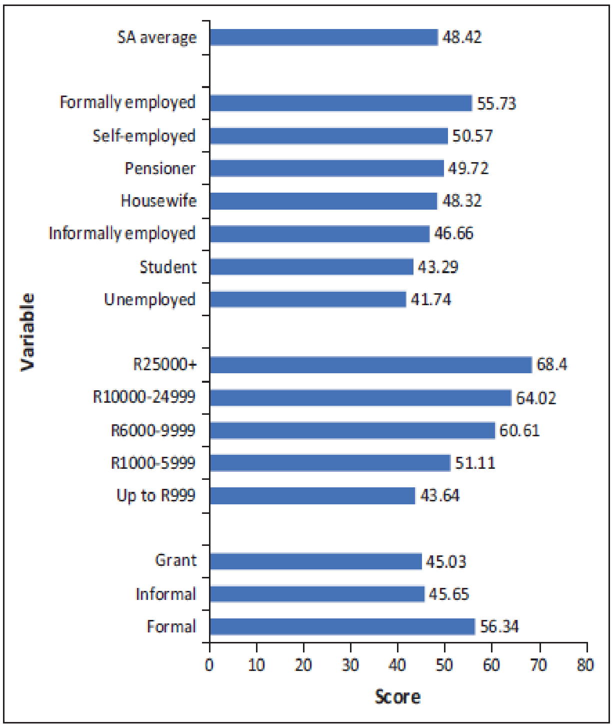


Figure 3-7: Financial literacy by age, education, gender and race.
Source: Nanziri & Leibbrandt, 2018:6.

Figure 3-8: Financial literacy by occupation, income, and source of money.

Figure 3-7 illustrates the average financial literacy score in the age, education, race and gender categories of South Africans for the period 2005-2009. The age of 60+ years has the highest mean of 50.02 index score and the age group 18-29 years have the lowest mean of 45.29 index score, this is below the average score for South Africa.

Interestingly, Klapper *et al.,* (2015:13) found that financial literacy levels increase with age in major advanced economies. However, the pattern changes when compared to emerging economies where the older generation, older than age 65, have lower levels of financial literacy and young adults have higher levels of financial literacy.

Individuals with a university education have higher financial literacy index scores compared to other categories. Females and males do not show a great difference in financial literacy index scores of 47.87 and 49.02 respectively (Figure 3-7).

Figure 3-8 illustrates the different financial literacy scores by occupation, income and source of money. The formally employed have the highest index score of 55.73 whilst the unemployed and students have the lowest financial literacy index score of 41.74 and 43.29 respectively. In the income category, it is also visible that financial literacy scores increase as income levels increase, together with higher index scores for individuals who receive money from a formal source.

Also noteworthy, social grants in South Africa are provided to individuals vulnerable to poverty and in need of state support, which also emphasises the low levels of financial literacy among grant recipients (Nanziri & Leibbrandt, 2018:7).

Nanziri & Leibbrandt (2018:10) concluded that South Africans scored higher in financial knowledge compared to financial capability. Therefore, South Africans are aware of and understand financial concepts, but struggle to convert knowledge into practice (Nanziri & Leibbrandt, 2018:10). A possible reason for this could be the diversity in access to financial literacy, parental financial knowledge and understanding of financial matters (Shambare, 2012:583).

More recently, the Financial Sector Control Authority (FSCA) designed a survey to test the level of financial literacy of South African adults. The FSCA conducted five financial literacy surveys in 2011, 2012, 2013, 2015 and 2017. The survey included a target population, aged 16 years and older, from racial and cultural diversity and who lived in private homes (Roberts *et al.,* 2018:8). Also, random sampling was used to select the population to be interviewed and was based on race, education, income and geographic characteristics (Roberts *et al.,* 2018:9). Table 3-6 portrays the average scores in the four main domains of this survey.

Table 3-6: Financial literacy scores, 2011 – 2017 (mean scores based on a 0-100 scale)

Financial literacy domain	2011	2012	2013	2015	2017
Financial control	58	61	61	63	62
Financial planning	53	50	48	48	47
Product choice	45	46	44	46	48
Financial knowledge	56	55	56	58	55
Overall financial literacy	54	54	52	55	54

Source: Roberts *et al.,* (2018:9).

The results of the survey demonstrated that individuals with wealth, tertiary education, permanent employment, and residents in formal urban areas scored the highest financial literacy score (Roberts *et al.,* 2018:9). By drawing on the significance of educational attainment, the authors found a strong social order and human capital bias covering all domains produced for their study (Roberts *et al.,* 2018:9). Labour market participation was also positively correlated with financial literacy in South Africa, highlighting the impact of employment on financial behaviour (Roberts *et al.,* 2018:9).

Roberts *et al.,* (2018:9) reported that groups with the highest levels of illiteracy are the poor, the uneducated and the youth. The study also points out the inexperience with financial products among South African youth since they have limited access to financial resources and often lack regular income (Nanziri and Leibbrandt, 2018:3; Roberts *et al.,* 2018:9).

The overall financial literacy scores for South Africa in 2017 (54) was not considerably different from 2012 (54), which suggest that the OECD INFE survey is a consistent and reliable measure (Roberts *et al.,* 2018:85). The study also validated that the levels of financial literacy will differ across the life cycle. Age was statistically significant in one age cohort, 16-29, whilst marital status is correlated with financial literacy (Roberts *et al.,* 2018:86). The relationship between education, income and financial literacy is widely acknowledged in the literature. Not surprisingly, Roberts et al. (2018:86) also found educational attainment a strong predictor for financial literacy in South Africa, especially in the younger age groups.

Roberts *et al.,* (2018:87) conclude that the need for improved financial literacy in South Africa is more important than ever before, to be financially knowledgeable to navigate through the transformations that will be happening in the next few decades.

3.4.3 South African university students

Given the importance of financial literacy in today's economic environment, helping university students acquire financial knowledge can prove beneficial for both individuals and society (Lusardi & Oggero, 2017:1). However, extant literature has shown that university students are susceptible to making financial mistakes, exhibit low levels of financial literacy across different groups and lack preparedness for financial challenges when entering the labour market (Lusardi and Mitchell, 2011; Klapper & Panos, 2012; Louw *et al.,* 2013: Artavanis & Karra, 2020).

In an investigation into the financial literacy needs of third-year university students at a South African tertiary institution, Louw *et al.,* (2013:444) made use of a questionnaire and found that there is a lack of financial knowledge among students. The population was grouped according to the faculties of a South African university as follows: Arts, including Theology, (24%); Economic and Management Sciences (60%); and Natural Sciences, including Engineering and Health Sciences, (16%) (Louw *et al.,* 2013:444).

The research methodology followed an epistemic paradigm, meaning that the descriptions apply to and are valid in everyday life (Louw *et al.,* 2013:444). The empirical study included a questionnaire that was completed by 424 students (37% male and 63% female). It consisted of a socio-economic environment as well as a personal financial knowledge section (Louw *et al.,* 2013:448). Participation in the study was voluntary and anonymous (Louw *et al.,* 2013:444).

The study concluded that students lack training in financial planning, banking, investment, taxation and legal and sundry matters (Louw *et al.,* 2013:448). Therefore, tertiary institutions would be unwise not to pay attention to this problem, after all, universities have a responsibility, in terms of community service and development, to provide students with adequate training in this regard (Louw *et al.,* 2013:448).

In the same vein, Botha (2013:36) determines whether final-year diploma students studying towards a financial diploma have higher financial literacy levels compared to students studying towards a non-finance related diploma. The descriptive comparative study followed a positivist approach using cross-sectional data and obtained a large sample (n=136). The data was collected through structured interviews adapted from the Jump$tart coalition 2008 questionnaire (Botha, 2013:36).

Even though Botha (2013:36) found that the finance-related group performed better than the non-finance-related group, the average financial literacy scores of both groups were low. Students performed the worst in savings and borrowings and the best in basic finance concepts (Botha, 2013:36). Concerning the latter, university students must have the necessary financial literacy since almost all students entering the labour market are burdened by student loan debt (Lusardi & Mitchell, 2017:5). University students lack a clear understanding of basic financial concepts and are therefore not likely to participate in financial markets and establish themselves as financially independent adults (Lusardi & Mitchell, 2017:5).

In a study that set out to determine the level of financial literacy in emerging countries, Shambare and Rugimbana (2012:1) attempted to address the scarcity of information on the subject in South Africa. The authors studied 214 students from a large South African metropolitan university using convenient survey sampling and the on-campus intercept technique (Shambare & Rugimbana, 2012:1). The students were approached and asked to participate in the financial literacy survey adapted from Lusardi and Mitchell (2007) focusing on three areas, percentage calculations, financial mathematics, and compound interest.

The percentage calculations measured basic arithmetic skills, financial mathematics, and the ability to compute compound interest. The findings reflected 81% of the respondents answered the percentage calculations correctly, 93% answered the financial mathematics correctly and a worrying 15% answered compound interest questions correctly. Overall, the results indicate moderate levels of financial literacy, suggesting that even an educated group can capitalise on reinforcing basic financial concepts (Shambare and Rugimbana, 2012:582). The authors recommended that financial literacy concepts be reinforced to students after the findings indicated moderate levels of financial literacy among the respondents (Shambare and Rugimbana, 2012:582).

Taken together, the results from South African literature suggest that university students lack training and a clear understanding or practical application of financial knowledge.

3.5 CONCLUSION

So far, this study has focused on the methodological approach of the study as well as the literature background of financial literacy. Chapter 3 provided an overview of the theoretical background of financial literacy, including the definition of financial literacy and the difference between financial capability, -knowledge and -well-being.

The theoretical background in subsection 3.2.2 demonstrates the most important issues in the theory applicable to this study specifically. The social learning theory describes the imperative influence of environmental interactions on university students' financial literacy development (Jorgensen, 2007:6). The two main environmental influences are parents and peers, where parental influence is greater at a younger age and peer influence increases at an older age. Educated families also tend to practice good financial behaviours principles at home (Wolla & Sullivan, 2017:3).

Formal education is used to increase a student's human capital by increasing financial knowledge, skills, and attitudes that, in turn, contribute to the individual's participation in the financial, economic and social welfare of life (OECD, 2015:1). Current research has measured the success of financial literacy interventions by whether the participants' savings increased after the intervention and has not treated the life cycle theory in much detail when evaluating the financial literacy of university students.

As was pointed out in Section 3.3, financial literacy has economic importance for the individual, the financial system and the community. Financially literate consumers also contribute to the development of the financial system and the sustainability of the economy through encouraging competition among financial service providers to be innovative and improve their system efficiency. On the other hand, low levels of financial literacy negatively impact personal well-being and the financial potential of a household, as well as hindering the financial market development and investment processes in economics and leading to the aggravation of the socio-economic situation of the country.

University students will make a greater contribution, in terms of value, as future taxpayers, savers, decision-makers and participants in the economy. Various studies recommend that financial literacy concepts should be reinforced to students (Shambare & Rugimbana, 2012:582; Botha, 2013:36 & Louw *et al.,* 2013:448). In the South African context, university students and the unemployed have lower levels of financial literacy compared to the formally employed, self-employed and pensioners that have above-average financial literacy levels (Nanziri & Leibbrandt, 2018:6). Overall, the studies discussed in Section 3.4, highlight the importance of being financially literate, the low levels of financial literacy in South Africa and the need for evaluating the impact of financial literacy interventions implemented to improve financial well-being.

The investment in personal financial literacy embodies an expectation of financial knowledge improvement as well as significant benefits to intervention participants. This study was undertaken to design a framework to evaluate the impact of financial literacy interventions and evaluate the case study against the developed framework.

In view of all that has been mentioned so far, Chapter 4 will continue to discuss the financial literacy indicators and Chapter 5 will present the thematic analysis of all the data collected for the purposes of developing a financial literacy intervention evaluation framework.

CHAPTER 4
DATA ANALYSIS: FINANCIAL LITERACY INDICATORS

4.1 INTRODUCTION

Chapter 3 discussed the literature background of the study and found, despite the recognition of the need to improve financial literacy levels worldwide, a research gap between the global problem of financial illiteracy and the lack of studies measuring the evaluation of financial literacy interventions. Chapter 4 will review the comprehensive literature background conducted in Chapter 3 to address the first research question of the study.

The first research question of the study is aimed at identifying content indicators of financial literacy to assist in understanding the evaluation component of financial literacy interventions. The indicators embedded in the comprehensive literature review (CLR) (Phase A) was listed on a preliminary list (See Appendix B) and constructed following Onwuegbuzi and Frels' (2016:56) seven-step model.

The first step led the researcher to determine her own philosophical belief as well as explore different components of financial literacy. The comprehensive literature search was initiated in the second step and represents a data source utilised in the study. Various types of international and national sources from electronic journals, textbooks and articles on financial indicators were stored in step three.

In step 4, the literature sample was redefined by selecting and deselecting relevant literature through inclusion and exclusion criteria (see sub-section 2.2.2[7]). Sufficient literature explained the properties of financial literacy and theoretical saturation was achieved (Charmaz, 2014:213). Secondary data was included in step 5, through focus group validation with both the internal (students who received training) and external knowledge providers (SMEs). In this step, the indicators were confirmed rated according to reliability and relevance and importance. Finally, the last step of the seven-step model by Onwuegbuzi and Frels (2016:56) entailed presenting the key financial indicators in Section 4.3.

The purpose of this chapter is to present the data analysis of the verified (Phase C) and quantitatively ranked (Phase D) financial literacy indicators that will form a structured base for the framework of indicators as displayed in Figure 4-1.

[7] See sub-section 2.2.2 - Chapter 2; page 29.

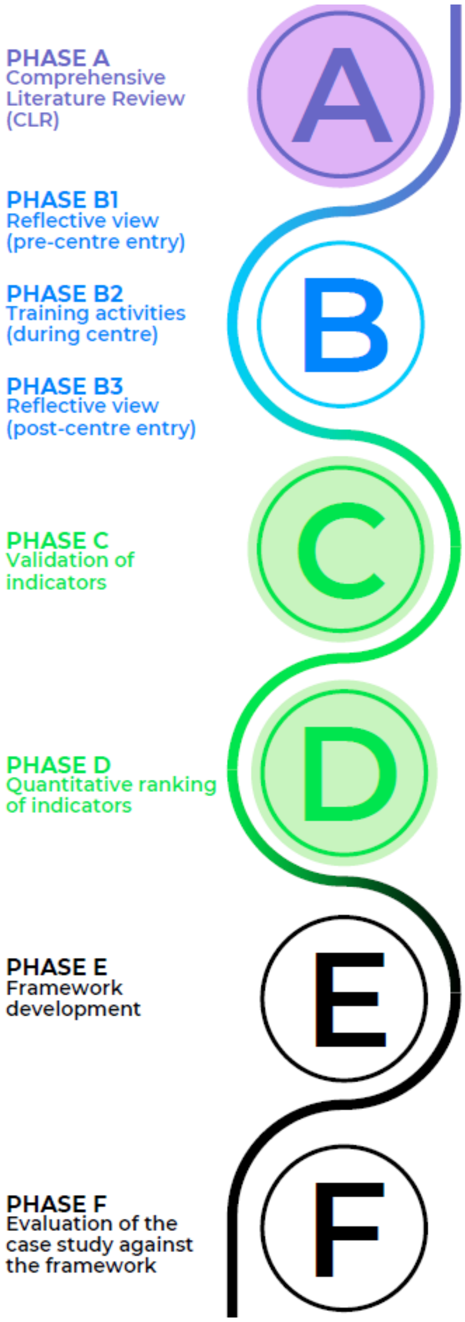


Figure 4-1: Phases of the study relevant to Chapter 4
Source: Author's compilation

Figure 4-1 highlight three phases: Phase A (CLR), Phase C (Focus group contextualisation) and Phase D (Quantitative ranking of indicators). Chapter 4 presents the results of these three phases. Section 4.2 presents the confirmed and contextualised list of financial literacy indicators and Section 4.3 quantitatively ranks the key financial literacy indicators. Section 4.5 concludes the chapter.

4.2 FINANCIAL LITERACY INDICATORS

After examining the CLR and considering the broad definition of financial literacy in section 3.2.1, the financial literacy indicators were identified using the content references in Chapter 3 and categorised in the following five categories:

- Financial capabilities
- Financial knowledge and understanding of concepts
- Effective financial planning and behaviour
- Positive financial attitude
- Financial products and services

The motive behind categorising the indicators was to structure the different financial indicators identified by published authors (CLR in Phase A) and verified by both the internal and external knowledge focus groups (Phase C). The focus group members were chosen based on a degree of homogeneity of their financial literacy knowledge.

4.2.1 Focus group background

The first focus group consisted of four internal knowledge providers (students who received training) and the second focus group had four external knowledge providers (subject matter experts). Random selection was applied to identify students to participate in the focus group discussion. Students were chosen by rolling a dice. The specific sample method is used by rolling a pair of six-sided dice and observing the numbers on the face of the dice, all outcomes are equally likely, each participant has a probability of $\frac{1}{30}$ (Stack & Watson, 2013:24). In addition, the method has a high external validity or generalisation compared to other methods of sample selection (Showkat & Parfeen, 2017:4).

Purposive sampling was used for the expert selection. The subject matter experts included a chartered accountant (CA), specialising in management accounting. This expert also presents personal finance training on a regular basis. The second expert is an established researcher (PhD) (CA) on the topic of personal- and behavioural finance and accounting education. He is also a certified financial planner (CFP) and retirement coach (CPRC) providing training in financial management and consulting on corporate as well as personal finance and retirement planning. The third expert is a certified financial planner (CFP) and category 2 investment manager with 21 years of experience. The last expert (D Com) (UED) (DTE) has more than four decades of teaching and research as well as management experience on tertiary level. This expert’s research fields include management accounting and finance, with an emphasis on accounting education since 2000.

The data collection performed in Phase C of the study, therefore, included inputs from both student participants and experts. The focus groups (subject matter experts and students) confirmed the inclusion of selected indicators within the context of the challenges that students face, specifically in a South African environment. The collective input from students underpinning the financial concepts and practical understandings of the literacy centre and the guidance of the experts provided the researcher with a well-rounded collection of knowledge and experience to develop the indicator framework.

During both online Zoom meetings, an independent group facilitator and researcher was introduced. The participants were informed about the title of the study, informed consent (see Appendix C) as well as their contribution to the study. The researcher started the discussion with two open-ended questions (see Appendix A) and subsequently asked the focus groups to discuss the preliminary list of indicators (See Appendix B).

The focus groups for students and subject matter experts were held separately for three reasons, the size of the focus group, prevention of polarisation and encouraging discussion amongst a group of individuals with similar experiences. The focus groups also had a moderator with the necessary skill involvement. The researcher gently guided the discussion for the best results. The focus groups are not the only data source in the study, therefore triangulation rather than data saturation is relevant.

4.2.1.1 Focus group contextualisation procedure

The purpose of the focus groups was to examine the preliminary list of financial literacy indicators which were: Financial capability, Financial knowledge, Financial planning, Financial attitude and Financial products and services (see Appendix B) identified in the literature review (Phase A). The focus groups reflected on the validity and accuracy of the research to the extent to which the outcomes corresponded with their own experiences.

The list of financial literacy indicators is a combination of themes in survey and interview questions as well as international and national literature on the subject at hand. The purpose of validating indicators is to evaluate their reliability (Bockstaller & Girardin, 2003:642).

The validation procedure is discussed in Section 2.5 (see sub-section 2.5.1 to 2.5.3[8]). The validity of the indicators was checked by the researcher by going through the literature and field notes again and allowing the focus group members to discuss the relevance and importance of the indicators.

[8] See section 2.5 - Chapter 2; page 34.

Each content indicator was evaluated by focus group members to include reliable and viable financial indicators for the targeted case study, i.e. university students at a South African university. In the case where the SMEs did not agree with an indicator, the indicator was removed from the preliminary list as it puts evidence on the weakness of the indicator and leads to the improvement of the identified indicators (Bockstaller & Girardin, 2003:647).

The focus group discussions stimulated vigorous, wide-ranging discussion and interaction between the participants. The indicators were examined based on their relevance and importance, keeping in mind the time constraints of interventions, new indicators were identified, and some indicators were excluded with good motivation. This resulted in a list of baseline indicators (see Table 4-1[9]).

In the discussion that follows, the motivation of the five categories of financial literacy indicators is presented.

4.2.2 Financial capabilities

The first category includes mathematical, reading and comprehension skills, self-assessed capabilities based on upbringing and the education level of the individual and parents.

The OECD INFE explains financial knowledge as the ability to apply numeracy skills to financial circumstances and includes questions concerning concepts such as simple and compound interest, risk and return, and inflation (Atkinson & Messy, 2012:12). Mathematical abilities include numerical skills as most financial literacy tests include calculations and language skills such as understanding terminology and symbolic interpretation (Balatti, Black & Falk, 2009:12; Maconi, 2012:20).

It is also important that any individual participating in the financial literacy interventions has the ability to read and write since financial knowledge is difficult to acquire without basic literacy (Maconi, 2016:41). Basic literacy, that is reading and writing skills, provide the foundation upon which individuals can acquire knowledge and eventually well-being (Maconi, 2012:11) as well as empower themselves to participate more broadly in society (Baron, 2015:8). Karanja (2014:2) highlights the importance of basic literacy in participants as a lack of education and skills has a negative impact on the sustainability of interventions.

The self-capability theory by Bandura (1977) denotes an individual's assessment of their financial capability to attain desired financial behaviour through financial knowledge, attitude and financial inclusion (Cera, Khan, Mlouk & Brabenec, 2021:1268). An individual's financial

[9] See Table 4-1 - Chapter 4; page 92.

literacy is also influenced by their upbringing as the family environment is where the individual observes how money is viewed and handled. From a young age, an individual acquires their knowledge, attitudes and sense of financial responsibility in their family environment (Hira, 2016:503).

As previously mentioned in Table 3-3[10] financial literacy can be congenital (influenced by parents), acquired (influenced by surroundings/environment) or rejected (independent decisions). A study by Meyer (2020:7) found that an individual's financial literacy is more correlated with parental financial knowledge than formal education. Similarly, Ermisch, Jantti and Smeeding (2012:122) found a strong correlation between parent and child financial knowledge formation. Subsequently, if one generation of young adults can be impacted, the positive influence will be passed over to their children (Meyers, 2020:7). Wolla and Sullivan (2017:3) mention that educated families tend to practice good financial principles at home such as having some liquid assets, investing in various financial instruments to reduce risk and keeping debt low relative to assets.

4.2.3 Financial knowledge and understanding of concepts

The second category includes financial competence and financial understanding, that is, understanding how money works and being informed about financial services. Huston (2010:306) explains that financial literacy has two components; (i) understanding that relates to knowledge, and (ii) use, relating to the application of knowledge. Moreover, financial knowledge includes knowledge on money basics such as borrowing, investing and protecting resources (Huston, 2010:305). Numerous financial literacy surveys probe questions about understanding numeracy, inflation, simple and compound interest and risk and return to determine an individual's level of financial literacy (Atkinson & Messy, 2012:12; Klapper et al., 2015:5; Grohmann & Menkhoff, 2017:401).

The ability to understand and use finance-related information is not just for professionals in the field but also every individual managing their financial affairs (Aprea, Wuttke, Breuer, Koh, Davies, Greimel-Fuhrmann & Lopus, 2016:1). FSCA includes knowledge and understanding as a domain in their financial literacy survey which examines respondents' awareness and understanding of financial concepts such as income and expenses (Roberts, Struwig, Gordan & Radebe, 2018:4).

According to Hastings (2018:1), consumers experience trouble with financial decisions since they lack an understanding of basic financial and economic concepts such as investment,

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[10] See Table 3-3 - Chapter 3; page 57.

interest rates, compound interest, inflation and risk diversification. The implication of the latter is that consumers persistently choose immediate gratification instead of taking advantage of larger long-term payoffs (Hastings, 2018:2).

Notably, young adults rely on high-cost borrowing and lack understanding of basic financial and economic concepts, which undermines their efforts to establish themselves as financially independent adults (Lusardi & Mitchell, 2014:5). The South African literature on financial literacy intervention concludes that university students also lack understanding in financial concepts as well as how to convert financial knowledge into practice (See sections 3.4.2 and 3.4.3) (Louw, Fouche & Oberholzer, 2013:440).

Lusardi and Mitchell (2014:8) assert that financial knowledge impacts financial decisions such as borrowing, savings and investments. Investment activities are essential to developing individuals and especially younger generations as studies found that there is a lack of financial traders amid them (Herawati & Dewi, 2020:135). Higher investment activities trigger economic growth (Herawati & Dewi, 2020:135). Investors are financially literate individuals, have a stable income, can perform financial planning, and anticipate financial insecurity (Herawati & Dewi, 2020:135; Singhal and Singh, 2020:3).

Singhal and Singh (2020:3) point out that financial literacy has an increasing effect on financial risk tolerance, which means that an increase in financial risk implies an increase in risk tolerance. More financially literate individuals will be better informed about the risks associated with some financial products and have an appreciation of the relationship between risk and return. The understanding of money includes income and expenses, buying and selling, profit and loss. The debt concept consists of credit card usage and short- and long-term fees for loans.

Koretskaya-Garmash (2017:134) states that the educational background of an individual has a significant influence on the contribution to and understanding of taxation, especially tax laws and regulations and the ability to abide by them. In addition, the social learning theory also contributes to the behaviour of a taxpayer since an individual can learn through their observation and direct experiences (Koretskaya-Garmash, 2014:134). Tax knowledge increases an individual's motivation to pay taxes as they become more aware (Koretskaya-Garmash, 2014:134). Having tax awareness improves the willingness to pay taxes without being forced to do so by tax authorities and has a positive impact on taxpayers' behaviour (Santi, 2012:1).

Members of the focus group suggested adding the following to the financial knowledge category: understanding tax and tax deduction, how debt works and the definition of personal assets, income-generating assets and liabilities.

4.2.4 Effective financial planning and behaviour

The third category discusses the indicators aimed at effective financial planning, price knowledge and comparisons and awareness of fraud activity. Moreover, financial planning asserts the competency to monitor and manage everyday personal finances (Kempson, Finney & Poppe, 2017:36). Financial behaviour has a strong association with financial literacy (Rai, Dua & Yadav, 2019:51).

Several studies investigating financial literacy and behaviour demonstrate that the higher a consumer's financial knowledge (based on a quiz score), the higher the probability that the consumer undertook more positive financial management behaviours and used more financial products and services (Hogarth, 2006:6).

Financial behaviour has been identified as a major contributing factor, and of fundamental importance, for financial literacy (van Nieuwenhuyzen, 2009:111). An individual can only be classified as financially literate if the individual illustrates financially literate behaviour (van Nieuwenhuyzen, 2009:111). According to Roberts et al., (2018:5), individuals need to have judicious behaviour to ensure stable and profitable financial futures. There is a strong link between financial knowledge and financial behaviour practices such as scheduling payment obligations, keeping funds for emergencies and setting financial goals (Cera et al., 2020:1268).

A study conducted by O'Neill and Xiao (2012) on financial behaviour before and after the financial crisis concluded that there is evidence of positive behaviour in the performance of 12 financial practices, including writing financial goals and spending plans, setting aside at least three months' expenditures for emergencies, paying credit card bills in full to avoid interest, calculating net worth and avoidance of impulsive buying and recreational shopping (Hizgilov & Silber, 2020:789).

Higher levels of financial literacy are associated with positive financial behaviour such as increased savings, managing credit and higher retirement fund contributions (Volpe, Chen & Liu, 2006:82). Low levels of financial literacy are associated with debt problems (Lusardi & Tufano, 2009), limited participation in financial markets (van Rooij, Lusardi & Alessie, 2007), lower budgeting and financial management skills (Maconi, 2016:27), no planning for retirement (Hastings & Tejeda-Ashton, 2008) and individuals are less likely to accumulate and manage wealth (Stango and Zinman, 2007) (Lusardi & Mitchell, 2009:22). In the same way, FSCA included financial planning as part of their financial literacy questionnaire (Roberts et al., 2018:8).

Management of finances involves planning and implementing (Hira, 2016:506). It is the ability to plan and maintain a savings account that matters. Savings are positively correlated to financial literacy, and especially the literacy of the household (Atkinson and Messy, 2012:23; Singhal & Singh, 2020:3). Savings are essential for the long-term development and economic growth of a nation. Singhal and Singh (2020:6) found that the level of financial literacy has a significant and positive impact on individual saving. Sibanda and Sibanda (2016) describe financial planning as having an emergency fund and planning for retirement.

According to the Financial Sector Control Authority (FSCA), financial control includes planning and allocating funds for spending, saving and paying debts (Roberts et al., 2018:5). This is better known as having a budget. There is a positive relationship between educational attainment and having a budget (Roberts et al., 2018:5). Planning for financial emergencies is a problem in South Africa as 69% of the population reported in 2017 that they do not have substantive reserves to draw upon in case of an emergency (Roberts et al., 2018:8). The FSCA study also found that the economic status of a country will better predict whether an individual will save to cover their expenses for a rainy day than almost any other variable (Roberts et al., 2018:8).

Savings and personal debt are two key factors in determining effective financial management (Kotze & Smith, 2008:35). Financially literate individuals will be able to manage debt (Campbell, 2006; Widdowson & Hailwoood, 2007:38; Brown & Graf, 2013), whereas financially illiterate individuals are more likely to make debt at a high interest rate (Lusardi & Tufano, 2015;332). The credit and loan product most South Africans are aware of is a store card and a microloan (Roberts et al., 2018:11). The public awareness of holding certain credit and loan products is an important component of the financial activity of a modern consumer (Roberts et al., 2018:11).

With regards to price knowledge and price comparison, managers, regulators and researchers examine the impact of prices on customers' decision-making processes and how firms should set prices and communicate prices to their customers (Farais, 2019:212). Nonetheless, previous research has shown that price knowledge among customers is below the levels required for optimal decision-making (Dickson & Sawyer, 1990; Estelami, Lehmann, & Holden, 2001; Farais, 2019:212).

In addition, customers' level of price knowledge in the financial services environment is also insufficient (Farais, 2019:212). The complex nature of financial services could result in poor price knowledge, for instance, customers have difficulty remembering the cost of banking services, ATM transaction fees and yearly insurance premiums and can be used as an implementer for innovative and manipulative practices (Farais, 2019:212). An individual's bargaining power also depends on the customer's price knowledge (Farais, 2019:212).

Individuals that are price conscious have a financial benefit from comparing prices and frequently processing price information (Alford & Biswas, 2002; Kukar-Kinney, Walters & MacKenzie, 2007; Farais, 2019:213). Previous studies showed that customers' price perceptions are based on accumulated price information (Jung, Cho & Lee, 2014:2079). Consumers with price knowledge have more certainty in price information, and consumers who have uncertainty in price information relies on memory and internal reference (Jung, Cho & Lee, 2014:2080).

Over the years there has been an increase in the number of financial institutions that provide financial services (Filippova, Kashapova & Nikitina, 2016:2). Consequently, the importance of fraud awareness and choosing trustworthy financial organisations also increases (Filippova et al, 2016:3). Consumer fraud is on the rise, which is unauthorised access to a bank account or bank card details to carry out fraudulent transactions (Engels, Kumar & Philip, 2020:420).

Detecting fraudulent activity requires a great deal of sophistication as even automated detection systems does not guarantee to discover fraud (Engels et al., 2020:435). Therefore, banks place emphasis on their customers identifying and reporting fraudulent transactions on their bank account (Engels et al., 2020:435). The characteristics that make individuals more susceptible to becoming victims of fraud include financial illiteracy (Engels et al., 2020:420); older age (Deliema, 2018:706); overconfidence (Anderson, Baker & Robinson, 2017:383) as well as social isolation (Judges, Gallant, Yang & Lee, 2017:588).

Filippova et al., (2016:3) state a high level of financial knowledge is a good measure against fraud activity. Higher levels of financial knowledge enhance the capability of being more aware and recognising fraud when it occurs (Engels et al., 2020:421). Lastly, financially literate individuals have a higher tendency to choose suitable financial products and are less likely to become overdue and opt to default (Wei, Peng & Wu, 2021:478).

4.2.5 Positive financial attitude when making financial decisions

The fourth category includes being inclined toward favourable financial situations, being financially responsible and confident in personal money management. A financial attitude is considered equally important as individuals will be more inclined to save for the future if they have a positive attitude towards saving (Atkinson & Messy, 2012:33).

As noted by Huston (2010) a financially literate individual should not only have financial knowledge but also the ability and confidence to implement the knowledge when making decisions (Potrich, Vieira & Da Silva, 2014:358). Bhushan and Medury (2014) asserted that to enhance financial literacy among generations, the focus should be on developing favourable financial attitudes among the people of the country (Rai et al., 2019:53).

Confidence in financial knowledge is better known as perceived financial knowledge and reflects a self-perceived level of financial literacy (Asaad, 2015:102). A considerable amount of literature suggests that an individuals' actual and perceived financial knowledge influence financial decisions (Kyrychenko & Shumb, 2009; Parker, Bruin, Yoong & Willis, 2011: Allgood & Walstad, 2016). Similarly, a common notion is that individuals' perception of their own financial knowledge is partly objective (fact-based) and partly subjective (self-confidence) (Hauff, Carlander, Garling & Nicolini, 2019:546). As noted by Hira (2016:503), most financial literacy interventions lack the subjective side of personal finance such as attitudes, beliefs, decision making and personality traits.

Financial attitude is described by Luksander, Németh and Zsótér (2017:4690) as an individual's response towards money and financial matters. Financial attitude has three components formed together. These are the cognitive dimension (objective knowledge and set of beliefs), affective dimension (relates to positive and negative feelings towards attitude) and conative dimension (behaviour towards attitude) (Luksander et al., 2017:4690). Studies show that these three components function together, therefore if one attitude component changes the other will also change (Luksander et al., 2017:4690).

An individual's attitude towards money is also a function of their personality (Luksander et al., 2017:4690). Goldberg and Lewis (1978) argue that there are different types of financial personalities depending on the individual's motivation behind accumulating money (Luksander et al., 2017:4690). The authors distinguish between three financial personalities, the collectors (collectors accumulate money to ensure security in the event of economic and environmental changes), the independent individuals (the latter accumulate money to avoid the feeling of being vulnerable) and lastly the power players (members of this group use their money to attract the attention and earn the admiration of other people).

Other authors expanded on Goldberg and Lewis' financial personalities. Forman (1987) added the gambler personality (this new group connects to the gaining of money to an intensive status of excitement and emotions). Moreover, chance games such as poker and trading with stocks can all be considered gambling (Luksander et al., 2017:4690). Later, Mellan (1994) identified nine specific financial personality types, hoarders (rather save than spend money), spenders (spend rather than save money), money monks (have guilt when they have a lot of money), money avoiders (avoid managing daily finances), amassers (want to increase wealth), bingers (spend compulsively when affected by external stimulus), money worriers (spend a lot of time keeping track of their finances), risk-takers (enjoy taking risks with money) and risk avoiders (choose security in their financial matters) (Luksander et al., 2017:4690).

Consumers should have a positive financial attitude to ensure financial well-being (Roberts et al., 2018:1). Irresponsible financial behaviour and attitudes lead to bad debt and limited saving, whereas good and sound financial decisions derive responsible financial behaviour, a positive attitude and self-control (Roberts et al., 2018:4). Moreover, extant literature has argued that psychological and behavioural factors such as personality, behaviour, internal capability and social capital should be taken into account when studying financial literacy (Mahendru, 2020:9).

For an individual to be financially literate requires being motivated, responsible, and confident in personal finance and money management (Remund, 2010:288). Financial sophistication is a characteristic of the individual responsible for financial decisions in a household (Anderson et al., 2017:395). The FSCA included financial control as a determinant of an individual's overall financial literacy level (Roberts et al., 2018:8).

Motivation to learn certain aspects of financial management is strongly correlated to different life cycle events, such as marriage, childbirth and the passing of a parent or spouse (Xiao, Collins, Ford, Keller, Kim & Robles, 2011:1). This is explained by the excitement of some life cycle stages, such as marriage or childbirth, that aspires individuals to plan and assure positive financial outcomes for that stage in life (Xiao et al., 2011:1). On the other hand, events such as divorce or death result in fear and instability, and a desire to gain control of finances (Xiao et al., 2011:1).

Financial management is embedded in the general processes of communication, feedback and decision making and involves goal setting, problem solving, planning and implementing (Hira, 2016:506; Yap, Komalasari & Hadiansah, 2018:142).

Emotional intelligence is a component in the process of financial decision making (Hira, 2016:504). Literature on behavioural economics states that individuals do not always act rationally, and their decisions are not always optimal (Hira, 2016:504). Munir, Yue, Ijaz, Zaidi and Hussain (2018:80) found a positive and significant relationship between emotional intelligence and investment behaviour since an individual having more control over their emotions proved to make better and more effective investment decisions than those who are less emotionally intelligent. The authors concluded that both emotional intelligence and financial literacy contribute to effective and efficient investment decision making (Munir et al., 2010:82).

4.2.6 Financial products and services

The last financial indicator includes choosing financial products and services. Previous studies have reported that individuals lack the necessary knowledge and skills to navigate the growing financial environment and the supply of complex financial products are increasing (Rooik, 2007:1). Many first-time employees of financial customers are overwhelmed or misinformed about the range of financial products (van Nieuwenhuyzen, 2009:74).

Klapper, Lusardi and Panos (2012) found that financial literacy affected a variety of economic decisions including having bank accounts, using bank and informal credit, having spending capacity, and the availability of unspent income (Lusardi & Mitchell, 2014:21).

Low-income individuals prefer traditional, low-risk financial products for investment purposes and individuals with low levels of financial literacy avoid risky financial products (Singhal & Singh, 2020:8). Financially illiterate individuals are more likely to take on financial products they do not fully understand (Miller, Reichelstein, Salas & Zia, 2014:2). Lusardi and Mitchell (2017) state that consumers will invest time and money to educate themselves on financial products and the financial market; however, the least educated will optimally invest little in financial literacy. Financially literate individuals are aware of different financial products (Singhal & Singh, 2020:6). The Financial Sector Control Authority (FSCA) also included product choice as part of their financial literacy questionnaire (Roberts et al., 2018:8).

On the other hand, current studies have shown that individuals lack the necessary financial knowledge and need guidance from a financial advisor when making complex financial decisions such as buying a home, planning for retirement, and deciding on investment products (Hira, 2016:503). All focus group members confirmed the importance of seeking guidance from financial SMEs.

The FSCA study showed that retirement planning and saving for the future declined between 2012 and 2017 (Roberts et al., 2018:8). A possible reason for the latter is limited access to employment and income and difficult economic times (Roberts et al., 2018:8). The socio-economic position of individuals was highlighted in the FSCA study by indicating that the older generations, wealthy and tertiary-educated are more confident in their preparations for retirement (Roberts et al., 2018:8).

The banking product that South Africans are most aware of is a savings account, followed by a bank card and a credit card (Roberts et al., 2018:9). The insurance product South Africans are most aware of is car insurance followed by life insurance and cell phone insurance (Roberts et al., 2018:9). The investment product that most South Africans are aware of is a pension fund (Roberts et al., 2018:10). Table 4-1 depicts a summary of the financial literacy indicators from the discussion above.

Table 4-1: Financial literacy indicators

Description	Financial literacy indicator	Published authors
	Financial capabilities	
The cognitive biases that may affect individuals when making financial decisions.	• Mathematical abilities ➢ Numerical skills and the ability to do calculations • Reading and comprehension skills • Self-assessed financial capabilities based on your upbringing. • The human capital or education level of ➢ Individual ➢ Father ➢ Mother	• Beal and Delpachitra 2003; • Van Nieuwenhuyzen, 2009; • Balatti et al., 2009 • Atkinson & Messy, 2012 • Thaler 2013; • Brown and Graf 2013; • Lusardi and Mitchell, 2014:10; • Agarwal, Amromin, Ben-David, Chomsisengphet & Evanoff, 2015; • Grohmann & Menkhoff 2017:402; • Gao, 2017; • Bianchi 2018, • Dinkova, Kalwij and Alessie, 2019.
	Financial knowledge and understanding:	
Understanding of money principles and concepts.	• Introductory knowledge of money basics ➢ Income and expenses ➢ Buying and selling ➢ Profit and losses ➢ Taxes and tax deductions • Understanding of how … work ➢ Bank accounts ➢ Inflation ➢ Interest rates (and compound interest) ➢ Debt (different types and the cost of debt) • Definition of ➢ Personal and Income generating assets ➢ Investments ➢ Liabilities ➢ Risk diversification (also the relationship between risk and return)	• Atkinson & Messy, 2012:12; • Hastings, *et al.,* 2013:357; • Van Nieuwenhuyzen 2009:202; • Huston, 2010:303; • Lusardi and Mitchell, 2014:10; • Klapper, Lusardi & van Oudheusden, 2015:5; • Grohmann & Menkhoff 2017:402; • Gao, 2017; • Klapper, Lusardi and van Oudheusden, 2015; • IOSCO, 2019. • Huston (2010:303)

Effective financial planning and behaviour			
The competency to monitor and manage everyday personal finances.	• Financial planning and planning ahead ➢ Monthly budget with specific categories in writing ➢ Actively saving money from a young age ➢ Managing debt (such as credit card debt and microloans) • Price knowledge and price comparisons • Awareness of fraud activity	• Hilgert and Hogarth, 2003: 310; • Van Nieuwenhuyzen 2009:202; • Huston, 2010:303; • Béres and Huzdik 2012; • Atkinson & Messy, 2012:12; • Lusardi & Mitchell, 2014;	• Klapper, Lusardi and van Oudheusden, 2015; • Asaad, 2015; • Anderson, Baker and Robinson, 2017; • IOSCO, 2019; • Meyers, 2020:7.
Positive financial attitude when making financial decisions			
The personal inclination towards favourable financial situations, being motivated, responsible and confident in personal money management.	• Perceived financial knowledge (confidence). • Financial sophistication ➢ Determination and commitment (Power in you to put away money before using it). ➢ Disciplined (Withhold some expenses and save to be better off in the future, needs *versus* wants). ➢ Motivated (Set financial goals and strive to achieve them) ➢ Responsible (Borrow money and pay it back). ➢ Willingness to ask for assistance (consulting trustworthy sources). • Emotional intelligence (psychological well-being). • Personality traits (Individuals need to understand their financial personality type)	• Hilgert and Hogarth, 2003: 310; • Van Nieuwenhuyzen, 2009:202; • Van Rooij, Lusardi & Alessie 2011; • O'Neill and Xiao, 2012; • Hastings, et al., 2013:357; • Xiao, Ahn, Serido & Shim, 2014; • Anderson, Baker and Robinson, 2017; • Bianchi, 2018	
Financial products and services			
The competencies applicable during the process of selecting financial products and platforms for buying and selling investment	• Choosing financial product ➢ Investments ➢ Loans (Mortgages, vehicle finance, personal loans) ➢ Stocks & shares ➢ Banking products ➢ Insurance	• Hilgert and Hogarth, 2003: 310; • Ameriks *et al.,* 2003; • Lusardi 2004; • Lusardi & Mitchell 2007;	• Hung *et al.,* 2009; • O'Neill and Xiao, 2012; • van Rooij *et al.,* 2012; • Atkinson & Messy, 2012:12;

products. The practical application of financial knowledge.	• Consulting financial experts for the practical application of ➢ Setting financial goals (Short, med, long-term goals). ➢ Retirement planning ➢ Estate planning	• Lusardi & Mitchell, 2017 • Van Nieuwenhuyzen, 2009:202; • Stango & Zinman, 2009;	• Anderson, Baker and Robinson, 2017.

Source: Adapted from different authors.

The researcher would like to consider two matters regarding the indicators listed in Table 4-1. Firstly, the indicators are closely linked to each other which is not suitable to determine cause-and-effect correlations (Béres & Huzdik, 2012:309). Secondly, it does not necessarily mean that a student with no income has a lower level of financial literacy compared to an individual earning an income (Béres & Huzdik, 2012:309). As a result, the indicators are ranked according to importance, by the internal and external knowledge focus groups in the next section. The ranked indicators will indicate which aspects are more important in the framework.

4.3 QUANTITATIVE RANKING OF INDICATORS

Béres & Huzdik (2012:298) recommends that researchers apply appropriate weighting between the various financial indicators, something that is not present in the current literature. After completing the focus group sessions, the baseline indicators as discussed in Table 4-1 were sent to the focus groups through a Google Form (Appendix B) to rate the categories and indicators.

Table 4-2 presents the average result of the SMEs and student rankings. The indicators are ranked in ascending order from 1st (most important) to 5th (least important) and present the research outcome of Phase D which was to determine the relative importance of the indicators and assign weights to the indicators. It is important to note that the quantitative rankings will be used in a qualitative evaluation measurement and that the focus group exercise was a qualitative exercise, and the study did not have a quantitative nature or relied on statistical power.

The five categories are listed at the beginning of the table to indicate which aspects are more important for the framework. Each category is separately listed with the corresponding indicators.

Table 4-2: Rating financial indicators according to importance

		1st	2nd	3rd	4th	5th
Categories						
A.	Financial capabilities	√				
B.	Financial knowledge and understanding of money concepts		√			
C.	Effective financial planning and behaviour			√		
D.	Positive financial attitude when making financial decisions				√	
E.	Financial products and services					√
A	**Category A: Financial capabilities**					
	Mathematical abilities (Numerical skills and the ability to do calculations)	√				
	Reading and comprehension skills		√			
	Self-assessed financial capabilities			√		
	The education level of individual				√	
	The education level of parents					√
B	**Category B: Financial knowledge and understanding of money concepts**					
	Introductory knowledge of money basics (Income and expenses, Buying and selling, Profit and losses and tax and tax deductions).	√				
	Understanding of how (Bank accounts, Inflation, Interest, different types of debt and cost of debt) work.			√		
	Definition of (Personal assets, Income-generating assets, Investments, Liabilities and the relationship between risk and return).		√			
C	**Category C: Effective financial planning and behaviour**					
	Financial planning (Having a monthly budget with specific categories, actively saving money, Making debt such as credit card debt and microloans)	√				
	Price knowledge and price comparisons		√			
	Awareness of fraud activity			√		

D	**Category D: Positive financial attitude when making financial decisions**					
	Perceived financial knowledge (confidence)	√				
	Financial sophistication (Determination and commitment, Disciplined, Motivated and responsible and willing to ask for guidance (consulting a financial advisor or friends and family)		√			
	Emotional intelligence (psychological well-being)			√		
	Personality traits				√	
E	**Category E: Financial products and services**					
	Choosing financial products (Investments, Loans such as mortgages, vehicle finance and personal loans, Banking products and Insurance).	√				
	Consulting financial experts for the practical application of (Setting financial goals, Retirement planning and estate planning).	√				

Source: Collective input from focus groups, transcribed by author.

The rankings suggest that importance in the category from most important to less important is, Financial capabilities, financial knowledge, financial planning and behaviour, positive attitude and, lastly, financial products and services. Financial products and services were individually also ranked as first or equally important. These findings should make an important contribution to research.

4.4 CONCLUSION

In conclusion, the purpose of Chapter 4 was to provide a background of the different existing interventions in South Africa and to identify indicators that are positively correlated with financial literacy. The financial literacy indicators were confirmed and rated in Phase C and presented in Table 4-1 as well as quantitatively ranked in Phase D and presented in Table 4-2. The list of indicators will provide a structured base of content evaluation for the framework to be designed as a contribution of the study.

To address the research gap of the study, the current limitation of evidence in the research field motivated the researcher to identify key financial literacy indicators to assist in measuring the impact of financial literacy interventions. Some financial indicators identified in the literature review included financial capabilities, understanding of financial concepts, financial planning, financial behaviour and financial products. These indicators are all correlated with financial literacy.

Chapter 4 confirmed the indicators of financial literacy through the comprehensive literature review (CLR) and focus groups with SMEs and individuals that have been trained in the financial literacy centre. From the preceding discussion, the indicators are divided into five predominant categories, financial capabilities, financial knowledge and understanding of financial concepts, effective financial planning and behaviour, positive financial attitude and financial products and services. Each financial indicator is confirmed to include reliable and viable financial indicators for the targeted case study, that is, university students at a South African university. In Chapter 5, the findings of the thematic analysis will be reported.

CHAPTER 5
THEMATIC ANALYSIS: CASE STUDY RESULTS

5.1 INTRODUCTION

Low levels of financial literacy have an impact on personal well-being and the financial potential of a household, as well as hinders the financial market development and investment processes and leads to the aggravation of the socio-economic situation of the country (Vovchenko, Danchenko & Kostoglodova, 2018:17).

The South African government together with institutions, departments, financial services providers and organisations implemented financial education programmes to improve the financial literacy levels of the country (Harrison, 2016:2). Nevertheless, the financial literacy interventions lack impact evaluation (Sibanda & Sibanda, 2016:31; Harrison, 2016:2). The impact of financial education programmes needs to be measured to adapt existing or newly developed programmes in such a way that the consumer, community and the economy can benefit from the use of financial literacy programmes.

The OECD defines impact as "'positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended" (Hearn & Buffardi, 2016:8). Tangible impacts are impacts that can be touched or quantified; whereas intangible impacts cannot be physically touched but rather experienced (Scholtz & Slabbert, 2016:109). Tangible and intangible impacts can be either positive or negative. The intended or unintended impact can also be either foreseen or unforeseen (Hearn & Buffardi, 2016:9).

Sithole (2012:92) maintains that monitoring and evaluation of an intervention assess the impact of the programme to plan more effectively and avoid repetitive mistakes. The impact can be evaluated before, during or after a programme to (i) determine whether and how the intervention was successful in achieving planned outcomes; (ii) determine if the impact was positive or negative and whether to stop, continue or adapt the intervention; and (iii) draw lessons for other similar interventions. (Hearn & Buffardi, 2016:6).

Impact evaluation uses counterfactual techniques; however, qualitative impact evaluation relies on understanding processes, observing behaviours and conditions as they are perceived by individuals being studied (ADB, 2006:2). The qualitative evaluation draws conclusions from interviewing participants to get personal opinions and conducting focus group discussions (ADB, 2006:2). A case in point is impact assessment that reflects changes using participants' knowledge about the conditions in the project (ADB, 2006:2).

The use of practical indicators as an evaluation component is advised to indicate a change in the individual's financial perception or behaviour (Fox, Bartholomae & Lee, 2005:203). The primary purpose of the study is to develop a framework of indicators to evaluate the content and impact of financial literacy interventions. This chapter presents the thematic data analysis of the university student interviews and focus group discussions and added insight to answer the first two research questions: What are the content indicators of financial literacy based on the literature?" and "What is the impact of a financial literacy intervention on perceptions regarding personal finance?". This chapter includes all four qualitative data analysis methods: coding, statistics, narrative and content analysis. The evaluation framework will be presented as a creative illustration representation that is used as a continuous evaluation cycle with different measurements (themes).

The case study analysis followed the hierarchical approach for the thematic analysis of Creswell (2014:197) (See Figure 2-4[11]). ATLAS.ti was used to organise the raw data (interviews, focus group discussions and field notes) by using line-by-line coding and generated themes to build additional layers of complex analysis. The researcher conducted semi-structured interviews with 30 students from a South African university, from which four students and four subject matter experts (SMEs) participated in the focus group discussions.

[11] See Figure 2-4 - Chapter 2; page 41.

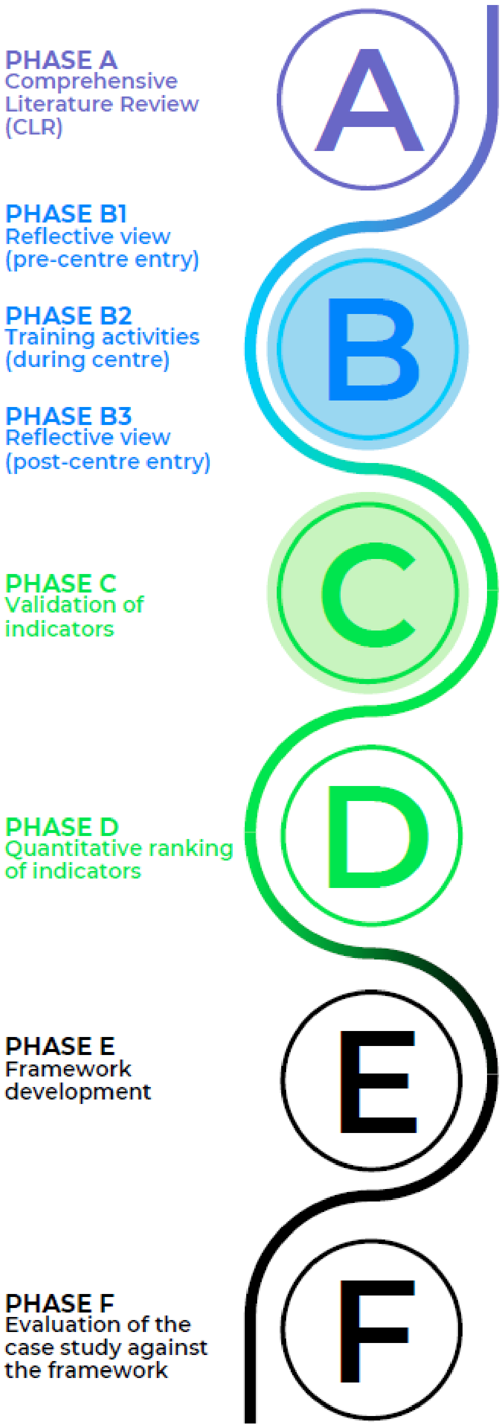

Figure 5-1: Phases of the study relevant to Chapter 5
***Source:* Author's compilation**

Figure 5-1 illustrates the use of Phase B and Phase C in the thematic analysis. The pre and post-reflection of financial literacy interviews were conducted in Phase B1 and Phase B3, respectively to recognise a perception change and in Phase B2 the students entered the financial literacy centre where they received financial education. The reflection interviews of Phase B1 and B3, together with the focus group discussions in Phase C (focus group contextualisation) are analysed in ATLAS.ti.

Chapter 5 presents quotations from students as well as focus group members to contextualise the content or confirm the principles identified as measurements for the evaluation framework. Jarabeen (2009:51) explains that a conceptual framework can be described as a network of interlinked concepts, that is codes, categories and themes, to provide a complete understanding of the phenomena.

Section 5.2 gives background to the thematic analyses while sub-sections 5.2.1 to 5.2.4 interpret the findings of the intervention and theorise them concerning the themes relevant to the research questions. Section 5.3 illustrates the network view of the relationships between the codes identified using ATLAS.ti. The second last section considers sustainable development in interventions and Section 5.5 concludes the findings chapter.

5.2 THEMATIC ANALYSIS

Thematic analysis is a method used in qualitative research to determine themes by analysing the meaning of words in different data sources and identifying the most frequent results (Hill, Knox, Thompson, Williams and Hess, 2005:15). The data is analysed and interpreted to answer the research questions and generate theories. The qualitative data analysis included coding, narrative and content analysis (See Table 2-5[12]).

Case study researchers should consider an analytic strategy before embarking on coding and analysing the data (Bryman, Bell, Hirschsohn, Dos Santos, Du Toit, Masenge, Van Aardt & Wagner, 2011:357). An inductive process is when the researcher comprises a set of themes by working backwards and forward between themes and databases. (Creswell, 2014:185). A deductive process is when the researcher identifies more evidence from the data and literature that can assist the themes. (Creswell, 2014:185).

The researcher started with a deductive approach relying on theoretical propositions and a review of relevant literature (Bryman *et al.,* 2011:357). Thereafter, the researcher relied on an inductive process for coding the case study to identify broad themes (Bryman *et al.,* 2011:357).

After the paradigm is decided on, Creswell (2014:196) suggests a six-step hierarchical approach to thematic analysis (see subsection 2.4.4[13]). The six steps reflect linear and interrelated stages of analysing qualitative data. In the discussion that follows, the six steps are applied to the research study.

[12] See Table 2-5 - Chapter 2; page 34.
[13] See sub-section 2.4.4 - Chapter 2; page 41.

a. Step 1: Transcribe and organise raw data (field notes, interviews, visual material) for analysis.

The student interviews (Phase B) and focus group discussions (Phase C) were transcribed using Otter.ai, which established a permanent written record of the case study data and focus group discussions and served as the basis for further analysis. Otter.ai is an online application that generates written transcriptions from speech using artificial intelligence and machine learning (Otter.ai, 2021).

b. Step 2: Reading through all data and collecting general ideas and thoughts.

The data was imported to ATLAS.ti for analysis and included 34 documents. ATLAS.ti supports raw data, such as field notes from observations, reflective notes whereby the researcher documented ideas, thoughts and concerns and coding participant nuance. The research questions guided the collection of general ideas and thoughts to identify codes (single phrases), categories (grouped codes) and themes (overarching features of participants, characterising particular perceptions and experiences) for the thematic analysis.

c. Step 3: Start coding and segmenting all the data.

The coding practice in ATLAS.ti consists of categorising or grouping similar elements (Friese, 2019:69). Coding in a technical sense means assigning a label to a data segment that frequently emerges in the data (Friese, 2019:70). A code can be a concept, description or single word (Friese, 2019:104). Codes can also be referred to as building blocks used in the framework development (Bryman et al., 2014:346).

The researcher coded the interviews and focus group discussions through line-by-line coding which made the process interactive and comparative. This includes identifying phrases or words line-by-line that best describe the data (Birks & Mills, 2015:10). In this instance, the coding of data was to identify (i) the perception of financial literacy, (ii) perception change and (iii) financial literacy indicators. The first round of coding the raw data resulted in forty-four codes. Thereafter, codes were refined and combined into twenty-three codes.

The list of financial literacy indicators identified in the CLR, confirmed and ranked by the focus groups, was also coded to reflect the financial concepts that should be taught in financial literacy interventions. These codes are reflected in Code 1 – Code 11. The coding of interviews, focus group discussions, field notes and interpretations of participants was done in conjunction with data collection. These codes are reflected in Code 12 – Code 23.

d. Step 4: Use the coding process to generate detailed descriptions for the case study such as categories and build additional layers of complex analysis through themes.

Essentially, codes are grouped to form tentative categories or “families” (through memo writing). Categories are formed by more than two codes grouped together to reflect real-life phenomena (Bryman et al., 2014:346). From the codes, seven overarching categories emerged throughout the dataset which includes: *Category A*: Content checklist (Code 1), *Category B*: Financial skills (Code 2 – Code 8); *Category C*: Financial knowledge (Code 9 – Code 11); *Category D*: Description of financial knowledge (Code 12 – Code 14); *Category E*: Perception of financial literacy (pre and post- training) (Code 15 and Code 16); *Category F*: Positive financial attitude when making financial decisions (Code 17 – Code 19) and *Category G*: Profile of a financial literate student (Code 20 – Code 23). Finally, categories are grouped to form main themes. A theme is a responsive pattern within and across categories.

Theme development is the basis of qualitative research and starts during the coding, interpretation and abstraction process (Vaismoradi & Snelgrove, 2019:9). These categories were initially categorised into three distinct themes, Theme I: Content measurement (*Category A to C*: Checklist, Financial skills and Financial knowledge), Theme II: Perception measurement (*Categories D & E:* Description of financial knowledge and Perception of financial literacy) and Theme III: Influences (*Categories F & G*: Positive financial attitude when making financial decisions and profile of a financial literate student).

Considering Yin (2009:121) analytic techniques, the researcher applied the following techniques: pattern matching (comparing patterns in the empirical data with theoretical literature), explanation building (establish causal links) and time series (track changes over time). Themes have the analytic importance of translating participants' perspectives into the language of decision-making (Vaismoradi & Snelgrove, 2019:9). The research questions determined the three distinct themes as presented in Table 5-1.

Table 5-1: Thematic coding framework relevant to research questions

Research questions	Distinct themes
1. What are the content indicators of financial literacy based on the literature?	1. Content of financial literacy interventions
2. What is the impact of a financial literacy intervention?	2. Perception change measurement 3. Influences

Source: Author's construction.

The emerging themes are explained in sub-sections 5.2.1 – 5.2.4.

e. Step 5: Present the themes in a qualitative narrative.

Before the results are presented, the transparency of the methodology supports the actions of the researcher. To ensure researchers are managing and documenting their data accurately and comprehensively, the approach 'qualitative reliability' is suggested by Creswell, (2014:201). In qualitative studies, the coding process and data transcripts should be checked thoroughly by reviewing and validating the codes to make sure the codes are reliable (Creswell, 2014:201). The themes were supported by different data sources to add to the validity of the study. The researcher revisited the data collection and codes to reconcile regularly. It is also possible to replicate the study in other interventions focused on financial literacy in a student environment.

Triangulation is ensured through qualitative validity and includes the examination of different data sources to build justification for themes (Creswell, 2014:201). As the study unfolded in the different phases and more information became known, steps were taken to examine the information against at least one other method that is the focus groups and/or one other source that is, observation and field notes written by the researcher. Silverman (2006) argues validating the trustworthiness of the data through a second source of method can produce more accurate, objective, and comprehensive findings.

Hill et al., (2005:15) suggested that results should be labelled by the frequency of occurrence to allow researchers to present results that are true for a section of the sample. In the case study intervention sample of thirty participants, Hill et al., (2005:16) recommended that the label *"rare"* is used for codes that occurred for two to three participants, *"Variant"* for four to fourteen participants, *"Typical"* for fifteen to twenty-eight participants and if findings are true for twenty-nine participants, the label *"General"* is used.

Similarly, for eight participants in the focus groups, *"rare"* is used for a code that occurred for one participant, *"Variant"* for two-three participants, *"Typical"* for four-eight participants. The code *"General"* is not applicable since it is used for fifteen or more sample sizes. The symbol ***n*** in Table 5-2 represents how many times the specific code was mentioned across the recordings and focus group discussions. This shows how strong a specific code was.

Direct quotes from participants are used to personalise the extracts from the data. All names have been changed to identifiers to protect participant identity. The term "FG" and "CS" is linked to the focus group and case study participants, respectively. FG members one to four represent the internal knowledge providers, whilst FG members five to eight represent the external knowledge providers. The identifying code M (for male) and F (for female) after FG/CS is a reference to the gender of the participant.

The themes are displayed in Table 5-2 as the thematic framework. The thematic framework includes the phrases from indicator literature, interviews, focus group discussions and field notes coded and categorised to form themes. The first emerging theme focussed on indicators embedded in literature to evaluate the content of financial literacy interventions. The second and third themes, identified perception change with explanation building and factors that influence perception.

Table 5-2: Thematic framework

	THEME	AIM		CATEGORY		CODE	*n* = *30*	Frequency students (Phase B)	*n* = *8*	Frequency Focus Groups (Phase C)
I.	**CONTENT MEASUREMENT**	Evaluate the content of the intervention based on financial literacy indicators as well as the participants' financial skills and knowledge.	**A**	CHECKLIST	**1.**	Indicators of financial literacy (CLR)	29	General	8	Typical
			B	FINANCIAL SKILLS	**2.**	Mathematical, reading and self-assessed financial capabilities (interest in the topic and your upbringing)	8	Variant	3	Variant
					3.	Education level of the individual, father and mother	7	Variant	4	Variant
					4.	Financial planning and planning ahead	24	General	8	Typical
					5.	Price knowledge and price comparison	0	Rare	4	Typical
					6.	Awareness of fraud activity	0	Rare	2	Variant
					7.	Choosing financial products	13	Variant	5	Typical
					8.	Consulting financial experts	4	Rare	8	Typical
			C	FINANCIAL KNOWLEDGE	**9.**	Introductory knowledge of money basics	19	Typical	7	Typical
					10.	Understanding how economic concepts work	23	Typical	4	Typical
					11.	Definition of financial concepts	18	Typical	2	Variant
II.	**PERCEPTION CHANGE MEASUREMENT**	Evaluate the impact of intervention	**D**	DESCRIPTION OF PERCEIVED	**12.**	Experience confidence	11	Variant	-	Only applicable to university students.

		directly after based on perception change.		FINANCIAL KNOWLEDGE	**13.**	Moderate	11	Variant	-	Only applicable to university students.
					14.	Inexperienced	8	Variant	-	Only applicable to university students.
			E	PERCEPTION OF FINANCIAL LITERACY	**15.**	Perception of financial literacy before training	30	General	-	Only applicable to university students.
					16.	Perceptions of financial literacy after training	30	General	-	Only applicable to university students.
III.	**INFLUENCES**	Consider internal and external influences that influence the participant's self-reflection of financial literacy before and after the intervention.	**F**	POSITIVE FINANCIAL ATTITUDE WHEN MAKING FINANCIAL DECISIONS	**17.**	Perceived financial knowledge (timeframe, upbringing)	7	Variant	3	Variant
					18.	Emotional intelligence	2	Rare	5	Typical
					19.	Personality traits	3	Rare	3	Variant
			G	PROFILE OF A FINANCIAL LITERATE STUDENT.	**20.**	The demographic background of participants	30	General	5	Typical
					21.	External influences (Exposure from parents, field of study, social media and work)	27	General	7	Typical
					22.	Internal influences (Perceived knowledge, Risk profile, Interest in the topic, choice of studies)	3	Rare	5	Typical
					23.	Life cycle	4	Variant	4	Variant

Source: Author's construction.

f. Step 6: Interpret the qualitative research of the findings and compare findings with theories and the general literature on financial literacy.

In qualitative research design, literature has different purposes in different phases of the study. Firstly, in Phase A, the comprehensive literature review (CLR) was conducted to understand the problem statement of the study. Secondly, during the process of framework development, literature is used to validate the codes and themes identified in the data analysis as well as to identify gaps in the literature for future research. The themes are presented in a qualitative narrative and the findings are interpreted and compared with corresponding literature and theories on financial literacy in the discussion that follows.

The thematic framework is followed by the discussion of the themes together with the specific codes related to them. Therefore, sub-section 5.2.1 – 5.2.3 is presented by the measurement theme together with the corresponding category (5.2.1.1 – 5.2.1.2; 5.2.2.1 – 5.2.2.2; 5.2.3.1 – 5.2.3.2) and code (a, b, c) to validate the theme. The first theme of the thematic framework in Table 5-2 reports the financial literacy indicators and includes the validation of the indicators through focus group discussions.

5.2.1 THEME 1: CONTENT MEASUREMENT

The first theme attempts to evaluate whether the financial literacy intervention's content covers all of the most important financial literacy indicators. To evaluate the content, the first theme is interconnected to the first research question: "What are the content indicators of financial literacy based on the literature?" To evaluate the content of the financial literacy centre, the first theme is also linked to the third research question: "What are the most important and relevant indicators of financial literacy within the South African context?" The financial literacy indicators were identified in the CLR in Chapter 3, verified and ranked in Chapter 4 and presented as a checklist below.

5.2.1.1 Category A: Content checklist

a. Code 1: Indicators of financial literacy

The content checklist is constructed from the financial literacy indicators identified in the CLR (Phase A), confirmed and ranked according to importance by the focus group discussions (Phase C and Phase D, respectively) and will act as an analytical tool to evaluate the content of financial literacy interventions. The √-symbol indicates the successful compliance of the contents of the financial literacy intervention (case study) with the most important financial indicators listed in Table 5-3.

Table 5-3: Quantitatively ranked financial indicators used for content evaluation

Rank Position	Financial literacy indicator	Complied
1st	• Mathematical, reading and self-assessed financial capabilities	√
	• The human capital or education level of ➢ Individual ➢ Parents	√
2nd	• Introductory knowledge of money basics ➢ Income and expenses ➢ Buying and selling ➢ Profit and losses ➢ Taxes and tax deductions	√
	• Definition of ➢ Personal assets ➢ Income-generating assets ➢ Investments ➢ Liabilities ➢ Risk diversification (also the relationship between risk and return)	√
	• Understanding of how … work ➢ Bank accounts ➢ Inflation ➢ Interest rates (and compound interest) ➢ Debt (different types and the cost of debt)	√
3rd	• Financial planning and planning ahead ➢ Monthly budget with specific categories in writing ➢ Actively saving money from a young age ➢ Managing debt (such as credit card debt and microloans)	√
	• Price knowledge and price comparisons	√
	• Awareness of fraud activity	√
4th	• Financial sophistication (Determination and commitment, Disciplined, Motivated and responsible and willing to ask for guidance (consulting a financial advisor or friends and family))	√
	• Emotional intelligence (psychological well-being)	√
	• Personality traits	√
5th	• Choosing financial product ➢ Investments ➢ Loans (Mortgages, vehicle finance, personal loans) ➢ Stocks & shares ➢ Banking products ➢ Insurance	√
	• Consulting financial experts for the practical application of ➢ Setting financial goals (Short, medium and long-term goals). ➢ Retirement planning ➢ Estate planning	√

Source: Authors' construction.

It is important to note that the indicator perceived financial knowledge is excluded from the content checklist as the indicator is not in line with teachable financial concepts.

Whereas the remaining indicators listed under the category – 'positive financial attitudes' are included since the OECD (2019:3) reasons financial literacy intervention should design tools that encourage better financial attitude. Financial literacy interventions should focus on making participants aware of their attitude, emotional intelligence and personality traits. Financial literacy interventions should provide participants with practical techniques to prevent unnecessary or compulsive purchases and improve overall financial attitudes. The SMEs also highlighted the importance of an individual being aware of emotional intelligence as well as their own or their partner's personality traits.

Table 5-3 informs the intervention designer about the important financial concepts and knowledge that should be addressed in the intervention, keeping time restrictions in mind. The information evaluation of an intervention also includes participant skills and financial knowledge.

5.2.1.2 Category B: Financial skills

a. Code 2: Mathematical, reading and self-assessed financial capabilities

FG3 (M) stated: "It is important that a participant can read and write and have mathematical abilities since it would be challenging to explain compound interest to somebody that does not have the comprehensive skills". According to Maconi (2016:151), financial literacy participants should acquire a level of conventional literacy, that is, the ability to read and write, before participating in the intervention. Miller, Reichelstein, Salas and Zia (2014:3) claims mathematical skills benefit students through greater levels of financial market participation, increased investment income, and improved debt management. In addition, Lusardi & Mitchell (2014:10) shows a strong link between individuals' mathematical abilities and their financial prosperity and community engagement.

In the light of gaining financial knowledge and capabilities in a specific field of study, FG2 (M) had the following to say: "Understanding concepts can be easier for some students based on the type of study background they have for example someone in the Economics and Management Sciences Faculty, however, for someone in the Faculty of Engineering it is also possible to gain financial knowledge without the exposure thereof in their field of study. The engineering student can have self-assessed financial capabilities for the reason that they were interested in economics and finances and wanted to have the financial knowledge and understand the concepts." Hence, they invested their time to learn more about financial concepts without being exposed through their field of study.

FG3 (M) agreed with the statement: "I agree. The people that know how the financial world works are the people making the money out of other people. However, if the engineer had a course in finance, he would know how to manage the monetary resources he is going to accumulate. Another case in point is a pharmacist, they will need to ask assistance from a family member, friend or financial advisor to be informed on how they are going to let their money work for them as their field of study does not include financial education."

From the researcher's field notes the researcher acknowledged a conversation with a participant from the Health Science faculty that mentioned she realised the importance of being financially literate however did not have any exposure to obtaining financial knowledge before the training. More noteworthy was her comment about feeling empowered after receiving training.

b. Code 3: Education of the individual, father and mother

Financial literacy education contributes to the formulation of a new generation of financially educated society (Philippas & Avdoulas, 2020:379). Higher education levels promote financial decisions and socio-economic independence (Singhal & Singh, 2020:2) As previously discussed, individuals with more education earn a higher income and tend to make sound financial decisions contributing to building wealth (Wolla & Sullivan, 2017:3).

Interestingly, all focus group respondents agreed that education is an important indicator however, when asked to indicate what level of education is sufficient, it was observed that financial literacy should probably not be based on a level of education. FG5 (M) answered: "I would not specifically put it on a level of strength, but the concepts of accounting in grade eight and nine would probably be sufficient to understand financial principles".

FG5 (M) argued: "Supposedly, the Economics and Management Science (EMS) school subject (taught from grade 7 onwards) can account for students' financial knowledge, however, many of the teachers do not fully understand the principles, and therefore the students do not understand it themselves".

FG7 (M) responded: "You do not have to be an expert in preparing a balance sheet or income statement. However, you need to understand what profit and loss are, what selling price and the cost is and what interest and debt is". This is parallel with Aprea, Wuttke, Breuer, Koh, Davies, Greimel-Fuhrmann and Lopus (2016:1) that state the ability to understand and use finance-related information is not just for professionals in the field but also for every individual managing their financial affairs.

Stocks of financial knowledge are also obtained through parent financial knowledge formation. There is a strong correlation between parent and child financial knowledge formation (Ermisch, Jantti, & Smeeding 2012:122). The human capital theory explains (see sub-section 3.2.2.3)[14] that a child or individual's investment in capabilities leads to further skills development and capacity building. Mutual benefits across generations within the same family translate from human capital investments as parents improve their education and get better jobs with higher earnings, they will

[14] See sub-section 3.2.2.3 - Chapter 3; page 56.

have more financial resources to invest in their children (Sommer, Sabol, Chor, Schneider, Chase-Lansdale, Brooks-Gunn, Small, King, & Yoshikawa, 2018:121). This is known as a two-generation human capital approach.

A study by Meyer (2020:7) found that an individual's financial literacy is more correlated with parental financial knowledge than formal education. Similarly, Ermisch, Jantti and Smeeding (2012:122) found a strong correlation between parent and child financial knowledge formation. Subsequently, if one generation of young adults can be impacted, the positive influence will be passed over to their children (Meyers, 2020:7).

FG7 (M) added that it is important to have the financial knowledge and to know how to apply it: "It starts with a certain level of financial knowledge, but then taking that knowledge and having a parent or mentor taking one through the process of understanding and explaining certain concepts and showing you how it works practically. There is no point in only having book knowledge and no one shows you how to apply it or how it should be managed on a day-to-day basis".

c. Code 4: Financial planning and planning ahead

As FG1 (F) mentions: "Financial literacy asserts having the power in you or the discipline to save". FG3 (M) responded: "I agree, it is within your own power to create a habit of saving and if the individual requires assistance, they should have the willingness to ask for guidance". FG2 (M) continued signifying the importance of planning and saving by saying: "Pay yourself first. I strongly live by that every month when my salary pays in."

Savings are positively correlated to financial literacy, and especially the literacy of the household (Singhal & Singh, 2020:3). FG2 (M) argued that: "You do not have to be a financial expert to start saving for a pension, be determined to put away that money every month when you start working". The latter is parallel to what FG8 (F) said about parents playing an important role in their children being financially literate: "In a house environment, more is caught than taught and the parents have a huge role in exposing their children to financial concepts so that it is just easier for them to flow into the more difficult concepts".

On the topic of having a budget, FG6 (M) expressed that one should be disciplined: "Some people have budgets however, they are not keeping records or referring back to their budget every month." As FG7 (M) stated, "Budgets should also be a detailed monthly estimate with specific categories and people should be taught what categories there are". FG6 (M) replied: "There are specific percentages from the Consumer Council to allocate to the different parts in a personal budget". This supports the content of the financial literacy centre on university grounds which includes percentages allocated to different categories in a budget (See). FG7 (M) agreed and added: "People need some guidance on ranges of spending within certain categories".

d. Code 5: Price knowledge and price comparison

Price comparison concerning discounted prices. FG3 (M) used the example of “One kilogram of Milo is more affordable than buying two 500g containers. Also, FG2 (M) gave an example “When you look at the price on the left-hand corner of the price tag it shows how much you pay for 100g of that product. Something smaller has a lower cost however, it is not economical as you will save more when buying the larger quantity of the product”. FG5 (M) also confirmed the importance of price comparison concerning quality versus quantity in products.

e. Code 6: Awareness of fraud activity

Lastly, being aware of fraud activity is important as you assume it will not happen to you. As FG2 (M) points out: “regardless of your age, it is going to happen to you at some point in your life”. According to Engels, Kumar and Philip (2020:420), individuals with greater financial knowledge have a higher propensity to detect fraud. Being financially knowledgeable enables an individual to be more attentive to fraud risk by reducing their ignorance of fraudulent scams and cultivating greater effectiveness in detecting fraud (Engels et al., 2020:421). Finally, Engels et al., (2020:421) state that prudent financial behaviour can reduce an individual’s exposure to be a target for fraud.

f. Code 7: Choosing financial products

A common view among the participants was the limited time to educate during a financial literacy intervention and the need to focus on financial products relevant to the audience. This will also be determined by the participant’s stage in the life cycle.

g. Code 8: Consulting financial experts

FG1 (F) alluded to the notion that “if you are not financially literate, you need to at least speak to a financial advisor, that can help you manage your money”. Literature shows the implication of low-literacy individuals are the mistaken beliefs about financial products and having no confidence to ask for financial advice (Anderson *et al.,* 2017:383).

An individual with more financial knowledge faces a lower cost of thinking beneficially about retirement, similarly, an individual with apprehension regarding retirement will invest more in financial knowledge (Delavande, Rohwedder and Willis, 2008:3).

Financial education is an important component of an individual’s financial well-being (Birkenmaier & Maynard, 2016:2). The World Bank identifies financial education and access to financial products and services as essential for financial interventions to be targeted and relevant (Birkenmaier & Maynard, 2016:2).

5.2.1.3 Category C: Financial knowledge

a. Code 9: Introductory knowledge of money basics

During the focus group discussion, it was evident that “financial knowledge goes beyond an educational perspective since the financial savvy of informal traders that do not necessarily have a financial education background is a case in point and should therefore also include financial concepts such as buying, selling, profits and losses". As FG5 (M) reported: "Also having introductory tax knowledge is important".

FG2 (M) also felt that introductory tax knowledge is relevant and should be taught in school: "Why aren't we learning how to do our taxes already in school, because when you start working you need to know how to do your tax return submission, or you need to save money for a private sector company that charge an average fee per transaction for their service".

These findings echo the importance of managing budgets subject to income constraints, monitoring financial accounts, handling credit cards, saving for emergencies and retirement, investing, purchasing insurance to reduce risk, paying taxes and dealing effectively with financial matters in today's complex financial world as stated by Allgood and Walstad (2016:675).

b. Code 10: Understanding how economic concepts work

Hastings (2018:1) claims consumers make poor financial decisions since they lack understanding of basic financial and economic concepts such as investment, interest rates, compound interest, inflation and risk diversification. FG5 (M) expressed the importance of a depth of understanding: "how bank accounts, interest and inflation work". FG7 (M) added to the previous statement: "It is one thing to manage your debt, but it is firstly important to understand different types of debt and how the cost of debt works".

Notably, young adults rely on the high cost of borrowing and lack understanding of basic financial and economic concepts, which undermines their efforts to establish themselves as well-functioning adults (Lusardi & Mitchell, 2014:5). FG8 (F) stated: "There is a difference between the academic view of financial concepts and having a deeper insight in what for example inflation is and how it works". This is in line with what FG3 (M) said on the cost-of-living adjustment: "Understanding that the amount you save needs to adjust accordingly with your salary, as the cost of bread is not going to be the same when you retire. Therefore, it is important to create a sense of urgency of how much you save against how much you need to save taking your expenses into account".

c. Code 11: Definition of financial concepts

Lastly, under the financial knowledge category, FG6 (M) added: "It is important that individuals know and understand the different definitions for assets and liabilities". FG7 (M) replied: "I think people need to understand the difference between personal assets and income-generating assets". FG7 (M) added under risk diversification, "It is important to understand the concept of risk and return, specifically the relationship between the two". According to Singhal and Singh (2020:3), financial literacy has an increasing effect on financial risk tolerance, which means that an increase in financial risk implies an increase in risk tolerance.

5.2.2 THEME 2: PERCEPTION CHANGE MEASUREMENT

Current evidence of the impact of financial literacy interventions was limited since most financial education programmes do not include impact evaluation as a component of their programme design (Austin & Arnot-Hill, 2014:306). This study evaluates the impact of financial literacy interventions by employing a non-experimental evaluation design (pre-post design) to address the second research question "What is the impact of a financial literacy intervention?"

The results of the participants' perception change are included as a component in the framework evaluation since the theme had a recurring presence during the case study evaluation and was finally used during the development process of the framework. Quotations of the case study participants were included to confirm the different codes. The pre-reflection interview question: "How do you experience/ describe your own financial literacy?" is discussed in Category D.

5.2.2.1 Category D: Description of perceived financial knowledge

Confidence in financial knowledge is better known as perceived financial knowledge and reflects a self-perceived level of financial literacy (Asaad, 2015:102).

a. Code 12, Code 13 and Code 14: Experience confidence in financial literacy, having moderate financial literacy or inexperienced.

Participants' own descriptions of their financial literacy were coded based on the level of nuance, confidence in financial literacy, having moderate financial literacy and being inexperienced. The sub-code (experience confidence) is used for quotations similar to "I am pretty clued up regarding financial literacy". The sub-code (moderate) is used for "My financial literacy is moderate; I think it can be better", and lastly, the sub-code (inexperienced) is used for quotations similar to "At the moment, my financial literacy is not that great".

Table 5-4: Description of participant's own financial literacy

Indicator	*n*	Frequency
Description of own financial literacy (experience confidence)	13	Variant
Description of own financial literacy (Moderate)	11	Variant
Description of own financial literacy (inexperience)	6	Variant

Source: Transcribed by author.

From Table 5-4 it is possible to assume that most of the participants have a good amount of confidence when considering their own financial literacy. The researcher expects more of a realisation and awareness change than complete behavioural change. This reflects the statement by Harrison (2016:2) that individuals are more aware of financial literacy in recent years as a result of financial literacy interventions.

5.2.2.2 Category E: Perception change

A common notion is that individuals' perception of their own financial knowledge is partly objective (fact-based) and partly subjective (self-confidence) (Hauff, Carlander, Garling & Nicolini, 2019:546). The interview question "What is your understanding of financial literacy before and after receiving training?" is discussed in Category E.

a. Code 15: Perception of financial literacy before receiving training

In Phase B1, participant interviews were collected and transcribed in Otter.ai. Thereafter, the extracts were imported to ATLAS.ti to be coded and presented in the Venn-Diagram below. Figure 5-2 visually illustrates the similarities of participants' perceptions of financial literacy. The perception extracts were organised in three overarching concepts and presented by the circles as financial knowledge, financial skills and financial behaviour. The researcher found the diagram fitting as the circles overlapping present the participants who have a commonality in the perceptions of financial literacy before training.

Figure 5-2: Similarities of participant's perception of financial literacy
***Source:* Author's compilation**

The number depiction refers to the financial literacy indicators present in the participant's perception before receiving training. Seven participants' reflections on financial literacy before the intervention related to financial knowledge and three participants' views reflected financial knowledge and behaviour. The majority of the participants related to behaviour and money management. These reflections support the ideas of Herawati and Dewi (2020:134) that describe financial literacy as two basic concepts, financial knowledge and behaviour. What is noteworthy is, the focus group discussion among the SMEs summarised being financially literate as having financial knowledge, behaviour and a set of basic skills.

In addition, one participant included having a set of skills to make beneficial financial decisions. Five participants included financial knowledge, behaviour and a set of skills in their current reflective view of financial literacy.

b. Code 16: Perception of financial literacy after receiving training

The post-intervention interviews were transcribed in Otter.ai and coded in ATLAS.ti. The researcher identified recurring financial concepts in the reflections, composed the frequency of occurrence and converted the frequency to percentages.

The training was successful as the researcher was able to detect evidence of perception change. Considering the interactive game results, the students had a depth of understanding of financial concepts. The observed perception change could be attributed to financial education since participants' response before the training was broad compared to after training. The post-intervention reflections were more specific, indicating a broader understanding of financial concepts they were made aware of in the training.

An extract from CS1 (F) is a point in case: "My understanding of financial literacy after receiving training is more or less the same. It has just been confirmed to me, the importance of managing your finances." Figure 5-3 presents the specific financial concepts identified in the post-intervention reflections and the percentage of awareness change, that is, how many students recognised a specific financial concept in their interview post-training compared to Figure 5-2 (see sub-section 5.2.2.2) where students expressed three concepts to describe their perception of financial literacy before receiving training.

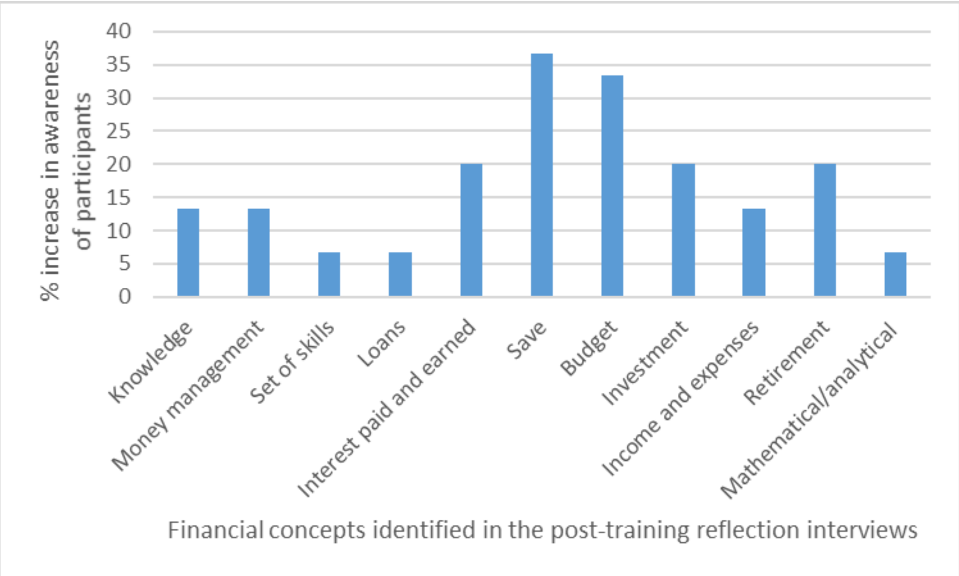

Figure 5-3: Increase in awareness of financial concepts after training
Source: Transcribed by the author.

Figure 5-3 shows that training is attributed to being aware of different financial concepts, such as savings and budgeting. CS28 (F) responded with: "My understanding of financial literacy has improved, it was a refreshing experience, as you get busy with everyday life and do not think about the importance of, for example, saving money. You have this perception that you will start saving later in life when you earn more money; however, the training emphasised that one can start saving as early and as young as possible.” This is followed by the increase in awareness of retirement funds (provision for the future), investments and interest rates. Some participants also acknowledged having the ability to do mathematical analysis when managing your money.

A comparison of the two results (Code 22 and Code 23) reveals participants’ perception of financial literacy asserts having financial knowledge, skills and effective financial behaviour such as saving, budgeting and planning for the future. The post-intervention reflection also reveals improved financial knowledge as a result of the received financial education.

5.2.3 THEME 3: INFLUENCES

As Robson (2012:3) states, an important limitation to current financial literacy evidence is the difficulty to isolate the interventions’ effects from other exogenous elements. The third theme acknowledges the influence of environmental interactions on university students’ financial literacy development.

5.2.3.1 Category F: Positive financial attitude when making financial decisions

a. Code 17: Perceived financial knowledge

Bhushan and Medury (2014) concluded that to enhance financial literacy among generations, the focus should be on developing favourable financial attitudes among the people of the country (Rai, 2019:53). As FG5 (M) mentioned: “The upbringing of a person plays a role in your attitude since your financial attitude will be influenced if you have no good reference at home. Also, the timeframe in history in which you grew up can have an impact on your attitude. One of the examples used is the baby boomers, who grew up in times of the oil crisis, so they are much more prudent and eager to save compared to the millennials who grew up in a time where it was going fairly well in the economy”.

b. Code 18: Emotional intelligence

Emotional intelligence is also a component that can have an impact on having a positive attitude when making financial decisions. FG2 (M) states: “If you are having a bad day, you are more inclined to go buy that KFC.” Agreeing with FG2 (M), FG4 (M) points out “In my generation, saving is something taught when we are young, but when you are older, it becomes harder to identify wants versus needs”. FG3 (M) agreed with FG1 (F)’s comment on the importance of distinguishing between your needs and wants: “I want the Ultra HD monitor for my birthday, but the cost is equal to the following month's rent. So instead of buying that monitor, if I put away that money for future reference. I will make better decisions in my future”. All the focus group members agreed on determination, discipline, being motivated and responsible.

c. Code 19: Personality traits

Personality traits are also suggested as an indicator of being financially literate. As FG7 (M) explained: “People need to understand their personalities, know their strengths and weaknesses when it comes to money matters. I agree with what FG8 (F) said about different personalities and how your view of money can impact your attitude. Also, in families and especially in relationships, it's really important that couples understand their partner’s personality and how they perceive money. Based on that, you should have certain people in control of certain things”. This extract shows similarities to the literature. To measure financial sophistication in an individual, determine who is responsible for financial decisions in the household (Anderson et al., 2017:395).

5.2.3.2 Category G: Profile of a financial literate student

a. Code 20: Case study demographics

Demographic information provides a profile of participants to help modify interventions for a specific target group (Niesing, 2016:48). For interventions to have a maximum impact, it should be designed and planned to impact a specific target group (Niesing, 2016:48). Demographic information on participants can include gender, age and education level.

b. Code 21 and Code 22: External and internal influences

The family resource model by Jorgensen (2007:7) (See Figure 3-1[15]) provides an input demand stage (life goals, marriage, education, finances or relationships), a throughput stage (financial behaviour, planning, implementing, decision making and communicating) an output stage (realised knowledge, better attitude or achieved goals) and a feedback loop (positive or negative). An individual’s demands and available resources (personal factors) influence their decision making and behaviour (Hira, 2016:505). The four stages of the family resource model; input, throughput, output and feedback loop, can be applied to understand how individuals make financial decisions and change their financial behaviour (Hira, 2016:505).

The life cycle theory is relevant to the input demand stage of the family resource model, as an individual will have different demands at different stages of life. The human capital theory is specific to an individual as it asserts the attainment of financial knowledge, whereas the capability theory does not take the external environmental or internal capabilities into account (Johnson & Sherraden, 2007:123). Consequently, the same quality inputs do not necessarily achieve the same degree outputs due to internal reasons such as physical or intellectual ability and external reasons such as gender discrimination and cultural differences (Johnson & Sherraden, 2007:123).
The social learning theory, as explained in Chapter 3, considers cognitive, behavioural and environmental influence to describe human behaviour (Hira, 2016:505). The learning theory

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[15] See Figure 3-1 - Chapter 3; page 53.

suggests that the majority of human behaviour is learned through observing others (Hira, 2016:505). Children and students form new behaviours from observing others and therefore highlights the important role of both teachers and parents (Hira, 2016:505).

Meyers (2020:5) argues that young adults are at a disadvantage to develop and practice financial behaviour since they are most likely to live with their parents and have less financial responsibility. The phenomenon presented itself in the case study when CS22 (F) stated that: “I am dependent on my parents therefore I don't have enough financial experience”.

On the other hand, the adult learning theory explains that adults learn by reflecting upon their experience (Hira, 2016:505). The theory suggests intentional learning through the social context and by reflecting, sharing our experiences and learning from others’ experiences (Hira, 2016:505).

An open-ended question addressed to the focus groups, on how an individual can attain financial knowledge to become financially literate, resulted in external influences such as parents and internal influences such as own intellectual capabilities. Talking about the influence on perceptions, FG8 (F) said: “Parents are playing probably the most important role as mentors”. FG8 (F) explained that in a house environment, the parents expose their children to money management and other financial concepts according to their emotional intelligence. This idea supports previous research by Wolla and Sullivan (2017:3) who suggest that educated families tend to practice good financial behavioural principles at home.

Others responded: “I would not have been financially equipped if it was not for my parents”, “It started with my parents teaching me about money when receiving monthly pocket money and as I got older my own understanding of financial literacy and intellectual capabilities played a role”, “I will say it starts with a certain level of financial knowledge and then taking that knowledge and asking someone to show you how to apply the knowledge”. The latter correlation is related to the endowment of capital, that is, the human capital or talent an individual is born with. Consecutively, individuals with greater endowed human capital will invest more in themselves compared to others (Mielitz, MacDonald & Lurtz, 2018:318).

Hira (2016:503) states that household finances and financial behaviour is affected by external (macro) and internal (micro) factors. Macro factors include inflation, interest, unemployment rates and quality of financial products and services while micro factors include attitude, beliefs, skills and practices and personal financial resources (Hira, 2016:503). In addition, environmental factors include peers, school and the media (Hira, 2016:503). Individuals do not have any control over macro factors and should prepare to protect themselves from severe changes in external influences (Hira, 2016:503). Micro factors differ for each individual and most individuals have control over their internal influences (Hira, 2016:503).

Internal and external influences are motivated by Alsemgeest (2015:155), who stated that financial literacy education should be aware of both cognitive and non-cognitive factors that might influence decision making.

Similarly, a recurrent theme of internal and external factors surfaced during the data collection of the study. It was apparent from the data that a profile of a financial literate student was developing. The profile draws together internal and external factors that influence financial literacy among the South African university student population. Table 5-5 lists the external and internal influences from the data.

Table 5-5: Profile of internal and external factors

Internal factors	External factors
• Perceived financial knowledge (confidence)	• Exposure from parents and house environment
• The individual's risk profile	• Exposure from peers and surroundings
• Own intellect and experiences	• Exposure from social media and business owners
• Choice of studies	• Exposure at work or skill development
• Interest in finances and economics	• Field of study
• Personality type	• Short courses with the opportunity to follow up.
• Attitude and beliefs	• The timeframe in history you were born (e.g. Baby boomers) influences your financial behaviour
	• Upbringing
	• Access to and use of financial services and products

Source: Transcribed by the author.

Mahendru (2020:9) argues any effort to study financial literacy should include psychological and behavioural factors, since an individual's personality, behaviour, internal capacity and social capital impacts their level of financial literacy.

c. Code 23: Life cycle

The life cycle theory asserts the literature gap of efficient evaluation of financial literacy interventions since current programmes evaluate the success of the literacy intervention by assessing whether the participants' savings increased after the financial literacy intervention (Lusardi & Mitchell, 2011:377). However, students will rather borrow than save at the beginning of their life cycle to invest in financial knowledge (human capital) to identify better-performing assets and gain access to higher-return assets (Lusardi & Mitchell, 2014:7).

Lusardi and Mitchell (2011:377) argue that an individual's assessment of their financial well-being will change each stage of the life cycle. Therefore, it is important to understand that the evaluation of a financial intervention should also acknowledge the life cycle theory. Shining light on the "dissaving" years of ages, 15 to 25, where an individual borrows money in anticipation of future earnings. The age of student participants in the case study was 18 to 28 years of age. Roberts et al., (2018:86) validated that the determinants of financial literacy will differ across the life cycle.

Two main environmental influences, parents and peers, impact a person's inputs positively or negatively (see Figure 3-2[16]). Inputs reflect the resources and demands (life goals) of individuals at any given time during their life cycle. Two participants aged 26 and 28, were in romantic relationships, where one student was considering getting engaged and the other student was engaged. This life goal or demand input from the family resource model had a direct impact on

[16] See Figure 3-2 - Chapter 3; page 60.

their attitude and financial decision making as FG2 (M) stated: “When you get married, your attitude towards finances change since you want to provide for your significant other while taking into consideration our expenses such as paying water and electricity, car and credit card bills.” This is in line with Xiao, Collins, Ford, Keller, Kim and Robles (2011:1) statement that a person’s motivation to learn certain aspects of financial management is strongly correlated to different life cycle events, such as marriage, childbirth and the passing of a parent or spouse.

The lifecycle stage of a student does not allow the student to have resources to save. FG3 (M) uttered his concerns: “Let's say you have an allowance of R4 000 a month. It is difficult to see yourself saving some of your allowance even though you tried to save as much as possible, but even 50% of R4 000 is R2 000 a month. How can one live with R2 000 a month and pay transport, food and electricity?” Similarly, FG6 (M) also expressed that students face a more challenging financial environment today compared to the past, and big items such as a new car, home and study fees increase debt. This supports the dissaving years of age where an individual would rather borrow money in anticipation of future earnings (Lusardi and Mitchell, 2011:377). However, when considering the life cycle theory, university students will rather borrow than save (at least until they graduate) (Lusardi & Mitchell, 2011:377).

The first research question of the study relates to the indicators of financial literacy and was highlighted in the first theme, content (see subsection 5.2.1). The second research question of the study on the impact of a financial literacy intervention was discussed in the second theme, perception change (see subsection 5.2.2). The third research question of the study is grounded in the first theme, content (see subsection 5.2.1). The thematic analysis is conducted to answer the fourth research question of the study: “What process can be followed to evaluate a financial literacy intervention?”. The conceptual framework of indicators is presented in the next chapter and is recommended as a measure to evaluate financial literacy interventions with the themes as evaluation components. It is important to note that the initial research questions were reached at this point of the study, therefore the research questions and objectives were re-evaluated to append an additional contribution of behavioural change to the study.

The researcher found behavioural change management a good fit as a component of the framework evaluation since the theme had a recurring presence during the case study evaluation.

5.2.4 THEME 4: BEHAVIOURAL CHANGE MANAGEMENT

Theme 4 was an additional outcome and not part of the research objectives of this study. Theme 4 represent the impact of an intervention over time. The researcher used the deductive approach to reflect on the data to determine additional evidence that can support the theme (Creswell, 2014:185). There is a gap in measuring the impact of financial literacy interventions on participants’ behaviour (Hira, 2016:504). Policymakers and stakeholders of financial education programmes are seeking evidence that the investment in human capital led to a change in the participant's behaviour (Hira, 2016:504).

The underlying relationship between financial literacy and economic behaviour is established through experimental methods that suggest financial knowledge influences decision making and therefore cause a behavioural change (Lusardi & Mitchell, 2014:21). Table 5-6 presents the four distinct themes that were evaluated against the research questions.

Table 5-6: Additional theme contribution relevant to research questions

Research questions	Distinct themes
What are the content indicators of financial literacy based on the literature?	1. Content measurement
What is the impact of a financial literacy intervention on perceptions regarding (the importance of) personal finance?	2. Perception change measurement 3. Influences
What is the impact of a financial literacy intervention on personal finance behaviour?	4. Behavioural change management

Source: Author's construction.

Table 5-7 presents the thematic framework for Theme 4, namely behavioural change management. The theme was an unintended result that came out of the data analysis, consequently, behavioural change management is presented as an additional contribution to the study.

Table 5-7: Behavioural change thematic framework

	THEME	AIM		CATEGORY		CODE	*n = 30*	Frequency students (Phase B)	*n = 8*	Frequency Focus Groups (Phase C)
IV.	**BEHAVIOURAL CHANGE MANAGEMENT**	Evaluate the impact of an intervention, over time.	**H.**	Behaviour change	**24.**	Behaviour change (realisation and awareness)	25	General	5	Typical

Source: Author's contribution.

5.2.4.1 Category H: Behaviour change

An individual can only be classified as financially literate if their financial behaviour demonstrates it (van Nieuwenhuyzen, 2009:111). FG5 (M) also believes a person needs to have the correct behaviour and explained "… if you want to succeed in the field of being financially literate, you must want to manage your finances. If you do not have the correct behaviour towards managing your finances, it doesn't matter how much knowledge or skills you have". This aligns with FG2 (M)'s statement that "It does not matter how much knowledge and skills you possess; it will not make a difference if you do not want to manage your finances". These extracts show an agreement with having a positive attitude and being disciplined when making financial decisions.

a. Code 32: Behavioural change (realisation and awareness)

Theme 4 sheds light on the behaviour change indicators. The researcher analysed behaviour change four months after the financial literacy training. According to the OECD (2019:7), the application of behavioural science in financial education is relatively new, nevertheless offers insights to design effective and behaviourally informed interventions. The case study participants seemed to realise the importance of financial literacy and describe themselves as being more aware of financial matters. CS9 (M) stated, "I have a better attitude towards my finances, and I am more aware of how I spend my money."

Young adults are at a disadvantage to develop and practice financial behaviour since they probably live with their parents and have less financial responsibility (Meyers, 2020:5). The latter reconfirms the importance of teaching young adults how to effectively manage their finances independently. As CS22 (F) said: "During the financial literacy training, I realised that even though I am dependent on my parents, I'm still in a position to budget and to save for a better future." The financial literacy intervention made the participant more aware of effective financial management.

Behaviourally informed interventions typically concentrate on raising awareness and supplying financial knowledge that supports sound and informed financial decisions (OECD, 2019:7). Participants were asked to indicate which stage of the "stages of behavioural change" best describe their current financial literacy after 16 weeks post-training.

To achieve significant throughputs or behavioural change, knowledge, attitude, and personal characteristics should change (Jorgensen, 2007:9). Lyons, Palmer, Jayaratne and Scherpf, (2006:208) adapted the "stages of change" behavioural model for financial literacy in Table 5-8.

Table 5-8: Stages of change in financial literacy

Stage	Description
1	Uninformed of the need to change financial matters.
2	Consider changing financial behaviours and attitudes.
3	Taking initial steps to acquire and practice new financial behaviour (financial knowledge transpire), old behaviours are still likely.
4	Gaining capability through additional financial behaviour change and change in confidence; old behaviours still possible.
5	Consolidation – New sustainable financial behaviour with limited risk of choosing old behaviours.

Source: Adapted from Robson, 2012:6.

In Table 5-8 the different stages of awareness are listed as individuals move from being unaware of any need to change their financial behaviour (Stage 1), becoming motivated to change, then practising change, and finally forming new and lasting financial habits (Stage 5) (Robson, 2012:6).

According to Birkenmaier and Maynard (2016:6), intervention studies should report at least one of the following outcomes: behavioural or perception change (money management, paying bills on time, emergency savings, having a budget) or change in use to a financial product or service (having a bank account, retirement fund, college savings account). To deliver a financial intervention, information about a variety of general financial concepts and behaviours targeted to a specific financial topic, specific product or specific service must be delivered (Birkenmaier & Maynard, 2016:5).

After realising that the stages of the behavioural change model (Table 5-8[17]) did not substantiate behavioural change outcomes, the researcher wanted to extend on Birkenmaier and Maynard's suggestion. Zulaihati, Susanti and Widyastuti (2020:655) present a questionnaire to measure behaviour change indicators in terms of saving behaviour, shopping behaviour, short-term planning and long-term planning as displayed in Table 5-9. Previous research widely studied financial behaviour as saving behaviour (Jamal et al., 2015; Widyastuti et al., 2016), shopping behaviour (Varcoe et al., 2005), short-term investment decision making (Hunjra & Akhtar, 2011; Henager & Cude, 2016) and long-term investment decision making (Henager & Cude, 2016) (Zulaihati et al., 2020:654).

Table 5-9: Behaviour change questionnaire

Subjective Financial Knowledge
An investment with a high return is likely to be high risk.
High inflation means that the cost of living is increasing rapidly.
It is usually possible to reduce the risk of investing in the stock market by buying a wide range of stocks and shares.
Buying a single company stock usually provides a safer return than a stock mutual fund.
It is less likely that you will lose all of your money if you save it in more than one place.
Saving Behaviour
I'm likely to save money by packing my lunch instead of buying it out.
Saving money for the future is something I think about.
When I get money, I save some of it no matter what.
I do a good job of budgeting my money.
Shopping Behaviour
When I go shopping, I compare prices.
When I go shopping, I impulse buy.
When I go shopping, I wait to buy items on sale.
Long-Term Planning
I set financial goals for the next 1-2 years for what I want to achieve with my money.
I decide beforehand how my money will be used in the next 1-2 years.
I actively consider the steps I need to take to stick to my budget in the next 1-2 years.
I consult my budget to see how much money I have left for the next 1-2 years.
I like to look at my budget for the next 1-2 years in order to get a better view of my spending in the future.
It makes me feel better to have my finances planned out in the next 1-2 years.
Short-Term Planning
In a typical month, it is difficult for me to cover my expenses and pay all my bills.
I always have a checking account.
I set financial goals for the next 1-2 months for what I want to achieve with my money.
I decide beforehand how my money will be used in the next 1-2 months.

[17] See Table 5-8 - Chapter 5; page 125.

I actively consider the steps I need to take to stick to my budget in the next 1-2 months.
I consult my budget to see how much money I have left for the next 1-2 months.
I like to look at my budget for the next 1-2 months in order to get a better view of my spending in the future.
It makes me feel better to have my finances planned out in the next 1-2 months.

Source: Zulaihati et al., 2020:655.

Participants had to "agree" or "disagree" with each statement of the adapted questionnaire (see Table 6-6[18]).

5.3 RELATIONSHIP BETWEEN CODES

The relationships between codes became apparent during the coding process. In ATLAS.ti there is a network view option that illustrates the relationship amongst the different codes. The relationship is referred to as links and is shown with a solid line between the source code (circle) and the target code (arrow).

As noted by Friese (2014:222) these links are classified in the following way:

- "Is a part of": Relationship between codes that complemented or strengthened each other.
- "Is a property of": Relationship where codes are essential to other codes.
- "Is associated with": Relationships were described when not enough information could be derived from the data to indicate specific relationships.
- "Is a cause of": Relationship where one code is the cause of another code.
- "Contradicts": Relationship where one code contradicts another code.
- "Explains": Relationship where one code explains the other code.
- "Discussion": Relationship where one code discusses the existence of the other code.

A useful way to present relationships between analytical findings is by showing them in a network diagram. Figure 5-4 is a collection of the financial literacy indicator codes identified in the study and the lines present the links between the events (Bryman *et al.,* 2011:340).

[18] See Table 6-6 - Chapter 6; page 161.

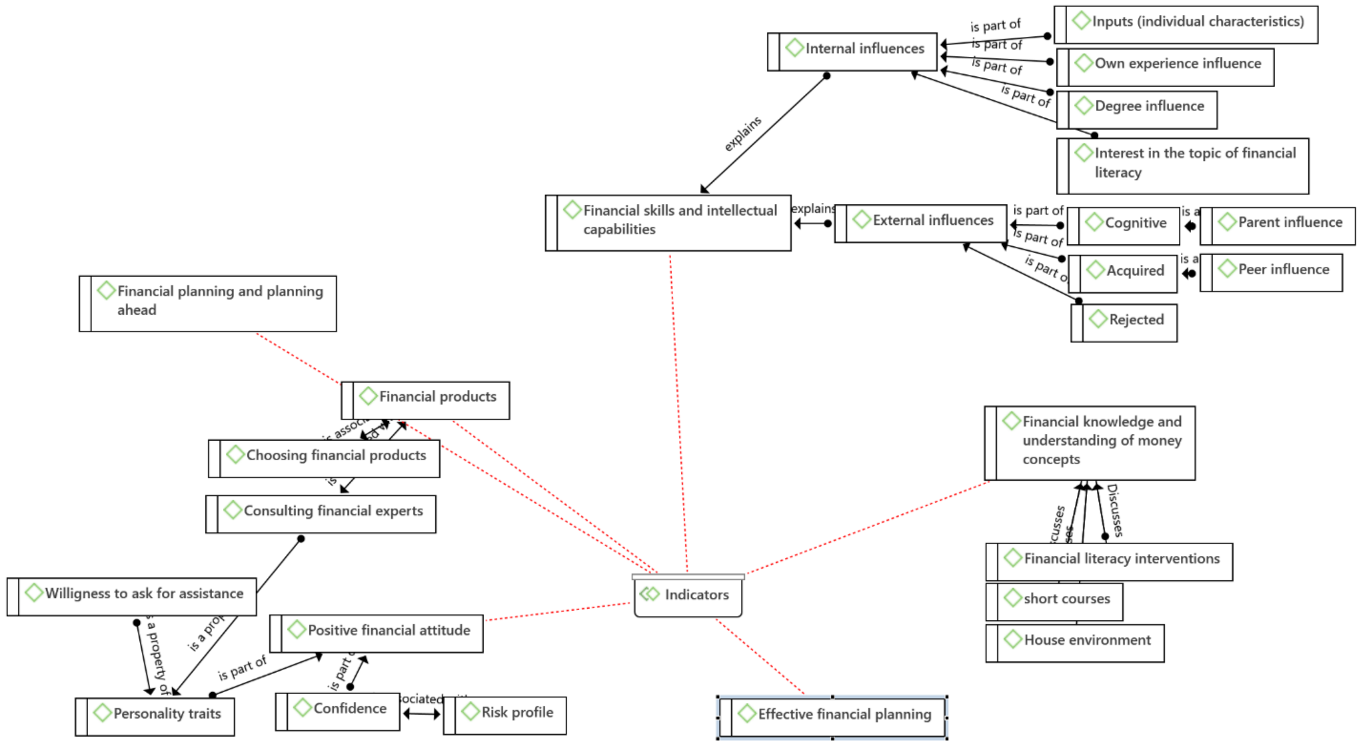

Figure 5-4: Relationship between indicators
Source: ATLAS.ti, 2021.

5.4 SUSTAINABILITY

Sustainable development is defined by the World Commission on Environment and Development (WCED, 1987) as "development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs". The sustainable development of financial literacy interventions was an unintentional outcome of the data analysis.

The present knowledge about what works in practice suggests that financial literacy programmes are most effective when they are programmed with sustainable capacity (Robson, 2012:5; Hira, 2016:502). Financial literacy has an important role in ensuring the financial sustainability of individuals, communities and national economies (Swiecka, Yesildag, Ozen and Grima, 2020:1).

Hira (2016:506) argues that financial education should be reoriented towards value-based development of human well-being in balance with community well-being to ultimately develop a long-term financial sustainable approach to providing financial education. When considering the measurement of sustainability, the approach of Bell and Morse (2008:1) is referred to in research.

The key principle of Bell and Morse' (2008:1) approach to measurement is always based on an individual's vision of sustainability, which in turn can be changed depending upon the measurement mindset. The authors have looked closely into different approaches in measuring sustainability and in effect measuring the immeasurable, however, sustainability is not an actual "thing" that one can measure and therefore becomes defined by the parameters or indicators that can be measured (Bell & Morse, 2008:1).

In some cases, the impact of the intervention is intangible and immeasurable. For instance, even though a student may use savings to fix his or her car, it does not mean the intervention was unsuccessful. It merely indicates that the impact is now unintended. The intended or unintended impact can also be either foreseen or unforeseen (Hearn & Buffardi, 2016:9). According to Dahl, (2012:9), an intervention should have a specific approach to ensure the impact measurement of an intervention enables sustainable development.

Measuring sustainability encompasses a combination of parameters that are designed to meet a defined set of objectives (Bell & Morse, 2008:1). Furthermore, indicators are used as simplified tools to capture the complexity and help convey information to specialists and non-specialists alike (Bell & Morse, 2008:1).

The term sustainable development comprises a continual process of social learning using environmental, economic and social aspects to achieve a state of equilibrium (Amirshenava & Osanloo, 2019:823). Morse and McNamara (2013:4) describe these three aspects as pillars supporting the concept of sustainability. The researcher measured the sustainability development of the intervention based on the following indicators; the intervention can adapt to different situations (environment), the intervention should lead to improved financial behaviour (economic) and lastly, the intervention can transfer skills (social).

Financial literacy interventions need to adapt to increase levels of skill transfer to various levels to contribute to sustainable development (Gboku & Modise, 2008:316). Interventions are combined with economic development to create shared empowerment that facilitates the improvement of literacy (Kaeane & Ross, 2014:18). The social concept can transform over time in specific locations or communities and transpire due to internal and external factors or influences (Dempsey, Bramley, Power & Brown, 2011:292).

5.5 CONCLUSION

Chapter 5 presented a thematic analysis of the research questions aimed at evaluating the content and the impact of financial literacy interventions. As a starting point to any qualitative study, it is important to determine the researcher's philosophical worldview as it influences the researcher's approach to research (Creswell, 2014:5).

Philosophically, the researcher is a constructivist since the worldview seeks an understanding of the world, develops subjective meanings of their experiences and interprets others' outlook of the world by making use of open-ended questions so that participants can share their views (Creswell, 2014:8).

The researcher coded field notes, participant's interviews and ideas derived from the focus group discussions in ATLAS.ti to design four themes relevant to the case study data. In many ways, the existing literature supported the themes and data findings.

The first theme addressed the financial literacy indicators to evaluate the content of a financial literacy intervention. The aim of the content checklist is to evaluate whether financial literacy interventions cover the most important financial literacy categories (see Section 4.3). The second theme reviewed the impact directly after the intervention and demonstrated a perception change. Participants' responses were derived from the interviews and were coded under this theme.

The third theme acknowledged the internal and external factors that can influence the participant's perception of being financially literate. Influences were observed throughout the case study and include the participant's life cycle stage, attitude and profile of the student (internal and external influences). This highlights the importance of identifying a target group for the intervention.

The last theme, behaviour change management, was noticed during the case study evaluation and included as an additional contribution to the study. The theme reviewed the behavioural change of the intervention by challenging the participants to acknowledge their perception and attitude change and indicate whether they have engaged more with their financial matters after some time. The sustainable development of an intervention is important for sustainable programmes and sustainable livelihoods. The researcher did not set out to measure sustainable impact, however, identifies a literature gap for future research.

The thematic analysis results discussed in Chapter 5 will be used as measurements for the framework in Chapter 6. The next chapter, therefore, moves on to develop a framework to evaluate the content (aligned with financial literacy indicators) and evaluate the impact (perception and behaviour change) of financial literacy interventions and evaluate the student-orientated financial literacy centre against the framework of indicators developed. The findings of Chapters 4 and 5 worked in synergy with each other to develop a conceptual framework, that is, the participatory action research (PAR).

CHAPTER 6

FRAMEWORK DEVELOPMENT AND APPLICATION

6.1 INTRODUCTION

The purpose of Chapter 6 is to liaison the different data sources of the study (CLR, Pre- and post-reflections and focus group validations) with the application of Jarabeen's (2009:53) process for developing a framework.There are various reasons for conducting an evaluation, firstly programme improvement by making it more effective, secondly, public accountability by demonstrating that funding invested into the intervention is used wisely, thirdly, developing knowledge about various types of interventions and what works and what does not work and, lastly, evaluations can contribute to the development or adjustment of policy (OECD, 2010:6).

It is important to note that the evaluation process will not be identical for every intervention as there is no right way of designing an evaluation (OECD, 2010:6). Designing an evaluation component as part of the intervention includes aligning the objectives with the evaluation criteria or indicators (OECD, 2010:6).

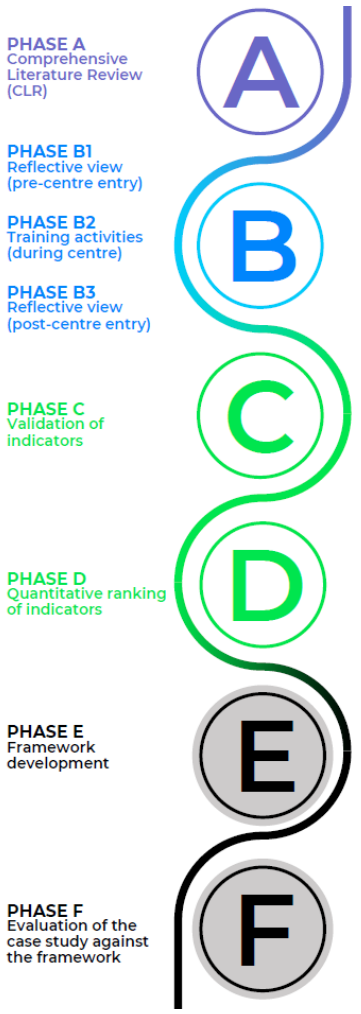

Figure 6-1: Phases relevant to Chapter 6

Figure 6-1 illustrates how the indicator framework was guided by subsequent phases in this study. Phase A undertook a comprehensive literature review (CLR) to identify financial literacy indicators. In Phase B, the researcher considered the financial literacy indicators and studied them in the single case study used in this study. The specific South African university case study was a good fit for the study as it provided an in-depth understanding of the issue researched (Creswell, Hanson, Plano & Morales, 2007:239).

This case study facilitated a non-experimental evaluation design, meaning a pre-post design commonly used to measure change by measuring them before and after the intervention (OECD, 2010:9). This design is especially helpful to measure a change in attitude, knowledge and behaviour (OECD, 2010:9).

The case study data collection was done in conjunction with the coding of focus group discussions to verify the indicators in Phase C and google form responses to rate the indicators in Phase D. The case study was used as a vehicle to evaluate the content of the student-orientated financial training in the financial literacy centre against the framework of indicators developed.

The findings of the thematic analysis in Chapter 5 produced four themes that are integrated with the literature to develop a conceptual framework of indicators to evaluatethe content and impact of financial literacy interventions in Phase E. The evaluation type used in the application of the case study, "outcome and impact", evaluates whether the intervention has desired effects, unintended (positive or negative) effects (OECD, 2010:8).

This study sets out to develop a framework that can be generally applied to evaluate the content and impact of any similar financial literacy intervention. Participatory action research and the financial literacy indicators were used as a development methodology to assist the process of developing the indicator framework in Section 6.2, as well as explain the different stages and illustrate the final framework in a creative representation in Section 6.3 (Phase E). Section 6.4 applies the framework to the case study to recommend changes or adaptation to the content of the financial literacy centre in the case study and Section 6.5 concludes the chapter.

6.2 DEVELOPING A FRAMEWORK OF INDICATORS

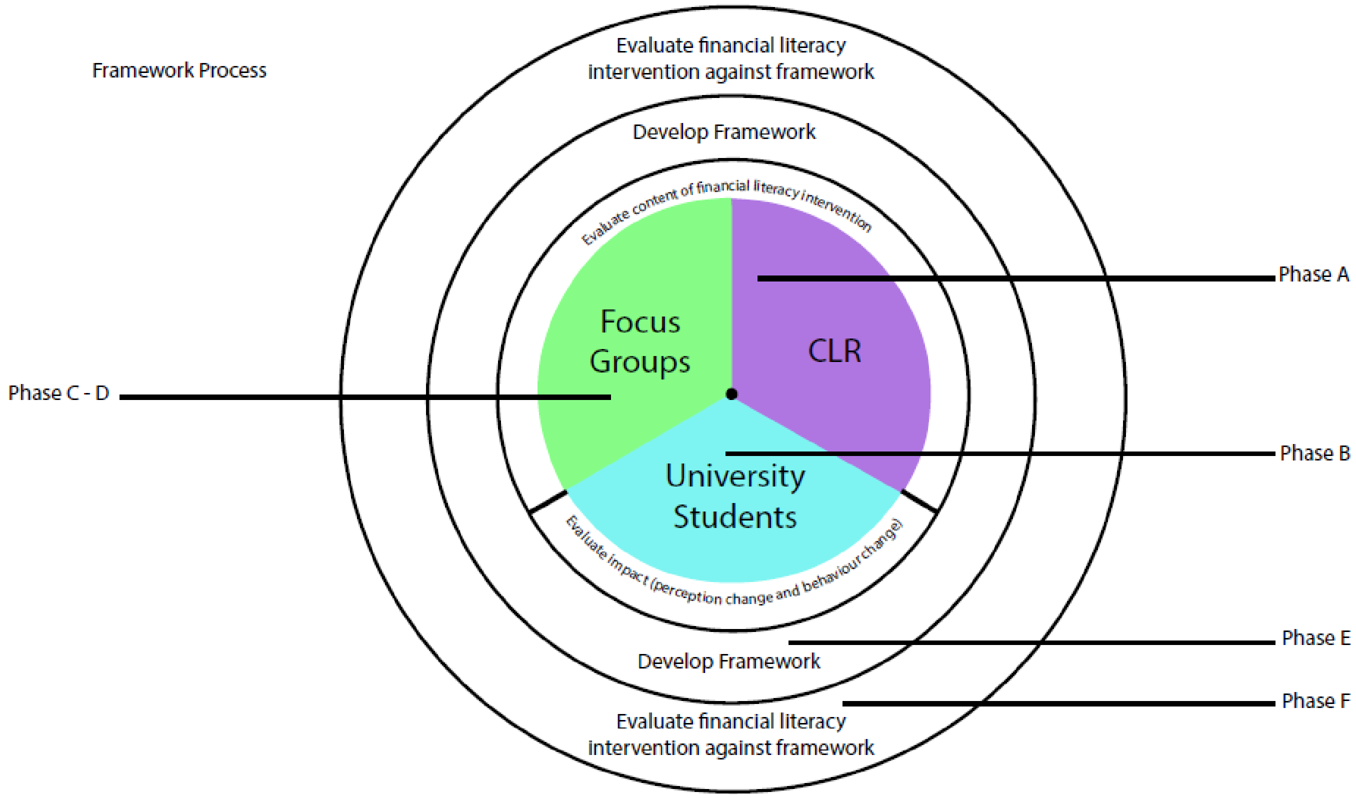

Figure 6-2: Framework development process linked to phases of the study
Source: Author's compilation

Figure 6-2 illustrates the process of using the data source in Phase A (CLR) and Phase C – Phase D (focus group validation and ranking) to evaluate the content of a financial literacy intervention as well as the data sources in Phase B (university students) to evaluate the impact of a financial literacy centre. Participatory Action Research (PAR) together with the latter was used in Phase E to develop an evaluation framework. Thereafter, the financial literacy centre employed as a case study in the research study is evaluated against the framework in Phase F.

PAR is defined as a "philosophical approach to research that recognises the need for persons being studied to participate in the design and conduct of all phases of any research that affects them" (MacDonald, 2012:38). The researcher found PAR a good fit since the case study participants' and focus group members' perspectives facilitated the developmental process of impact evaluation.

PAR is an "outcome-and-impact evaluation" designed to answer the overall question "are we making a difference?" Participatory action research (PAR) consists of three components; research, education and action and two objectives; create knowledge that results in direct impact, empowerment as well as action and knowledge creation processes (Botha, Van der Merwe, Bester & Albertyn, 2007:10). PAR forms part of an ongoing process of monitoring and improvement (OECD, 2010:5).

The PAR applied the conceptual framework procedure set out by Jarabeen (2009:53). Jabareen (2009:49) proposes a new qualitative method for building conceptual frameworks for phenomena that are linked to multidisciplinary bodies of knowledge. This included a constant comparison across types of evidence, such as theories, (social learning theory, life cycle theory, human capital theory), literature (South African and international literature), financial indicators (financial capability, - knowledge, - behaviour and planning, - attitude and – products and services) and evaluation measurements (content, perception- and behavioural change).

The conceptual framework analysis is beneficial for its flexibility, it's capacity for modification, and its emphasis on understanding instead of prediction (Jabareen, 2009:49). The application of Jarabeen's (2009:53) eight steps is shown below.

a. Step 1: Mapping the selected data sources.

The first step of developing the conceptual framework of indicators, was to map all the data sources used in the different phases of the study (see Figure 2-1[19]). The data sources included: literature on financial literacy indicators, documents of the financial literacy centre, pre- and post-interview transcriptions, demographic questionnaires, field notes, focus group discussion transcriptions, focus group rankings of indicators, behaviour stages and change in behaviour questionnaire. In addition, the four themes that emerged from the thematic analysis: content measurement, perception change measurement, influences and behaviour change management.

b. Step 2: Extensive reading and categorizing of the selected data.

The data sources were revisited to categorise the data into the stages of the conceptual framework. The stages of the framework were determined by reflecting on the PAR or in this case, the case study of the research study. To reiterate, the PAR involves participants' involvement in the development process of the framework. Therefore, the stages of the framework were based on the proceedings during a visit to the financial literacy centre: the initial engagement, pre and post reflection interviews and the teaching of financial concepts, as well as the evaluation measurements that emerged from the thematic analysis: content measurement, perception change measurement, influences and behaviour change management.

c. Step 3: Identifying and naming concepts.

The conceptual framework of indicators refers to a collection of evaluation stages within a financial literacy intervention. Niesing (2016:149) asserts the impact of an intervention should be measured at different stages to ensure a positive impact and improve the impact of the intervention. Each stage has a specific goal-orientated measurement to reach intervention execution and progress. The measurement criteria include: initial engagement, the intervention and feedback.

[19] See Figure 2-1 - Chapter 2; page 28.

The framework made use of level descriptors to represent different stages. The framework is, therefore, multi-tiered. The level descriptors indicate the measurement criteria on which the evaluation is focused. For instance, Level 1 is the descriptor used to indicate the first tier of evaluation in the specific measurement criteria, followed by Level 2 that builds on the evaluation of Level 1 to reach intervention progress.

The following six stages were identified when engaging in the PAR:

- Stage 1: Initial engagement
- Stage 2: Feedback Level 1
- Stage 3: Intervention Level 1
- Stage 4: Feedback Level 2
- Stage 5: Intervention Level 2
- Stage 6: Feedback Level 3

The six stages are discussed in Table 6-1[20].

d. Step 4: Deconstructing and categorizing the concepts.

As mentioned in Chapter 1 (see subsection 1.5.2[21]), the proceedings during a visit to the financial literacy centre follow a three-step process. Firstly, the participants receive a brief introduction to the centre, as well as an interactive lecture on important financial principles by a subject matter expert (SMEs). Secondly, the participants proceed to the computers to receive teaching through interactive games and lastly, the participants have a feedback session with the SMEs. The six stages were deconstructed to categorise the measurement criteria using PAR.

- Stage 1: Initial engagement: Information collection of the target group

During the case study analysis, the participant's information was collected with a demographic questionnaire.

- Stage 2: Feedback Level 1: Pre-reflection of perception

Before entering the financial literacy centre, the participant's perception of financial literacy was collected with (pre-reflection interview questions).

- Stage 3: Intervention Level 1: Evaluate the content of the financial training

The participants received training in the financial concepts. The framework will evaluate the content of the financial literacy centre against the content checklist of financial literacy indicators.

- Stage 4: Feedback Level 2: Evaluate perception change

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[20] See Table 6-1 - Chapter 6; page 138.
[21] See sub-section 1.5.2 - Chapter 1; page 12.

After the training, participants' perception of financial literacy was collected to recognise a perception change with post-reflection interview questions.

- Stage 5: Intervention Level 2: Feedback Loop

Feedback from the participants regarding their overall experience and recommendations to improve the financial literacy centre was collected.

- Stage 6: Feedback Level 3: Evaluate behaviour change

After some time had passed, the participants' behavioural change was measured by means of an adapted behaviour change questionnaire.

The six stages are designed to allow a practical application and continuous evaluation.

e. Step 5: Integrating concepts.

The evaluation of the financial literacy centre was done in each stage by integrating the data sources used in the research study and the four themes: content measurement, perception change measurement, influences and behaviour change management.

- Stage 1- Initial engagement: Information collection of the target group

The initial engagement stage integrated the following two themes: Content measurement and Influences.

- Stage 2- Feedback Level 1: Pre-reflection of perception

The pre-reflection stage integrated the following two themes: Perception change measurement and Influences.

- Stage 3- Intervention Level 1: Evaluate the content of the financial training

The financial training stage integrated the following themes: Content measurement and Influences.

- Stage 4- Feedback Level 2: Evaluate perception change

The perception change stage integrated the following theme: Perception change.

- Stage 5- Intervention Level 2: Feedback Loop

The feedback loop stage integrated the Content measurement theme.

- Stage 6- Feedback Level 3: Evaluate behaviour change

The behaviour change stage integrated the Behaviour change management theme.

f. Step 6: Synthesis, resynthesis, and making sense of it all.

Each stage of the framework is combined with corresponding codes (see Table 6-1[22]) as 'building blocks' in the framework development (Bryman et al., 2014:346) and to provide a track record of the thematic analysis with the developed framework:

- Stage 1- Initial engagement: Information collection of the target group

The initial engagement stage combined Content measurement theme with Code 2: Mathematical, reading and self-assessed financial capabilities and Code 3: Education level of the individual; and Influence theme with Code 20: The demographic background of participants.

- Stage 2- Feedback Level 1: Pre-reflection of perception

The pre-reflection stage combined the Perception change measurement theme with Code 12 - 14: Description of own financial literacy and Code 15: Perception of financial literacy before training; and Influence theme with Code 21: External influences, Code 22: Internal influences and Code 23: Life cycle.

- Stage 3- Intervention Level 1: Evaluate the content of the financial training

The financial training stage combined the Content measurement theme with Code 1: Indicators of financial literacy, Code 2 - 8: Financial skills and Code 9 - 11: Financial knowledge; and Influence theme with Code 17 - 19: Positive financial attitude when making financial decisions.

- Stage 4- Feedback Level 2: Evaluate perception change

The perception change stage combined the perception change theme with Code 16: Perception of financial literacy after training.

- Stage 5- Intervention Level 2: Feedback Loop

The feedback loop combined the content measurement theme with Code 1: Indicators of financial literacy, Code 2 - 8: Financial skills and Code 9 - 11: Financial knowledge.

- Stage 6- Feedback Level 3: Evaluate behaviour change

The behaviour change stage combined the behaviour change theme with Code 24: Behaviour change (realisation and awareness).

The integration and synthesis of themes and codes with each stage of the framework are discussed in subsection 6.2.2 – 6.2.7.

g. Step 7: Validating the conceptual framework.

PAR assisted in developing the indicator framework. Participant reflection and results validated the components of the framework.

h. Step 8: Rethinking the conceptual framework.

The last step includes the application of the framework on the South African university case study.

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[22] See Table 6-1 - Chapter 6; page 138.

The PAR suggests the development of processes and stages. The applied case study research and programme implementation serve in an advisory role and the financial indicators, impact and evaluation measurement have an executive role. Hence, the PAR cycle is flexible to evaluate different efforts of established financial literacy interventions and has the capacity for modification since there is no single, predictable and optimal one-size-fits-all approach that may be effective for all target groups (OECD, 2019:8).

The PAR cycle includes six stages and is discussed in Table 6-1. Collectively, the six stages are linked to different themes and codes identified in Chapter 5.

Table 6-1: The participatory action research stages

PAR cycle stage	Objective	Theme	Code
1. First contact/ engagement	Collection of basic information on the target group.	Theme I: Content measurement	Code 2: Mathematical, reading and self-assessed financial capabilities. Code 3: Education level of the individual;
		Theme III: Influences	Code 20: The demographic background of participants
2. Feedback Level 1	Participants' pre-reflection on their perception of financial literacy.	Theme II: Perception change measurement	Code 12 - 14: Description of own financial literacy Code 15: Perception of financial literacy before training.
	Internal and external influences	Theme III: Influences	Code 21: External influences Code 22: Internal influences Code 23: Life cycle
3. Intervention Level 1	Evaluate the content of the intervention against the content checklist that entails the indicators identified in the CLR, confirmed and ranked by SMEs and students.	Theme 1: Content measurement	Code 1: Indicators of financial literacy Code 2 - 8: Financial skills Code 9 - 11: Financial knowledge
		Theme III: Influences	Code 17 - 19: Positive financial attitude when making financial decisions.
4. Feedback Level 2	Evaluate participants' post-reflection perception of financial literacy.	Theme II: Perception change measurement	Code 16: Perception of financial literacy after training.
5. Intervention Level 2	A feedback loop that acts as a reminder of the importance of being financially literate (through social media platforms or email) as well as	Theme I: Content measurement	Code 1: Indicators of financial literacy Code 2 - 8: Financial skills Code 9 - 11: Financial knowledge Receive feedback after training.

PAR cycle stage	Objective	Theme	Code
	recommendations for the financial literacy centre.		
6. Feedback Level 3	Evaluate behaviour change of the participants.	Theme IV: Behaviour change Management	Code 24: Behaviour change (realisation and awareness)

Source: Author's construction.

Table 6-1 presents the collection of logically related stages of the PAR and should be viewed as a continuous evaluation cycle since the framework of the intervention will adapt to have an optimal impact in each stage of the PAR and as a result, some stages will be repeated. The description of each stage follows.

6.3 FINAL FRAMEWORK OF INDICATORS

Section 6.2 explained the steps of developing the framework of indicators, whereas Section 6.3 presents an explanation of each stage of the final framework of indicators.

6.3.1 Stage 1: Initial engagement

The first stage of the PAR cycle represents initial engagement or contact and may include the classification of the intervention and the collection of basic information of the target group.

An intervention can be classified into two areas, the structural approach and the communication approach (Brüggen *et al.,* 2017:231). The structural approach attempts to change an individual's condition for financial planning. The communication approach focuses on participant knowledge through interventions and perception (Brüggen *et al.,* 2017:231). The method of financial literacy interventions can also be classified under three main categories: one-on-one counselling, group counselling and online-based programmes (Austin, Arnot & Hill, 2014:298).

Bell and Lerman (2005:6) claim that targeted research is necessary to learn about the actual benefits of financial interventions. The demographic background of participants (gender, age, education level, marital status) exercises an important role in modifying interventions to have a maximum impact. The target group participants should also be informed about the human capital benefit they will receive by participating in the intervention.

The target group should have conventional literacy, that is, the ability to read and write (Maconi, 2016:151). Target group research is important to take into account the life cycle stage of the participants (Lusardi and Mitchell, 2011:377). According to the OECD (2019:7), the way in which participants are invited to attend the programme, together with the content and delivery of the programme can encourage individuals towards making the best decisions for themselves.

6.3.2 Stage 2: Feedback Level 1

This stage represents participants' self-reflection of their perception of financial literacy before receiving training and may include their description of their perceived financial knowledge as well as the influence of environmental interactions on university students' financial literacy development. This stage facilitates the non-experimental pre-post evaluation design and perception change theme discussed in Stage 4 of the PAR methodology.

6.3.3 Stage 3: Intervention Level 1

This stage represents the financial training and may include the content evaluation of the financial literacy intervention (Theme 1) (See sub-section 5.2.1[23]). This stage reviews the objectives of the intervention and analyses the evaluation of financial literacy presented by games or questionnaires.

This stage is driven by the project developers since the intervention purpose and objectives should be clear on the scope of the evaluation. The interventions' objectives should be specific, measurable, reasonable, achievable, and time-specific (OECD, 2010:6). Interventions should be evaluated in specific time periods to align with uncontrolled external factors such as reporting requirements of sponsors or funding cycles along with enabling participants to move towards "sustainable graduation".

Hira (2016;506) asserts that personal finance intervention's financial content should be outcome-based and should address the target group's needs in terms of the problems they are currently facing. Interventions should also be more value-based and reflect the target group's personal financial situations and raise awareness of behavioural biases (Hira, 2016:506; OECD, 2019:15). Gamification of personal finance elements (for instance, quizzes, challenges) is advantageous for behavioural biases such as loss aversion and mental strategies for stimulating savings (OECD, 2019:15).

The content of a financial literacy intervention can be measured against a checklist of financial indicators (see[24]) that have been identified using a comprehensive literature review, examined by focus group members and ranked according to importance. Financial skills are cognitive biases that may affect individuals when making financial decisions. Improved financial knowledge can be recognised by employing a source of evaluation such as a questionnaire, test or interactive game.

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[23] See sub-section 5.2.1- Chapter 5; page 107.

[24] See Table 5-3 - Chapter 5; page 108.

This stage also includes the attitude of participants (Theme 3) (see subsection 5.2.3[25]). As noted by Hira (2016:503), most financial literacy interventions lack the subjective side of personal finance such as attitudes, beliefs, decision making and personality traits.

Financial literacy interventions should promote taking action by designing tools that encourage better financial attitude (OECD, 2019:13). Financial attitude is the personal inclination towards favourable financial situations, being motivated, responsible and confident in personal money management. Financial literacy interventions can focus on making participants aware of attitude, emotional intelligence and personality traits. Financial literacy interventions can provide participants with practical techniques to prevent unnecessary or compulsive purchases and improve financial attitudes.

6.3.4 Stage 4: Feedback Level 2

This stage presents the perception change measurement and may include participants' self-reflection of their perception of financial literacy directly after receiving training (Theme 2) (see subsection 5.2.2[26]).

The programme organisers obtain the impact measurement, in this case, perception change, of the programme on the participants.

6.3.5 Stage 5: Intervention Level 2

This stage represents a feedback loop that acts as a reminder of the important financial concepts through email, designed mobile app or social media platforms as well as additional financial educational sessions. The request for a feedback loop came out of the case study data analysis as a recommendation for improving the financial literacy centre. Therefore, the feedback loop resulted from this specific case study rather than from the framework.

This recommendation is in agreement with Robson's (2012:39) suggestion that explains the difficulty in finding out how participants are doing over the medium and long-term when they leave the financial literacy intervention. A second intervention in the space of additional financial training or social media platforms can support financial knowledge mobilisation and direct sustainable learning and change (Robson, 2012:39).

Financial literacy interventions should consider using digital channels to facilitate the application of easily accessible financial education. Similarly, the OECD (2019:15) asserts that digital channels or mobile applications present several advantages for achieving financial education outcomes, such as behavioural change. In addition, the use of reminder applications makes it

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[25] See sub-section 5.2.3 - Chapter 5; page 117.
[26] See sub-section 5.2.2 - Chapter 5; page 114.

possible to nudge the consumer to take action and enhance opportunities for behavioural change (OECD, 2019:15).

The feedback loop has a second purpose of analysing feedback and recommendation from participants and assessing whether the content should be revised for a specific target group.

6.3.6 Stage 6: Feedback Level 3

This stage represents the behaviour change indicators of the intervention and may include questionnaires to determine behavioural change.

As noted by Birkenmaier and Maynard (2016:6) intervention studies should report at least one of the following outcomes: behavioural or perception change (money management, paying bills on time, emergency savings, having a budget) or change in use to a financial product or service (having a bank account, retirement fund, college savings account). To deliver a financial intervention, information about a variety of general financial concepts and behaviours targeted to a specific financial topic, specific product or specific service must be delivered (Birkenmaier & Maynard, 2016:5).

This stage evaluates whether the intervention impacts financial behaviour as well as gathers evidence of programme satisfaction and tasks the programme organisers with the decision to stop, continue or adapt the intervention by starting the process again at Stage 1 (see sub-section 6.3.1[27]). This stage may also involve a follow up focus group discussion as well as a behaviour change questionnaire with the same group participants over a longer period.

Figure 6-3 presents a visual representation of a financial money growing tree and includes the six stages of the framework.

- The tree that grows depicts how a young individual or student's financial literacy is growing. This is also represented by the money that grows from coins to money notes and signifies how young students can learn good financial principles early in life to "grow" their financial well-being.
- The fingerprint leaves of the tree illustrate the sustainable effect of personal finance literacy interventions empowering consumer and community well-being, which in turn increases productivity and firm performance, encourages economic growth and promotes development.
- The financial money growing tree is surrounded by the six stages of continuous evaluation. Consequently, the six stages are essential for the positive impact on financial literacy interventions and consequently, the student's financial literacy.

[27] See sub-section 6.3.1 - Chapter 6; page 139.

- The first and second stages of the framework are represented in the soil of the money tree illustration as it forms the basis for the evaluation. To reiterate, the first stage is the initial engagement where the delivery of the intervention is classified, participants' demographic information is collected (see Table 6-2[28]), and the objective of the intervention is clearly stated. Stage two includes the pre-reflection interview with participants to determine their understanding of personal finances before receiving training. This stage also determines the internal and external factors that influence participants' perception of personal finance literacy. The pre-reflection stage is represented in the framework illustration as an individual looking into a mirror to present their reflection of financial literacy before receiving training.
- Stage 3 includes financial training and the evaluation of the content of the intervention against the content checklist (see Table 5-3[29]). The personal finance literacy indicators identified in the comprehensive literature review and confirmed by means of focus group discussions were used to compile this checklist. The indicators are financial capabilities, financial knowledge, financial planning, financial attitude and financial products and services. The training stage is represented in the framework illustration as a seed planted and nurtured to grow into a tree with established, deep roots.
- Stage 4 includes the immediate impact of the intervention, which is the post-reflection interview to recognise perception change. Perception change is illustrated in Figure 6-3 as the branches of the tree out of which the fruit (behaviour) grow. Before behaviour change is visible, perceptions regarding the importance of different financial literacy concepts need to change and develop. Personal finance involves many different topics (such as saving, investing, budgeting and repaying credit) and is represented by branches growing in different directions. The branches are illustrated as hands to also illustrate the environmental influences on personal finance literacy (see Table 5-5[30]).
- Stage 5 presents the two-way feedback loop. Participants give feedback on how the intervention can be improved while receiving feedback on the principles taught in the training to reinforce perception (and ultimately behaviour) change. This feedback loop is placed in the trunk of the tree to illustrate the two-way interaction between the training and perception change.
- Stage 6 involves the evaluation of participants' behaviour over time by means of a behaviour change questionnaire (see Table 5-9[31]). This stage also presents the impact of

[28] See Table 6-2- Chapter 6; page 147.
[29] See Table 5-3; Chapter 5; page 108.
[30] See Table 5-5; Chapter 5; page 121.

[31] See Table 5-9; Chapter 5; page 126.

the intervention on behaviour change indicators after some time has passed. Behaviour is illustrated as fruit in the money tree.

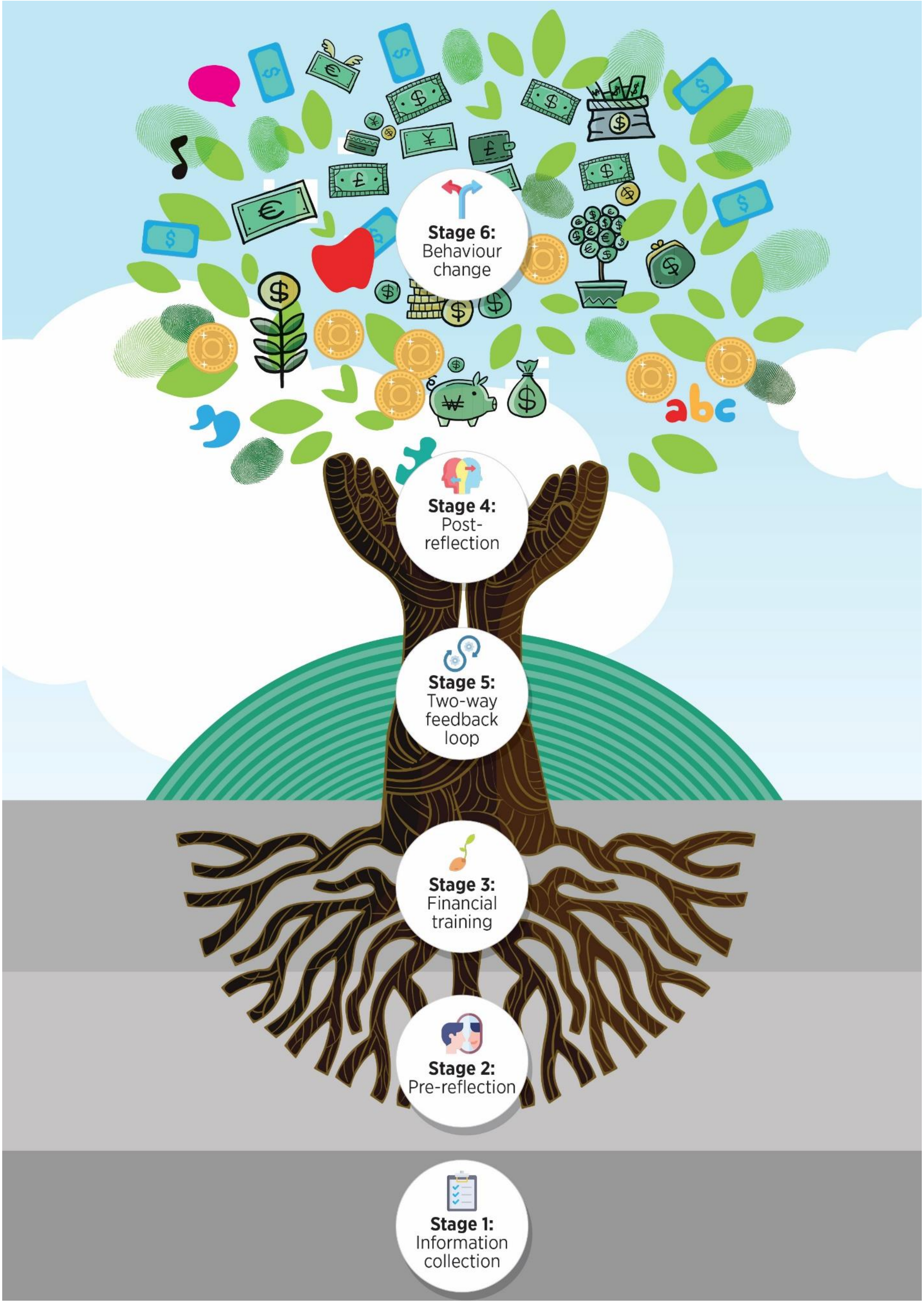

Figure 6-3: Creative representation of the conceptual framework of indicators
Source: Author’s compilation

6.4 EVALUATION OF THE CASE STUDY AGAINST THE FRAMEWORK

This section is useful in providing practical guidance to financial literacy intervention organisers and educators about how to realistically implement the framework of indicators to evaluate the content and the impact of an intervention.

As pointed out in the problem statement of this study, the impact and effectiveness of these programmes have been limited. Similarly, the financial literacy centre case study's impact has not yet been measured and the validity of some of the key concepts has not yet been tested (SMEs opinions) and embedded in the literature. Furthermore, there is no recorded data on previous groups who participated in the financial literacy centre.

PAR was used as a methodology to develop the indicator framework and was applied to the case study to evaluate the functionality of the framework as well as to evaluate the case study content and results of participants in the centre according to the six stages of the PAR in Phase F.

6.4.1 Stage 1- Initial engagement: Information collection of the target group

6.4.1.1 Classification of intervention

The financial literacy centre is classified as a communication approach since the centre aims to improve participant knowledge and behaviour and promote financial well-being through financial education. The financial literacy centre employed a group methodology that consists of presentations, interactive games and training offered through a formal institution.

6.4.1.2 Target group demographics

The target group provides the sociodemographic characteristics of participants' age, gender, literacy levels and other demographic information. Conventional literacy, that is the ability to read and write, should be a requirement for participants to participate in the intervention. The findings of the qualitative case study intervention included a sample size of 30 university students.

The standard demographic questions aimed to pool different students together for a representation of the students at the university as well as to describe the total sample. All students signed a consent form and voluntarily participated in the study. All demographic questions were open-ended questions and endorsed open responses such as "I prefer not to say" (see Appendix A). Table 6-2 presents the results of the demographic questions.

Table 6-2: Case study demographics

Demographics of the student participants	Percentage (n=30); range
Gender	
Female participants	50%
Male participants	50%
Age in years	(18 – 28)
Full time or part-time students	
Full-time students	93%
Part time students	7%
Education Level	
Studying towards an undergraduate degree	86%
Studying towards a post-graduate degree	14%
Marital status	
Single	100%
Source of income	
Receive a source of income	67%
No source of income	33%
Save a portion of their income	60%
Do not save	40%
Risk tolerance	
Risk neutral	70%
Risk avoiding	30%

Source: Survey results.

The demographics of the students who participated in the study are presented above. The sample amounted to 50% female and 50% male. The ages ranged between 18 and 28 years of age where 93% of the participants are full-time students and 86% are busy completing an undergraduate degree. The majority of the participants, 67%, receive a source of income and 60% of the participants save a portion of their income. The academic years included 30% first years, 1% second years, 33% third years and 30% fourth year and post-graduate.

Sjöberg and Engelberg (2009) found that financial literate university students tend to take more risks than others (Aren & Zengin, 2016:657). This is parallel to the case study finding with regards to risk as 70% are risk-neutral which indicates that they are indifferent to risk when making an investment decision and 30% are risk-averse and has a stronger aversion to losses and choose to preserve capital (Hulett, 2013:3). Evidence has shown the importance between financial literacy and risk perception through behavioural finance (Aren & Zengin, 2016:656). Garling, Lewis and Raaij (2009) indicate that an individual's risk perception is affected by many factors such as demographics and personality (Aren & Zengin, 2016:657).

The participants' demographics were collected using a demographic questionnaire. The following stage was a type of systematic review and qualitative analysis to facilitate theme 2 (see sub-section 5.2.2[32]) so as to recognise a perception change.

[32] See sub-section 5.2.2 - Chapter 5; page 114

6.4.2 Stage 2- Feedback level 1: Pre-reflection of perception

All 30 university students were interviewed before entering the financial literacy centre; "What is your understanding of the term financial literacy? and "How do you experience/ describe your own financial literacy?" The results indicate that the participants recognise a financially literate individual as someone who has financial knowledge and financial behaviour coupled with a set of skills. Moreover, the majority of the participants are confident in their level of financial literacy (see Table 5-4[33]).

Participants' own descriptions of their financial literacy were coded based on the level of nuance, confidence in financial literacy, having moderate financial literacy and being inexperienced. The sub-code (experience confidence) is used for quotations similar to "I am pretty clued up regarding financial literacy". The sub-code (moderate) is used for "My financial literacy is moderate; I think it can be better", and lastly, the sub-code (inexperienced) is used for quotations similar to "At the moment, my financial literacy is not that great".

Table 5-These pre-reflections imitated the general perception of the university students as a good understanding of the concept.

Students participating in the intervention were also asked to share information on who influences the way they perceive money. As mentioned in the literature, the social learning theory (see sub-section 3.2.2.1[34]) underpins the environmental influences of the attainment of financial literacy. Environmental or external influences include parents and peers; however, a variety of perspectives were expressed by participants.

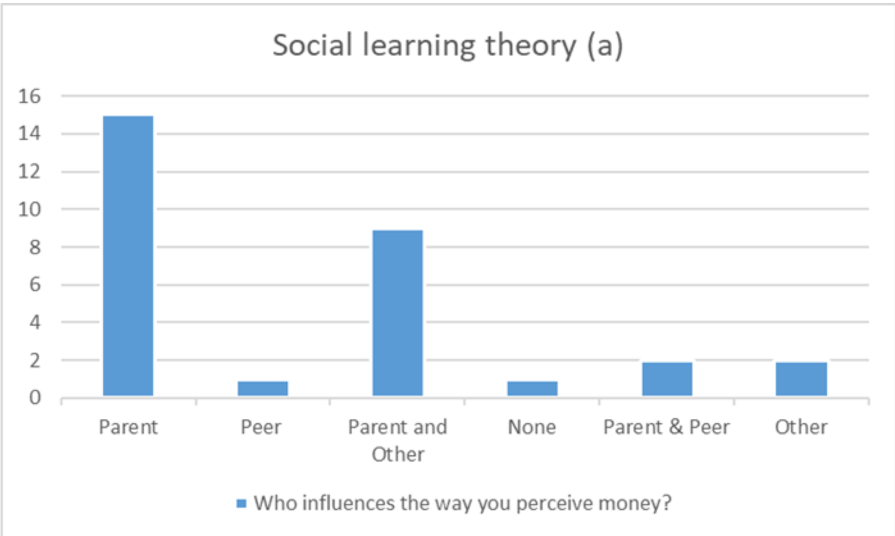

Figure 6-4: Social learning theory
Source: Transcribed by the author.

[33] See Table 5-4 - Chapter 5; page 114.
[34] See sub-section 3.2.2.1 - Chapter 3; page 55.

As shown in Figure 6-4, half of the participants indicated that parents influence the way they perceive money. Also, around another 37% of them indicated parental influence with others/peers. This indicates congenital conceptual financial literacy (Vovchenko et al., 2018:18). This correlates with Meyers (2020:7) statement that financial literacy in middle-income households is a well–known concept as parents educate their children about personal financial welfare, whereas children of lower-income households rarely learn the consequences of poor financial decisions (Meyers, 2020:7). This confirms the statement by Meyers (2020:7) that parental financial knowledge correlates positively to an individual's financial literacy more than formal education.

Acquired financial literacy is influenced by surroundings such as peer influence (Vovchenko *et al.,* 2018:18). Peer influence is present however does not have the same weight compared to parents. This finding is in agreement with Jorgensen's (2007:9) findings which showed parents tend to have a greater influence on students at a younger age while peer influence increases at an older age (Jorgensen, 2007:9). Eight participants responded 'parents and other factors' influence their financial literacy which is explained in Figure 6-5.

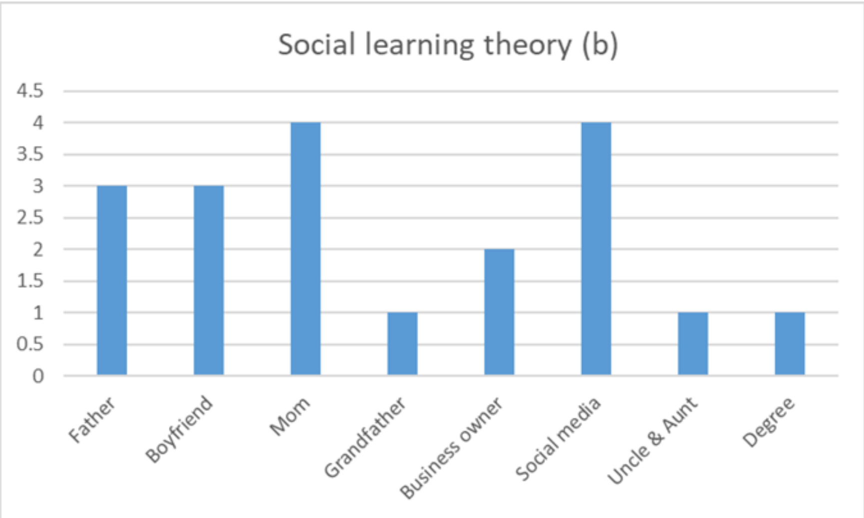

Figure 6-5: Specific response to social learning theory
Source: Transcribed by the author.

The open question produced a variety of external factors that influence the way the participants perceive money. Four participants specified 'Mother' and three participants specified 'Father'. Four participants responded that their partner, specifically their boyfriend, has an impact on their perception of money. This supports the idea of Lusardi and Mitchell (2014:7) association of an intra-households setting where one partner in a household (usually the husband) attains financial knowledge and the other (usually the wife) increases their acquisition of financial knowledge when it becomes relevant to them, for instance prior to the death of their spouse.

An unanticipated reflection was the influence of social media and business owners on participants' perception of money. The minority of participants (3%) added their choice of degree as an external ‘other’ influence. The results of the case study influence of environmental interactions on university students’ financial literacy development support the social learning theory (see subsection 3.2.2.1).

6.4.3 Stage 3- Intervention level 1: Evaluate the content of the financial training

The third stage is focused on the objective and the content of the financial literacy intervention. The intervention’s objective should be specific, measurable, reasonable, achievable and time-specific (OECD, 2010:6). The financial literacy centre’s objective is to teach personal finance concepts to high school groups, young adults from community projects, young entrepreneurs and workers of businesses in the community. The centre facilitates the learning of financial concepts using illustrations, relatable examples, videos and interactive games.

The financial skills and knowledge of participants are evaluated through an assessment using interactive games (see Appendix D). There are four games that teach: personal finance principles in the Millionaire game; budgeting basics in the Budgeting game; saving early, investing and retiring in the Savings game and a 20 versus 30 years loan in the Credit game. Each game is scored out of 100. Figure 6-6 displays the average score for each interactive game played by the participants.

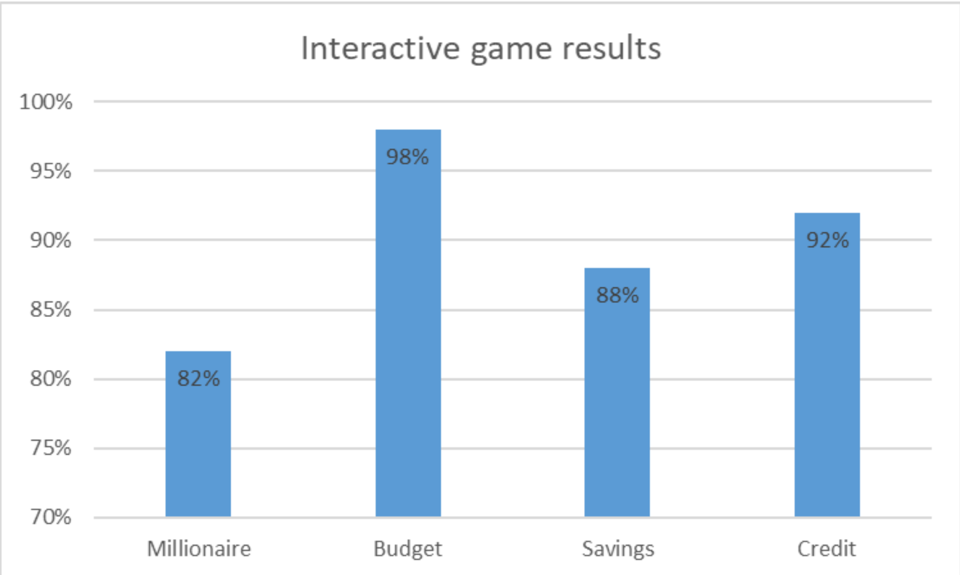

Figure 6-6: Average score for the interactive financial literacy games
Source: Transcribed by the author.

Considering the interactive game results, it is clear that the students had a depth of understanding of financial concepts. The results displayed in Figure 6-6 convey that the participants had a good sense of financial concepts. The overall response was that the training was more of an awareness. The budget game and credit game had the highest average scores of 98% and 92%, respectively out of the four games, followed by the savings (88%) and millionaire game (82%).

The proceedings of the financial literacy centre included an interactive lecture on important financial principles, then the participants proceeded to the computers to receive teaching through interactive games and, lastly, the participants had a feedback session. Figure 6-6 reflects the results of the interactive games, where each interactive game (personal finance principles, budgeting, saving, investing and retiring) has an introductory video with teachings, followed by a quiz. Therefore, the interactive games form part of the training and the results indicated that the participants had a good understanding of the concepts taught in the centre.

In light of the evaluation of the intervention content, emphasis should be placed on financial skills and knowledge. The content checklist (see Table 5-3[35]) evaluates whether the financial literacy intervention's content covers all of the most important financial literacy indicators. During the case study intervention, training commenced with an introductory video followed by a short presentation of the five main financial literacy concepts of the centre depicted in Table 6-3.

[35] See Table 5-3 - Chapter 5; page 108.

Table 6-3: Infographics presented in the financial literacy intervention training

Personal finance principles	1. Spend less than you earn 2. Budget and manage your cash 3. Save early and often 4. Pay debt first 5. Get a good education
Budgeting basics	1. Calculate your net income 2. Allocate your budget ▪ 40% Housing and utilities ▪ 15% Personal choice (clothing, entertainment, services) ▪ 15% Food supplies ▪ 15% Transportation (including loan and insurance) ▪ 10% Financial priorities (savings, emergency fund and debt) ▪ 5% cell phone and internet
Start saving early	Case study example of a Saver versus a Spender. ▪ Compound interest ▪ Rate of return
Home loans	Case study example 20 vs 30-year home loan ▪ Interest and compound interest ▪ Capital paid ▪ Total payment over the life of the loan
Investing and Retiring	1. Long-term savings ▪ 12% of total gross monthly income (for retirement) 2. Short-term savings ▪ 4% of total gross monthly income (unforeseen expenses) 3. Savings for tertiary education ▪ 2% of total gross monthly income per child 4. The Golden rules ▪ House value should be 2-3x of total family annual income ▪ Car value should be less than 50% of the owner's total annual income ▪ An emergency fund should be 3-6x total monthly expenses.
Credit principles (5 tips for avoiding debt)	1. Pay with cash (money you already have) whenever possible 2. When shopping, take only the cash you can afford to spend and spend only that cash 3. Avoid impulse purchases 4. Compare prices before making purchases 5. Pay off your credit each month.

Source: Financial literacy centre media.

Table 6-3 points out the financial concepts trained in the financial literacy centre. Together with the information content in Table 6-3, the financial centre also practised the application of financial knowledge in situations through interactive games (see Appendix D).

Table 6-4: Evaluate the centre content against the content checklist

Category	Rank	Indicator	Complied	Evaluation of case study against the content checklist
Financial capability and skills	**1**	Mathematical, reading and self-assessed financial capabilities	√	Table 6-3 provides the demographics of the university students, which indicate that 93% and 7% of the target group is full-time and part-time students, respectively. It is presumed that the participants have the necessary capabilities. This supports Maconi's (2016:151) argument that financial literacy intervention participants should acquire a level of conventional literacy before participating in the intervention. The financial literacy centre has a Mathematical interactive game, however, the content was elementary and due to time constraints, the mathematical game was excluded from the case study. All four interactive games played during the intervention requires a level of mathematical skill to answer the questions posed (See Appendix D).
	2	The human capital or education level of ➢ Individual ➢ Parents	√	Table 6-3 provides the demographics of the university students, which indicate that 86% and 14% of the target group is studying towards an undergraduate and postgraduate degree, respectively. Therefore, education is of a higher degree and is a form of human capital. In addition, the majority of the students confirmed that their parents influence the way they perceive personal finances.
Financial knowledge and understanding of financial concepts	**1**	Introductory knowledge of money basics ➢ Income and expenses ➢ Buying and selling ➢ Profit and losses ➢ Taxes and tax deductions	√	As inaugural to the training, the participants received an introductory lesson on Money Matters, that includes financial concepts such as income; expenses; budget; saving and cost of living when entering the labour market. The budgeting interactive game also practised the financial concepts, buying and selling as well as profit and losses.
	2	Definition of ➢ Personal assets ➢ Income-generating assets ➢ Investments ➢ Liabilities	X	Despite the practical application of these financial concepts in the interactive games, the definitions of these concepts were not particularly prominent during the intervention.

Category	Rank	Indicator	Complied	Evaluation of case study against the content checklist
		➢ Risk diversification (also the relationship between risk and return)		
	3	Understanding of how … work ➢ Bank accounts ➢ Inflation ➢ Interest rates (and compound interest) ➢ Debt (different types and the cost of debt)	√	Table 6-3 provides a good breakdown of the financial concepts taught in the financial literacy centre. The centre shared knowledge about two financial concepts- namely: interest and debt as it is presented as infographics and scenarios in the interactive games.
Financial planning and behaviour	**1**	Financial planning and planning ahead ➢ Monthly budget with specific categories in writing ➢ Actively saving money from a young age ➢ Managing debt (such as credit card debt and microloans)	√	The interactive games budget, savings and credit (see Appendix D) presented the indicator of financial planning and planning ahead.
	2	Price knowledge and price comparisons	√	Table 6-3 gives a good indication of how an individual can plan to spend their income and should compare prices before making purchases.
	3	Awareness of fraud activity	X	The awareness of fraud activity did not emerge from the case study content.

Category	Rank	Indicator	Complied	Evaluation of case study against the content checklist
Positive financial attitude	**1**	Financial sophistication (Determination and commitment, Disciplined, Motivated and responsible and willing to ask for guidance (consulting a financial advisor or friends and family).	√	The financial literacy centre is focused on teaching participants to make good decisions regarding savings, paying debt, planning and keeping track of expenses.
	2	Emotional intelligence (psychological well-being)	√	The financial literacy centre includes principles such as: When shopping, take only the cash you can afford to spend and spend only that cash and avoid impulse purchases. These principles contribute to having a positive attitude when making financial decisions.
	3	Personality traits	X	The awareness of different personality types was not observed during the case study.
Financial products and services	1	Choosing financial product ➢ Investments ➢ Loans (Mortgages, vehicle finance, personal loans) ➢ Stocks & shares ➢ Banking products ➢ Insurance	√	The financial literacy centre provides content on investing and different loans.
	1	Consulting financial experts for the practical application of ➢ Setting financial goals (Short, medium and long-term goals). ➢ Retirement planning ➢ Estate planning	X	Regardless of the guidelines in Table 6-3 to set goals and plan for retirement, the evaluation did not find the *confidence to ask for financial advice* in the financial literacy centre's content.

During Stage 3 of the PAR, the content checklist was applied to the financial literacy centre's content in Table 6-4 and an overall positive evaluation transpired. The following recommendations stem from the findings:

- Strengthen the objectives of the financial literacy centre to be more time-specific and measurable.
- Create an additional scope of financial concepts that include:
  - ✓ Understanding of how bank accounts and inflation work
  - ✓ Introductory knowledge of tax and tax deductions
  - ✓ Definition of personal assets, income-generating assets, investments and liabilities
  - ✓ Awareness of fraud activity
  - ✓ Awareness of personality traits
  - ✓ Financial products such as stocks and shares, banking products and insurance
  - ✓ Consulting financial advisors

6.4.4 Stage 4- Feedback level 2: Evaluate perception change

In stage 4, the intervention is evaluated by recognising a perception change as well as an attitude change directly after the intervention. Perception is having the senses to comprehend and understand the concept of being financially literate compared to attitude, that is, the actual feeling or way of thinking about being financially literate (Reference, 2020).

Directly after the interactive games, the students were asked whether their (i) perception about and (ii) attitude towards being financially literate changed after training. The results are presented in Figure 6-7.

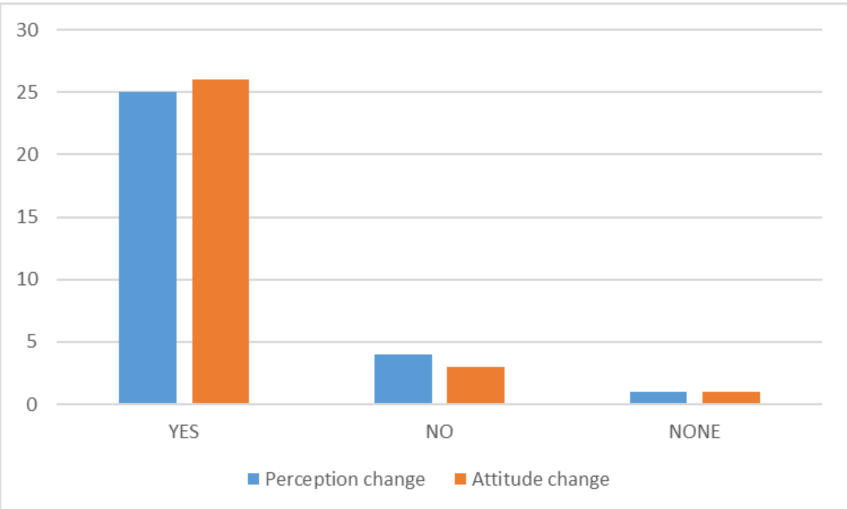

Figure 6-7: Perception and attitude directly after receiving training
Source: Transcribed by the author

The results show that 83% of the participants had a perception change and 86% of the participants' attitude towards being financially literate changed. The latter is a good indication that the university students benefited from participating in the financial literacy centre. The overall feeling of the participants was that the financial literacy training was insightful and meaningful.

Reibstein, Lovelock and Dobson (1980:370) argue that attitude leads to behaviour, then behaviour towards some object can be influenced by changing the individual's perception of the object.

The training was successful as the researcher was able to detect evidence of perception change. The observed perception change could be attributed to financial education since participants' response before the training was broad compared to after training (see subsection 5.2.2[36]).

6.4.5 Stage 5- Intervention level 2: A feedback loop

Ensure a feedback loop in Stage 5 so as to find the information on the main financial concepts/principles participants have learned in the centre as well as provide a platform for recommendations.

The recommendations for improving the financial literacy centre involved a request for a feedback loop (such as an email, designed mobile app, social media platform as well as additional financial educational sessions). CS6 (M) Stated: "Would be helpful to receive feedback after the intervention on suggestions for the mistakes made in the interactive games or how to save more money". Similarly, CS20 (M) Said: "Would like to receive feedback and a summary on email, to refer back to".

The overall learning experience was positive, and participants felt good after the training session. CS30 (F) said: "I always thought financial matters would be a hard concept and that I would not understand. I needed somebody to just show me how basic it can be."

A list of extracts concerning the learning experience of students who participated in the financial literacy centre follows:

- "I enjoyed it and it was informative."
- "It was very informative; I learned a lot."
- "In my learning experience posts centre, I learned a lot, to be honest about budget allocation. I learned a lot about the importance of budgeting and saving, and more importantly, I think I have learned the depths of financial literacy."
- "I've learned quite a lot. I've learned that I am not good at budgeting and I've learned ways to budget better. I've also learned that when you invest at a younger age, your investment will be a much larger amount and when you invest at an older age."
- "I enjoyed the session. I do admit that my knowledge and economics is not what it should be. So, this session was informative and empowering for me."

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[36] See sub-section 5.2.2 - Chapter 5; page 114.

- “My learning experience post-intervention is that I am much more aware of how I spend my money.”
- “My learning experience was a great one because I learned a bit more about the practical side of things.”
- “I learned a lot about budgeting and compound interest, and the power of long-term investments, and I would like to start investing in a savings account and doing it long-term with compound interest as well.”
- “With regards to financial literacy and living a healthy financial lifestyle, I have learned that making sound financial decisions in life, alongside sacrificing luxurious things and having to live within the boundaries of your affordability, is important.”
- “It was a great session for me, and I took a lot out of it.”
- “I learned a lot. The games we played were also a great way to learn how to work with money. It was also informative.”
- “My learning experience at the centre was very enjoyable. It was a very positive atmosphere.”
- “It was a refreshing experience because if you get busy with everyday life then you do not think about it, you always think you will start saving later if you get more money, but still, it has again emphasized that one can start saving as early and young as possible.”
- “I have to say I enjoyed playing the games, I learned a lot at the centre. The training was very interesting, and it was a good experience. We now have a much better outlook on our money.”

One female participant also commented that the financial literacy training empowered her: “This session was informative and empowering for me. I would love to have more sessions like this, and I would not change anything”. Bonga and Mlambo (2016:31) found that improving financial literacy can result in behavioural change for women. This newfound sense of empowerment created a shift in financial possibilities for the participants’ future.

As noted by Marimuthu, Arokiasamy and Ismail (2009:270), the investment in financial knowledge is a form of human capital that empowers consumers and improves their well-being. Similarly, Zokaityte (2017:84) asserts that financial literacy is expected to empower consumers to participate in financial markets by improving their financial knowledge and capabilities.

Traditionally, the evaluation of an intervention captures information on learner experience, adequacy of materials and facilities as well as convenience (Hira, 2016:503). By the end of the case study intervention session, students were asked about their general feeling after receiving training. The overall feeling of the group was good, and the session was meaningful.

The participants had feedback in three areas, the financial literacy centre, the interactive games and what they would have liked to know more. The participants were also impressed with the financial literacy centre’s aesthetics. Table 6-5 lists their responses.

Table 6-5: Feedback from students after receiving training

Financial literacy centre	• "Felt comfortable and liked the AC controlled room." • "The individual experience on your own computer/space is great - concentration is not disturbed." • "Prefer a keyboard more than the touch screen computer".
Interactive games	• "Illustration and graphics are very good; the participant can see visually how his money can grow." • "Liked the graphic depiction, better than a paper test." • "The illustrations together with the graphs are a cool idea." "Financial literacy terms are well explained in the games." • "Know the financial principles to an extent however, for example in the budget game the practical implication is real as a student you rely on parents as back-up however, in the game, the money is all you have." • "As a student, you rely on making it through the month with the minimum amount vs having a salary and having more responsibilities and expenses. The game informs students to start saving earlier for a retirement fund." • "Won money in the budget game, and spent it, in the next round I learned to rather save than spend." • "Budgeting game was an eye-opener, don't have to spend money till the last cent, so that you can have more to spend the next month." • "Learned that saving is beneficial however, games were basic and needs to improve for students." • "I would like the games to be more student-specific, rather than community-driven." • "I would like realistic/ current interest rates."
Interested in specific financial concepts	• "I would like to know how to practically apply the theory, e.g. How to invest the money/save." • "I would like to know more about inflation while investing." • "I would like to know more about where to invest, better interest rates and how to know if it is a good interest rate." • "I would like to know more about investing products." • "I would like to know more about the physical implications of investing money, such as banking fees and taxes."

Source: Reflections of students transcribed by the author.

Meyers (2020:9) mentions that students' financial literacy levels can improve by learning through interactive games that have immediate relevance to their personal finance. In the same way, the participants in the case study had overall positive and enjoyable feedback on the four interactive games, millionaire, budget, savings and credit games employed in training. Recommendations to amend the games to be more relevant in terms of student-focused and real-life interest rates were present.

The majority of the students expressed that the budgeting game was an "eye-opener" however, a common response was the attentiveness to learn more about types of investment products and the cost of investments. A possible reason for the latter could be that university students already have sound financial knowledge on money principles but lack the knowledge when applying the theory. As CS10 (M) responded: "I would like to know how to invest in the stock market if you don't have the necessary knowledge." As mentioned in the list of financial indicators (See Table

4-1[37]), an individual should have the willingness to consult a financial advisor for assistance if he lacks the necessary financial knowledge on a specific topic.

Another motivation for attentiveness towards investing could be an increasing interest in the investment topic since 70 and 30 per cent of the participants had a risk-neutral and a neutral adverse profile, respectively. Interestingly, it is generally accepted that most individuals are risk-averse and tend to prefer safer choices than riskier ones.

6.4.6 Stage 6- Feedback level 3: Evaluate behaviour change

On the research question of behavioural change, the researcher analysed behaviour change four months after the financial literacy training. Behaviourally informed interventions typically concentrate on raising awareness and supplying financial knowledge that supports sound and informed financial decisions (OECD, 2019:7). Participants were asked to indicate which stage of the "stages of behavioural change" best describe their current financial literacy after 16 weeks post-training. In Table 5-8 (see Section 5.2.4[38]) the different stages of behaviour change indicators are listed as individuals move from being unaware of any need to change their financial behaviour (stage one) to finally forming new and lasting financial habits (stage five) (Robson, 2012:6).

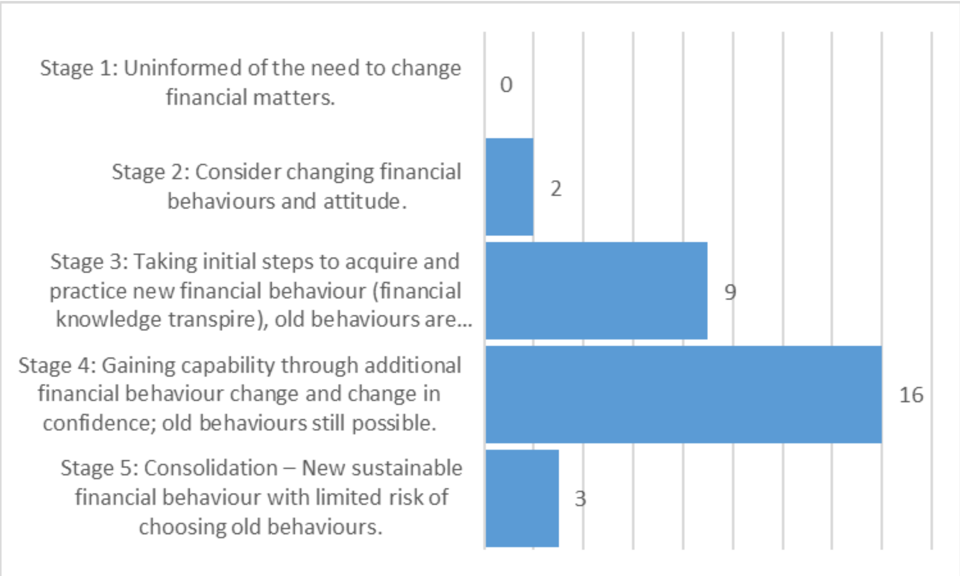

Figure 6-8: Stages of behavioural change
Source: Transcribed by the author.

Figure 6-8 displays the stages of behavioural change by university students that received training. One student stated "I would say that my behaviour stayed the same with some changes since I did have some sort of financial literacy before the intervention. However, I still learned a lot and

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[37] See Table 4-1 - Chapter 4; page 92.
[38] See Table 5-8 - Chapter 5; page 125.

currently practice and apply what I learned to my own finances. Therefore, I would choose Stage 2 as my behaviour."

Another student commented, "In terms of the stages of behavioural change, I would rate myself at Stage 3 because as much as I have been implementing new ways (saving 10% of all my income), I still find that my expenses are still a bit too costly compared to the income I receive but I am working on finding a balance."

Almost two-thirds of the participants indicated that they are at Stage 4 of behavioural change, which indicates participants are "gaining capability through additional financial behaviour change and change in confidence; old behaviours still possible." As a result, theme 4 of the study, behavioural change management, led to improved awareness and capability however, old financial behaviours are still present. This finding is consistent with those of Nanziri and Leibbrandt (2018:10) that South Africans are aware of and understand financial concepts however, struggle to convert knowledge into practice.

Hira (2016:504) argues that even though there is a need to properly design impact evaluations for financial literacy interventions, educators should exercise caution when expecting financial education to automatically result in behavioural change since behaviour is formulated over a long period and affected by various internal and external influences. The existing financial literacy interventions do not consider the profile of the participants or the personal side of financial behaviour (Hira, 2016:504).

The adapted questionnaire from Zulaihati, Susanti and Widyastuti (2020:655) measures the indicators of behaviour change in terms of saving behaviour, shopping behaviour, short-term planning and long-term planning.

The questionnaire was completed 19 weeks after the financial literacy training, which contributes to the sustainable impact measure of an intervention. Table 6-6 presents the changes in financial behaviour from pre-intervention to post-intervention training.

Table 6-6: Behavioural change questionnaire

	Agree (%)	Disagree (%)	Positive or negative behavioural change
Saving behaviour: I have a savings account.			
Pre-intervention	92%	8%	Neutral
Post-intervention	96%	4%	
Saving behaviour: Saving money for the future is something I think about.			
Pre-intervention	71%	29%	Positive
Post-intervention	96%	4%	
Saving behaviour: I make use of a budget.			
Pre-intervention	46%	54%	Positive
Post-intervention	88%	12%	
Shopping behaviour: When I go shopping, I compare prices.			

Pre-intervention	54%	46%	Positive
Post-intervention	96%	4%	
Shopping behaviour: When I go shopping, I impulse buy.			
Pre-intervention	71%	29%	Positive
Post-intervention	21%	79%	
Short-term planning: I consult my budget to see how much money I have left for the next 1-2 months.			
Pre-intervention	12.5%	87.5%	Positive
Post-intervention	88%	12%	
Long-term planning: I set financial goals for the next 1-2 years for what I want to achieve with my money.			
Pre-intervention	17%	83%	Positive
Post-intervention	75%	25%	

Source: Adopted from Zulaihati et al., 2020:654 and questionnaire findings.

The questionnaire findings in Table 6-6 suggest that, overall, in saving, shopping, short-term and long-term planning, a behavioural change occurred after 19 weeks. Moreover, the intervention produced positive behaviour change.

Lusardi, Mitchell and Curto (2010:377) argue that it is difficult to evaluate the effectiveness of financial literacy among university students due to the life cycle theory of saving. According to the life cycle theory, young individuals will rather borrow than save to smooth consumption over the life cycle. Financial literacy interventions' outcome is based on whether individuals increase their saving after having been exposed to financial literacy programmes (Lusardi & Mitchell, 2011:377).

Nonetheless, the results of savings behaviour in Table 6-6 do not explain the occurrence of these events as the majority of the university students (92%) had a savings account before the financial literacy intervention.

The results of this research support the idea that more care should be exercised when selecting financial outcomes and indicators for particular target groups (Lyons & Neelakantan, 2008:110). The framework of indicators evaluated the impact of the financial literacy intervention by evaluating the content of the intervention as well as the perception change and behavioural change of participants.

The results of the case study confirm Jorgensen (2007:6) family resource management model and environment influence theory (see Figure 3-1) that environmental influences such as parents and peers (external influences), as well as an individual's inputs such as personal characteristics, knowledge and attitude (internal influences), contributes to financial behaviour.

Taking all the PAR stages into account, the programme organisers should decide whether the intervention objectives were met and whether the framework should be re-implemented. The feedback in Stage 5 (see subsection 6.3.5) encourages the programme organisers to adapt.

Stage 6 provides a platform to enable follow-up focus group discussions and a repeat of the behaviour change questionnaire with the same group of participants over time. This study encourages future research in this area as it was subject to a limited timeframe.

6.5 ADDITIONAL OUTCOMES ACHIEVED THROUGH THE FRAMEWORK

6.5.1 Sustainability

The sustainability of the intervention is an additional outcome and is measured based on the following indicators; the intervention can adapt to different situations (environment), the intervention should lead to improved financial behaviour (economic) and lastly, the intervention can transfer skills (social).

6.5.1.1 Intervention can adapt to different situations

The intervention can adapt to different skill levels of participants. The initial purpose of the financial literacy centre was to improve the financial knowledge of community members and school children. The centre was adapted for university students to participate in this case study, therefore the centre addressed the characteristics of multipurpose. A multipurpose intervention improves the sustainable impact of the centre.

6.5.1.2 Skill transfer in the form of financial literacy

The intervention contributed to the development of specific financial skills among the university students that enable them to use their available resources to create sustainable livelihood strategies for themselves before entering the labour market. Therefore, the financial literacy intervention improved the participants' human capital.

Investing in financial literacy is not costless; however, the investment is likely to have high returns and will not only benefit the economically vulnerable, but also the society at large (Mitchell & Lusardi, 2015:8). The findings of Chapter 6 indicate that the participants had an improved understanding of financial concepts. The skill transfer of the intervention can also improve by educating university students on more complex financial concepts as well as developing a feedback loop for regular advice.

6.5.1.3 Improved financial behaviour

The financial literacy intervention proved to be an effective way to motivate the participants to engage in desirable financial behaviours. The results of the case study intervention confirm that teaching personal finance can positively impact financial knowledge and behaviour.

6.5.2 Empowerment

Morse and McNamara (2013:6) suggest practising sustainability through livelihoods. Sustainable livelihoods are possible when the capabilities and assets of the communities can be enhanced and maintained (Morse & McNamara, 2013:22). During the thematic analysis, a newfound sense of empowerment created a shift in financial possibilities for the participants.

A participant commented that the financial literacy training empowered her: “This session was informative and empowering for me. I would love to have more sessions like this, and I wouldn't change anything”.

This finding supports the statement by Marimuthu, Arokiasamy & Ismail (2009:270) that the investment in financial knowledge is a form of human capital that empowers consumers and improves their well-being, which in turn increases productivity and firm performance, encourages economic growth and promotes development.

Participants were also directly empowered by the participatory action research which integrated the collective input of the participants with the intervention to facilitate the process of developing a conceptual framework of indicators to evaluate the impact of financial literacy interventions.

6.5.3 Community development and improved well-being

The development of a conceptual framework of indicators aimed at evaluating the content and impact of financial literacy interventions will enable programme organisers to adapt intervention efforts to improve participants’ overall financial well-being. The improvement of financial well-being will enable greater economic impact on communities through market participation, building wealth, and increased savings and retirement planning.

Financial literacy programmes improve community welfare (Dewi, Febrian, Effendi & Anwar, 2020:35) and contribute to the formulation of a new generation of financially educated society (Philippas & Avdoulas, 2020:379). This also accords with earlier findings, which showed that the participants’ human capital was improved by the financial literacy intervention through investing in their financial skills and knowledge.

It is important to develop financial literacy among the community members for financial inclusion as well as understanding government financial policies (National Treasury, 2011:60). Effective financial literacy interventions are a primary step towards financial inclusion, which creates awareness in financial products and services provided by financial organisations (Refera, Dhaliwal & Kaur, 2016:189). Inclusive development in the financial sector improves access to financial services for individuals, households and small and medium-sized enterprises and has substantial benefits for the economy, including job creation, boosting economic growth, relieving poverty and improving income distribution (National Treasury, 2011:60).

6.6 CONCLUSION

The aim of Chapter 6 was to address the gap between the impact of financial literacy training and the reality of low levels of financial literacy in South Africa by developing a conceptual framework of indicators that has the potential to be applied to other similar programmes. Chapter 6 met the general objective of the study, which were to develop a framework to evaluate the content and impact of personal finance literacy interventions.

The financial literacy indicators, thematic analysis and participatory action research were used as a methodology in the development process of the framework and resulted in a collection of logically related stages for continual evaluation.

The participatory action research (PAR) cycle framework consisted of six stages and was based on Jarabeen's eight steps conceptual framework procedure and the four themes of the research study to ensure the validity of the framework. The PAR cycle has the flexibility to evaluate, capacity for modification and emphasises understanding situations instead of expecting outcomes.

The continual process of evaluation describes the impact of each stage and includes various components of financial literacy: financial capability, financial knowledge, financial behaviour, financial attitude and financial products and services. The financial literacy intervention at a South African university case study was evaluated against the framework of indicators, measuring the content and impact of the financial literacy centre.

On the research question of "What is the impact of a financial literacy intervention?" the framework found that the overall content of the case study was aligned with the financial literacy indicators identified in Phase A and confirmed and ranked in Phases C and D respectively. In addition, perception change was observed after the financial literacy training. Another important and unintended finding was behaviour change targeted to specific financial topics. As mentioned in the literature, behaviours targeted to a specific financial topic, specific product or specific service must be delivered in a financial intervention (Birkenmaier & Maynard, 2016:5). Therefore, the findings present perception change and behavioural change.

The evaluation framework recommends the strengthening of the centre's objective as well as including additional financial concepts. Lastly, the case study participants recommend having an online platform, for instance, on social media, as a feedback loop where participants can find information on the main financial concepts/principles they have learned in the centre as well as provide recommendations after their training to ensure the content is relevant and the financial literacy centre is continually improved.

One unanticipated finding was the sustainable development of the financial literacy intervention. The sustainability of the intervention is measured by the following indicators: the intervention can adapt to different situations (environment), the intervention should lead to improved financial behaviour (economic) and, lastly, the intervention can transfer skills (social). The intervention complies with these three parameters since the intervention was initially proposed for community members and was used for university students (adapt), the intervention resulted in awareness and positive financial behaviour change (financial behaviour) as well as an increase in financial knowledge (skill transfer).

Chapter 7 concludes the research study with the policy recommendations and recommendations for further studies.

CHAPTER 7
CONCLUSION

7.1 INTRODUCTION

Financial literacy is an important element of economic stability and development since financially literate individuals will contribute to improved economic performance, increased competition among financial providers and the scope of active participants in the economy. In recent years, difficult economic environments, and poor informed financial decisions due to a lack of financial literacy have generated a substantial amount of interest in developed and emerging countries' level of financial literacy (Potrich, Vieira, Coronel, & Bender, 2015:1). As a result, numerous financial literacy programmes and initiatives have been developed to promote financial literacy (Lyons, Palmer, Jayaratne & Scherpf, 2006:208).

Unfortunately, little is still known about whether financial literacy programmes are effective and whether these efforts are improving consumers' overall financial well-being (Lyons et al., 2006:208). Literature suggested that the reason for this is that financial professionals and educators do not know how to evaluate the impact of the financial literacy programs to indicate effectiveness (Lyons et al., 2006:208). It is for this reason that this study was undertaken to develop a framework of indicators to evaluate the impact of financial literacy interventions.

The present study makes several noteworthy contributions to the growing body of literature on financial literacy in South Africa. In view of the problem statement and the need to determine whether financial literacy interventions are improving consumers' overall financial well-being, the study developed a qualitative framework of indicators that were applied to a target group of university students participating in a financial literacy intervention. The process evaluation of the case study, in this case, the financial literacy centre, found that the content of the centre included the important financial literacy indicators, students' awareness of financial concepts and financial knowledge improved and after some time, students' behaviour towards personal money management changed. This study constitutes a qualitative measurement of a process of an evaluation framework.

The six-stage evaluation framework that was developed addressed the evaluation component of financial literacy interventions and, therefore, contributed to the effectiveness of such interventions as well as the ongoing investigation of financial literacy in South Africa. The synthesis of the framework of indicators was done in accordance with Jarabeen's (2009:53) conceptual framework steps (see subsection 6.2.1). Different data sources facilitated the research study, therefore qualitative validity and reliability were ensured through triangulation.

A comprehensive literature review (CLR) was used to identify financial literacy indicators and participatory action research (PAR) was used as a method in the development process of the framework. The study evaluated a South African university financial literacy centre against the framework. The specific case study was a good fit for the study as it provided an in-depth understanding of the issue researched as recommended by Creswell et al., 2007:239. The case study was used to measure the impact of the intervention against the framework and to make recommendations towards adaptation to the content of the centre.

In summary, the overall structure of the research study takes the form of seven chapters (Chapters 1 – 7) and six phases (Phases A – F). Section 7.2 draws upon the entire study, tying up the various chapters and research objectives to present the outcomes of the research. The present study makes several noteworthy contributions in Section 7.3. Finally, areas for further research are identified in Section 7.4.

7.2 ADDRESSING THE RESEARCH OBJECTIVES

The general objective of the study was to develop a framework to evaluate the content and impact of financial literacy interventions using a case study. The general research objective was addressed by exploring the six phases (Phase A – Phase F) and the corresponding seven chapters (Chapters 1-7).

A detailed description of the research design and methodology was provided in Chapter 2 to provide a roadmap for the rest of the study. In Chapter 3 the international and national literature of financial literacy and relevant theories was presented. In the South African context, the literature on the lack of financial literacy among university students (Shambare and Rugimbana, 2012:582; Louw, Fouche and Oberholzer, 2013:448; Botha, 2013:36; Nanziri and Leibbrandt, 2018:3; Roberts, Struwig, Gordan & Radebe, 2018:9) and limited studies that evaluate the impact of financial literacy interventions reconfirmed the need to develop a conceptual framework of indicators to evaluate the impact of interventions. The framework developed can be used not only to evaluate the content of a personal finance intervention, but will also include indicators of perception change, behaviour change and sustainability.

In Phase A, a CLR was conducted to identify financial literacy indicators and produced five categories, financial capabilities; financial knowledge and understanding of concepts; effective financial planning and behaviour; positive financial attitude; financial products and services.

Phase B included three sub-phases to indicate the case study component of the research study as well as to utilise a non-experimental evaluation design (pre-post design). During Phase B1, the participant's pre-reflection of their perception of financial literacy was identified. Next in Phase B2, the participants received training in the personal finance literacy centre at a South African University and, lastly, Phase B3 recognised perception change by analysing post-reflections.

The overall results of the three phases of Phase B yielded a thematic analysis which resulted in 24 codes (which captured the participants' response of their perception of financial literacy as well as the financial literacy indicators) and eight categories (collection of similar codes, Content checklist; Financial skills; Financial knowledge; Description of perceived financial knowledge; Perception of Financial Literacy; Positive Financial Attitude when making financial decisions; Profile of a financially literate student and Behaviour change) to form four themes (recurring pragmatic measurements of content, perception change, influences and indicators of behaviour change). The themes, content, perception change, influences and behaviour change were identified as measurements for the evaluation framework.

Chapter 4 captured the results of the CLR as well as the confirmation and ranking of indicators according to relative importance. The confirmation of the financial literacy indicators, which was established through the CLR, in Phase C included the implementation of output validation as proposed by Mayer and Butler (1993) and Bockstaller and Girardin (2003:642). This procedure entails submitting the indicators to a selected panel of participants and subject matter experts (SMEs), to evaluate their relevance according to the panel's expertise and experiences (Bockstaller & Girardin, 2003:643). The ranking of indicators was completed by both focus groups in Phase D.

In addition, during the data analysis in Chapter 5, the research questions were re-evaluated to include the emerging and unintended theme of behaviour change. The additional contributions of behaviour change (and consequently sustainability) came out of the data analysis and a deductive approach was employed to determine additional evidence that can support the theme. The additional theme was a good fit since Hira (2016:504) asserts there is a gap in measuring the impact of financial literacy interventions on participants' behaviour.

Phase E produced a six-stage evaluation framework, in Chapter 6, based on the comprehensive literature review, thematic analysis and case study research to gauge the impact, of personal finance literacy interventions. Part of the value in the framework lies in its applicability to different types of personal finance programmes. In summary, the six stages cover the following: Stage 1: Collection of information about the target group; Stage 2: Pre-training reflection about perceived personal finance literacy; Stage 3: Evaluation of financial training content; Stage 4: Evaluation of perception change; Stage 5: Participant feedback loop; Stage 6: Evaluation of behavioural change.

The case study was evaluated in Phase F against the framework and recommendations to improve the content of the intervention was endorsed. The framework employed practical tools, such as a demographic questionnaire, reflection interviews, a financial literacy indicators (content) checklist and a behavioural change questionnaire in support of the PAR stages in the evaluation framework. The information gathered in the different stages could also be used to evaluate the sustainability of the intervention in terms of adaptability, behavioural change and skills transfer.

Table 7-1 provides a summary of the chapters aligned with the research objectives and outcomes. It is important to take into consideration that qualitative research does not involve a purely linear process. Based on the nature of qualitative research, there is of course overlap between phases. For example, the thematic analysis considered the literature (phase A), interviews (phase B), focus group discussions (phase C) and training material (phase E). Also, the framework development process in Phases E & F took into account the thematic analysis and integrated phases A, B, C and D.

Table 7-1: Summary of the purpose and outcomes of the study

Research question	Research objective	Purpose	Chapter	Phase	Data source	Outcome
What are the content indicators of financial literacy based on the literature?	Identify financial literacy indicators from the literature.	Review relevant literature and theory to identify financial literacy indicators.	Chapter 3 – Literature background	A	Comprehensive Literature Review (CLR) through an online database and web search.	Five content categories: Financial capability, Financial knowledge, Financial planning, Financial attitude and Financial products and services.
What is the impact of a financial literacy intervention on perceptions regarding personal finance?	Determine how the intervention changed perceptions of the importance of basic personal finance literacy principles.	Analyse the findings of the case study through a thematic analysis to identify evaluation components for the conceptual framework.	Chapter 5 – Thematic analysis: Case study results	B	Thematic analysis in ATLAS.ti of multidisciplinary bodies of knowledge including the case study pre- and post-reflection interview transcriptions, field notes and observations during training as well as relevant theory.	Four overarching themes were identified, namely: content; perception change; influences and behaviour change measurement. The four themes informed and guided the development of the evaluation framework (see Phase E).
What are the most important and relevant indicators of financial literacy within a South African context ?	Confirm and rank the content indicators identified in the literature based on practical experience and the South African context.	Confirm and rank the financial literacy indicators.	Chapter 4 – Data analysis: Financial literacy indicators	C D	Focus group discussion transcriptions, field notes, observations, and questionnaire to rank the indicators according to importance.	The content indicators were confirmed and ranked in ascending order of importance. These are grouped under the headings (in order of perceived importance): Financial capability, Financial knowledge, Financial planning, Financial attitude and Financial products and services.

What process can be followed to evaluate a financial literacy intervention?	Develop a framework to evaluate the impact of financial literacy interventions.	Develop a framework of indicators to evaluate the content and impact of personal finance literacy interventions.	Chapter 6 – Framework development	E	Financial literacy indicators identified in the CLR. Measurement components (themes) identified in the thematic analysis. Jarabeen's eight steps for developing a framework. Participatory action research (PAR).	Six stages of continuous evaluation: Stage 1 - Initial engagement: Information collection Stage 2 – Feedback level 1: Pre-training reflection interviews Stage 3 - Intervention level 1: Training Stage 4 - Feedback level 2: Post-training reflection interviews. Stage 5 – Intervention level 2: Participants' feedback on training Stage 6 – Feedback level 3: Behaviour change
		Evaluate the sustainability of the financial literacy intervention.			Sustainability measurements	Sustainability indicators: (i) adaptability, (ii) skill transfer and (iii) improved financial behaviour.
How can the content and impact of a financial intervention be enhanced?	Evaluate the case study against the developed framework to make adaptions and recommendations.	Evaluate the case study against the framework and recommend changes or adaptions to the framework as well as the content of the financial literacy centre in the case study.	Chapter 6 – Framework application	F	(i) The first draft evaluation framework developed in phase E. (ii) case study thematic analysis results. (iii) case study training material, documents and reports pertaining to information on the financial literacy centre, transcriptions of focus group discussions, behaviour change	Evaluation framework developed illustrated as a tree structure: Stage 1: Information collection (layer of soil, basis) Stage 2: Pre-reflection of perception (layer of soil, basis) Stage 3: Financial training (seed, roots) Stage 4: Perception change (branches) Stage 5: Two-way feedback loop (trunk) Stage 6: Behaviour change (fruit) (In the tree structure, fingerprint leaves & branches in the shape of hands represent the influence theme).

					questionnaire responses	The case study is evaluated against the framework and recommendations are made. Stage 5 was adapted to include not only one-way feedback on the training experience from the participants, but also feedback to the participants in the form of visual summaries and / or social media platforms of the basic principles taught Increased financial knowledge, awareness, perception change, behaviour change and sustainability were observed in the case study. Recommendations included recurring future follow-up focus group discussions and behaviour change questionnaires.

Source: **Author's compilation**

The case study has shown that according to the university student's pre -reflections of financial literacy in Stage 2: Feedback level 1 (see subsection 6.4.2), the financial training has produced perception and attitude change in Stage 4: Feedback Level 2 (see subsection 6.4.4), directly after Stage 3: Intervention Level 1 (see subsection 6.4.3).

The case study also produced a feedback loop in Stage 5: Intervention Level 2 (see subsection 6.4.5), where university students can be reminded of the important financial concepts, focused on in Stage 3: Intervention Level 1, through email, digital app, social media or additional financial literacy sessions. In addition to the reminder, Stage 5 represents a platform where the participants can share feedback and recommendations of their learning experience. Finally, Stage 6: Feedback Level 3 has provided evidence of behaviour change over a period of time (see subsection 6.4.6).

The evidence from this study suggests that the framework can be applied to similar interventions, however, it is important to note that the study is not claiming that the case study is generalisable for all South African university students.

7.3 CONTRIBUTIONS OF THE STUDY

7.3.1 Literature contribution

Various studies report how to measure the level of individuals' financial literacy or understanding of financial literacy concepts, however, there is a need to evaluate the impact of financial literacy interventions. This disconnect between evaluation and measurement of evaluation emphasises the literature gap between various studies measuring the levels of financial literacy (confirmed by Klapper, Lusardi & van Oudheusden, 2015; OECD, 2016; Sibanda & Sibanda, 2016; Astuti, Tanjung Putri, 2019; Artavanis & Karra, 2020; Sconti, 2020), and the need for studies evaluating the impact of financial literacy interventions (confirmed by Lyons et al., 2006:208; Huston, 2010; Harrison, 2016:2; Swiecka et al., 2020:16).

This research contributed to the current financial literacy literature by developing a conceptual framework to evaluate the content of personal finance literacy interventions, and the impact on perception change and behaviour change of participants in Chapter 6. The conceptual framework provided insight into how well the intervention improves financial literacy, to ultimately improve human capital and community well-being.

The conceptual framework included participatory action research stages to be practically implemented with the support of tools such as; a demographics questionnaire, reflection interviews, a content checklist (financial literacy indicators) and a behaviour change questionnaire (behaviour change indicators). The framework constructed is intended to facilitate the evaluation of any similar financial literacy intervention in order to make recommendations toward improving the efforts of the particular intervention. In addition, the study clarified the list of indicators that contribute to financial literacy in Chapter 4 as literature has not reached a consensus on what indicators should be used to evaluate financial literacy.

Moreover, Béres & Huzdik, (2012:298) recommend that researchers apply appropriate weighting between the financial literacy indicators as it is not present in literature. The financial literacy indicators were quantitatively ranked according to importance by SMEs and students that participated in the case study. Therefore, the study contributes to the literature by validating and ranking financial literacy indicators.

Lastly, Hira (2016:506) highlights the demand towards value-based development of individual well-being in balance with community well-being to ultimately develop a long-term financially sustainable approach to providing financial education. The sustainability of an intervention can be evaluated against three sustainability indicators; (i) adaptability, (ii) behavioural change and (iii) skills transfer (Bell & Morse, 2018:1). The information gathered when implementing the evaluation framework developed in this study could also be used to determine the sustainability of the personal finance literacy intervention, as indicated in the additional outcomes in Chapter 6. The framework therefore also contributes to evaluating the sustainability of financial literacy interventions and can consequently play a role in improving human capital and ultimately community well-being.

7.3.2 Practical contribution

South African literature provides evidence of financial literacy interventions, but research on how the impact of these interventions should be evaluated is lacking. This research study developed a framework to provide evaluation measurements to similar financial interventions and therefore contributes to the effectiveness of such interventions.

The study provided evidence of the practical contribution of the evaluation framework developed when applying it to the case study in Chapter 6. The study is of specific significance to government-funded financial literacy interventions, since many of the existing interventions have not been effective as indicated by Sibanda and Sibanda (2016:31) and FinMark Trust (2005:2). The framework can assist private and public financial literacy interventions to obtain the desired outcomes, perception and behaviour change and prevent future taxpayer money from being used inefficiently.

7.3.3 Theoretical contribution

The findings of the data analysis explained the theories applicable to financial literacy interventions, namely: social learning theory, life cycle theory and human capital theory. Financial literacy is influenced by internal and external influences (social learning theory), differs across the life cycle (life cycle theory) and will contribute to a well-resourced next generation (human capital theory).

From the relevant theory discussed in Chapter 3 (see subsection 3.2.2), the case study results support the principles of the theories as discussed in Table 7-2.

Table 7-2: Overview of the case study results applicable to the theory

Theory	Case study results
1. Social learning theory	The social learning theory is observed in code 21 and code 22 and found in Stage 2: Feedback Level 1.
2. Life cycle theory	The life cycle theory is observed in code 23 and found in Stage 1: Initial engagement.
3. Human capital theory	The human capital theory is observed in codes 2 and 3 and found in Stage 1: Initial engagement, and Stage 3: Intervention Level 1.

Source: Author's construction.

The social learning theory is especially useful to describe the impact of students over the years as their home environment has an imperative influence on financial literacy development (Jorgensen, 2007:5). The case study results showed that the majority of the university students identified parents and peers as environmental influences.

In addition, the family resource model by Jorgensen (2007:7) (See Figure 3-2[39]) provides an input stage (demands, values, attitudes, knowledge, personal characteristics), a throughput stage (financial behaviour, planning, implementing, decision making and communicating), an output stage (realised knowledge, better attitude or achieved goals) and a feedback loop (positive or negative). The case study results in Chapter 6 also indicated an input-; throughput-; output stage and feedback loop.

The input stage reflects the resources and demands (life goals) of individuals at any given time during their life cycle. The thematic analysis in Chapter 5 recorded the life goal or demand input of a participant: "When you get married, your attitude towards finances change since you want to provide for your significant other while taking into consideration our expenses such as paying water and electricity, car and credit card bills."

In the same way, training as input has a direct impact on the life cycle since financial literacy is necessary for the financial well-being of society and especially for young adults off to university as they assume full responsibility for managing their finances and make life-shaping financial decisions that affect all aspects of their financial futures (Breitbach & Walstad, 2016:81). An individual's assessment of their well-being will change in each stage of the life cycle (Brüggen *et al.,* 2017:230).

The throughput stage reflects the financial training evaluated in the case study. The financial training resulted in improved financial knowledge, increased awareness and perception change. The output stage of the case study presents the realised knowledge and behaviour change. Lastly, the feedback loop in the case study, for additional training, was recognised to assist the

[39] See Figure 3-2 - Chapter 3; page 60.

evaluation process and document recommendations from participants for adaptation of the intervention.

In light of the human capital theory, financial literacy education contributes to the formulation of a new generation of financially educated society (Philippas & Avdoulas, 2020:379). The thematic analysis discussed the endowment of human capital in code 2: financial capabilities such as mathematical skills and in code 3: two-generation human capital such as the education level of the parents and the education level of the individual. This supports Meyer's (202:7) findings that if one generation of young adults can be impacted, the positive influence will be passed over to their children. Chapter 6 provided evidence of human capital investment in Stage 3: Intervention Level 1 as well as evidence of sustainability in community development, skill transfer and behaviour change.

7.4 RECOMMENDATIONS

7.4.1 Recommendations for future research

The case study provided the following insights for future research:

During the data analysis, sustainability and behaviour change indicators have emerged. For the reason that it was not part of the original objectives of the present study, longitudinal experimental research to evaluate the behaviour change impact of financial literacy education can be further explored.

A possible area for future research is the supply side constraint of financial literacy interventions. Another possible area of future research would be to further investigate the role of a feedback loop identified in Stage 5: Intervention Level 2 of the framework. This may involve determining what impact a feedback loop in the form of, for example, an online platform would have on the effectiveness of a financial literacy intervention. The feedback loop acts firstly, as additional financial education or reminder (feedback from the financial literacy intervention to the participants) and secondly, as a reaction loop for recommendations (feedback from the participants for improving the intervention).

7.4.2 Recommendations for implementation

The study recommended the implementation of an evaluation framework to evaluate the impact of financial literacy interventions. The framework can be implemented to similar interventions by applying the six stages as presented in Chapter 6. The six-stage description is as follows: Stage 1 - Information collection of the target group; Stage 2 - Pre-reflection of perception; Stage 3 - Evaluate the content of the financial training; Stage 4 – Evaluate perception change; Stage 5 – A Feedback loop and Stage 6 – Evaluate behaviour change.

The framework employs practical tools such as a demographic questionnaire, reflection interviews, financial literacy indicators (content) checklist and a behavioural change questionnaire to facilitate the PAR stages in the conceptual framework. The case study recommendations are presented in sub-section 6.4.3 [40] and Table 6-4[41].

Sibanda and Sibanda, (2016:31) recommend that a monitoring framework is necessary to systematically track the impact of financial education interventions. The developed framework offers a means to continuously evaluate the impact of financial literacy interventions.

7.4.3 Recommendation for policy

During the case study interviews and focus group discussions it was clear that financial literacy is attained through financial education, parental teachings and social media platforms. Therefore, as a recommendation, personal finance content could be added to tertiary-level education programmes geared towards creating well-rounded graduates. Tertiary institutions would be unwise not to pay attention to the low levels of financial literacy amongst students. Better financial literacy levels amongst university students hold many potential economic and social welfare benefits due to the fact that they are the future decision-makers, business owners, savers, taxpayers, parents and influencers in a community.

The social learning theory and profile of a financial literate student highlighted the impact parents have had on their children from a very young age. Therefore, each generation of parents should be encouraged to share their financial know-how and expertise with their children. This helps to promote a long-term, sustainable pattern of financial knowledge and skills transfer which will benefit individuals, families, communities and the economy in general. It is evident from the results that social media can be a very effective platform to increase awareness.

There is growing evidence of a strong relationship between personal financial literacy and economic outcomes, such as better investment decisions, personal financial planning and retirement planning, and budgeting and management skills. The financially literate are also more likely to accumulate and effectively manage their wealth. Many South African government and private institutions have implemented financial education programmes to improve the financial literacy levels in the country (see Table 4-1[42]). Nevertheless, the financial literacy programmes are scattered with low levels of coordination and have been either inappropriate, marketing-focused or duplicating existing programmes (Sibanda & Sibanda, 2016:31).

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[40] See sub-section 6.4.3 - Chapter 6; page 150.
[41] See Table 6-4 - Chapter 6; page 153.
[42] See Table 4-1 - Chapter 4; page 92.

Implementing the framework developed in this study holds the potential to improve the effectiveness of these interventions and contribute to the financial well-being of individuals, communities and ultimately the economy as a whole.

7.5 REFLECTION

The idea behind the study was to develop a framework to determine whether the efforts of financial education interventions are resulting in improved financial outcomes and has an overall positive impact. The study was based on a case study which paved the way to develop a conceptual framework of indicators and subsequently apply the framework to the financial literacy centre.

The reference to “indicators” in the title of the study, does not only refer to the content checklist based on the CLR (Phases A, C and D), but indicators of behavioural changes and sustainability can also at the end be encapsulated under this term. The term “indicator” should be viewed as a qualitative, non-numerical factor used as data for determining progress towards a specific goal, based on opinions and viewpoints rather than quantitative numbers.

The study was faced with some constraints. The reader should consider that the Coronavirus pandemic (COVID-19) has created a challenging environment to conduct a qualitative, case study research. Like any other post-graduate study, the research was subject to time constraints. This meant that a long-term impact evaluation, with follow-up interviews, focus group discussions and questionnaires, was not possible. Nevertheless, the research objectives were met and these limitations present opportunities for future research.

The outcome of the study is an evaluation framework that can be used to determine the impact of personal finance literacy interventions, supporting perception change, behaviour change, influences as well as sustainability. The development of the framework ultimately resulted in a tree structure illustration that offers an easy understanding of the evaluation process it represents.

When applying this framework to the specific case study, positive perception and behaviour change was observed as well as all three the indicators of sustainability. This emphasises that personal finance interventions similar to the case investigated are worthwhile being offered, evaluated, further developed and sustained.

It is important to note that the aim of the study was not to measure the degree of impact or literacy levels resulting from personal finance interventions, but to evaluate the content and whether a positive impact was made. Although the intervention in the case is a once-off intervention, a positive impact on participants’ personal finance perception and behaviour was observed.

The study proved that it will be worthwhile for the evaluation framework developed to be tested further, refined and applied over the longer term. Furthermore, continuous follow-up sessions with the same participants can provide insights on the impact over time. This study therefore created a foundation for future research.

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APPENDIX A

SEMI-STRUCTURED INTERVIEW PROTOCOL

INTERVENTION INTERVIEW QUESTIONS

Purpose

- Pre-intervention: To gain a better understanding of the reflective view of the student's current perception of their financial literacy.
- Post-intervention: To identify the change in the student's perception as a result of the training.

Target respondents

- University students from all available faculties at a South African University. The study sample size will include eight students per group. Five groups in total will receive financial literacy training.
- Each respondent will have a pre- and post-intervention interview, therefore two interviews in total. Both interviews are conducted at the financial literacy centre on university grounds. The interviews are sent via WhatsApp audio-recording to the researcher to collect the data. All data obtained is stored on a secure server and notes are stored in sealed boxes in an access-controlled storeroom.
- The students who participated in the centre will by means of random assignment also form part of the focus group discussions (Appendix B).

Interview Set-up

Obtain consent from participants to be interviewed and audio-recorded (Appendix C). Keep eye contact and ensure natural conversation. Send framework and potential questions. Set interview time.

Interviews

Provide a brief overview of the generic process. Clarify the key definitions and purpose of the study. Ask questions.

Questions

(a) Pre-intervention

1. What is your understanding of the term financial literacy?
2. How do you experience/ describe your own financial literacy?
3. Written communication: Who influences the way you perceive money?

(b) Post-intervention

4. Written communication: Has your perception and attitude changed after the financial literacy training?
5. What is your understanding of financial literacy after receiving training in main concepts and principles?
6. What was your learning experience post-intervention (recognising a perception change)?

(c) Standard demographic questions

Please note: All demographic questions are open-questions and endorse open-responses such as “I prefer not to say”. The standard demographic questions aim to pool different student together for comparison as well as to describe the total sample to future readers.

7. Please indicate the gender you identify with.
8. What is your age in years?
9. What is your highest education?
10. What is your field of study?
11. Are you currently a full-time or part-time student?
12. What is your marital status?
13. Do you have any children? If yes, how many?
14. Do you receive a source of income?
15. What percentage of your income is used for savings and or investments?
16. What percentage of your savings are used to pay debt?
17. Would you say you are risk neutral or risk averse?

(d) Probing questions

Interviewees should note that follow-up question might be asked to gain an in-depth understanding of the phenomena being researched and overarching understanding of their responses.

APPENDIX B

FOCUS GROUP DISCUSSIONS AND PRELIMINARY LIST OF INDICATORS

Focus groups

1. **WELCOME**

Introduce the independent group facilitator and researcher. The study is titled "Developing a framework of indicators to measure the impact of financial literacy interventions: A South African University case study".

Purpose of the focus groups is to surface the perspectives of the people in the group with as minimal influence by the researcher as possible. The focus groups will verify financial literacy indicators identified by means of a comprehensive literature study. Focus group members will also be asked to rate the indicators (to assign weights to it). The results will be used to develop a framework to evaluate the impact of financial literacy interventions such as the training provided in the literacy centre. You were selected because of inclusion (students which already received training in the financial literacy centre) and exclusion factors (subject matter experts in the field).

2. **GUIDELINES**

- No right or wrong answers, only differing points of view
- We will be making an audio recording of the focus group discussion and request that one person speak at a time
- We are on a first-name basis
- You do not need to agree with others, but you must listen respectfully as others share their views
- Rules for cellular phones and pagers if applicable. For example, we ask that you turn off your phones or pagers. If you cannot and if you must respond to a call, please do so as quietly as possible and re-join us as quickly as you can.
- The role of an independent moderator will be to guide the discussion.
- Participants are encouraged to talk to each other

3. **OPENING QUESTION**

The researcher explains the process and starts with two open-ended questions;

- What are your thoughts on the capabilities an individual needs to be financially literate?
- What are your views on how an individual can become financially literate?

Thereafter, focus groups are required to examine the preliminary list of financial indicators through discussion. Focus group members are also asked to rank indicators to determine the importance of a specific indicator. The indicators are ranked on a Google Form.

- **PRELIMINARY LIST OF INDICATORS**

<table>
<tr><th colspan="2">Mathematical skills and congenital financial literacy</th></tr>
<tr><td>The cognitive biases that may affect individuals when making financial decisions.</td><td>• Mathematical, reading and comprehension skills
• Numeracy and capacity to do calculations related to interest rates
• The education level of individual
• The education level of father
• The education level of mother</td></tr>
<tr><th colspan="2">Financial knowledge and understanding of:</th></tr>
<tr><td>Basic money principles and concepts. Basic understanding of rights and responsibilities, tax principles and financial inclusion.</td><td>• Money basics
➢ Income and expenses (Balance sheets)
➢ Interest rates (and compound interest)
➢ Inflation concept
➢ Investment.
➢ Time value of money, purchasing power, personal financial accounting concepts).
➢ Risk diversification
➢ Managing debt
• Legal rights and responsibilities
• Principles of different taxes and tax deductions
• Sources of information
• Financial inclusion</td></tr>
<tr><th colspan="2">Effective financial behaviour</th></tr>
<tr><td>The competency to monitor and manage everyday personal finances.</td><td>• Financial planning
➢ Budget in writing and keeping records
➢ Actively saving money
➢ Making debt
➢ Tax benefits
➢ Consulting financial experts
➢ Protecting resources (either through insurance products or other risk management techniques).
➢ Diversifying investments
• Making ends meet
• Price comparisons
• Paying bills and credit cards on time
• Exercising rights</td></tr>
<tr><th colspan="2">Positive financial attitude</th></tr>
</table>

The personal inclination towards favourable financial situations, being motivated, responsible and confident in personal money management.	• Perceived financial knowledge (confidence) • Financial sophistication ➢ Organised ➢ Disciplined (Withhold some expenses and save to be better off in the future) ➢ Motivated (Set financial goals and strive to achieve them) ➢ Responsible (Borrow money and pay it back) • Self-assessed financial capabilities • Maintaining an emergency fund (financial shocks)
Financial products (practical application and importance of)	
The competencies applicable during the process of selecting financial products and platforms for buying and selling investment products. The practical application of financial knowledge.	• Financial product ➢ Testament ➢ Investment (such as unit trusts) and savings product ➢ Stocks & shares ➢ Crypto assets or ICO ➢ Credit/loan product ➢ Retirement fund/ pension ➢ Banking products ➢ Insurance • Practical application ➢ Record of financial expenses (minimum) ➢ List of Assets ➢ Setting financial goals (Short, med, long-term goals). ➢ Planning for retirement

- **GOOGLE FORM**

Indicators contributing to financial literacy *

Please rate the category from 1 (most important) to 5 (least important)

	1	2	3	4	5
Financial capabilities	☐	☐	☐	☐	☐
Financial knowledge and understanding of money principles and concepts	☐	☐	☐	☐	☐
Effective financial planning and behaviour	☐	☐	☐	☐	☐
Positive financial attitude	☐	☐	☐	☐	☐
Financial products and services	☐	☐	☐	☐	☐

CAT #1: Financial capabilities *

Please rate the indicator from 1 (most important) to 5 (least important)

	1	2	3	4	5
Mathematical abilities (Numerical skills and the ability to do calculations)	☐	☐	☐	☐	☐
Reading and comprehension skills	☐	☐	☐	☐	☐
Self-assessed financial capabilities	☐	☐	☐	☐	☐
The education level of the individual	☐	☐	☐	☐	☐
The education level of parents	☐	☐	☐	☐	☐

CAT #2: Financial knowledge and understanding of money principles and concepts *

Please rate the indicator from 1 (most important) to 3 (least important)

	1	2	3
Introductory knowledge of money basics (Income and expenses, Buying and selling, Profit and losses, Interest and compound interest rates and tax and tax deductions).	☐	☐	☐
Understanding of how (Bank accounts, Inflation, Interest, different types of debt and cost of debt) work.	☐	☐	☐
Definition of (Personal assets, Income generating assets, Investments, Liabilities, Risk diversification and the relationship between risk and return).	☐	☐	☐

CAT #3: Effective financial planning and behaviour *

Please rate the indicator from 1 (most important) to 3 (least important)

	1	2	3
Financial planning (Having a monthly budget with specific categories, Actively saving money, Making debt such as credit card debt and microloans)	☐	☐	☐
Price knowledge and price comparisons	☐	☐	☐
Awareness of fraud activity	☐	☐	☐

CAT #4: Positive financial attitude *

Please rate the indicator from 1 (most important) to 5 (least important)

	1	2	3	4
Perceived financial knowledge (confidence)	☐	☐	☐	☐
Financial sophistication (Determination and commitment, Disciplined, Motivated, Responsible and Willing to ask for guidance)	☐	☐	☐	☐
Emotional intelligence (psychological well-being)	☐	☐	☐	☐
Personality traits	☐	☐	☐	☐

CAT #5: Financial products and services *

Please rate the indicator from 1 (most important) to 2 (least important)

	1	2
Financial products (Investments, Loans such as mortgages, vehicle finance and personal loans, Banking products and Insurance).	☐	☐
Consulting financial experts for the practical application of (Setting financial goals, Retirement planning and Estate planning).	☐	☐

Any additional indicators to be added:

Your answer

Submit Clear form

APPENDIX C:

INFORMED CONSENT

Informed Consent

Developing a framework of indicators to measure the impact of financial literacy interventions: A South African University case study.

TITLE OF STUDY

Developing a framework of indicators to evaluate the impact of financial literacy interventions: A South African University case study

PRINCIPAL INVESTIGATOR

Aliska Ludick
Economic and Management Sciences
0832627606
aliska.ludick@gmail.com

PURPOSE OF STUDY

You are being asked to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information.

The purpose of this study is to develop a framework for measuring the impact of financial literacy interventions.

STUDY PROCEDURES

The research procedure can be summarised as follows:

Phase	Research procedure
Phase A	The Comprehensive Literature Review (CLR) will be conducted to identify indicators of the measurement of both financial literacy and impact.
Phase B	Thereafter, the Student Wellness centre will contact students by means of email to inquire whether they will be interested to participate in financial literacy training. The Student Wellness Centre is an institution at the university which focuses on the wellbeing of students and staff members. The study will include students from all faculties to improve the representation of university students in

	general. The centre is located on university grounds and for practical reasons, convenient sampling will be applied. The financial literacy training will be scheduled through using time slots which best fits the participants, to determine a date and time, furthermore, the training will last approximately 90 minutes. Before the training / intervention, a reflection-audio with questions about the student's current perception of their financial literacy will be recorded. Post-intervention a reflection-audio with similar questions will be asked to recognise a behavioural / perception change. An independent facilitator will facilitate the audio-recordings of the pre- and post-intervention interviews, whilst the researcher will observe from a distance. Both the pre- and post-intervention interventions are held in the financial literacy centre on the university's campus.
Phase C	Focus group members will be contacted through email and a date and time will be scheduled depending on different time slots which best fits the participants. The focus group participants will include subject matter experts (authors on previous South African university research) as well as students (those who have participated in the financial literacy training). Random assignment will be used to determine who forms part of the focus group and might involve tactics such as flipping a coin, drawing names out of a hat, rolling dice, or assigning random numbers to participants. The focus groups are held in the financial literacy centre at the university and the size will be a minimum of three and a maximum of eight individuals in total. There will be one focus group per faculty. The focus groups will determine the importance of and contextualise the financial literacy indicators identified in the comprehensive literature review. An independent person will facilitate the focus groups, whilst the researcher observes from a distance.
Phase D	Participants will be asked to complete a questionnaire to assign a quantitative ranking to the different financial literacy indicators discussed in the focus groups. This will be done to determine the relative importance of the indicators and assign weights to the indicators.

Phase E	Lastly, the information gathered in the different phases of the case study will be used to develop a framework to evaluate the impact (perception change) of the intervention.

The students will be required to spend 90 minutes in training (including pre- and post-intervention interviews). Students will also send audio recordings to code the nuanced; the participant's understanding of financial literacy and how they experience their own financial literacy.

RISKS

Low risk. You may decline to answer any or all questions and you may terminate your involvement at any time if you choose.

BENEFITS

The benefits of the intervention include gaining knowledge and understanding of important economic and financial principles to contribute to better-informed citizens, who make better economic and financial choices, consequently impacting personal welfare and ultimately the welfare of the country.

CONFIDENTIALITY

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

- Assigning code names/numbers for participants that will be used on all research notes and documents
- Keeping notes, interview transcriptions, and any other identifying participant information in a locked file cabinet in the personal possession of the researcher.

Participant data will be kept confidential except in cases where the researcher is legally obligated to report specific incidents. Focus group participants will be informed that the researcher cannot guarantee their confidentiality (since the researcher cannot stop someone else in the group from repeating what someone said during the discussion). There will be no analysis of the demographic information of participants.

CONTACT INFORMATION

If you have questions at any time about this study, you may contact the researcher whose contact information is provided on the first page. Should you have any questions regarding this study or wish to report any problems related to the study, please contact the study supervisor(s):

Study supervisor(s): Dr A Fourie, Prof E Steenkamp and Dr C Niesing
North-West University
Private Bag X6001, Potchefstroom, 2520
Telephone: (018) 299 1468
Email: Alicia.Fourie@nwu.ac.za, Ermie.Steenkamp@nwu.ac.za, Christi.niesing@nwu.ac.za.

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this study will not affect the relationship you have, if any, with the researcher. If you withdraw from the study before data collection is completed, your data will be returned to you or destroyed.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

Participant's signature ________________________________ Date __________

Investigator's signature _______________________________ Date __________

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Economic and Management Sciences Research
Ethics Committee (EMS-REC)

21 September 2020

Dr Alicia Fourie, Prof Ermie Steenkamp and Dr C Nessing
Dear Dr Fourie, Prof Steenkamp & Dr Nessing

EMS-REC FEEDBACK: 18092020
Student: Ludick, A (25875574)(NWU-00874-20-A4)
Applicant: Dr A Fourie / Prof E Steenkamp / Dr C Nessing – PhD in Economics

Your ethics application on, *Developing a framework of indicators to measure the impact of financial literacy interventions: A South African University case study,* which served on the EMS-REC meeting of 18 September 2020, refers.

Outcome:

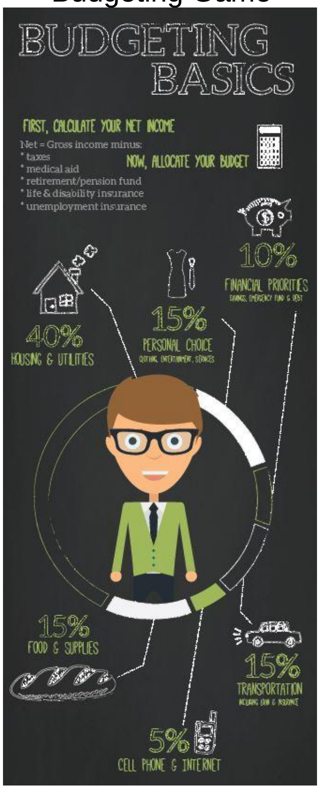
Approved as a minimal risk study. A number **NWU-00874-20-A4** is given for one year of ethics clearance.

Due to the Covid-19 lock down ethics clearance for applications that involve data collection or any form of contact with participants are subject to the restrictions imposed by the South African government.

Kind regards,

Prof Mark Rathbone
Chairperson: Economic and Management Sciences Research Ethics Committee (EMS-REC)

APPENDIX D INTERACTIVE GAMES

Game	Short description	Key principles taught	Participant level
Millionaire Game 	10 x True and False questions about common misconceptions concerning millionaires. Try to score 1 000 000 points. Bonus point flags (but penalties if wrong)	• Personal finance choices matter • Get a good education • Work hard and do not indulge in excessive luxuries like new cars • Smart investing • Spend less than you earn • Save early and regularly	Best suited for Grade 9 & 10, but also appropriate for older high school and university students.
Budgeting Game 	A scenario is given of a gross and net monthly salary of a BCom graduate. The student can choose to spend the balance on different categories of expenses. The game covers a three-month period (a student can therefore recover from unnecessary expenditures in a previous month). The student Earn points if you: • paid essential expenses every month • saved every month • had a positive balance every month • positive total savings balance	Personal finance principles: Spend more or less • 40% of your earnings on housing and utilities • 15% on food & supplies • 15% on transportation • 10% on savings • 5% on cell phone and internet expenses • 15% is personal choice Economic principles • scarcity • choice • opportunity cost	The game is best suited for university students, but younger students can also benefit.

Savings Game  	A savings calculator is provided for students to answer five savings questions. Students earn 20 points for each first-time correct answer and 10 points for a correct answer on the second try.	• Compound interest becomes more powerful over time • Save as early as possible • Increase your savings yearly with inflation • Choose investments with interest rates that are higher than inflation.	The game is suited for any participant Grade 9 and older
Credit Game  	A credit calculator is provided to answer ten debt repayment questions. Students earn 10 points per question.	• Pay more than your minimum monthly instalment and save a lot in total interest. Even a relatively small amount makes a big difference.	The game is suited for any participant Grade 9 and older