

**FINANCIAL LITERACY AND ENTERPRISE  
PERFORMANCE AMONG OWNER-MANAGED ICT SMEs  
IN NAIROBI COUNTY**

**BY  
ERNEST M. MWITHIGA**

**UNITED STATES INTERNATIONAL UNIVERSITY – AFRICA**

**SUMMER 2016**

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in Partial Fulfilment of the Requirement for the Degree of Master  
of Business Administration (MBA)

**UNITED STATES INTERNATIONAL UNIVERSITY – AFRICA**

**SUMMER 2016**

## STUDENT'S DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the United States International University in Nairobi for academic credit.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Ernest M. Mwithiga (625675)

This research proposal been presented for examination with my approval as the appointed supervisor.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Mr. Sammy Lio

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Dean, Chandaria School of Business

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## ABSTRACT

The purpose of this study was to investigate the relationship between financial literacy and enterprise performance among owner-managed ICT SMES in Nairobi county. The study was guided by three specific objectives. First, to investigate the relationship between financial literacy and the age, gender and level of education of owner-managers of ICT SMEs; second, to investigate the relationship between, financial literacy among ICT SME owner-managers, and profitability as an indicator of performance; and third, to investigate the relationship between, financial literacy among ICT SME owner-managers, and liquidity as an indicator of performance. Age, gender and level of formal education were identified as potential factors influencing financial literacy. The study examined the level of financial literacy among owner-managers and tested the extent to which it was associated with their age, business experience, gender, level of formal education and business performance.

The research methodology adopted for this research project was quantitative design. Out of a target population of 420 registered ICT firms in Nairobi a representative sample of 201 owner- managed ICT SMEs was selected through simple random sampling. Collection of primary data was achieved through the use of a structured questionnaire, while secondary data was gathered through a broad review of existing literature. Both methods were guided by the specific objectives. In conducting the analysis of data, two applications, namely SPSS version 22.0 and Microsoft Excel 2016 were used. Data collection resulted in an 82 percent response rate with tables, graphs and charts being used to summarize and interpret the findings.

A standardized test was adopted from Intuit (2015) and used to test financial literacy where a score of less than 75 percent indicated a failure to satisfactorily apply some basic financial concepts in business management such as the accrual concept. This study found that 46 percent of ICT SME owner-managers demonstrated what was described as a high level of financial literacy (greater than or equal to 75percent) while 54 percent of them demonstrated a low level of literacy (less than 75percent). Analysis of data showed evidence of a relationship between financial literacy and the age of ICT SME owner-managers ( $p < 0.001$ ), where older managers demonstrated better financial decision-making abilities through higher scores. There was evidence of a relationship between financial literacy and gender among ICT SME owner-managers ( $p < 0.001$ ) with males exhibiting higher scores on average.

A relationship was also observed between financial literacy and the owner-managers' level of formal education ( $p < 0.001$ ) with those who had acquired tertiary educational qualifications demonstrating higher scores. Twenty-four percent of the owner-managers reported having received specialized financial training.

This study focused on the financial dimension of performance measurement using profitability and liquidity as indicators. Profitability was described using the net profit while liquidity was expressed using the cash position of the SMEs over a five-year period. The key findings were that the owner-managers' level of financial literacy was not independent ( $p < 0.001$ ) of net profit. Secondly, there was sufficient evidence to suggest that financial literacy is related ( $p < 0.001$ ) to cash position of the businesses as well. The interpretation of these outcomes is that firms run by owner-managers with higher financial literacy managed to report higher profitability and a greater quality of working capital management than those led by less financially literate managers. Therefore, it is the conclusion of this study that there is a relationship between financial literacy and the performance of owner-managed ICT SMEs. This implies that varying levels of financial literacy among ICT SME owner-managers can be associated with differential levels of enterprise performance in Nairobi county.

This study recommends that ICT SME owner-managers engage in well documented financial management practices including budgeting, capital investment appraisal, tax planning, and forecasting profits. The seventy-eight percent of ICT SMEs that do not have internal professional financial management by way of finance departments, should consider contracting external financial advisory services. Innovation has led to the development of both local and international web-based platforms that offer access to freelance finance specialists at cost-effective rates suitable for SMEs. This study focused on profit and liquidity. In subsequent research, other indicators such as efficiency and leverage would provide greater insights into the relationship between owner-managers' understanding of financial management and enterprise performance.

## **ACKNOWLEDGEMENT**

I am grateful to God, my supervisor Mr. Sammy Lio, and my industrious team of research assistants all of whom enabled me to write this research project.

## **DEDICATION**

This research project is dedicated to my father and mother for their support and encouragement all through my graduate studies.



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# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 Background of the Problem

A significant number of people around the world (over 30 percent) have demonstrated that they lack the financial literacy necessary to make optimizing personal financial decisions (Mandell & Klein, 2009). This situation has been the subject of academic interest for some time (Chen & Volpe, 2002; Gamble, Boyle, Yu, & Bennett, 2015; Lusardi, 2008; Mandell & Klein, 2009) because of the importance of financial literacy in everyday personal financial management. In Kenya, a study by Wachira and Kihiu (2012) showed that financial illiteracy increased consumers' susceptibility to unmanageable risk exposures such as pyramid schemes. The situation is similar in other parts of the world according to a working paper by the Organization for Economic Development (Lewis & Messy, 2012). In the report on finance, pensions and insurance the authors reported that 27% of people in the countries surveyed could neither calculate simple interest on a savings account over one year nor identify the impact of compounding over 5 years. Furthermore, over fifty percent of the population in the 14 countries surveyed (except Norway) did not understand the concept of compounding interest. In an attempt to guide the design of effective consumer policy interventions, studies on the factors influencing financial literacy in consumers can be found on several continents (Gabaix & Driscoll, John C, 2009; Mullen & Zissimopoulos, 2010; Wachira & Kihiu, 2012; Zulkiffli & Perera, 2011).

Age, gender and the level of formal education are identified repeatedly as critical factors that affect financial literacy among individuals (Grimes, Rogers, & Smith, 2010; Mullen & Zissimopoulos, 2010). Gamble, Boyle, Yu, Bennett, and David (2014) examined how a decline in cognition was associated with the financial decision making capability of older US citizens. The study found that a decrease in cognition was related to a decrease in financial literacy. Chen and Volpe (2002) in an early investigation of gender differences in personal financial literacy observed that women generally have less confidence and enthusiasm to learn about financial topics than their male counterparts. A more recent report from the United States stated that a college educated male was about 45 percentage points more likely to appreciate risk diversification than a female who did not attain a high school qualification (Lusardi, Mitchell, & Curto, 2010a).

This paper takes a slight diversion from the consumer-policy focus of past studies to hone in financial literacy in the context of owner-managers of technology-based SMEs and examines its relationship to enterprise performance. In the study of ICT SMEs performance the literature has focused more on factors such as access to capital (Kamunge & Tirimba, 2011; Mazzarol, 2014) or entrepreneurial orientation (Su, Xie, & Wang, 2013; Wiklund & Shepherd, 2005). Entrepreneurship, specifically the kind that is associated with the information technology, has been on the rise in Kenya as a result of improved relevant infrastructure both physically and structurally through explicit government support and welfare seeking private interests (Moraa & Mwangi, 2012). Investigations (Gupta, Guha, & Krishnaswami, 2013; Muraga & Ntoiti, 2015; Stam, Stam, Elfring, & Elfring, 2008; Voulgaris, Asteriou, & Agiomirgianakis, 2003; Zulkiffli & Perera, 2011) have been conducted on various factors associated with SME performance. Gupta et al. (2013) and (Voulgaris et al. (2003) for example, both looked into the link between a manager's knowledge of finance and subsequent financial behaviour in several other industries. Gupta et al (2013) relied on an internal-external factor framework with which they linked financial management skills, an internal factor, to enterprise performance.

Performance can be difficult to describe for small enterprises due to a lack of resources or a lack of stability (Dahmen & Rodríguez, 2014; Haber & Reichel, 2005). The complexity of business performance management for SMEs may not be immediately obvious given the range of known indicators presented in literature (Chong, 2008; Faden, 2014; Haber & Reichel, 2005; Porter, 1996). These metrics are usually the product of changing comprehensive performance management systems implemented by large firms in order to reduce uncertainty and meet specific objectives (Judge, 1994). However, SMEs often lack the ability to adopt such systems and must therefore improvise or scale existing models (Mateev & Anastasov, 2010). One key aspect in effective performance management is of course, measurement, because it is important to have standards against which to compare actual results (Haber & Reichel, 2005). While performance is multidimensional, the need and desire for continuous growth by ICT SMEs (Kaiser & Müller, 2015; Miller & Bound, 2011; Motoyama & Watkins, 2014; Sanyal & Mann, 2010) alludes to the importance of financial performance which is the main aspect of performance discussed for the purpose of this study.

Profitability is a classical measure of business performance regardless of enterprise size. Baños-Caballero, Garc'ia-Teruel, & Mart'inez-Solano (2011), Dahmen & Rodríguez

(2014) Fu, Ke, and Huang (2002) all used profitability in studies on small enterprises. This decision to adopt profitability as an almost universal measure is reasonable given the fact that earnings after tax are the net result of a large number of policies and decisions (Carey, 1974). In Kenya Kamunge and Tirimba (2011) relied on profit as a primary indicator of performance in examining SME performance. A second widely used measure of financial performance is enterprise liquidity which is really a function of the quality of a firm's working capital management (Niresh, 2012). Given the importance of meeting short term obligations on the business operating cycle, effective working capital management is a driver of corporate performance (Mwangi, Makau, & Kosimbei, 2014; Niresh, 2012). There are three components of working capital; cash, receivables and inventory (Mathuva, 2010). Mathuva (2010) found that, the most profitable enterprises were those that took the shortest time to collect cash from their customers (accounts collections period), and the longest time to pay their creditors. He also found that firms which maintained sufficiently high levels of inventory reduced the costs of possible interruptions in their production processes.

These findings by Mwangi et al (2014), imply that there are predetermined courses of managerial action founded on sound financial decision-making that an ICT SME owner could take in order to enhance business performance. Therefore, the objective this project is to investigate whether those behind ICT SMEs have sufficient financial knowledge to make important resource allocation decisions (Lusardi and Mitchell, 2014) and the extent to which their age, gender identity or level of formal education can explain their financial behaviour. Well-managed ICT SMEs play an important role in economic development (Motoyama & Watkins, 2014; Ngui, 2014). These ventures tend to create disruptive innovations that challenge existing practices in industry, a process that creates new roles (Dragnić, 2014). In Kenya, two papers (Kiveu & Ofafa, 2013; Moraa & Mwangi, 2012) identify technology SMEs as one of the main drivers of economic growth accounting for eighty per cent of employment, both formal and informal. In the European Union (EU) small and medium ventures represent approximately ninety-nine percent of all enterprises, in India they account for thirty-nine per cent of all manufacturing concerns and thirty three percent of gross exports (Kamunge & Tirimba, 2011; Mateev & Anastasov, 2010; Ngui, 2014). There are several potential implications that this study will have in terms of both, strategic value to entrepreneurs, and for shaping policy.



## **1.2 Statement of the Problem**

Complex financial situations tend to emerge in the course of doing business and financial literacy is an important knowledge area for entrepreneurs who are seeking to realize the highest risk-adjusted return (Klapper, Lusardi, Georgios, & Panos, 2012). Traditionally, during discussions on the challenges that entrepreneurs in emerging markets like Kenya face, the theme of discourse has been on the accessibility of finance (Kiveu & Ofafa, 2013), which, considering the importance of working capital to many small enterprises (Knauer & Wöhrmann, 2013; Mwangi et al., 2014), is a reasonable position to hold. However Muraga and Ntoiti, (2015) recently found that low levels of financial literacy presents an equally formidable threat to entrepreneurial success as accessibility of capital (Adomako & Danso, 2014). The problem for SME owners is that an increasing amount of concern has been placed on entrepreneurs' working knowledge of financial concepts by major facilitative organizations (Adomako & Danso, 2014) including major banking companies, venture capitalists, private equity and other institutions that supply capital. SMEs continue to serve a critical role in economic growth for both developed and emerging economies (Kiveu & Ofafa, 2013; Mazzarol, 2014; Ngui, 2014). SMEs are directly involved in employment generation, innovation and indirectly, poverty reduction (Ngui, 2014) in emerging markets such as Kenya. In the European Union (Riportella and Papis (2006) reported that SMEs constituted roughly ninety percent of total businesses and create more jobs on average than large businesses (Garikai, 2011). The findings of Riportella and Papis (2006) are consistent with those of Kamunge and Tirimba, (2011), Kiveu and Ofafa(2013) and Ngui (2014) who found that Kenyan SMEs account for nearly eighty percent of national employment. In Nairobi, SMEs built around ICT, also known as technology start-ups have been growing steadily since the early 2000s driven mostly by innovative, often unemployed youth and increased information technology education in schools (Moraa & Mwangi, 2012). The national government has also shown a keen interest to grow the country's ICT infrastructure as part of a larger national growth development blueprint. Therefore, the demonstrated importance of SMEs and ICT to people and governments makes a strong case for an investigation into whether financial literacy is a critical success factor in driving enterprise performance (Adomako & Danso, 2014; Jindrichovska, 2013; Ngui, 2014).

While Klapper et al., (2012), Lusardi et al., (2010a), Lusardi, Mitchell, & Curto, (2010b) have explored the subject of financial literacy in different contexts such as its effect on consumer behaviour (Lusardi et al., 2010a), for example, there is not as much academic

inquiry directed at finding empirical evidence on the relationship between entrepreneurs' financial literacy and SME performance, both here in Kenya and abroad. This research project is aimed at investigating the performance implications of financial literacy among owners of small and medium ICT enterprises in Nairobi county.

### **1.3 General Objective**

The purpose of this study was to investigate the relationship between financial literacy and enterprise performance among owner-managed ICT SMES in Nairobi county.

### **1.4 Specific Objectives**

The specific objectives of this study were:

**1.4.1** To investigate the relationship between financial literacy and the age, gender and level of formal education of owner-managers of ICT SMEs

**1.4.2** To investigate the relationship between, financial literacy among ICT SME owner-managers, and profitability as an indicator of performance.

**1.4.3** To investigate the relationship between, financial literacy among ICT SME owner-managers, and liquidity as an indicator of performance.

### **1.5 Significance of the Study**

This study will be of significance to the following groups:

#### **1.5.1 Researchers**

Entrepreneurial finance is an emerging subject within the study of finance concerned with the financial aspects of early stage business development and is fast becoming important in studying start-up performance and success. There isn't enough literature on the subject especially regarding emerging ICT SMEs.

#### **1.5.2 Venture Capitalists and Business Angels**

As the entities that supply risk capital and sometimes managerial competence VCs and business angels would be interested in knowing what specific factors such as age, gender or level of education affect the enterprises they wish to fund, and how these factors can be modified to improve performance.

#### **1.5.3 Entrepreneurs**

Financial management is one of the key competencies that can lead to positive returns in business (Mateev & Anastasov, 2010). This research project seeks to explore the financial

literacy factor as influenced by age, gender and level of education to determine its relationship to performance, therefore entrepreneurs can then understand the value, of financial literacy to their ventures.

#### **1.5.4 Policy Makers**

Policies on education and market regulation can be enriched by the findings of this study with regard to promoting entrepreneurship in Kenya. If the study finds financial literacy to have a significant impact on venture performance, then a case may be made for policies that enhance financial education in schools and social programs.

#### **1.6 Scope of the Study**

The scope of this study covered entrepreneurs who own and manage ICT-based businesses in Nairobi. These firms were required to have less than one hundred employees and to have been in active operation for at least five years. The collection of data took place between September 2015 and May 2016. Information collected on enterprise performance was for the period between January 2011 and January 2016.

#### **1.7 Definition of Terms**

##### **1.7.1 Information Communication and Technology-based SME (ICT SME)**

An ICT-based enterprise is any whose business model is based on products that offer solutions that are related to information, communication, technology or a combination of all three. According to Garikai (2011) SMEs may be defined by number of workers employed, capital employed and sales turnover. The definition of a small enterprise in the context of this study is a business with less than fifty permanent employees while a medium sized business is one with between fifty and one hundred employees. An ICT based SME is therefore a small or medium enterprise whose core business activity is based on products that offer solutions that are related to information, communication, technology or a combination of all three.

##### **1.7.2 Enterprise Performance**

Enterprise performance may be defined as the observable ability of a business to meet or exceed predetermined goals or targets set by its stakeholders within a specified period of time. Due to the varying nature of organizational objectives, researchers and industry experts have used a range of metrics with which to consider performance (Hill, 2015). This study was focused on describing financial performance while there are a myriad of

performance measures in business practice profitability and enterprise liquidity were selected as sufficient descriptors of performance (Benninga, 2014; Michalski, 2014).

### **1.7.3 Financial Literacy**

There is still no consensus as to the definition of financial literacy, Remund (2010) defines it as a measure of the degree to which one undertakes key financial concepts and possesses the ability and confidence to financial affairs, while mindful of events and dynamic economic conditions. A financially literate businessperson will have a basic understanding of concepts such as the time value of money, basic accounting principles and some economic concepts such as inflation and exchange rates (Lewis & Messy, 2012). In this paper, financial literacy was examined by a set of questions adapted from Intuit (2015) that were structured to test knowledge of various financial concepts.

### **1.7.3 Technology-Based Entrepreneurship**

Technology entrepreneurship has been described as the operation of enterprises by scientists and engineers who identify how to solve problems or exploit opportunities by starting new applications or new ventures(Thomas,2013.). Thomas further explains tech-based entrepreneurship as the investment in a project that assembles and deploys specialized assets that are intricately related to advances in scientific or technological knowledge for the purpose of creating and capturing value for a firm.

## **1.8 Chapter Summary**

This chapter introduced the subject of this research first, by describing the background to the problem being investigated, a statement of the problem, the purpose and significance of the study. Out of the purpose of the study three research questions were developed and posed. The chapter concluded with a section that defined the key words that were used in the rest of this research which allowed for a smooth transition into the next chapter where a detailed review of literature was conducted to discuss existing insights on the problem area.

## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews literature from various studies that explore the factors that influence financial literacy as well as those that investigate the relationship between financial literacy and enterprise performance. The studies whose findings are discussed in this chapter are drawn from relevant sources from all over the world. The chapter is broken down into three major sections with the first section discussing age, gender and formal education as they relate to financial literacy and the other two sections discuss financial indicators of performance.

#### **2.2 Financial Literacy and Age, Gender and Level of Education among Owner-Managers of ICT SMEs**

Muraga and Ntoiti (2015) revealed that a number of demographic factors influence levels of financial literacy among individuals. The studies discussed in this review have more or less suggested that the variables age, gender and level of formal education are responsible for differential levels of financial literacy among persons in various settings (Finke, Howe, & Huston, 2011; Lewis & Messy, 2012; Mullen & Zissimopoulos, 2010).

##### **2.2.1 Age**

A recent study by Gamble, Boyle, Yu, & Bennett (2015) at the Centre for Retirement Research at Boston College in the United States found that there is a noticeable decline in financial literacy that results from reduced cognition associated with aging. Gabaix, Driscoll, and John (2009) whose results were consistent with the Boston sample of respondents reported that there was a 1% per year decline in the level of financial literacy after the age of 60. Korniotis and Kumar (2011) suggest that the adverse effects of aging dominate the positive effects of experience. The adverse effects associated with age often include disorders such as dementia or Parkinson's disease both of which affect the brain which is the organ associated with decision making hence, even where a person may have substantial experience managing financial affairs, this is compromised.

Korniotis and Kumar's (2011) work on the adverse effects of cognitive aging show results that bear similarities to other studies (Finke et al., 2011; Gabaix & Driscoll, John C, 2009;

Lusardi et al., 2010a) carried out to investigate the effects of age on investment decisions. Finke et al. (2011) clearly demonstrate that old age negatively affects financial literacy, Sproten et al (2010) in a study on the relationship between aging and decision making conduct a comparative analysis of the decisions made by young and old adults and concluded that differences exist in the way both these groups cope with uncertainty. Agarwal et al (2009) posit that substantial cognitive impairment leads consumers aged 80 to 89 years to make sub-optimal financial decisions with regard to credit management and financial document interpretation (Gabaix & Driscoll, John C, 2009).

According to Lusardi and Mitchell (2007) in the United States, a miniscule thirty percent of people aged between 51 and 56 years (the so-called Baby Boomer generation) demonstrated knowledge of compounding which is a fundamental concept underlying any kind of borrowing. Bucks & Pence (2008) reported that borrowers with mortgages whose rates were variable did not fully understand the implications of rate adjustments. These two studies have been cited in articles that sought to identify causal factors precipitating financial crises, particularly the infamous 2007-2008 financial meltdown. A majority of those participating in financial activity in a big way are older citizens with savings and investments, and as such this group had greater adverse exposure. It is tempting to relate the poor financial decisions of these individuals to other exogenous factors such as education and experience, however, in the Lusardi and Mitchell study the majority of respondents surveyed were college-educated (Crain, 2013).

Moraa and Mwangi (2012) found that a majority of the technology entrepreneurs in Kenya are below 35 years and are therefore not necessarily subject to the kind of cognitive deterioration that is associated with the older individuals in the work of Korniotis and Kumar (2011). According to Lusardi, Mitchell and Curto (2010) higher levels of debt among the youth suggest inadequate financial decision making skills which is based on a previous study that found that individuals with low financial literacy were prone to debt management problems (Lusardi & Tufano 2009). Lusardi and Tufano's (2009) research on the financial literacy of young people has brought to light other factors that may explain the literacy deficiency, and these include parental influence, financial education, gender and even race just to name a few. In explaining literacy differentials between the young and old, cognitive ability appears to be identified as the primary explanation (Lusardi, Mitchell, & Curto,

2010b), however, other factors are relevant especially when investigating differences in financial knowledge among the young themselves.

### **2.2.1 Gender**

In examining gender as a determinant of financial literacy among college students Chen and Volpe (2002) found that, generally, women have less enthusiasm in learning financial management skills and lower confidence in their ability to learn. This suggests that women have, in general, less financial literacy than men. Even after accounting for various demographic characteristics, financial illiteracy seems to persist in women sometimes even throughout their lifetimes, that is, relatively speaking men tended to make more optimizing decisions in managing finances (Lusardi et al., 2010b). Given the impact of such findings, many studies have even attempted to provide reasons for this knowledge gaps such as the larger burden that women bare in raising families, starting gainful employment later than their male counterparts, that they live longer, have inadequate pension and face more difficulties in financial management (Chen & Volpe, 2002).

Lusardi (2008) examined gender as a factor affecting financial literacy by observing how women fared with regard to planning, and her findings had important implications for programs aimed at fostering financial security in the United States. She found that financial literacy is significantly different between men and women with the latter having such limited levels of financial knowledge as to raise concerns about their ability to make sound savings and investment decisions. Lusardi (2008) and (Finke et al. (2011) also studied retirement planning for which financial literacy was described as an imperative tool because who women on average tend to live longer than men, had both less work experience and, earned relatively less.

A majority of the technology entrepreneurs in Kenya are within the age group described as youth and predominantly male, having just graduated from tertiary institutions of learning or still in the course of study (Moraa & Mwangi, 2012). Therefore, Chen and Volpe's (2002) findings can be related to the situation in Kenya given that their study focused on college students in the United States. Another study found that women display very limited levels of financial literacy with 50% of them unable to answer basic questions on compounding and inflation (Lusardi et al., 2008). Gamble et al (2014) also found that illiteracy was considerably worse among older women and there is such little literacy among women that

the authors raise concerns about their ability to make sound financial decisions in an environment where people are expected to make key decisions regarding their personal finance, especially issues pertaining to retirement planning.

Changing trends in demographics and the types of financial decisions being made increase the importance of understanding what accounts for the mediocre levels of financial knowledge and literacy among the female gender and what role this knowledge plays in determining financial behaviour (Mullen & Zissimopoulos, 2010). Lusardi (2008) presented research that reveals low levels of financial literacy among women with only about a half of the United States adult population of women being able to answer questions pertaining to inflation. There is very little, however, that is known about the magnitude of the difference in financial literacy, the factors associated with the difference and how it is translated into financial behaviour (Mullen & Zissimopoulos, 2010).

Mullen and Zissimopoulos (2010) posit that the financial literacy gender gap is as a result of different mental production processes with regard to financial information. The pair further examined division of labour among couples, and the role of education to ascertain whether these reflect the differences in financial literacy. They found that highly financially literate women may tend to marry highly financially literate men and therefore it was difficult to observe any relative differences in literacy from this perspective. As an alternative, (Lusardi et al. (2008), Mandell and Klein (2009) examine the role of education in both absolute and relative terms in order to determine division of labour in financial decision making within couples.

The results of this second consideration of the determinants of financial decision making among couples were that women and men with the same levels of education relative to their partner tended to take on the same number of financial responsibilities on average (Mullen & Zissimopoulos, 2010). In addition, both men and women, become increasingly responsible for more financial activities as their relative financial education increases, which may serve as a testament to the notion of traditional gender roles being disrupted by increases in relative education. The conclusion of the study was support for specialization by gender for the financial decisions was not found instead, only a strong positive correlation between decision making and financial literacy for men (Mullen & Zissimopoulos, 2010). In the context of couples, financial decisions were sensitive to



relative education levels for both males and females with both groups taking on the same number and nature of financial responsibilities relative to their partners.

### **2.2.2 Formal Education**

A nationwide study on high school economic education and access to financial services conducted in the United States of America found that high school courses in economics and business reduced the chances that an adult was not banked, all other factors held constant (Grimes et al., 2010). In addition, Grimes et al (2010) also showed that grown-ups who demonstrated a higher level of financial literacy were less likely to be unbanked. The authors concluded that based on the results of their investigation formal coursework was equally as important in explaining access to basic financial services. Walstad and Buckles (2008) suggested that, based on a national assessment of educational progress in the US, the majority of high school students ought to have an understanding and appreciation for sound personal finance activities. The assessment indicated that 79 percent of fresh high school leavers scored at the “basic” level or higher while 42 percent scored at the proficient level or higher (National Centre for Educational Statistics, 2007).

Future financial behaviour by business managers seems to also be influenced by formal education at the tertiary level as a study by Josie Fisher and Ingrid Bonn (2011) in Australia highlighted. Fisher and Bonn (2011) sought to investigate the extent to which sustainability in business was inculcated into undergraduate university courses and whether this affected how managers ran their firms. The findings showed that 50 percent of Australian universities did not cite sustainability as a part of their business/management curricula and this affected how their students ended up having implications on their students’ management skills. Formal systems of education that incorporate finance and economics have been shown to influence management behaviour and particularly resource allocation decisions, the choice of financing or investing activities among other mission critical corporate actions (Grimes et al., 2010). A well-structured and effectively implemented program in financial education can positively and significantly affect the financial knowledge of high school students (Walstad, Rebeck, & MacDonald, 2010).

Bell and Lerman (2005) found that financial education delivered through a formal model is an important part of an asset building agenda. Key financial moments are preceded by some kind of financial training gained through direct learning in classrooms at a tertiary level or

through experience during moments such as tax refunds, home purchases, registration for pensions and participation in welfare programs. A wide range of varied initiatives are being used to spread financial education including websites, seminars, curricula adjustments with the aim of equipping individuals with more financial literacy, and evidence points to improvements in financial decision making as a direct consequence (Lewis & Messy, 2012).

Atkinson, Messy, Rabinovich, and Yoong (2015) presented evidence that financial knowledge and skills are positively correlated to increased long-term personal financial optimizing behaviour, mainly saving and investing. Their paper provided further details on a strong correlation between financial literacy and wealth accumulation. In discussing the relationship between financial literacy and financial education it is important to identify specific approaches that are optimal in imparting relevant knowledge. This same paper, by Atkinson *et al* (2015) also discusses the design of financial education interventions which was based on setting, delivery, timing, duration, and frequency of the specific program, which ranged from on-line tutorials to classroom based interventions. The way a financial education program is designed is important in explaining its effectiveness.

Setting and delivery are closely related with Miller et al (2013) finding that majority of programs were delivered in a classroom setting, which can be viewed as a reflection of either popularity or the ease of evaluation of people in a classroom (Atkinson et al., 2015). Evidence has shown that when financial education is presented to a broader population through a communal setting then understanding is lower than more customized settings (Bruhn, 2014). When financial education is delivered directly to individuals in their homes, evidence is weak and mixed on the effectiveness of this channel in promoting optimizing financial behaviour (Hung and Yoong, 2013).

Atkinson (2015) demonstrated the importance of duration and frequency of financial education programs. Duration or frequency are measures of intensity as a variable in the design of an education programme, that is, how often learners are exposed to content, with one theory suggesting that in order to see actual literacy gains, a significant amount of repetition and exposure is necessary. Despite the fact that research on how intensity affects learning of financial concepts, Atkinson et al. (2015) state that duration and frequency are both associated with greater literacy. Song (2012), shows that more intensive financial education has stronger effects on behaviour. However, research (Clancy, Grinstein-Weiss, & Schreiner, 2001) also points to a certain point of diminishing returns on the effects of financial education after some significant reiteration of content.

A case has been made that individuals who invest in financial education may have optimal periods in time during which knowledge acquisition is highest. One study by Fernandes and Netemeyer (2014) suggests the adoption of a 'just-in-time' approach to teaching financial education. Atkinson et al (2015) describes such periods as 'teachable moments' but of interest is that the findings of their review are contradictory stating that at the time of the study they found no strong evidence as to whether the timing of financial education had any impact on enhanced financial decision making skill.

Miller, Reichelstein, Salas, and Zia (2014), were able to conclude that there was evidence that retirement savings were significantly un-affected by financial education. Atkinson et al (2015) discusses lessons for supporting long term financial decisions and states that for purposes of policy making it is important to note that savings and investments are just two aspects of a broader financial education agenda. The inclusion of seemingly irrelevant content into education programs can significantly dissuade participants from pursuing financial education and that if policy should therefore set education programme objectives that can impact specific financial behaviours that are desired (Atkinson et al., 2015). Another study (Lewis & Messy, 2012) recommends specific financial education, but of an analytical nature such that literacy is not limited to how to buy a home for example, but rather whether or not to do so, or in the context of this study what valuation technique to employ in determining firm value and why.

### **2.3 Profitability**

Profitability can display a firm's ability to reach major objectives in the long run including a larger market share and a strong brand (Chong, 2008). Fama, (2000) and Glyn (1997) state that contention that the profit rate was a fundamental determinant of the rate of growth, capital stock and thus the whole economy. Long term survival has been described as a useful measure of performance for stakeholders and firms with greater profitability will generally survive for longer than their less profitable counterparts (Bercovitz & Mitchell, 2007). Eugene F. Fama and Kenneth R. French (2000) acknowledge a strong underlying belief among economists that profitability is mean reverting, entrepreneurs will seek to leave relatively unprofitable industries and enter relatively profitable ones. Firm profitability measures are often considered to be reasonable indicators of the overall effectiveness of management (Carey, 1974) and this is because they measure the net result of large mix of policies and decisions (Brigham & Houston, 2009). The point made in the study done by

Carey (1974) on the persistence of profitability was that it is not unreasonable to expect a better managed company to exhibit better results than its peers.

Hee-Jae Cho and Vladimir Pucik (2005) used profitability as a measure of performance in their paper which sought to investigate the effects of innovativeness and quality of the performance of Korean firms. Agu (1992), in a paper on the determinants of the Nigerian banking system's performance, emphasizes the use of profitability as a performance metric by stating that as a goal profitability sits head and shoulders above other objectives for it reflects capital adequacy and managerial competence. While capital adequacy is unique to commercial banking, managerial competence is a multi-industrial source of profitability.

Crarnitzki and Hottenrott (2011) conducted an analysis of the relation between working capital management and profitability of small firms where, controlling for unobservable heterogeneity and possible endogeneity, they showed a positive relationship between working capital levels and profitability. Crarnitzki and Hottenrott (2011), and Agu (1992) show that SMEs can work toward making decisions that maximize profit (Jindrichovska, 2013). Working capital is just one aspect of financial management (Jindrichovska, 2013) but it alone has been used to illustrate the importance of effective financial management. Hal et al. (2012) argue that business managers have the need to improve their financial skills because they can recognize ideal financial management practices for their organizations, where ideal refers to those decisions and exercises that result in higher profitability.

### **2.3.1 Net Profit as a Measure of Profitability**

While measures such as asset utilization ratios can reflect particular features of operations, net profit is widely accepted as the most appropriate measure of both financial and operational performance (Glyn, Cornell, Samuels, Ingham, & Post-keynesian, 2016). Net profit is a measure of profitability that constitutes the sum left to a firm following the deduction of all of costs incurred in production of a good or service. Benninga (2014) describes net profit as a summary measure of the overall effectiveness of management because it reflects the quality of managerial decisions. Carey (1974) puts forth findings that are in line with Benninga's (2014) position on the use of the net profit as a performance measure but acknowledges that the nature of a firm's business affects the choice of the metric to be used. The use of net as opposed to gross profit is suggested by Haber and Reichel (2005) as a means of increasing the comparative value of analysis because net

profits take into consideration the differences in inter-industry tax treatment at least within the national context.

Mazzarol (2014), in a review of the latest research in the field of small business management grouped a total of 18 papers published within a span of twelve months and categorized them into as those that focus on SME financing and those that dealt with working capital management and profitability. In the latter group, net profit was used as the most appropriate measure of enterprise performance especially in developing economies such as Kenya where the metrics available for describing growth are still nascent (Mathuva, 2010). The papers that utilized net profit to describe profitability were Yazdanfar and Ohman (2014), Tauringana and Afrifa (2013) and Gul, Kahn, Kahn and Kahn (2013). The aforementioned studies honed in on performance from a quantitative analysis lens regressing various variables against net profit to make conclusions about the performance of small business.

Earlier studies including Judge (1994) employed net profit to explore the relationship between organization size, board composition and financial performance. The study found that both correlates were related to net profit as a measure of financial performance. Wang, Walker and Redmond (2007) in a study on strategic planning by SMEs found that a lack of strategic planning led to decreased firm performance based on a number of metrics including sales revenue and net profits. Wang et al. (2007) used their findings to emphasize the importance of planning for increasing profitability. Hal et al. (2012) add a cautionary note on the value managers place on net profit by stating that other ratios including return on assets, equity multiplier and return on equity serve as appropriate measures and ought to be used together. However, they add that a distinction needs to be made between profitability and profits, stating that management needs to be focused on the former because profitability can in fact decrease while profits increase given their definitions.

Gupta, Guha, & Krishnaswami, (2013) suggest defining growth in terms of profitability as and in this study a resource based perspective is taken with regard to enterprise growth as a performance measure. Possible explanatory variables for revenue growth have also been discussed in previous literature, and they range from the disposition of the owner manager (Brockhaus & Horwitz, 1985), to the more popular, lack of access to funds (Jones, 1992). Voulgaris et al., (2003) in a review of the determinants of business growth identify liquidity and gearing as financial management features that need to be appropriately managed in order to drive the growth of revenue.

Given that entrepreneurs by definition seek to create new ventures and subsequently build and sustain growth, there has been academic interest on the entrepreneurial skills that drive small firm growth according to Gupta et al. (2013). A classic notion drawn from the findings of Schumpeter (1934) in his theory of economic development suggest that there are indeed specific attributes and skills that lead to enterprise growth (Gupta et al., 2013). In their literature review of their study investigating firm growth and its determinants, Gupta et al (2013) describe studies that correlate an academic background with more successful enterprises and states that a venture is only successful if it is growing, or in the context of this study, generating revenue.

Gupta et al. (2013) linked managerial decision making to growth and showed that decisions such as which type of funding to use or what risk management methods to apply can indeed affect a firm's performance. However, the decisions associated with financial management constitute one of the determinants of sales revenue growth. Capital structure and efficiency have been suggested as similarly important variables that explain revenue growth (Mateev & Anastasov, 2010).

Strategy, organization and the characteristics of owner managers have also been identified in literature as possible factors driving firm growth, with financial management being a key characteristic of a sound business strategy (Hill, 2010). Literature seems to have focused particularly on entrepreneurial orientation as the key factor explaining business success (Wiklund & Shepherd, 2005) because it is related to flexibility and the speed of decision making. Hill (2010) Wiklund and Shepherd (2005) allude to managerial skill as a critical driver of financial performance for small and large businesses.

## **2.4 Liquidity**

Liquidity problems have in the past led to events such as the failure to settle bank liabilities, suppliers and other providers of credit (Joseph, 2013) and as such one of the most important aspects of financial management is the control of working capital within the firm. Working capital ratios therefore provide a most important picture of how a business is fairing, these along with documents such as daily receipts and statements of cash flow are valuable sources of insight for comparative analysis in performance evaluation (Filbeck, Krueger, & Preece, 2007). Working capital may be defined as the difference between a firm's short term current assets and its short term current liabilities (Niresh, 2012) and its management entails a manager's ability to finance this difference effectively and efficiently. An earlier

description by (Sagan, 1955) is that net working capital is the net current asset position or the excess of current assets over current liabilities.

#### **2.4.1 Working Capital Management**

The most crucial activity in the management of working capital is the maintenance of adequate daily liquidity in order to sufficiently meet the operations that ensure smooth business function. Cash and cash equivalents, marketable securities, inventories and accounts receivable constitute the current assets of a firm while accounts payable, expenses payable, and notes payable together form current liabilities (M. D. Hill, Kelly, & Highfield, 2010; Niresh, 2012). The liquidity function of working capital management which is basically the management of cash flows to and from the firm has been described as the most critical function in ensuring firm survival and growth (Filbeck et al., 2007; Pimplapure & Kulkarni, 2011; Smith, 1973). The importance of the money management function within the firm was noted even in early literature with Sagan (1955) noting that the control of working capital items is worthy of a paper of its own as a subset of the management of working capital. A healthy position with regard to current assets and liabilities is one of the key drivers of revenue and hence performance and before the introduction of tools such as the balanced scorecard, this was the primary measure of firm performance. In fact, numerous contemporary studies into small businesses in developed and emerging markets have cited poor money management practices as a major challenge (Motoyama & Watkins, 2014). The purpose of this section of the literature review is to describe key concepts in working capital management performance measurement.

#### **2.4.2 Cash Management**

Nyabwanga et al. (2011) describe cash management as the process of planning and controlling cash flows into and out of an enterprise as well as cash balances held at a specific point in time. The objective of cash flow management has been stated as the determination of an optimal cash position that would allow a business to meet its ongoing obligations while managing its exposures (Mazzarol, 2014). Nyabwanga (2003) found that cash budgeting in a prudent fashion has a positive impact on firm performance. Baños-Caballero (2012) and Kwame (2007) both provide findings that emphasize the importance of developing a broad policy for the management of working capital. However, Kwame's (2007) results indicate that even beyond such a wide-reaching policy, firms require a cash balance policy that would guide the investment of surplus cash. The search for an optimal

cash position is driven by the fact that most if not all firm valuation requires the measurement of cash flows (Petty and Rose, 2009), the discounted free cash flow method is especially useful for firms that cannot ascribe to the dividend growth model for valuation. Besides market value, profitability too increases the significance of efficient cash management practices to improve business performance (Pandey, 2004).

### **2.4.3 Receivables Management**

According to Nyabwanga et al. (2012) the efficient management of trade credit, also called receivables, is characterized by shorter creditor's collection periods, low levels of bad debts, and a sound credit policy often improves a firm's ability to attract new customers and enhance financial performance. Michaski (2007) observed that increases in receivables subsequently increases both net working capital and the cost of holding cash balances. Findings by Juan and Martinez (2002) indicate that real value can be created through the reduction of the cash conversion cycle. The length of the duration receivables collection is inversely related to firm performance as measured by profitability (Deloof, 2003). Just as Kwame (2007) found that a specific policy for controlling cash balances could enhance financial performance, Vishnani and Shah (2007) recommend a debt collection policy built with the objective of enhancing receivables management. Kuichkova and Soucek (2013) studied the management of accounts receivable in among SMEs in the Czech Republic paying special attention to its use as a means of business financing. Their study suggests that based on the findings, robust legal systems are required to assist SMEs to collect unpaid debts, and possibly outsource debt collection to specialist firms (Mazzarol, 2014).

### **2.4.4 Inventory Management**

Inventory has been defined by Kasim, Zubieru, & Antwi (2015) as the stock of any item or resource used in an organization. Nyabwanga et al. (2012) state that inventory management pertains to determining the quantities of product that need to be maintained in order to ensure continuous business operations without interruptions. The economic order quantity (EOQ) model is proposed in the study as it serves to analyse the costs associated with carrying, and shortages related to maintaining profitable levels of inventory. Pimplapure and Kulkarni (2011) suggest that optimal inventory levels significantly reduce the cost of losses due to shortages of products and even shields a firm against price fluctuations. Another critical issue raised by this research was the extent to which poor inventory management techniques would tie up excess capital at the expense of profitable operations.



The inventory conversion period is inversely related to firm performance in that shortages of products or professional staff could potentially lead to losses in sales opportunities and hence decreased performance.

Hill (2010) found that isolated parts of operating working capital have been causally linked to important firm variables citing Petersen and Rajan (1997) who tied receivables to profitability and capital markets access. Firms with good credit have easier access to various sourcing of funding within the capital markets to finance both operations and capex (M. D. Hill et al., 2010) Jose et al. (1996) identified a negative relationship between the cash conversion cycle and firm profitability. A firm may be posting consistent profits but if this is not converted into cash within the same operating cycle it is forced to borrow in order to fund continued operations. Therefore, while profitability is important for long term survival, it must be founded on strong liquidity, one is not more critical than the other (Pimplapure & Kulkarni, 2011).

Jindrichovska (2013), in discussing the effects of working capital management on SME profitability cites discussions on this relationship in research presented by Garcia-Teruel and Martinez Solano (2007), and Thalassinos and Curtis (2005). The researchers sought to provide empirical evidence on the impact of the management of working capital on the profitability of a sample of Spanish SMEs. Given their sample of 8,872 SMEs, they found that managers can create real value by, firstly, reducing their inventory and the days of accounts outstanding and shortening the cash conversion cycle also improves the firm's bottom line (Thalassinos & Curtis, 2005). Effective cash flow management is perhaps one of the most critical activities for small and large businesses alike (Hal et al., 2012) because of its effect on firm survival.

This time orientation involved liquidity decisions is short term and as such require frequent review and evaluation (Smith, 1973). Current ratio and cash position are two common measures used by managers (Baños-Caballero, Garc'ia-Teruel, & Mart'inez-Solano, 2011; R. A. Hill, 2012.; Sundar, 1980) for liquidity as an indicator of firm performance. The cash position is a useful tool for evaluating the financial strength and the immediate solvency of business and financial managers well advised to rely on them for decision making (Sagan, 1955). Efficient management of working capital involves understanding what an optimal level of working capital is, how it can be financed and exercising control over it (Sundar, 1980). While the use of ratios and other quantitative analysis techniques are important in understanding the liquidity position, the real job of the finance manager in this regard has

been indicated to be actually monitoring the movement of cash flows on a regular basis. The use of special financial documents such as account statements, daily receipts and payment statements need to be the basis for day to day operating capital decisions (Sundar, 1980). Numerous studies have linked the proper mix of current assets and current liabilities to improved profitability and even the creation of shareholder value which constitutes the goal of any for-profit firm (Osundina, 2014).

Mwangi, Makau, & Kosimbei, (2014) conducted a study founded on the two alternative strategies offered in modern finance theory for managing working capital, aggressive and conservative. Using a regression model, the study revealed a positive correlation between an aggressive finance policy and firm performance (measured by ROA, and ROE). Investing policy was also found to have a positive relationship with performance as well. They recommended that managers of listed non-financial companies should adopt an aggressive financing policy and a conservative investing policy should be employed to enhance the performance. Nyabwanga et al. (2012) aimed at assessing the effect of working capital management practices on the financial performance of small scale enterprises in Kisii South District. Their study adopted a cross-sectional survey research methodology and a sample of 113 firms was obtained. The findings were that working capital management practices have an effect on the performance of small firms in that area and a need for efficient liquidity management techniques should be embraced. Nyabwanga and Nyamao (2012) used cash management, receivables management and inventory management as the independent variables versus growth metrics of sales, profits, total assets and market share as indicators of financial performance.

Osundina (2014) found that there is a relatively strong positive and significant relationship between the management of working capital and net operating profit. Mathuva (2010), examined the influence of the various working capital management components on the profitability of listed Kenya firms and the findings were that there exists a highly negative correlation between accounts collection and profitability. The second result was that there is a highly significant positive relationship between the period taken to convert inventory into sales and profitability. Lastly, Mathuva (2010) showed that average payment period and profitability are positively correlated, findings that are consistent with both Niresh (2012) and Nyabwanga (2012) who studied the impact of working capital management practices and profitability in India and Kenya respectively.

In this research project working capital management practices will be studied only in the context of cash management practices given the nature of the firms under investigation and the availability of data. These measures are considered as indicators of liquidity which along with profitability speak volumes about the performance of an enterprise, large or small. Deloof (2003) argues that the way in which net operating assets are managed affects both variables and that focusing only on profitability minimizes the chances of maintaining sufficient liquidity. Business managers will spend considerable amounts of time solving working capital problems because the decisions involved are short-lived, repetitive and frequent. It therefore an important exercise to try and understand whether the level of financial literacy among those running ICT enterprises in Nairobi is affecting their enterprise liquidity (Appuhami, 2008).

## **2.5 Chapter Summary**

There has been significant research on the effects of financial literacy on personal financial management but not so much on its impact on the management of business enterprises. This literature review discussed the various factors that influence financial literacy among individuals, and explored studies on the link between financial management (as an outcome of financial literacy) and enterprise performance. The next chapter outlines the methodology used in carrying out the research.

## CHAPTER THREE

### 3.0 RESEARCH METHODOLOGY

#### 3.1 Introduction

The aim of this research is to investigate financial literacy among owner-managers of ICT SMEs and its relationship to enterprise performance in Nairobi County. In light of this objective, this third chapter presents the research methodology of the study, the sampling frame, sampling design of the population of interest, methods of data collection, research procedures and data analysis methods.

#### 3.2 Research Design

The research design refers to the methodology that is intended to guide a researcher in the collection, organization and analysis of relevant data (Sekaran & Bougie, 2015). Quantitative design was used to examine relationships between variables, which were measured numerically and analysed using a range of statistical. Under the chosen design the study then followed a *descripto-explanatory* (Saunders, Lewis, & Thornhill, 2016) research purpose, because in this study, description is a precursor to explanation. The descriptive purpose was appropriate because it is used to highlight the features of a study's variables of interest and allowed the researcher to pose important questions regarding the respondent demographics and performance metrics. The explanatory aspect of the research purpose was necessary as a result of the nature of the general objective which was to study ICT SMEs and their owner-managers in order to explain, to an extent, the relationships between levels of financial literacy, age, gender, formal education, and enterprise performance.

#### 3.3 Population and Sampling Design

##### 3.3.1 Population

The population has been defined as the entire group of people, events, or things of interest that the researcher wishes to investigate (Sekaran & Bougie, 2010). The population in this study is all of the owners of ICT SMEs located in Nairobi that have been in existence for at least five years with active operations during each of those years. According to a report by the African Development Bank (2015) there are over 646 technology-based SMEs operating legally in Kenya. This study targeted owner-managers of SMEs that are based in Nairobi county. Further, the Kenya Bureau of Statistics (2015) reports that of the six hundred and forty-six registered ICT firms in Kenya sixty-five percent, or four hundred and twenty of

them are based in Nairobi. Therefore, the target population for this study was the estimated four hundred and twenty ICT SMEs operating in Nairobi.

As defined in the first chapter of this study an SME was taken to be a business with less than one hundred and fifty employees or with annual revenue below KES50 million. The firms surveyed in this study must also have been inactive for at least five years.

### **3.3.2 Sampling Design**

#### **3.3.2.1 Sampling Frame**

In research study, a sampling frame can be described as a representation of all of the units of interest that constitute the population from which a sample is selected (Sekaran & Bougie, 2010). The sampling frame for this study is all of the entrepreneurs in Nairobi whose businesses are technology or ICT based. A list of the population of 420 registered technology companies with operations in Nairobi may be obtained from Nairobi city county offices and the Soft Kenya website.

#### **3.3.2.2 Sampling Technique**

The respondents for this study were selected through the process of simple random sampling, which is a probability sampling technique. Probability sampling techniques are such that each element of the population had a known and equal probability of being included in the sample (Anderson, 2015). Anderson (2015) further states that it permits the identification of a sampling distribution which can be used to discuss errors associated with using the sample results to gain insight on the population. Simple random sampling is an unrestricted form of probability sampling and therefore accords each element in the population and equal chance of selection. It was especially useful in this study due to the cost implications given a relatively small population and served to provide the least bias in statistical analysis (Sekaran & Bougie, 2010).

#### **3.3.2.3 Sample Size**

Determination of a sample size should be based on the possibility of making reasonable generalizations about the population under investigation (Sekaran & Bougie, 2010). A scientific framework designed by Robert Krejcie and Daryle Morgan provided a suitable decision model for sample size selection in this study (Krejcie & Morgan, 1970). Using the model (presented on appendix IV) as a reference the appropriate sample size for a target population of four hundred and twenty is 201 ICT SMES; and of the targeted 420 ICT firms

in Nairobi, each one must have been a commercially active business for at least 5 years or more. This sample size adequately covers the specific objectives stated in chapter one whilst reducing the likelihood of redundant findings. The table below illustrates the population size (N) and the appropriate sample size (s) based on Krejcie and Morgan’s (1970) framework:

**Table 3.0: Sample size (Based on Krejcie & Morgan(1970), see appendix IV)**

<b>Population, N</b>	<b>Sample, n</b>
420	201

### **3.4 Data Collection Methods**

The main method of data collection in this study was a pretested structured questionnaire which was designed to gather relevant data on the variables of interest including *covertly* testing respondents’ financial literacy. The questionnaire was intended to capture information regarding the level of financial literacy of the respondent, their age, gender, and level of education. Profitability and liquidity were the other variables on which investigative questions were designed. Questionnaires allow for more efficient data collection with regard to time, energy expended and costs as well (Sekaran & Bougie, 2010). The questionnaire was designed to capture the three research objectives highlighted in chapter one while revealing various other insights about the respondents and their firms. There were six unique investigative questions within the questionnaire that were included to provide insight on respondent’s understanding of financial management. These questions were aimed at measuring describing financial literacy. The test questions were adapted from Intuit (2015), a financial services firm that offers a wide array of solutions to small business owners. Two data collectors and one research assistant were trained on the data collection instrument, analysis tools and interview techniques before the initiation of the collection process.

### **3.5 Research Procedures**

A pilot study involving ten respondents was conducted in order to refine the actual questions that were used in the collection of data. The respondents for this pilot were selected through random sampling in order to make it as reflective of the actual study as possible. The preliminary versions of the data collection methods were also discussed at length with five ICT SME owners in order to examine applicability. In the collection of data, given the high

number of respondents, the services of three research assistants were sought in order to disseminate the questionnaires with each one taking 70 questionnaires. Following the pilot, it was decided that multiple choice questions were preferred.

Due to the sensitive nature of internal firm information, an introductory letter was prepared in order to establish the researcher's credibility. Other safeguards of respondent's confidentiality included the exclusion of names and unnecessary personal information especially regarding financial status. All of the methods used to collect and analyse the data for this research were prepared with the continuous guidance of a supervisor.

### **3.6 Data Analysis Methods**

A combination of both descriptive and inferential statistical methods were used to analyse the data collected. In conducting the analysis of data, the researcher made use of IBM's SPSS version 20 which is a statistical computer application and Microsoft Office applications with emphasis on MS Excel 2016.

### **3.7 Chapter Summary**

This chapter provided an explanation of the research methods that were adopted for the purposes of meeting the goal of this study. The population under investigation, the sampling frame, sampling technique, method of data collection, research procedures and the specific scientific tools and techniques that were used in analysing the data. The following chapter constitutes a presentation of the results and findings of the research activities described in chapter three.

## **CHAPTER FOUR**

### **4.0 RESULTS AND FINDINGS**

#### **4.1 Introduction**

The contents of this chapter include a presentation of this study's findings, discussions on those findings, and their interpretation. Measures of central tendency, tables of frequency, as well as percentages are all used to express the findings. The purpose of this research was to investigate financial literacy among owner-managers of ICT SMEs and its relationship to enterprise performance in Nairobi County. The specific objectives were used to design the survey tool which was a questionnaire, and a total of two hundred and one questionnaires were distributed to respondents.

#### **4.2 Analysis of Responses**

The response rate for this survey was 82%, but of the one hundred and ninety-five questionnaires actually filled, only one hundred and twenty were completed clearly and in full. Thus only one hundred and twenty questionnaires were considered satisfactory for the purposes of this research.

#### **4.3 Analysis Owner-Manager Financial Literacy**

In order to test respondents' level of financial literacy (treated as a categorical variable in this study), six distinctive questions were placed among others in the questionnaire. These questions, adapted from Intuit (2015), tested a number of financial concepts that small business owners today are expected to have a fair grasp of. The results of this test were intended to facilitate the categorization of respondents' level of financial literacy. The table below summarises the analysis of the responses on the financial literacy examination questions;



**Table 4.0: Financial Literacy Test - Structure and Contents**

<b>Question</b>	<b>Financial concept/practice</b>
1	Accounting equation
2	Insurance
3	Accrual concept
4	Cash management
5	Net income
6	Cash management

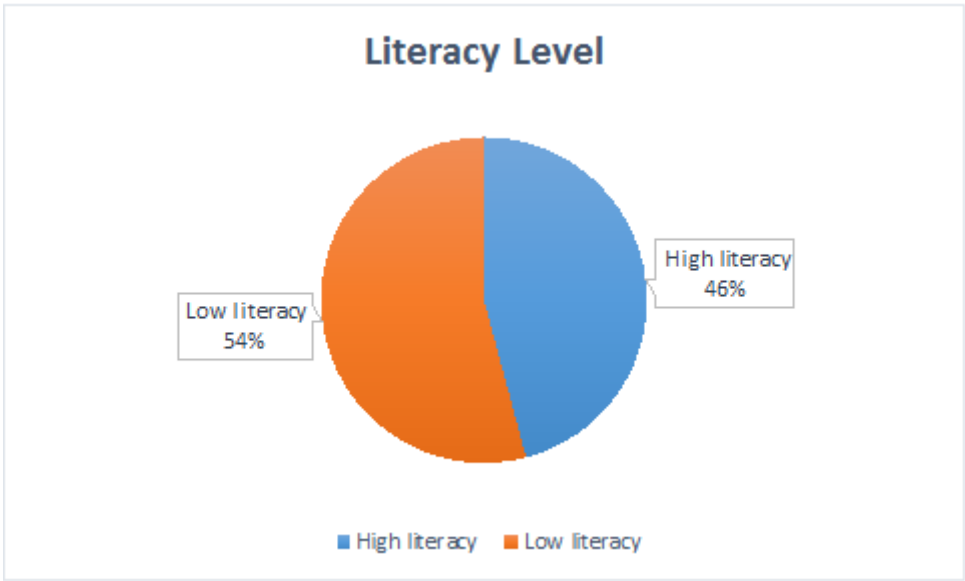
#### **4.3.1 General Information on Financial Literacy Test**

The scoring of the test questions was done based on the criteria displayed by the table below. Those respondent who gave were able to answer seventy-five per cent or more of the test questions correctly were, for the objectives of this research, considered to demonstrate high financial literacy whilst those who scored less than fifty percent were said to show low financial literacy in comparison.

**Table 4.1: Literacy Level Classification**

<b>Category</b>	<b>Score</b>
High literacy	Greater than or equal to 75%
Low literacy	Less than 75%

On the basis of the respondents' performance on the simple test, the respondents could then have categorized as those displaying high literacy and those who demonstrated low financial literacy. Forty-six percent of ICT SME owner managers scored 75% and were categorized as demonstrating high financial literacy, the remaining majority of fifty-four percent were grouped as showing low literacy.



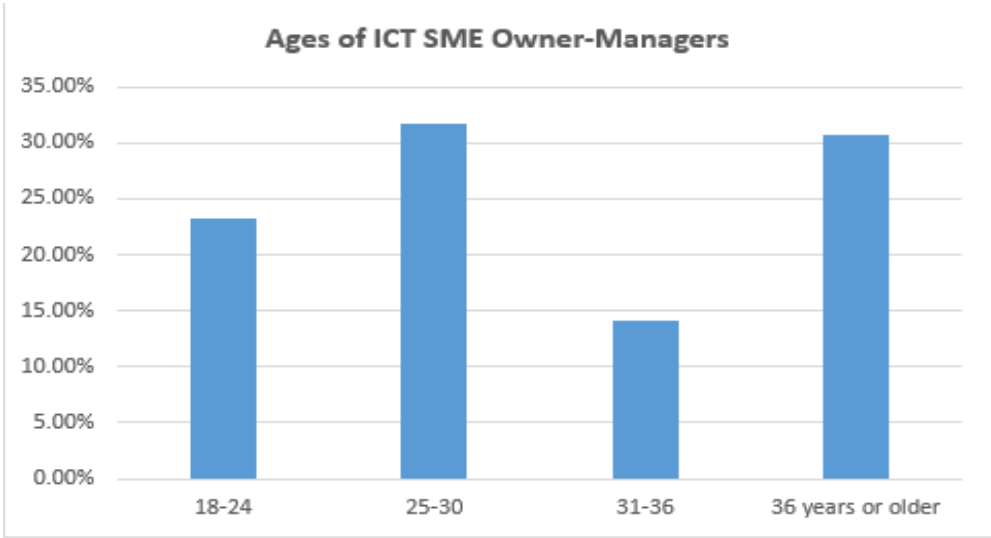
**Figure 4.0: Literacy Level**

**4.4 Respondent Information**

Information on the ICT SME owners was of great importance to the first objective of this research, and thus the initial data sought through the survey tool pertained to their demographics. The information sought included, the age range of the respondents, their gender, their highest academic qualification, receipt of any specialized financial training.

**4.4.1 Ages of ICT SME Owner-Managers**

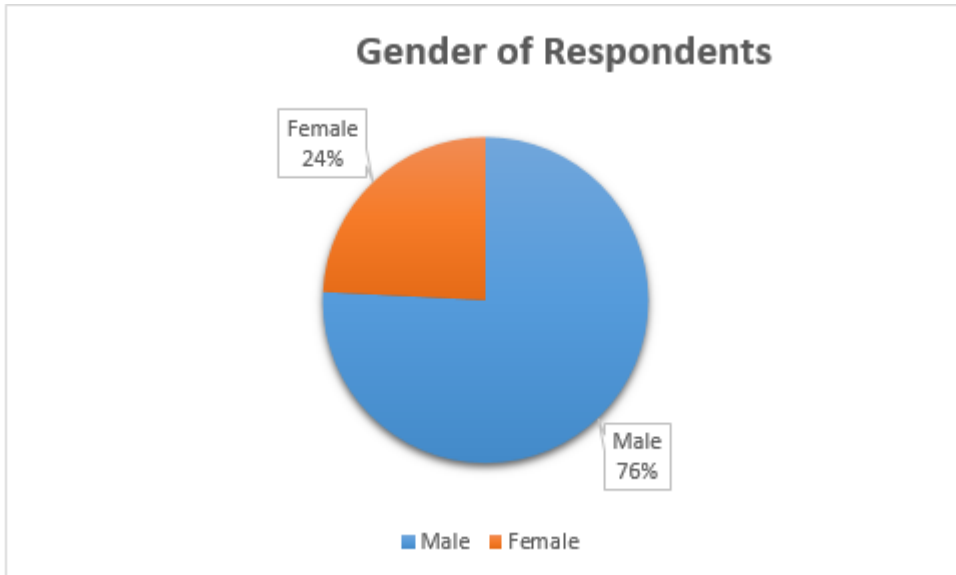
The ages of the respondents were broken down into four groups and a majority thirty-two percent (32%) of the respondents were aged between 24 and 30 years of age, followed by those aged 36 or older at thirty-one percent. Twenty-three percent (23%) of the respondents were between 18 and 24 years, while fourteen percent were between the ages of thirty and thirty-six years or older.



**Figure 4.1: Ages of ICT SME Owner-Managers**

#### 4.4.2 Gender of Respondents.

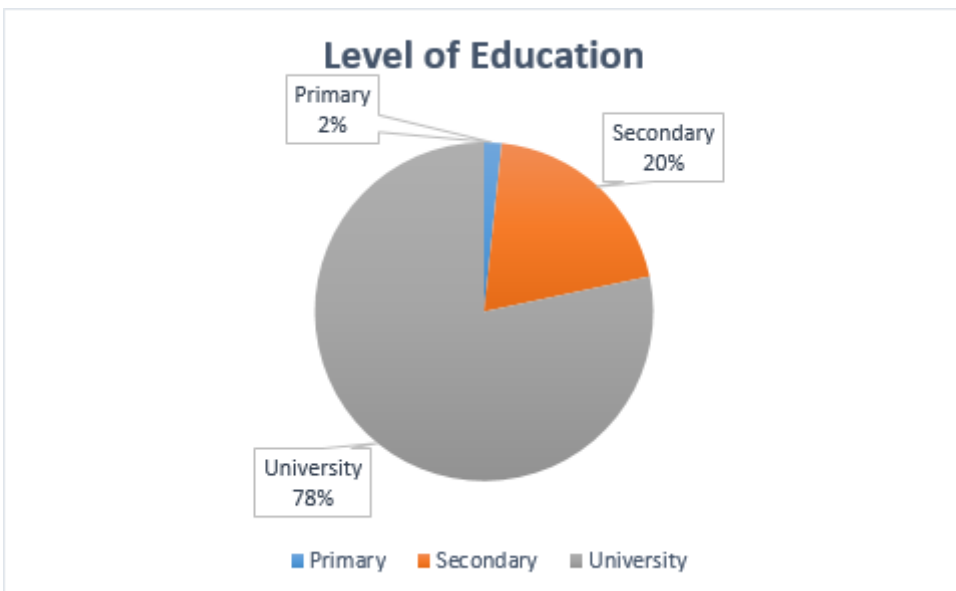
In this survey, males constituted the majority of ICT SME owner-managers at seventy-six percent of the sample, and females 24 percent.



**Figure 4.2: Gender of Respondents**

#### 4.4.3 Highest level of Academic Qualification

Seventy-eight percent of ICT SME owner managers surveyed selected university as their highest academic qualification, while twenty percent had only a secondary school education.



**Figure 4.3: Highest level of Academic Qualification**

#### 4.4.4 Receipt of Specialized Financial Training

Seventy-six percent of respondents stated that they had not received any kind of specialized financial training while twenty-four percent of those surveyed had received at least some kind of financial training.



**Figure 4.4: Receipt of Specialized Financial Training**

#### 4.5 Relationship between Financial Literacy and the Factors of Age, Gender and Formal Education

An important application of the Chi-square test involves using sample data to test for the independence of two categorical variables. Chi-square tests were performed to test for the evidence of a relationship between financial literacy and the factors of age, gender and formal education among the respondents who were owners of ICT SMEs.

##### 4.5.1 Relationship between Financial Literacy and Age among ICT SME Owner-Managers

Age was the first demographic to be tested against financial literacy to establish the existence of evidence for a relationship.

#### 4.5.2 Chi-Square Test: Financial Literacy and the Age of ICT SME Owner-Managers

A chi-square test was performed to test the null hypothesis of no association between level of financial literacy and age. The following contingency table displays the counts for a cross-tabulation between respondents' age brackets and their corresponding level of financial literacy.

**Table 4.2: Age and Level of Financial Literacy**

<b>Contingency table: Age and Level of Financial Literacy</b>			
<b>Age bracket</b>	<b>Literacy level</b>		<b>Total</b>
	<b>High literacy</b>	<b>Low literacy</b>	
18-24	4	24	28
24-30	13	25	38
30-36	9	8	17
36 years or older	29	8	37
Total	55	65	120

**Table 4.3: Chi-square test - Financial Literacy and Age**

<b>Chi-square test - Financial Literacy and Age</b>			
	<b>Value</b>	<b>df</b>	<b>Asymp. Sig. (2-sided)</b>
Pearson Chi-Square	29.424 <sup>a</sup>	3	.000
N of Valid Cases	120		

An association between financial literacy and age was found because  $\chi^2(5, N = 120) = 29.424, p < 0.001$  and with a  $p$ -value (.000) less than or equal to five percent (.05), this study rejects  $H_0$  and conclude that financial literacy is not independent of the age of ICT SME owners.

To further examine the relationship between financial literacy and age, through the use of a Likert scale, respondents were asked to give their opinion the statement that 'my experience doing business has allowed me to learn how to read and interpret financial information'. Ninety percent (90%) of the owner-managers strongly agreed or just agreed with that statement while ten percent (10%) took a neutral position.



**Figure 4.5: Experience and Financial Decision Making**

#### 4.5.3 Relationship between Financial Literacy and Gender among ICT SME Owner-Managers

Gender was the second demographic to be tested against financial literacy to establish the existence of evidence for a relationship.

#### 4.5.4 Chi-Square Test: Financial Literacy and Gender

A chi-square test of independence was performed to test the null hypothesis of no association between level of financial literacy and gender. The following contingency table displays the counts for a cross-tabulation between ICT SME owner-managers' gender and their corresponding demonstrated level of financial literacy.

**Table 4.3: Financial Literacy and Gender**

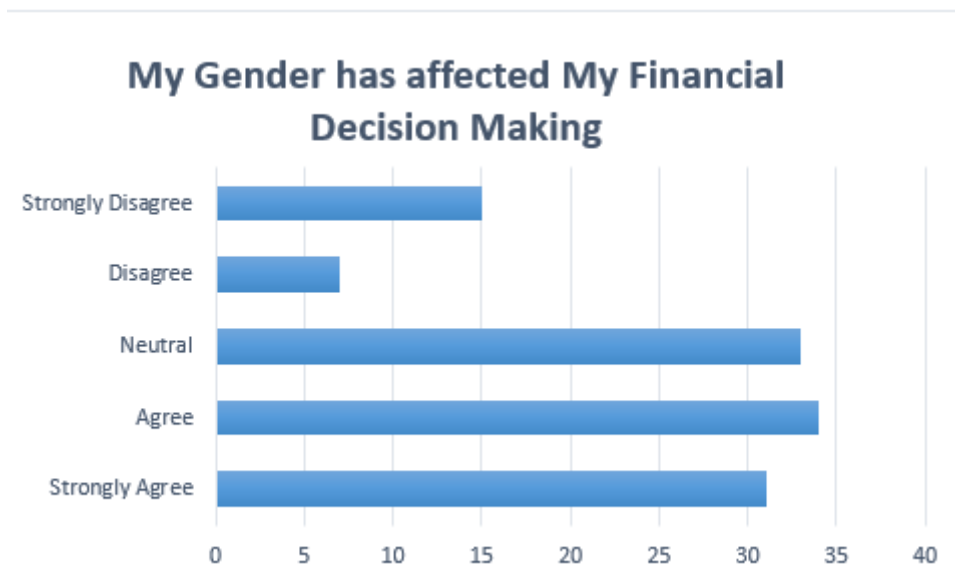
Gender and Literacy level			
	Literacy level		Total
	High literacy	Low literacy	
Male	45	46	91
Female	10	19	29
Total	55	65	120

**Table 4.4: Chi square test – Financial Literacy and Gender**

Chi square test – Financial Literacy and Gender			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.985	1	.159
Number of Valid Cases	120		

Evidence of association between financial literacy and gender was found because  $\chi^2(5, N = 120) = 1.985, p > 0.001$  and with a  $p$ -value (.159) which is less than the level of significance ( $\alpha=.05$ ), this study therefore rejects  $H_0$  and concludes that the level financial literacy is not independent of the gender of ICT SME owners. Stated differently, the study shows that financial literacy, high or low, can be expected to differ for male and female ICT SME owner-managers.

In order to further investigate the relationship between financial literacy and gender, respondents were asked to give their opinion the statement that ‘my gender identity has enhanced my financial decision making’. Twenty-six (26%) of respondents strongly agreed, twenty-eight percent just agreed, twenty-eight percent were neutral, six percent disagreed while thirteen (13%) percent disagreed strongly.



**Figure 4.6: Gender and Financial Decision Making**

#### 4.5.5 Relationship between Financial Literacy and Formal Education among ICT SME Owner-Managers

Level of formal education was the third demographic to be tested against financial literacy to establish the existence of evidence for a relationship. The following contingency table displays the counts for a cross-tabulation between ICT SME owner-managers' highest level of academic achievement and their corresponding demonstrated level of financial literacy.

**Table 4.5: Financial Literacy and Academic Qualification**

<b>Contingency Table: Financial Literacy and Academic Qualification</b>				
		<b>Literacy level</b>		<b>Total</b>
		<b>High literacy</b>	<b>Low literacy</b>	
What is your highest academic qualification?	Secondary	6	20	26
	University	49	45	94
Total		55	65	120

#### 4.5.6 Chi-Square Test: Financial Literacy and Formal Education

A chi-square test was performed to test the null hypothesis of no association between level of financial literacy and the highest level of formal education achieved by surveyed ICT SME owner-managers.

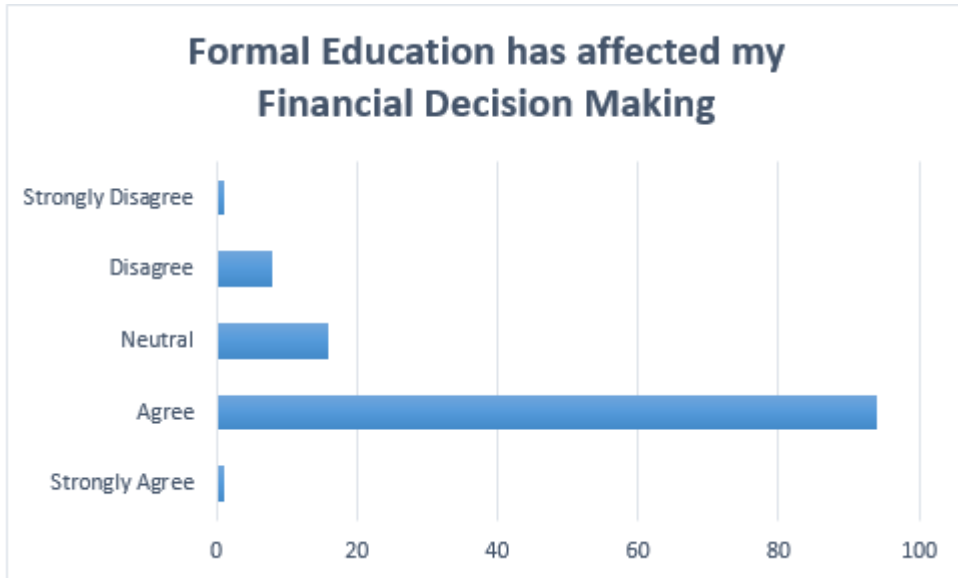
**Table 4.6: Chi-Square Test: Financial Literacy and Formal Education**

<b>Chi-Square Test: Financial Literacy and Formal Education</b>			
	<b>Value</b>	<b>df</b>	<b>Asymp. Sig. (2-sided)</b>
Pearson Chi-Square	6.923	1	.009
N of Valid Cases	120		

Evidence of the existence of a relationship between financial literacy and formal education was found because  $\chi^2(5, N = 120) = 6.923, p < 0.001$  and with a  $p$ -value (.159) less than five percent (.05), this study rejects  $H_0$  and concludes that financial literacy and the level of education achieved by ICT SME owner-managers are not independent. As with age and gender, respondents were asked to respond to a statement that would capture their opinion on the role of their formal education in shaping their financial decision making processes in the course of business. Seventy-nine (79%) of ICT SME owner-managers agree or strongly



agree that their formal education has positively affected the way they make financial decisions. Thirteen percent did not have a position on this subject while less than ten percent (10%) disagreed.



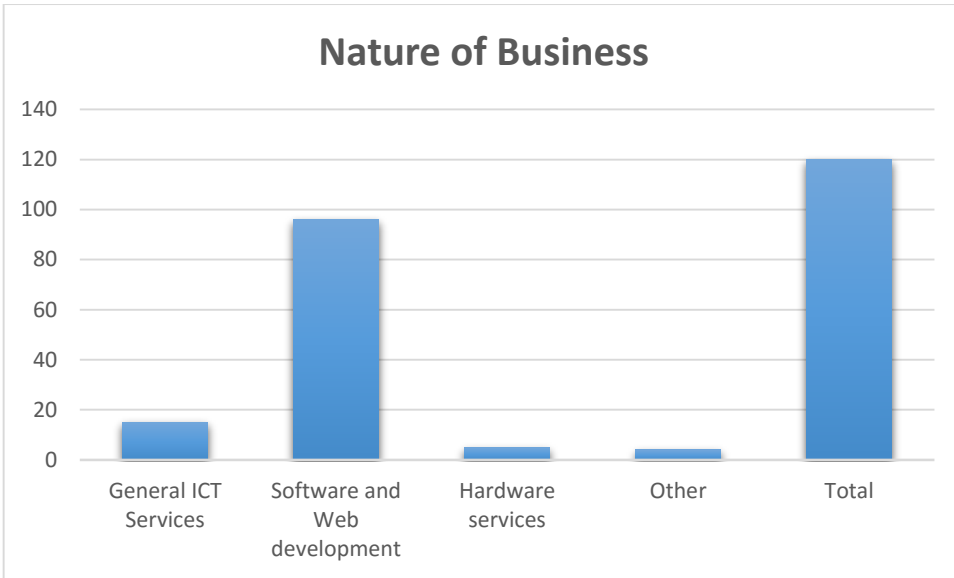
**Figure 4.7: Formal Education and Financial Decision Making**

#### **4.6 Business Information, Practices and Performance Data**

In order to gain insight on the financial literacy-enterprise performance research the next set of data sought revolved around information on the ICT SMEs themselves. The nature of the SMEs' business, the length of their operations, the size of their workforce, the presence of a finance department or lack thereof, the production of financial statements, budgeting practices, preferred indicator of performance, and profit-loss forecasting mechanisms. Information regarding details of how the SMEs managed their working capital (liquidity) was also collected and is analysed in the following sections.

##### **4.6.1 Nature of business**

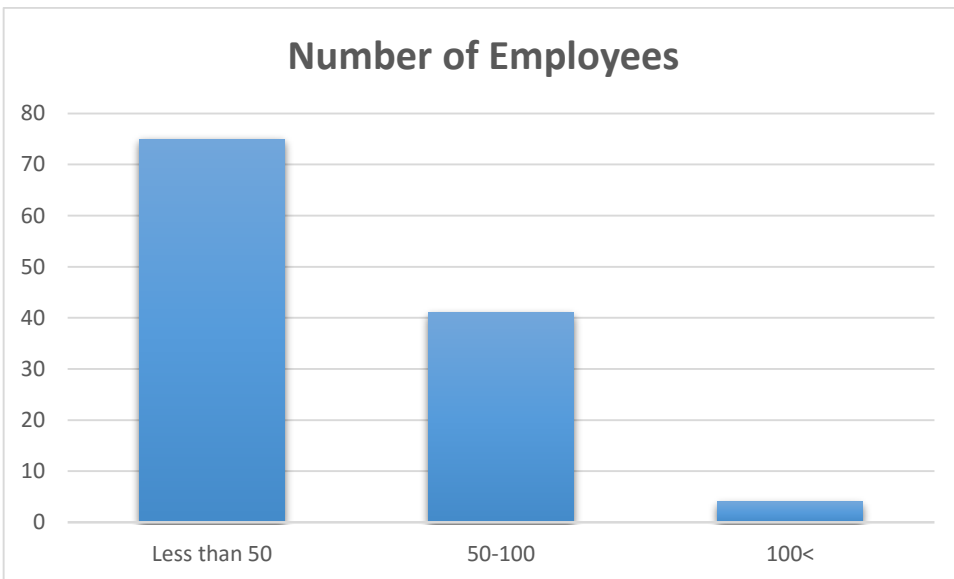
Software and web development stood out as the most common description of the ICT SMEs surveyed representing eighty (80%) percent of all businesses. Twelve percent of the owner managers chose to describe their businesses as providing general ICT services. Eight percent chose hardware services and 'other' to describe the nature of their enterprises.



**Figure 4.8: Nature of Business**

#### 4.6.2 Number of employees

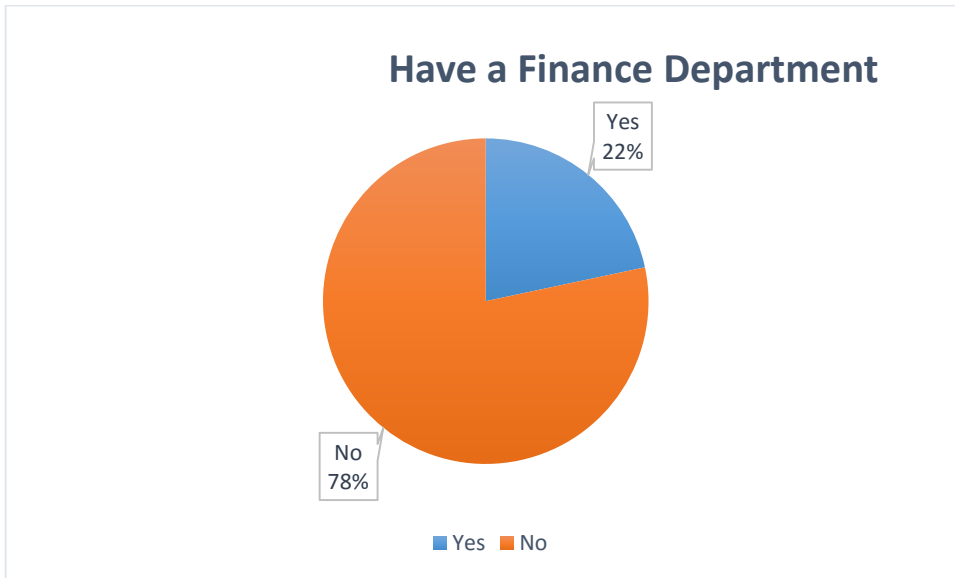
In response to the number of employees within their enterprise, a majority (63%) of the owner-managers stated their SMEs had between less than fifty employees. A smaller number (34%) indicated having between fifty and one hundred employees. Four firms had more than one hundred people working for them.



**Figure 4.9: Number of Employees**

### 4.6.3 Finance Department

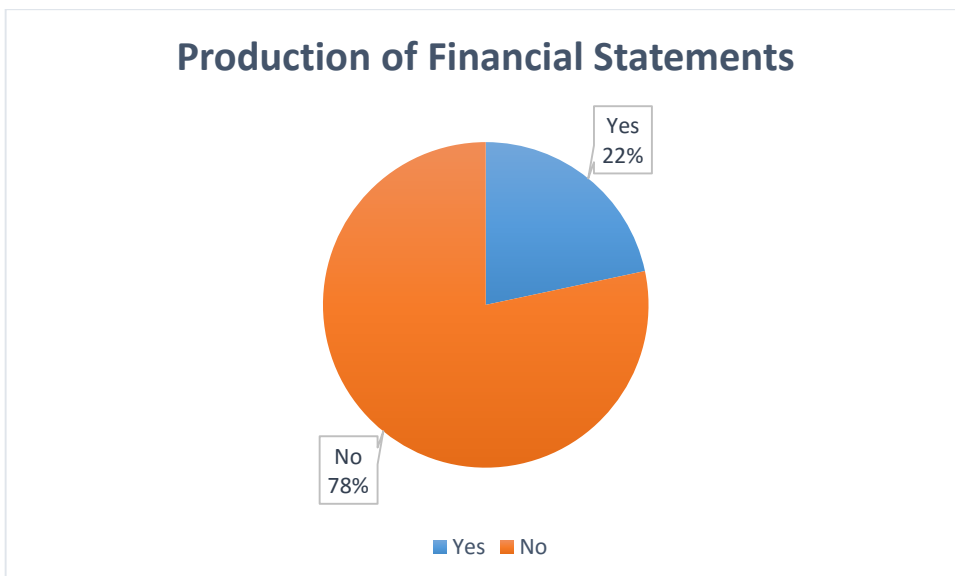
Seventy-eight percent (78%) of the respondents stated that their enterprises did not have an established finance department set up specifically for handling financial affairs. Twenty-six (26%) said they had dedicated finance departments.



**Figure 4.10: Finance Department**

### 4.6.4 Financial Statement production

When asked whether their firms produced any kind of financial reports, seventy-eight (78%) of the respondents said that they do not produce financial reports while twenty-six (26%) stated that they did.



**Figure 4.11: Production of Financial Statements**

### 4.6.5 Budgeting

Thirty-five percent of ICT SME owners stated that their firms engage in formal budgeting activities while thirty-five percent reported that they did engage in budgeting as a major planning activity.

**Table 4.7: Budgeting**

<b>Does your company engage in the process of budgeting</b>		
	<b>Frequency</b>	<b>Percent</b>
Yes	78	65.0
No	42	35.0
Total	120	100.0

#### **4.6.6 Preferred Indicator of Financial Performance**

Seventy-eight percent of ICT SME owner managers surveyed considered profitability as their preferred indicator of financial performance. Revenue growth and efficiency were preferred by 12% and 10% respectively. Liquidity was not considered an indicator of performance by any of the ICT SMEs surveyed.

**Table 4.8: Indicator of Financial Performance**

<b>Preferred Indicator of Financial Performance</b>		
	<b>Frequency</b>	<b>Percent</b>
Profitability	94	78.3%
Growth in revenue	14	11.7%
Efficiency	12	10.0%
Total	120	100.0%

#### **4.6.7 Forecasting Profits**

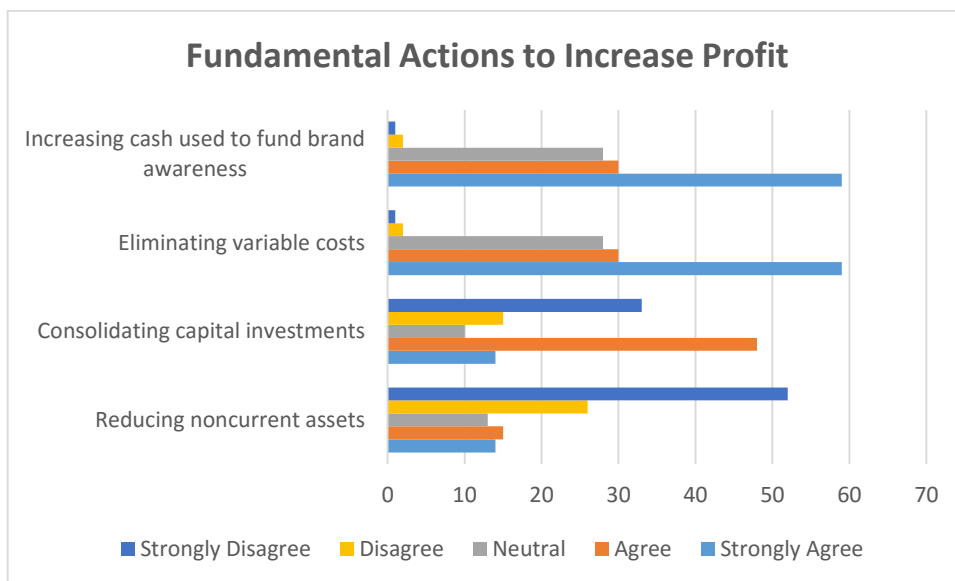
Fifty-six percent of ICT SME owner managers stated that their firms had specific mechanisms with which to forecast profits and losses. Forty-four percent of them said that their firms do not have any explicit forecasting method for profits and losses.

**Table 4.9: Forecasting Profits and Losses**

Mechanisms for forecasting profits and losses		
	Frequency	Percent
Yes	67	55.8%
No	53	44.2%
Total	120	100.0%

**4.6.8 Fundamental Actions to Increase Profit**

Further ICT SME owner-managers were required to give their position regarding fundamental actions that could be taken by an enterprise such as theirs that would serve to potentially increase profit. Each one of their responses on each of the actions were categorized in a Likert scale which included the variables strongly agree, agree, neutral, disagree and strongly disagree. Eighty-one percent (81%) of ICT SME owner-managers strongly agree that increasing sales and reducing expenses is an action they would consider to increase profit. A further nineteen percent said that they only agreed with this course of action.



**Figure 4.12: Fundamental Actions Managers would take to Increase Profit**

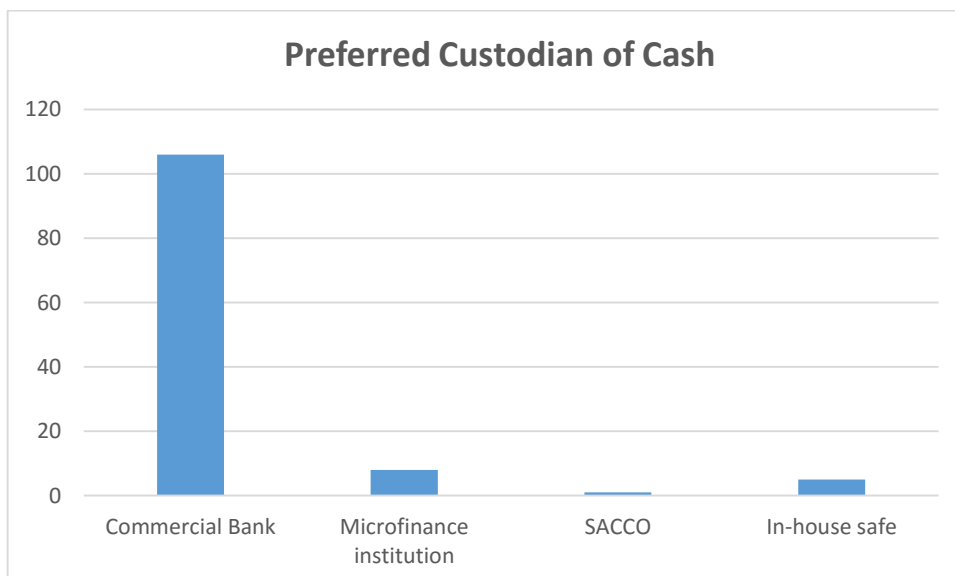
Forty-three percent of ICT SME owner-managers strongly disagreed with reducing non-current assets as a course of action they would take in order to increase their firms’ profits. Twenty-one percent (21%) indicated that they disagreed with this action as well. Only twenty-five percent (25%) of respondents agreed or strongly agreed with this action while

eleven percent (11%) of them remained neutral. On consolidating capital investments as an action to increase profit, forty percent of respondents indicated that they agreed, twelve percent said they strongly agreed, twenty-seven percent (27%) strongly disagreed, thirteen percent only disagreed with eight percent taking a neutral position. Forty-nine percent of owner-managers of Nairobi based ICT SMEs strongly agree that eliminating variable costs is a fundamental action they would consider in order to increase profits. Twenty-five percent of them only agreed with this action, twenty-three percent (23%) were neutral while just over two percent (2%) either only just disagreed or strongly disagreed.

Increasing the amount of cash used to fund brand awareness was considered a valid course of action to increase profit by forty-nine percent of ICT SME owner-managers who said that they strongly agreed with this premise. A further twenty-five percent of the group said they only agreed with the action. Less than three percent (3%) disagreed or strongly disagreed while twenty-three (23%) were neutral on the matter.

#### 4.6.9 Preferred Custodian of Firm’s Cash

Eighty-eight (88%) of ICT SMEs in Nairobi prefer to use commercial banks as the custodians of their cash. A smaller number, 6%, opt for the services of a microfinance institution, less than one percent of them use savings and co-operative societies while four percent use in-house safes.



**Figure 4.13: Preferred Custodian of Cash**

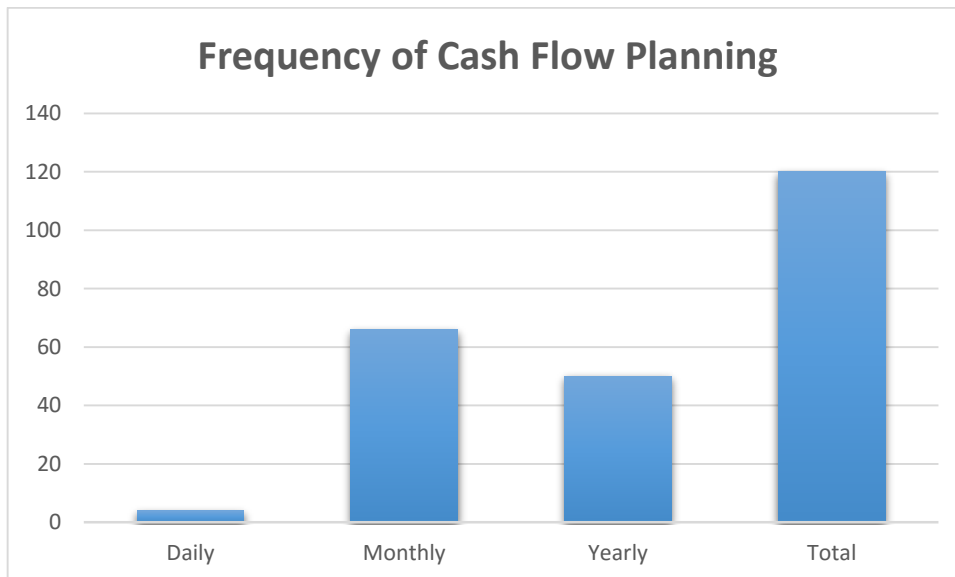
#### 4.6.10 Short-Term Cash Flow Management Practices

One hundred percent (100%) of the respondents stated that they do plan for the amount of cash that they require to meet the short term operational needs of their businesses.

**Table 4.10: Cash to meet operational needs**

<b>Do you plan for the amount of cash that is required to meet your short-term operational needs</b>		
	<b>Frequency</b>	<b>Percent</b>
Yes	120	100.0%

In response to how often short term cash flow planning was conducted 55 percent of ICT SMEs said that they planned on a monthly basis, 41% said they did it on an annual basis while only three percent (3%) did it daily.



**Figure 4.14: Frequency of cash flow planning**

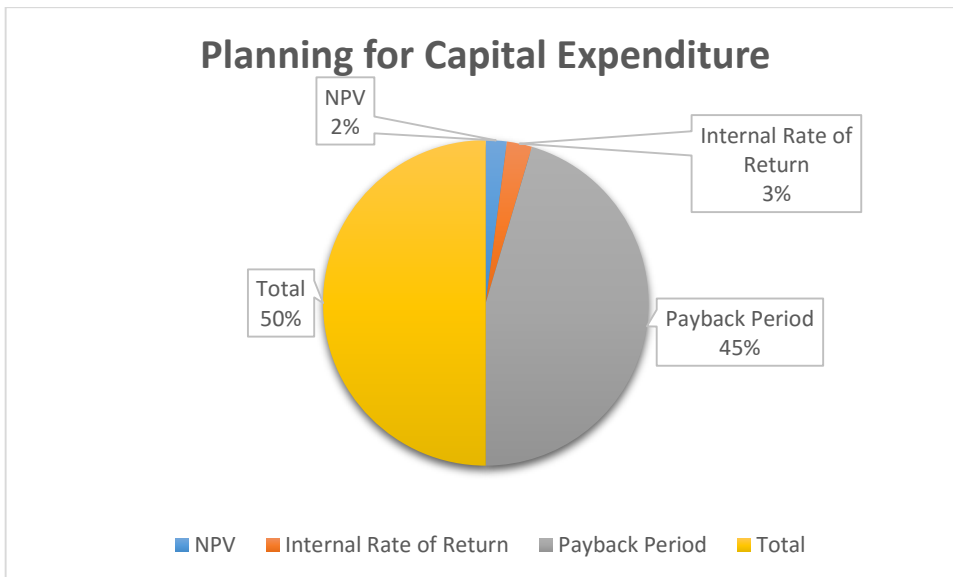
Fifty-six percent (56%) of owner managed ICT SMEs think that the timing of receiving payment would have the greatest impact on their firm’s ability to conduct business. Twenty percent (20%) thought that ‘inventory turnover would have the most significant impact while timing of bill payment was selected by a slightly smaller seventeen percent (17%) of the respondents.

**Table 4.11: Aspect of Cash Flow that would have greatest impact on continued business**

Cash Flow Management		
	Frequency	Percent
Timing of receiving payment	67	55.8%
Inventory turnover	25	20.8%
Timing of bill payment	21	17.5%
All of the above	7	5.8%
Total	120	100.0%

#### 4.6.11 Planning for Capital Expenditure

When asked about which technique they used when doing investment appraisal, a majority of ninety percent (90%) of respondents selected the payback period as their firm's preferred method. The NPV and internal rate of return were preferred by 4% and 5% of the respondents respectively.



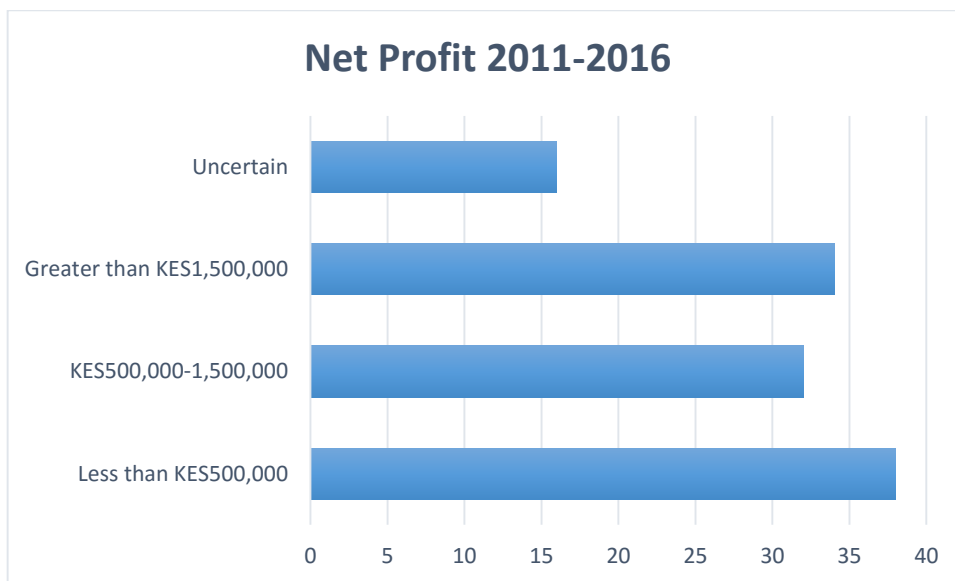
**Figure 4.15: Planning for Capital Expenditure**



## 4.7 Relationship between Financial literacy and Profitability as an Indicator of Financial Performance

### 4.7.1 Net Profit

The second objective of this study was to investigate the relationship between financial literacy and the profitability of owner-manager ICT SMEs in Nairobi. Net profit was the measure of profitability used in this research and the data on profitability was reflective of the period 2011 to 2016. Chi-square tests were performed to test for the evidence of a relationship between demonstrated owner-manager financial literacy and ICT SME profitability over the five-year period. Profit was described in three categories; less than five hundred thousand, between five hundred thousand and one million five hundred thousand, and greater than one and a half million (all figures were in Kenyan shillings). A fourth category was created for respondents that were not sure.



**Figure 4.16: Net Profit Owner-Managed ICT SMEs (2011-2016)**

### 4.7.2 Chi-square test: Financial literacy and net profit of ICT SMEs between 2011 and 2016

A chi-square test for independence was performed to test for association between the level of financial literacy and net profit between 2011 and 2016. A contingency table was constructed based on the counts for either variable.

**Table 4.12: Financial Literacy and Net Profit (2011-2016)**

Net Profit between the 2011 to 2016 and Literacy Level Contingency Table				
		Literacy level		Total
		High literacy	Low literacy	
What was your firm's net profit between the 2011 to 2016?	Less than KES500,000	16	22	38
	KES500,000-1,500,000	17	15	32
	Greater than KES1,500,000	21	13	34
	Uncertain	1	15	16
Total		55	65	120

**Table 4.13: Chi-Square Test - Level of Financial Literacy and Net Profit (2011-2016)**

Chi-Square Test: Net Profit (2011-2016) and Level of Financial Literacy			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.472	3	.002
Number of Valid Cases	120		

Evidence of the existence of a relationship between financial literacy and net profit of ICT SMEs for the period 2011-2016 was found because  $\chi^2(5, N = 120) = 14.472, p < 0.001$  and with a  $p$ -value (.002) less than five percent (.05), this study rejects  $H_0$  and infers that financial literacy and the level of education achieved by ICT SME owner-managers are not independent of each other.

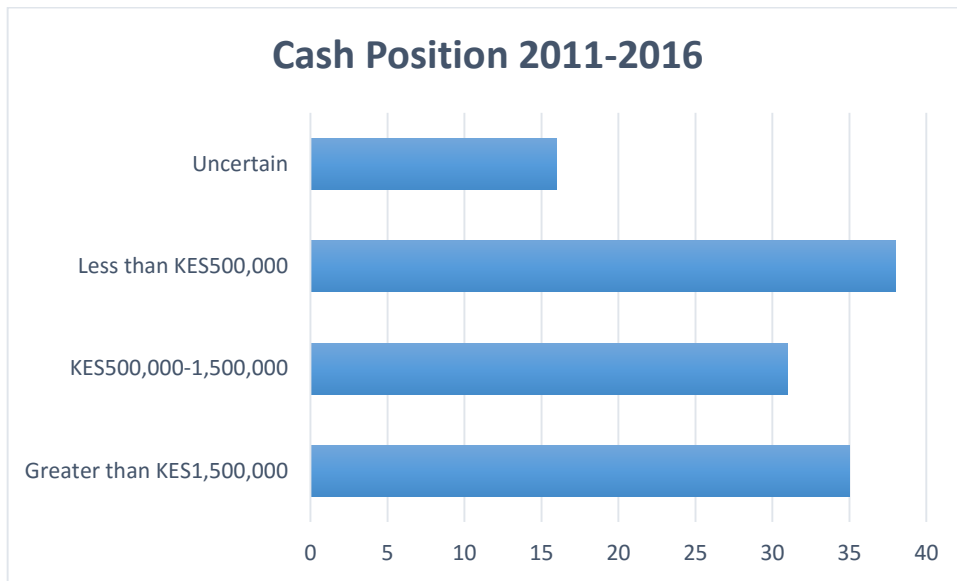
#### **4.8 Relationship between Financial Literacy and Liquidity as an Indicator of Financial Performance**

The third objective of this research study was to investigate the relationship between the financial literacy and firm liquidity as an indicator of performance among ICT SMEs in Nairobi county. The measure of liquidity selected for this study was the ICT a cash position between the years 2011 and 2016.

##### **4.8.1 Cash Position**

Most of the ICT SME owner managers surveyed indicated that their cash position was less than five hundred thousand Kenya shillings (KES500,000). Twenty-six percent of the owner-managers said their profit over the period was between five hundred thousand Kenya

shillings and one and a half million shillings. A cash position greater than one and a half million was reported by twenty-nine (29%) of the ICT SMEs.



**Figure 4.17: Owner-Managed ICT SME Cash Position (2011-2016)**

#### 4.8.2 Chi-square test: Level of Financial Literacy and Cash Position between 2011 and 2016

A chi-square test for independence was performed to test the null hypothesis of no association between level of financial literacy and cash position between 2011 and 2016. The contingency table constructed below shows the counts for financial literacy levels and the cash position categories of owner-managed ICT SMEs between 2011 and 2016.

**Table 4.14: Financial Literacy and Cash Position (2011-2016)**

Contingency Table: Cash Position and Literacy Level			
	Literacy level		Total
	High literacy	Low literacy	
Less than KES500,000	16	22	38
KES500,000-1,500,000	17	14	31
Greater than KES1,500,000	21	14	35
Uncertain	1	15	16
Total	55	65	120

**Table 4.18: Chi-Square Test: Level of Financial Literacy and Level of Financial Literacy Cash Position (2011-2016)**

<b>Chi-Square Test: Cash Position (2011-2016) and Level of Financial Literacy</b>			
	<b>Value</b>	<b>df</b>	<b>Asymp. Sig. (2-sided)</b>
Pearson Chi-Square	14.153	3	.003
Number of Valid Cases	120		

Evidence of the existence of a relationship between financial literacy and cash position of ICT SMEs for the period 2011-2016 was found because  $\chi^2 (5, N = 120) = 14.153, p < 0.001$  and with a  $p$ -value (.003) less than five percent (.05), this study rejects  $H_0$  and infers that financial literacy and the ICT SMEs' cash position between 2011 and 2016 are not independent.

#### **4.9 Chapter Summary**

This chapter presents the results of the analysis of the data that was collected for the purposes of this research project. The main descriptive methods used to present the data was frequencies and percentages, while the chi-square test for independence was used to describe relationships between categorical variables. The next chapter contains the discussions of the results, conclusions and also recommendation for the study.

## **CHAPTER FIVE**

### **5.0 DISCUSSION, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

This chapter will present the summary and discussion of the findings of this research project as well as recommendations and a conclusion. Section 5.2 provides a summary of important elements including the purpose of the study and research questions or specific objectives, summary of the research methodology used and major findings or results for each of the specific objectives. Section 5.3 focuses on the major results of the study and is organized based on the specific objectives. The final two parts, section 5.4 and 5.5 give the conclusions and recommendations respectively.

#### **5.2 SUMMARY**

The purpose of this study was to investigate the relationship between financial literacy and enterprise performance among owner-managed ICT SMES in Nairobi county. The specific objectives guiding the researcher were; first to investigate the relationship between financial literacy and the age, gender and level of education of owner-managers of ICT SMEs; second to investigate the relationship between, financial literacy among ICT SME owner-managers, and profitability as an indicator of performance; and third to investigate the relationship between, financial literacy among ICT SME owner-managers, and liquidity as an indicator of performance.

The research design selected for this study was the quantitative design because the purpose of the research was descriptive and explanatory. A quantitative approach was appropriate in order to investigate the relationships between the variables. The specific procedures of statistical analysis used were frequencies, percentages and chi-square test for independence between financial literacy and the other variables including age, gender, level of formal education, profitability and liquidity, the latter two being indicators of enterprise performance. Financial literacy was one of the variables of interest in this research project and it was therefore necessary to define it in categorical terms in order to apply quantitative techniques in the analysis of data.

Respondents were classified as displaying high literacy or low literacy depending on the performance on a short test adapted from Intuit (2015). According to the findings of this study 46 percent of ICT SME owner-managers demonstrate a high level of financial literacy

while 54 percent of them demonstrate a low level of literacy by failing to satisfactorily apply some basic financial concepts that a small business owner should have a firm grasp of. Thirty-two percent of the ICT SME Owners in Nairobi county are between the ages of twenty-five and thirty years old while 31 percent are thirty-six years or older. Twenty-three percent are aged eighteen to twenty-four years and fourteen percent are aged thirty-one to thirty-five. Seventy-six percent of ICT SME owner-managers are male while 24 percent are female, and 41 percent of the latter group are aged eighteen to twenty-four years. The majority of males at 40 percent are aged between 24 and 30 years.

A majority of the owner-managers had received at least a university level of education with only 24 percent of males having only achieved a secondary school level of formal education. 86 percent of female ICT SME owners were university educated while 14 percent had only a secondary school certificate. The age group with the highest level of formal education was owner-managers aged 36 years or older followed by those aged between thirty and thirty-five years. Profitability and firm liquidity were the indicators of performance chosen for the purposes of this research. Profitability was described using the ICT SMEs' net profit between 2011 and 2016 while liquidity was described using the firms' cash position for the same period. 31 percent of ICT SMEs reported having a profit of less than five hundred thousand shillings, 28 percent indicated that their profit was greater than one million five hundred thousand shillings. 26 percent had profitability of between five hundred thousand and one and a half million shillings. Thirty-two percent of the respondents indicated a cash position of less than five hundred thousand while 29 percent stated that their cash position had been greater than one million five hundred thousand. Twenty-six percent of the firms had a cash position between five hundred thousand and one million five hundred thousand. Thirteen percent of respondents stated that they were uncertain about their net profit, and cash position, which may have indicated an unwillingness to reveal financial information regarding their firm's performance.

There are a number of financial courses of action that have been identified in literature that have been demonstrated, in a majority of cases, to positively affect profitability among firms within the standard for-profit business model. The idea underlying the owner-managers' opinions on these actions is to glean their understanding of the fundamental financial concepts on which each one is founded. This study identified a number of these actions and sought the owner-managers' thoughts on them in the context of their own firms. Fifty-six percent of ICT SME owner-managers claimed that they attempt to forecast profits and

losses, while 81 percent agreed that increasing sales and reducing expenses would increase profitability. On the elimination of variable costs almost 50 percent of owner-managers agree strongly that that is a step they would take towards increasing profit. Consolidation of capital investments and reduction in fixed assets were considered as valid action steps by 43 percent and 40 percent of owner-managers respectively.

### **5.3 DISCUSSION**

This section will provide a discussion that is structured around the specific research objectives. The focus will be on ICT SME owner managers' level of financial literacy, and its relationship to the variables age, gender, formal education, profitability and liquidity.

provide interpretation of the results or major findings by comparing them to the findings of previous studies or theoretical background presented in the literature review

#### **5.3.1 The Relationship Between Financial Literacy and the Age, Gender and Level of Education of Owner-Managers of ICT SMEs**

Korniotis & Kumar, (2011) examined the role of cognitive aging on the stock investment decisions of older investors, to determine whether older individuals make better investment choices because of greater experience. Their evidence indicated older investors opted for less risky portfolios, applied diversification, traded less frequently, exhibited a greater propensity for year-end tax loss selling and even displayed weaker behavioural biases such as familiarity bias. On the basis of these attributes of investment behaviour older investors were found to demonstrate greater financial literacy. Among ICT SME owner-managers, those who were aged 36 and older demonstrated a significantly higher level of literacy than their younger counterparts. Owner-managers aged between eighteen and twenty-four years demonstrated the highest level of financial illiteracy with eighty-six percent of them unable to score 75 percent or more on the test. It is important to note that 50 percent of owner-managers aged 36 years and older had received specialized financial training while none of those aged between 18 and 24 years indicated having received any such training.

Mullen and Zissimopoulos showed that adequate financial literacy is a challenge among women across different continents in that most of them are unfamiliar with basic financial concepts and can therefore not optimal savings and investment decisions. Mullen and Zissimopoulos (2010) further examined potential explanations for the gender gap in financial literacy by honing in on couples' financial decision making. While this paper focuses on financial decisions associated with running an enterprise, the financial concepts

applied are similar. Their study found a positive correlation between decision making and financial literacy among males. This study found that there is evidence for an association between financial literacy and the gender of ICT SME owner managers following a test for independence. Even the descriptive statistics reveal evidence for this relationship. 66 percent of females demonstrated a low level of literacy compared to only 51 percent of male owner-managers. Chen & Volpe (2002) surveyed financial literacy among college students and found that gender differences were statistically significant even when controlling for work experience and age. A majority (43 percent) of the women owner-managers who participated in this study were aged between 18 and 24 years of age which is the same age group as a majority of the participants in Chen and Volpe's (2002) study. Despite their findings, the authors maintain a disclaimer that education and experience were significant factors in the financial literacy of both men and women.

Differential levels of financial literacy may be as a result of the evidence that higher levels of financial knowledge and skills are associated with increased and improved financial training (Atkinson, Messy, Rabinovich, & Yoong, 2015). The authors found that 79 percent of ICT SME owner-managers felt strongly or at least agreed that their formal education had positively affected the way they make financial decisions. Thirteen percent did not have a position on this subject while less than ten percent (10 percent) disagreed. Chen and Volpe's (2002) research found similar results that financial literacy was related to levels of education. This basically means that ICT SME owners with specialized financial training were likely to make better financial decisions. The older entrepreneurs sought specialized training through seminars, and certification programs probably reflecting a desire to improve their business skills since most ICT SMEs are ran by non-business majors (Kaiser & Müller, 2015). Management experience can be as effective in promoting financial literacy as formal education (Kamunge & Tirimba, 2011) however, this is difficult to conclude from this research project because the oldest and most experienced owner-managers had also supplemented their formal education with specialized financial training.

### **5.3.2 The Relationship between, Financial Literacy among ICT SME Owner-Managers, and Profitability as an Indicator of Performance**

There is a large body of literature in economics and finance in which researchers have attempted to establish the determinants of profitability because of its pervasiveness as an indicator of financial performance (Kouri, 1982). Kouri (1982) found that not only is profit



the main indicator preferred by ICT SME owner-managers but also that the level of financial literacy among owner-managers is significantly related to profitability (described in absolute terms) based on net profit data from the period 2011-2016. Measures of enterprise profitability are often regarded as suitable surrogates for describing the overall effectiveness of management (Carey, 1974). These results are in line with two studies (Knauer & Wöhrmann, 2013; Jindrichovska, 2013) on the relationship between a firm's profit and its management's effectiveness (Bilkey, 1982; Wiley, 2012) which was examined here through the lens of their financial decision making capacity. Furthermore, this research project revealed that 78 percent of ICT SME owner-managers considered profitability to be the main indicator of financial performance for their firms. However, the findings differ with Wise (2013) who found that increases in financial literacy led to more frequent production of financial statements.

According to Wise, 43 percent of SME owner-managers who demonstrated high literacy stated that their firms did not produce financial statements. The remaining 57 percent of highly literate owner managers likely had a finance department that dealt directly with that kind of work where it would be handled professionally. Production of financial reports is a mission critical financial management activity in any business today (Hal, Kepner & Wysocki, 2012) where there is a need for data-driven decision making. Financial reports offer a means through which a business can monitor its performance quantitatively, one of these measures would be net profit and it is therefore not surprising that 13 percent of owner-managers stated that they were uncertain about their firm's net profit for the period 2011-2016, although this could also indicate an unwillingness to disclose performance figures for competitive reasons.

The importance of profitability in the accumulation of capital and growth has been studied extensively. Studies (Geroski, Machin, & Walters, 1997; Kouri, 1982) have linked profitability to growth and most SMEs in Kenya within the ICT sector are in the key growth stage of their existence. It represents the net result of all of the financing policies and operating decisions. Policies created by experienced finance professionals are common in large firms that have sufficient resources to attract such individuals to support management. One of the key decision areas that directly impacts a firm's profitability, is its long term financial policy regarding future capital expenditures. While ICT SMEs in Nairobi are relatively small users (Moraa & Mwangi, 2012) of high value equipment characteristic of industries such as manufacturing, they do still incur significant bills when investing in expansion programs and specialist equipment such as servers. Eighty percent of owner-

managed ICT SMEs surveyed in this research project indicated that ‘software and web development’ was the closest description of the nature of their businesses. These types of firms work around project-based business models and will almost certainly lease or buy critical tools and equipment. Owner-managers must therefore be able to appraise projects and investments in order to determine those with optimal risk adjusted returns, this is standard financial management practice Fama (2000).

Over ninety percent of ICT SME owner-managers prefer to use the non-discounted payback period for analysis according to the findings of Fama and French (2000). This finding can be compared with a study by Ryan (2002) that sought to find out CFOs preferences regarding capital budgeting technique-preference in the United States, Asia-Pacific region and Europe, where the payback period (non-discounted) emerged as the fourth most popular technique of choice among CFOs. While this method has been praised for its simplicity, it fails to incorporate the basic concepts of the time value of money and financial risks associated with free cash flows in the course of doing business (Joseph, 2013). A cross-tabulation of the choice of owner-managers’ investment appraisal technique and their level of financial literacy revealed that less than 40 percent of owner-managers will use a discounted technique in financial planning. Fifty-two percent of ICT SME owners stated that their firms do not engage in formal budgeting activities while forty-eight percent reported that they did engage in budgeting as a major formal planning activity.

### **5.3.3 The Relationship Between, Financial Literacy Among ICT SME Owner-Managers, and Liquidity as an Indicator of Performance**

The third specific objective of this study was to investigate the relationship between financial literacy and enterprise liquidity as an indicator of ICT SME performance. Liquidity was measured the cash position of the ICT SMEs. Working capital decisions are associated with cash inflows, outflows, the level of enterprise liquidity, and internal cash flows. In industry practice short-term refers to less than one full balance sheet year (Sundar, 1980). Most of the ICT SME owner managers surveyed indicated that their cash position was less than five hundred thousand Kenya shillings (KES500,000). A cash position greater than one and a half million was reported by twenty-nine (29%) of the ICT SMEs.

A chi-square test for independence showed evidence to reject the null hypothesis of independence between financial literacy levels and the cash position. Owner-managers with higher literacy indicated higher balances. A high positive cash position over a long period of time is an indicator of efficient management of working capital (Mwangi et al., 2014). Optimality of the cash position will, certainly vary across industries and among related

enterprises themselves, however, a high level of working capital relative to peers is a sign that management has exercised control over liquidity and the firm's short-term activities can be financed sufficiently (Sundar, 1980).

Nyabwanga et al., (2012) conducted a study to determine the effect of working capital management practices on financial performance by focusing on SMEs based in Kenya's Kisii South District. The researchers found that short-term cash flow management practices have an impact on financial performance. All of the owner-managers surveyed in this research project indicated that they planned for cash to meet operational needs. More than fifty percent of the ICT SMEs carried out this kind of planning on a monthly basis. Cash management practices are a fundamental aspect of enterprise liquidity alongside the management of receivables and inventory (Knauer & Wöhrmann, 2013). Fifty-six percent of owner managers felt that the timing of receipt of payment would have the greatest impact on their continued operations. A number of ICT SMEs, due to the nature of their business models, deliver products that do not require stocking inventories.

## **5.4 CONCLUSION**

The conclusions presented below are drawn from the findings on the relationship between financial literacy and enterprise performance.

### **5.4.1 The Relationship Between Financial Literacy and the Age, Gender and Level of Education of Owner-Managers of ICT SMEs**

Age, gender and the level of formal education were found to be associated with differential levels of financial literacy among ICT SME owner-managers. The differences in literacy were evident not only through statistical tests but also in the way that the managers made their short-term and longer-term financial decisions. Experience was identified as a major factor in developing and nurturing financial knowledge among the owner-managers as was the level of formal education. More experienced owner-managers were drawn to seek out specialized management training which often included key financial management education that directly impacted their bottom lines.

The ICT sector is a male-dominated industry as is evident from the findings of this study. There were however, some female owner-managers who demonstrated a high literacy level and some even sought specialized training in recognition of the importance of its role in the running of their businesses. A majority of the owner-managers surveyed in this study were educated up to the university level. ICT businesses offer technical products and services to their clients and the nature of their work often requires at least some formal tertiary

education exposure, thus the findings on formal education come as no surprise to the researcher.

#### **5.4.2 The Relationship between, Financial Literacy among ICT SME Owner-Managers, and Profitability as an Indicator of Performance**

Financial literacy among ICT SME owner-managers is related to their profitability as measured by net profit according to the findings of this study. Brigham (2010) described profit as the sum of the decisions made by business managers, which is to say that profitability indicates whether management's chosen courses of action were cumulatively optimal, or not. While the decisions involved in enterprise management are varied in nature, requiring a range of different competencies, the financial aspects of management have technicalities that need to be taught or experienced. Higher levels of profit among firms can be an indicator of the quality of management's financial decision quality because it reflects correct pricing structures, good cost management, and robust control mechanisms within the business.

#### **5.4.3 The Relationship Between, Financial Literacy Among ICT SME Owner-Managers, and Liquidity as an Indicator of Performance**

A relationship does exist between financial literacy among owner-managers of small and medium sized firms and enterprise liquidity as measured by their cash position. Liquidity is a reflection of a firm's short-term cash flow management practices (Knauer & Wöhrmann, 2013). Healthy enterprise liquidity among SMEs in this study indicated that they could finance day-to-day operations smoothly and effectively and this constituted a descriptor of financial performance. Profitability is subject to various accounting adjustments that may limit its usefulness as a performance indicator, but it is simple and pervasive across industries, liquidity on the other hand involves the movements of cash in and out of the firm. Management of working capital keeps businesses going and for SMEs which by definition have smaller amounts of cash to manage can be greatly enhanced by financial training or the use of financial advisory services. Meeting short-term obligations, and recognizing the differences between accounting figures and their cash equivalents require technical expertise and as the findings of this study show, higher literacy in such areas is associated with higher liquidity measures.

## **5.5 RECOMMENDATIONS FOR IMPROVEMENT**

### **5.5.1 The Relationship Between Financial Literacy and the Age, Gender and Level of Education of Owner-Managers of ICT SMEs**

This study recommends that, the Kenyan ministry of education, should incorporate financial management into curricula at primary and secondary levels of formal learning to increase financial literacy at an early age. Special adult learning programs exist that are tailored to fit into their busy lifestyles. Organizations exist that train both women, and men, on financial management for at subsidized rates. There are also online platforms that offer self-paced massive open online courses (MOOCs) for free. These entities serve as valuable resources for young and busy owner-managers who wish to improve their financial skills.

### **5.5.2 The Relationship between, Financial Literacy among ICT SME Owner-Managers, and Profitability as an Indicator of Performance**

This study recommends that ICT SME owner-managers engage in budgeting, planning for capital expenditures, tax planning, and profit forecasting in order to increase net profit. These activities have been shown to improve profitability in the long run. Furthermore, SMEs should adopt some more comprehensive performance measurement systems that incorporate all other aspects of their businesses. ICT SMEs that do not have internal professional financial management by way of finance departments or finance managers, should consider contracting external financial advisory services. A number of platforms such as Upwork.com exist to provide a reliable source of freelance specialists in areas such as financial management, this is a cost-effective avenue for small ventures to derive professional counsel with regard to management decisions that drive profitability.

### **5.5.3 The Relationship Between, Financial Literacy Among ICT SME Owner-Managers, and Liquidity as an Indicator of Performance**

This study recommends that ICT SME owner-managers engage in well documented short term cash flow management practices. Decisions surrounding the use of liquid assets is critical to mission of businesses and thus another recommendation based on the findings of this research is that ICT SMEs should consider financial management training for their owner managers and other relevant members of their teams.

#### **5.5.4 Recommendations for Further Research**

One of the key limitations of this research project was in terms of scope, the study focused on only two descriptors of financial performance while there are others such as efficiency, and leverage which would paint a clearer picture of the relationship between management's understanding of financial management and performance. This study concluded that there is sufficient evidence to suggest a relationship between financial literacy and enterprise performance, further research needs to be conducted with more performance metrics to investigate causality. In order to fully capture the multidimensional nature of performance, a non-financial perspective should also be addressed by future researchers.

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## APPENDICES

### APPENDIX I: BUDGET

<b>Item / Activity</b>	<b>Cost (Ksh.)</b>
<b>Proposal Development</b>	
Materials	500
Printing	500
Photocopying	300
<b>Data Analysis and Interpretation</b>	
Travelling	5000
Research Assistant	1500
<b>Report Writing and Dissemination</b>	
Printing and binding	2500
Miscellaneous	3000
<b>Total Cost</b>	<b>13,300</b>



## APPENDIX II: IMPLEMENTATION SCHEDULE

Project Activity		Timeframe		
		Start	Finish	Duration
Proposal development		September 2015	December 2015	4 months
Fieldwork		January 2016	1 <sup>st</sup> February 2016	1 month
Data analysis & interpretation		February 2016	28 <sup>th</sup> February 2016	1 month
Report writing		March 2016	April 2016	3 weeks
Report dissemination		April 2016	May 2016	1 month

## APPENDIX III: QUESTIONNAIRE

### Instructions

**This questionnaire contains a series of multiple choice questions.**

Answer the questions in each section by drawing a circle  around the letter (A, B, C...etc) that corresponds with the best answer.

1. In which age bracket do you fall?
  - A. 18-24 years
  - B. 25-30 years
  - C. 31-36 years
  - D. 36 years or more
  
2. What is your gender?
  - A. Female
  - B. Male
  
3. What is your highest academic qualification?
  - A. Primary
  - B. Secondary
  - C. University
  - D. Other (Please specify) .....
  
4. Have you received specialized financial training?
  - A. Yes
  - B. No
  
5. Which of the following provides the closest description of the nature of your business?
  - A. General ICT Services
  - B. Software and Web development
  - C. Hardware services
  - D. Other
  
6. How long has your business been in operation?
  - A. 0 – 5 years
  - B. 5 – 10 years
  - C. 10 years or more
  - D.

7. How many employees do you currently have working for your business?
  - A. Under 50
  - B. Between 50 and 100
  - C. Over 100
  
8. Does your business have a finance department?
  - A. Yes
  - B. No
  
9. Does your firm produce financial reports?
  - A. Yes
  - B. No

If yes, which ones.....

  - C. No
  
10. Does your company engage in the process of budgeting formally?
  - A. Yes
  - B. No

If yes, how often (monthly, quarterly etc.) .....
  
11. Which of the following constitutes your company's preferred indicator of financial performance?
  - A. Profitability
  - B. Growth in revenue
  - C. Liquidity
  - D. Efficiency
  - E. Other (Please describe)

.....

.....
  
12. What was your firm's net profit between the years 2011 to 2016?
  - A. Under KES500,000
  - B. Between KES 500,000 and KES 1,500,000
  - C. Greater than KES 1,500,000
  - D. I am not sure

13. Does your firm have any mechanisms for forecasting profits and losses?

- A. Yes
- B. No

If yes, please describe them

briefly.....  
 .....  
 .....

14. What was your company's cash position between 2011 and 2016?

- A. Under KES 500,000
- B. Between KES 500,000 and KES 1,500,000
- C. Greater than KES 1,500,000
- D. I am not sure

15. Using the key provided, tick (✓) below the number in the table that would best describe fundamental actions that your firm would take to increase its net profit.

**Key: 1 – Strongly Agree, 2 – Agree, 3 – Neutral, 4 – Disagree, 5 – Strongly Disagree**

	1	2	3	4	5
Increasing sales and reducing expenses					
Reducing noncurrent assets					
Consolidating capital investments					
Eliminating variable costs					
Increasing cash used to fund brand awareness campaigns					

16. Using the key provided, tick (✓) below the number in the table that would best describe your position on the statements therein:

**Key: 1 – Strongly Agree, 2 – Agree, 3 – Neutral, 4 – Disagree, 5 – Strongly Disagree**

Statement	1	2	3	4	5
My experience doing business has allowed me to learn how to read and interpret financial information.					
As a business owner, my gender identity has been advantageous in learning financial decision making skills and in working in the ICT industry as well.					
Formal education has directly enhanced my ability as an entrepreneur, to make important financial decisions.					

17. In planning for large capital projects or purchases what is your firm’s preferred method of investment appraisal/capital budgeting?

- A. NPV
- B. The Internal Rate of Return
- C. Profitability Index
- D. Payback Period
- E. Average Accounting Return
- F. Other  
(describe).....

18. Which one of the following is a basic accounting equation?

- A. Net Worth = Assets + Profits
- B. Gross Profit Margin = Gross Profit – Sales
- C. Assets = Liabilities + Owner's Equity
- D. EBIT = COGS – Depreciation

19. If one does not purchase an insurance policy their business is actually?

- A. Avoiding the risk of loss
- B. Retaining the risk of loss
- C. Transferring the risk of loss to another party
- D. Sharing the risk of loss with another party

20. Your company has more cash today when:
- A. Customers pay their bills sooner
  - B. Accounts receivable increase
  - C. Profits increase
  - D. Retained earnings increase
21. Which of the following will not affect your firm's **cash** position?
- A. Rent expense
  - B. Depreciation expense
  - C. Interest expense
  - D. Advertising expense
22. Which of the following provides the **closest** description of how a business should compute net income?
- A. The point at which a company's total revenue is equal to the to the total cost of doing business
  - B. Revenue minus taxes and other costs of doing business
  - C. Total sales revenue minus costs of goods sold, divided by the total sales revenue
  - D. None of the above
23. Which of the following activities do you think your business could undertake in order to improve its short-term cash flow?
- A. Increasing overheads
  - B. Repaying a bank loan
  - C. Collecting receivables on time
  - D. Not sure
24. Which of the following aspects of your firm's cash flow do you think would have the **greatest** impact on your firm's ability to continue to conduct business?
- A. Timing of receiving payment
  - B. Inventory turnover
  - C. Timing of paying bills
  - D. All of the above
  - Not sure

25. Which of the following do you prefer as a custodian of your firm's cash?

- A. Commercial bank
- B. Microfinance Institution
- C. SACCO
- D. In-house safe
- E. Other.....

26. Do you plan for the amount of cash that is required to meet your short-term operational needs?

- A. Yes
- B. No

If yes, how often?.....

**APPENDIX IV: Table for Determining Sample Size (n) from a Given Population  
(Krejcie and Morgan, 1970)**

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377



170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note. —N is population size.

S is sample size.