COLLEGE OF LAW AND MANAGEMENT STUDIES

SCHOOL OF MANAGEMENT, INFORMATION TECHNOLOGY AND GOVERNANCE

An Evaluation of the Usability and End User Acceptance of an Education Management Software System

By

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A dissertation submitted in partial fulfilment of the requirements for the degree of

Master of Commerce in Information Systems & Technology

School of Management, IT and Governance

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2018

DECLARATION

I, **Richman Manzungu** declare that:

(i) The research reported in this dissertation, except where otherwise indicated, is my original research.

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ACKNOWLEDGEMENTS

This dissertation would not have been possible without the support of some exceptional people.

To them my thanks:

Mr Sanjay Ranjeeth, my supervisor, who provided direction, extensive knowledge, never-ending encouragement and patience in correcting my theoretical insights throughout this dissertation process. You have confirmed my belief that dedication is the foundation for perseverance and achievement.

To those exceptional colleagues and friends who selflessly devoted themselves to my education, I owe a debt of gratitude.

ABSTRACT

The study is aimed at evaluating the usability and end user acceptance of a management software system. The study serves an exploratory agenda to determine the current state of usability regarding SASAMS and to determine end users' intentions to make use of SASAMS. The knowledge from the empirical phase of the study converges to an output that provides guidance on possible aspects of SASAMS that may be improved from a usability perspective. The quantitative research method is used to guide the study. The targeted population in this study will be composed of a total of 45 secondary, combined and primary schools that use the SASAMS within the Piet Retief Circuit and the sample for the study has been purposively selected to consist of 43 users of the SASAMS. The survey method is used for data collection and the data collection instrument is a questionnaire. The research findings indicate that SASAMS is a relatively user friendly package and the overall usability enabled an end user to quickly obtain proficiency in the use of the package. However, the usability of the package is dependent on intensive training sessions where end users have an opportunity to "internalise" elements of core functionality of the system as well as pick up on subtleties about the interface so that they could become expert users of the system. Aligned to this outcome from the empirical phase of the study, a recommendation is made with regards to the need for training and workshops for educators, heads of departments, deputy principals and school principals so that the usability of the system is enhanced. Another major area of improvement that has been identified is the issue of data input into the system. Proficiency in this regard is functionally dependent on the level of experience in the use of the system or the amount of training that a prospective user is exposed to. The activity of data capture has been identified as an area of improvement of the interface. The recommendations from the study also makes incursions into issues regarding the connectivity of the system which is dependent on a real-time link to the Department of Home Affairs as well as the Department of Basic Education in the Mpumalanga Province. Optimal usage of the SASAMS will only be viable if all the intended functional components of the system are available to educators on a regular basis. From a positive perspective, the empirical data shows that the SASAMS has been endorsed by school principals, Heads of Departments, educators and school administrators. There is a positive correlation with current usage practice and the intention to continue making use of the SASAMS. However, the issue of training and the availability of technical support for the use of the package has been highlighted as areas of significant concern.

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LIST OF ABBREVIATIONS

BI	Behavioural Intention
CHI	Computer Human Interaction
COU	Context of Use
DBE	Department of Basic Education
DOE	Department of Education
EE	Effort Expectancy
EMIS	Education Management Information System
FC	Facilitating Conditions
HCI	Human Computer Interaction
HF	Human Factors
HOD	Head of Department
IS	Information Systems
PE	Performance Expectancy
SASAMS	South African School Administration and Management System
SC	Social Conditions
UCD	User Centred Design
UI	User Interface
UKZN	University of KwaZulu-Natal

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CHAPTER 1

1.1. Introduction to the Research Topic

An Evaluation of the Usability and End User Acceptance of a Management Software System: An Exploratory Study of the Department of Education's South African School Administration and Management System (SASAMS) in Mpumalanga Province.

1.2. Introduction and Background

SASAMS is a computer application specifically designed to meet the management, administrative, and governance needs of public schools in South Africa. The system provides support for internal school management processes. However, the main objective of the system is to enable educators to upload real-time data to the Department of Basic Education (DBE). The upload of data includes demographics and profiles of students and educators as well as student marks for school- based assessment tasks. The data is fed on a real-time basis into the Education Management Information System (EMIS) that is controlled provincially and nationally. The EMIS provides data to the DBE with regards to the current status of South African public schools in terms of enrolment of students as well as details of the academic performance. Essentially SASAMS serves as a client interface into the EMIS. The purpose of the current study is to determine the usability of SASAMS so that recommendations can be made to improve end user confidence and enhance the prospect of sustained use of the SASAMS.

However, Pfaff (2012) suggests that in the case of an IS that has a "target audience" of predominantly novice end-users, the user interface (UI) has to be developed/adapted so that it caters for the novice end-users. Aligned with this suggestion, the current study seeks to establish whether the SASAMS provides a UI that ensures that the end-users of the system are satisfied with their usage of the system.

According to Lindgaard (1994), the usability of a system is significant for a number of reasons. A crucial aspect of the rationale for better usability is that people of different backgrounds use an IS. In the context of the current study, this will include end-users such as administration clerks, educators, Heads of Department (HOD), school principals, and officials from the Department of Education. Because of the diverse group of end-users, poor system usability will have a detrimental effect on end-users' intentions to use the system in the future. In the case of the SASAMS, system usage is often discretionary in nature. According to Guillemette and Pare (2012), in such instances, poor system usability will force end-users to resort to making use of

alternate systems that may be more costly in terms of finance as well as time and effort. However, the most daunting problem in such a scenario is that the lack of usage of a mandated system will result in data capture that is redundant and inaccurate. This possibility is stated by (Bačíková & Porubän, 2014). Such an outcome is entirely contrary to the suggestion by Shapiro and Varian (2013), that the three most important advantages of using an IS are that it ensures the maintenance of data that is accessible, accurate, and up to date. In order to leverage off these benefits of an IS, it is important that end-users have a preference for using the IS. One of the main criteria in enabling IS usage is that it should have a UI that provides a meaningful and enjoyable user experience.

The current study entails an assessment of the usability of the SASAMS. The main aim of this study is to assess the use of the SASAMS and answer the main research question about whether the system meets the needs of its end-users from a usability perspective; offering ways in which the system may be improved in order to provide a satisfying experience for the end-users.

1.3. Problem Statement

The primary purpose of the study is to produce information about the usability of the SASAMS and how well the system meets the needs of its users. The reason for conducting this study is to ensure that poor usability does not compromise the usage of SASAMS. This will avoid issues of system productivity that, as suggested by Guillemette and Paré (2012) and Di Buccio, Melucci, and Moro (2014), will lead to the following difficulties:

- Time lost at work
- Data redundancy
- Inefficient data storage and retrieval
- Repetition of tasks
- Information-sharing failure, and
- Overloading of information.

These problems cause extra costs to schools as well as to the Department of Education. Although these extra costs seem to have become a norm in society, (Di Buccio et al., 2014) assert that the Department of Education cannot afford such a loss in productivity and accuracy of its IS. These few points attest to the importance of software usability and the problems and costs that poor usability of an IS can cause.

1.4. Research Questions

The principal aim of this study is to ascertain the usability of the School Management System used by the Department of Education,

The main research question that underpins the current study is:

What are end-users' perceptions of the usability of the SASAMS, and in which ways can these perceptions contribute towards enhancing the usability of the SASAMS?

The main research sub-questions are:

i. What are end-users' prerequisites for acceptance of the SASAMS?
ii. What are end-users' perceptions of the usability of the SASAMS?
iii. What are end-users' intentions concerning continued usage of the SASAMS?
iv. How can end-users' perceptions contribute towards enhancing the usability of the SASAMS?

1.5. Research Objectives

i. To determine the current state of usability regarding the SASAMS
ii. To determine end-users' intentions to make use of the SASAMS
iii. To determine possible areas of improvement with regard to the usability of the SASAMS.

In order to achieve the above-listed objectives, the current study will refer to the literature on Human Computer Interaction (HCI) in order to ascertain criteria for usability of an IS. The general attributes of usability identified in the HCI literature will be refined so that it has applicability to the requirements of the current study with respect to the SASAMS. A usability framework consisting of a refined set of usability criteria will be used to analyse the usability of the SASAMS.

1.6. Justification for the Research

This study not only serves the purpose of improving usage of the SASAMS, but also makes a general contribution to the body of knowledge on usability of school administration software.

The ultimate driving force behind the research into this area is the need to explore further opportunities that are available in the quest to evaluate the usability of a school-management system, in order to avoid losing learners' assessment information. Stakeholders in the education

sector will be able to adopt the benefits of increased usage of a central system. Vital school-based data may be stored and utilised for reliable decision-making based on the integrity of the data provided by the SASAMS.

1.7. Dissertation Structure

This dissertation consists of five chapters. The first section is the executive summary, providing a brief overview and the background of the study, followed by an abstract, which gives an overview of the entire dissertation.

Chapter 1 establishes the background of the study, the problem and the research gap that the researcher wishes to report on. It further makes clear the aim, objectives, and justification of the study.

Chapter 2 consists of a detailed review of related literature, starting with an introduction, giving an explanation of usability of software, how to evaluate usability, the factors affecting the system acceptability, and a discussion of Nielsen's usability heuristics. This chapter also provides the conceptual framework, which is based on an integration of the Unified Theory of Acceptance and Use of Technology (UTAUT) model and Nielsen's usability heuristics.

Chapter 3 consists of the research design and research approach used in the study; the ethical considerations of the study, together with permission and clearance to conduct research from the respective institutions; the target population, sample and sample size; data-collection instruments and procedures; and reliability and validity of the instrument. A brief explanation of the questionnaires has been highlighted.

Chapter 4 presents the data analysis and interpretation of findings.

Chapter 5 provides conclusions and recommendations.

CHAPTER 2

2.1. Introduction to the Literature Review

In this chapter an attempt will be made to answer the research question through existing literature. These questions include: the end-users' perceptions of the usability of the SASAMS, end-users' intentions concerning continued usage of the SASAMS, and ways in which end-users' perceptions contribute towards enhancing the usability of the SASAMS. Usability, in this study, is defined as, "the extent to which a product can be used by specific users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (ISO 9242-11, 5). It is also defined as the enquiry of how well users can fully utilise the functionality or usefulness of the SASAMS. Usability is often considered synonymous with "ease of use", and it has been considered a one-dimensional quality attribute of a user interface (Grudin, 1992). Usability, however, is more than mere ease of use, and it relates to many other aspects of a product or a system besides the user interface.

2.2. Categorisation of Users

According to Carvajal et al. (2013), a novice user is a person whose level of skills is sufficient to perform daily word processing tasks, such as, producing routine letters, memorandums, and informal reports. A novice is able to use basic formatting, editing, printing functions, and understands the document page setup. Intermediary has the skills which are necessary in order to use and create a variety of templates, complex tables, merges; manage table data, sort and filter merges, and also perform basic work with existing Macros. An intermediary is able to customize toolbars, import and insert graphs, embed Excel data, and elaborate reports. An expert has skills required in order to produce very large, complex formal documents that require a table of contents, footnotes, endnotes, bookmarks, and other special elements. An expert is able to use and create a wide range of graphic effects and has full mastery of Macro commands.

2.3. Definition of Digital Literacy

According to Andreasen et al. (2015), digital literacy has become much more than the ability to handle computers comprises of a set of basic skills which include the use and production of digital media, information processing and retrieval, participation in social networks for creation and sharing of knowledge, and a wide range of professional computing skills. Digital literacy improves employability because it is a gate skill, demanded by many employers when they first

evaluate a job application. It also works as a catalyst because it enables the acquisition of other important life skills.

2.4. Usability of a Software System

According to Ackerman, Parush, Nassar, and Shtub (2016), system usability has similar attributes to usability in general. Characteristics such as usefulness, effectiveness, accessibility, and learnability are mentioned when requirements for a usable system are listed. However, these characteristics have slightly different meanings in the management-information system environment. For example, effectiveness refers to the ease of finding the information required (Bevan, 1998). There are also aspects that seem to be emphasised more in the management-information-systems environment, such as the role of information and the role of the user.

According to Myers (2015), usability and ease of use in a management information system context is closely bound to the information content of the system. In terms of general information system usage, Belanche, Casaló, and Guinalíu (2012) describe ease of use as how quick and easy it is to find, understand, and use the required information. Spool (1999) summarises system usability similarly, and refers to how successful the system is at providing people with information for their decision-making. Mehlenbacher (1993) adds that, to be able to accurately provide information for decision-making, the system has to be oriented around tasks that users intend to perform within the system, and around the goals users are trying to accomplish. For instance, with reference to the core functionality of SASAMS, some of the main tasks include capturing of staff records, learner progress reports and promotions, capturing of learner marks, learner progression, producing schedules, and/or making information available to educators, department officials, and other stakeholders. According to Bailey (1989), if the information system does not meet the needs of the intended users, it will not meet the needs of the organisation for which it was created. Nielsen (2003) further argues that an issue that must be guarded against is that an IS may also be created to fulfil the dictates of a certain organisational policy, without paying much attention to the needs of the users.

Since the users of the system are the ones who decide whether or not a system is usable, perhaps the most important aspect of system usability is that the system has to provide a satisfying experience for the end-user. Belanche et al. (2012) add that the system should motivate users to use the system repeatedly, and also cause as little discomfort as possible. Hence, the best judgement of the usability of an IS could emanate from a representative sample of its end-user cohorts.

2.5. Evaluating Usability

Usability may be seen as a part of overall acceptability of a system (Nielsen, 1993). The acceptability of a system consists of the system's social and practical acceptability. This implies how well the system matches the user's needs. Usability is part of a system's practical acceptability. Nielsen (1993) describes usability as an attribute of overall system acceptability. Usability in the current study is defined as the extent to which users can fully utilise the functionality or usefulness of the SASAMS. In many instances, usability is often considered a synonym for "ease of use", which is a rather narrow, one-dimensional quality attribute of a user interface. Usability, however, is more than mere ease of use. It relates to many other aspects of a product or a system besides the user interface, as postulated by (Lee & Yang, 2013).

Usability is a measurable characteristic of a system, and in order to track down the concrete measurable aspects of usability, it is necessary to divide it into smaller components. Only after the components have been recognised will it be possible to set objectives for the system's usability, and to follow whether the objectives are being achieved. However, as Nielsen (1999) points out, usability is often considered within the broader context of system acceptability, from a societal and organisational perspective, as illustrated in Figure 1 below. Usability may then be described in terms of the usability attributes (usability components) which include learnability, memorability, efficiency and effectiveness, error, flexibility, users and their environment, and finally, subjective satisfaction (Nielsen, 1999; Nielsen & Levy, 1994).

The model contextualising usability as part of system acceptability is presented in Figure 2-1 below.

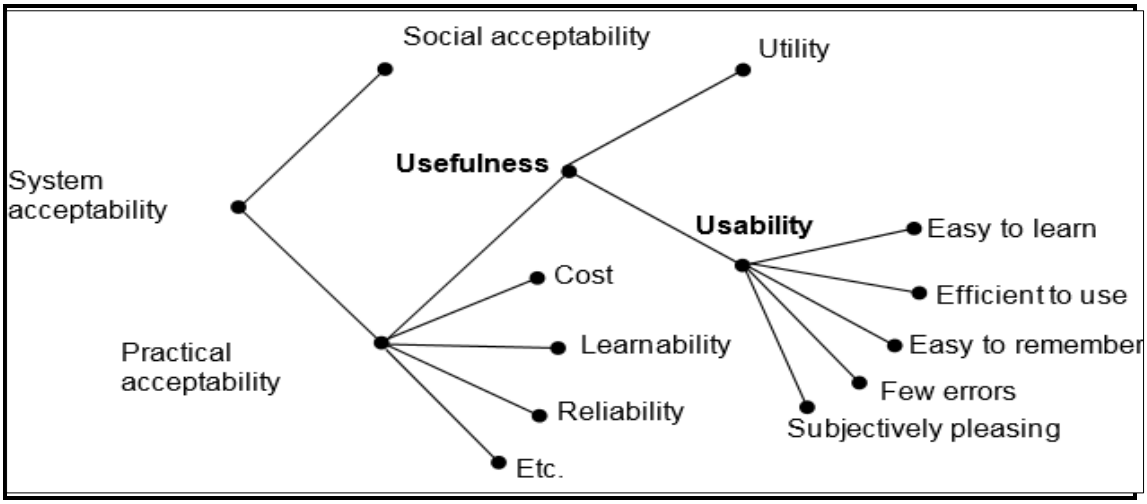

Figure 2- 1: Factors Affecting System Acceptability (adapted from Nielsen (1993))

An elaboration of the factors underpinning usability within the context of system acceptability is presented below:

Learnability may be referred to as the ease of learning. The first experience that a new user has with a software application is that of learning and practising how to use it. Learnability may be assessed in the light of time, effort, and training required to reach some specified level of performance. In practice, this translates to saying that the users should be able to rapidly start utilising the system for their real work, as conveyed by (Benitti & Sommariva, 2015; El-Halees, 2014; Kortum & Bangor, 2013; Myers, 2015).

Memorability is closely related to learnability. According to Myers (2015), the layman should be able to return to a software system after some time away from it without having to relearn it. Memorability may also be seen as retention of learning over time, as asserted by (Belanche et al., 2012). In terms of everyday life, memorability refers to the ease with which one remembers what to do and how to do it.

Efficiency and effectiveness (a reference to throughput): Once the use of a software system is learned, a high level of productivity should be attained by using it. More precisely, this refers to the correctness, exactness, and entirety with which users achieve goals, and the resources spent by the user in relation to the correctness and completeness. The speed of task completion is a straightforward way of measuring this aspect of usability (Andreasen, Nielsen, Schrøder, & Stage, 2015; Carvajal, Moreno, Sanchez-Segura, & Seffah, 2013; Dubey, Mittal, & Rana, 2012; Nielsen, 2003).

Errors may be defined as situations that inhibit the user from achieving a desired goal, thus hindering the efficiency and effective use of the system. There should be few error situations when using a system; if a mistake occurs, it should be easy to recover from, in other words without complexity. Error rate is a frequently used usability measurement (Ackerman et al., 2016; Ahmad, Butt, & Rahim, 2013; Andreasen et al., 2015; Benitti & Sommariva, 2015; Czerwinski, Horvitz, & Cutrell, 2001)

Users and their environment. A system or a product is always used for a reason: to accomplish a task. Therefore, usability always has to be considered in relation to its users, their characteristics, the context of their work, their work environment, and their tasks ((Constantine & Lockwood, 2002; Gondal, 2014; Hayat, Mayouf, & Lock, 2016). The usability feature flexibility is closely tied to users and their work environment: the system should enable its easy adaptation to the environment.

Subjective satisfaction. In the end, users decide whether a system is usable. Subjective satisfaction may be described as users' attitudes towards the system, users' perceptions, feelings and opinions of the system, or the comfort and acceptability of use ((Abran, Khelifi, Suryn, & Seffah, 2003; Andreasen et al., 2015; Belanche et al., 2012; Jokela, Laine, & Nieminen, 2013; Nielsen & Levy, 1994).

2.6. Background to Usability Evaluation

Human-computer interaction (HCI) is the field of research that is focused on usability. HCI is multi-disciplinary, combining various branches of science and the humanities. This includes computer science, cognitive psychology, ergonomics, engineering, sociology, philosophy, linguistics, inter alia. Other related fields of interest besides HCI focused on usability are, for example, HF (human factors), CHI (computer-human interaction), and USD (user-centred design) (Nielsen, 1993, Preece et al., 1994).

The design activities of HCI that aim at usability are requirements specification, user and task analysis, technical analysis, conceptual and formal design, prototyping, implementation, and usability evaluation, which all should be used iteratively. Usability evaluation at various stages of product or a system life cycle forms a crucial aspect of all HCI efforts (Preece et al., 1994).

The overall goal of usability evaluation is to measure how feasible the system is to its user: the aim is to find out and define the authentic usability of the system in real-life situations. Therefore, characteristics of the intended users, tasks, activities and their environment, and interaction between all of these aspects must be considered (Preece et al, 1994).

2.7. The Stages of Using an IS

Usability of a system is essentially related to the process of using the system (Guillemette, 1989). Jokela et al. (2013) propose that users go through three stages when using system:

- Searching: locating information relevant to a specific need;
- Understanding: interpreting the information; and
- Applying: carrying out the task where the information was needed.

Searching is defined in terms of ways by which the user of the IS can obtain the needed information. Searching means the information searching activities the user must conduct to gain

the information. Information should be available and accessible with as little effort as possible. Accessibility also entails that all necessary information should be available.

Understanding refers to how well the user is able to comprehend the real meaning of the documentation and to elicit the highlights of the documents. According to Guillemette (1989), comprehension of the documentation is influenced by factors such as language, representational forms, perceptual characteristics, and readers' expectations.

The third stage of using the IS suggested by Gumussoy (2016) is ***applying*** the information within the IS. Applicability suggests that a user is able to use an application effectively to find the relevant information and to perform the required tasks. Good applicability of IS requires that the system provides the user with exemplary conceptual (or mental) models showing ways in which to use the IS effectively.

2.8. Situational Factors

(Guillemette & Paré, 2012; Gumussoy, 2016) propose that usability requirements for the system should be differentiated according to three factors. The usable system must be:

- Customizable to a specific group of users;
- Able to performing the intended tasks; and
- Adaptable to a specific technological, physical, and social environment of working.

Somewhat similar views have been presented, for instance by Casaló et al. (2012). These three factors may be defined as the situational factors of usability. Situational implies that these factors have to be evaluated through the context in which the system is used, and cannot be defined absolutely (Guillemette & Paré, 2012). Every user group has its own requirements for the system, and the tasks and the environment, respectively. According to Guillemette (1989), an IS is user-usable, if it may effectively be used by a defined group of users, who possess expected competencies, skills, and knowledge.

In addition to the user role affecting usability criteria, users' work tasks and the working environment are also essential factors in formulating the usability criteria, and evaluating the usability of an information system. Guillemette (1989) suggests that documentation is task-usable, if users are able to retrieve and process needed information rapidly with little physical and mental effort.

The third situational factor is the working environment. This includes the physical, technical, and social working environment. An IS environment is usable if the system is accessible when and where needed, and may be used within the needed time and within acceptable economic constraints (Guillemette, 1989).

When determining the usability criteria for an IS (or any product), the situational factors need to be considered in the context of using the system. The previously presented issues related to the situational factors are summarised below in Table 1, showing each situational factor and the issues affecting the usability criteria that are related to it.

Table 1.1: The Clarke et al. (2012) Situational Factors Framework

Situational Factor	**Issues affecting the usability criteria**
User role	• role in the process of producing information (producer, custodian, customer) • role in the software development process (e.g. project leader, team leader, software engineer, quality engineer, technical writer) • background education • individual differences between users
Tasks	• purpose of using the system (reading to do, reading to learn, reading to learn to do) • interrelation between tasks related to system and other tasks
Working Environment	• physical environment (noise, privacy) • social environment (group work, individual work) • technical environment • availability of technical and other support

It should be noted that the three situational factors are closely related to each other. The user role is usually the most influential factor, since it has to some extent an effect on the work tasks and on the working environment. Still, all these factors should be considered when setting the usability criteria for an information system. By studying the situational factors of using the system, the usability criteria may be prioritised. Next, the Human Computer Interaction (HCI) aspect of the system is introduced.

2.9. Information System Usability Guidelines

Usability is dependent on the users. Information about the site's target audience is crucial: who are they, and what do they want? Other important cornerstones of the system-creation process are the knowledge of, firstly, the core purpose of the system, and secondly, the main objectives of the system (to educate, to entertain, to sell, amongst other aspects). All of the above-mentioned issues have an impact on the content that is to be provided, the structure, and the visual appearance of the system.

Content. The information that will be presented on the system should have a clear outline. It is advisable to think about the content by "chunks", page by page, a page or a chunk meaning one conceptual unit of content (Casaló et al, 2012). This also helps the organisation and structuring of the content. The writing of the content for a system differs from "traditional" writing, because users do not read the system pages word by word in the same way that a printed document is read: text that is on screen is "scanned" (Nielsen & Levy, 1994). This "scan-ability" may be increased by using relatively short sentences and paragraphs, by using meaningful subheadings and by highlighting important keywords. Other features of the text that increase usability are conciseness and objectivity.

Structure and information organisation. Even though the usage patterns of systems users are typically non-linear, a clear system structure must be formed. The structure must also be presented distinctively to the user, since most of the fundamental difficulties which users face when navigating within hypertext systems, arise from unfamiliarity with the structure and conceptual organisation of the system (Abran et al., 2003). Casaló et al. (2012) introduce six possible strategies for aggregating information: short unstructured lists, linear structures (calendar of events), arrays or tables (timetables), hierarchies and trees (concepts in e.g. sciences), multi-trees and faceted retrieval (photo indexes), and networks (journal citations). However, excessive complexity must be avoided: for example, while using a hierarchical arrangement it is suggested to use only four hierarchical stages or fewer.

Navigation. Designing system navigation is closely tied to the design of system structure. If the structure is disorderly, no navigation design can rescue it, as Nielsen (1999) points out. System designers often fail in creating usable and interactive systems where the users have a sense of location whilst navigating within the system. However, numerous navigational aids help users to recognise their position and their possibilities for moving forward. These navigational aids include navigation bars, tables of contents, site maps, index lists, and search facilities. Navigation must also be consistent throughout the system. According to Spool (1999), content cannot be

separated from navigation. There must be a balance between the amount of available space that is used for content and the space used for navigation elements in an information dense content page.

Visual design. It is advisable to establish a distinct visual identity for the system by using visual elements consistently. Coherent style gives the user a "sense of place" (Gondal, 2014; Gupta & Ahlawat, 2016). Settings such as the style for using graphics and text should be determined. These settings may include elements such as font type and size, paragraph spacing, size of headers, placing of icons, logos, and much more.

From the above-mentioned areas of system creation, the information architecture design is often observed to be difficult in real-world system projects. Systems are often produced to mirror the company's structure and internal concerns. Instead, systems should mirror users' tasks, needs, and views of the information space (Ahmad et al., 2013; Belanche et al., 2012; Pfaff, 2012). In addition, the designers of the systems often have technical backgrounds, and their mental models and way of thinking usually differ from the intended end users (Carvajal et al., 2013; Czerwinski et al., 2001).

2.10. Theoretical Framework

In terms of the usability of an IS, the study will be using the model provided by Nielsen (1993) (illustrated in Figure 1) as a basis from which the traits of IS usability will be drawn. It should be noted, however, that, whilst the Nielsen model provides a significant dimension with regard to the usability of an IS, it also makes reference to the social acceptability of using the system as well as the utility value that the system provides for the end-user. These dimensions of system usability seem to be intrinsically intertwined. This relationship is also expressed in the model of system usage proposed by Venkatesh et al. (2003), named the Unified Theory of Acceptance and Use of Technology (UTAUT) model. The UTAUT Model is a convergence of knowledge gleaned from eight acceptances and uses of IS models (Venkatesh et al., 2003). The model theorises that intention to use a technology is influenced by people's perceptions of performance expectance, effort expectance, social factors, and facilitating conditions. These attributes resonate well with the Nielsen model illustrated in Figure 1. However, the Nielsen model provides substantive elaboration of the usability characteristics that contribute to a successful user experience. Based on this observation, the current study will use the UTAUT model as the main theoretical framework. However, elements of system usability as proposed in Nielsen (1993) will be used to elaborate constructs that allude to system usability from the UTAUT model. The constructs of the original UTAUT model have been moderated by gender, age, experience, and voluntariness

(Venkatesh et al., 2003). However, since usage of the SASAMS is completely voluntary at this stage, the moderating influence of voluntariness was removed from the model. The moderating influences of age, gender, and experience have not been included as part of the current study. The reason is to ensure that the study remains within its stated scope. However, this omission is recognised as a limitation of the current study, and the inclusion of these moderating variables is recommended for a similar study, conducted as part of a larger research effort.

Studies by authors such as (Kijsanayotin, Pannarunothai, & Speedie, 2009) confirm the efficiency and robustness of the UTAUT model to predict acceptance and use of technology, thus the motivation for its use in this study. The incorporation of the Nielsen (1993) framework into the UTAUT model was necessitated in order to place emphasis on the usability issues that contribute to an end-user's acceptance of an IS. The current study gains its advantage from the robustness of the UTAUT model (which was able to explain 69% of intention to use IT (technology acceptance)) while previous models explained approximately 40% of technology acceptance (Kijsanayotin et al., 2009)**.** This amalgamation of the Nielsen model and the UTAUT model will be used as the conceptual framework underpinning the current study. This framework is illustrated in Figure 2-2 below.

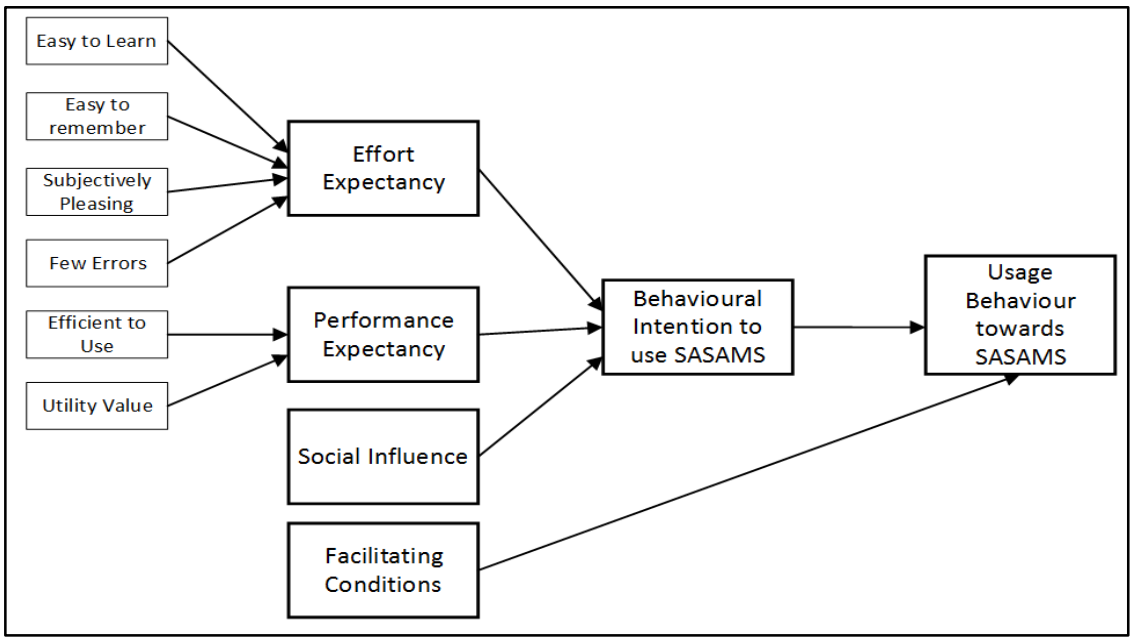

Figure 2- 2: An Adaptation of the UTAUT model (consisting of an integration with the Nielsen Usability Model)

There are a number of factors which affect the usage behaviour towards the SASAMS (Figure 2-2). These include factors oriented towards effort expectancy such as the system should be easy to learn, easy to remember, subjectively pleasing to experience and has only minimal errors. There

should be efficiency in the use and utility value of the SASAMS such that there is performance expectancy. Thus the behavioural intention of the various stakeholders to use the SASAMS in Mpumalanga Province will be driven by effort expectancy, performance expectancy, social influence, and the facilitating conditions. In the end, the facilitating conditions and behavioural conditions to use the SASAMS can affect usage behaviour. From Figure 2-2, there are a number of factors which are integrated, and affect the usage behaviour towards the SASAMS in Mpumalanga Province.

2.11. Significance /Contribution of the study

Despite the lack of literature in terms of usability of a system in the context of South Africa, one of the outcomes of the current study is to provide policymakers and software developers with a set of guidelines that may be useful in informing the analysis and design phases and enhancements of new versions of the information system. The study will also add value to the academic world, and prompt further studies on usability of other software packages used by the Department of Education or other government departments. It is also envisaged that the study will contribute to increased usage of the SASAMS, thereby providing better access to information that will lead to improved decision-making in the education sector.

2.12. Conclusion

It is evident from the literature that usability of software systems has gained a great deal of attention from industry and academia. The main objectives of the literature study are the following:

- Engage in an inquiry on issues of system acceptance and software usability;
- Establish the main criteria that underpin software usability;
- Develop a conceptual model for the study so that the model has a strong resonance with established models of system acceptance and software usability.

The discussion in the literature review culminated in the development of a conceptual theoretical model to underpin the requirements of the current study. The theoretical model that has been developed is based on the UTAUT model that has been validated as a leading framework for establishing system acceptance. This model has been supplemented by the inclusion of criteria to measure the usability of a software system. These criteria have been extracted from the works of Jakob Nielsen, a leading author in the field of software-system usability. Hence, the literature review has laid the academic foundation for the empirical component of the study.

CHAPTER 3

3.1. Introduction to the Research Methodology

The purpose of this chapter is to explain the research methodology that was used for the study to evaluate the usability and end-user acceptance of the SASAMS, an education-management software system. The chapter comprises the following sections: research design and purpose, research strategy, research population and target, sample size, data-collection methods, and the tools employed in the research. There is also a discussion of the methods of data analysis as well as issues of validity, reliability, and ethical considerations pertaining to data collection and analysis.

3.2. Research Design

Cooper (2003) defines a research design as an activity that entails a series of systematic steps to accomplish the study, and a time-based plan which is founded on the research question and is a guide for selecting sources and types of information. Cooper (2003) added that it is a framework, which outlines relationships amongst the study's variables and all the research activity. Yin (2014) simply defines a research design as a rationale that links the research questions to the data collected and conclusions drawn. However, Creswell (2013) stated that research design may therefore be defined as an outline of all stages that are involved in the collection of data, including techniques that are being employed, with the steps that will be taken to analyse the data. Although there are numerous definitions of research design, the above three definitions are appropriate in the context of the current study by enabling the researcher to identify the steps that the study followed in data collection in trying to answer the research questions.

3.3. Research Methods

Quantitative research methods involve the measurement and analysis of numerical data, and the use of statistical packages. Quantitative research methods were originally developed for the study of phenomena in the natural sciences domain (Myers, 1997) but are now widely used in social sciences research. Typical methods of collecting data in quantitative studies include experiments, surveys, or questionnaires Myers (1997); Oates (2006); and Olivier (2004). Findings from quantitative research may be generalized to the entire population (Oates, 2006; and Olivier, 2004), although generalization is also effective in studies in which data is required from subjects who meet specific criteria aligned to the objective of a study. In the case of the latter, this is known as a purposive approach to data collection. The current study makes use of such an approach. The

objective is to obtain an insight into the usability of the SASAMS provided by relatively experienced users of the system.

The researcher was faced with a choice of either a quantitative or qualitative approach to the study. Whilst (Panneerselvam, 2014) acknowledged that the qualitative approach is beneficial in providing a deeper insight into the usability of the SASAMS, the conceptual framework underpinning the study is aligned with questionnaire items that have been validated to be reliable indicators of system acceptance by (Venkatesh, 2009) and usability assessment by (Nielsen, 1999). Hence, the decision was taken to use these questionnaire items as part of a quantitative inquiry into the acceptance and usability of the SASAMS. The use of the questionnaire offers more flexibility, and tends to have a greater and more rapid response rate which may result in a more precise analysis of the data (Flick, 2015) and (Dix,2009, p.349).The strategy used for the current study is the survey approach. A questionnaire will be disseminated to the end-user sample of the SASAMS either via an emailed software version or a hard copy version. Although the physical distribution of questionnaires has been a method used traditionally, an email or soft copy questionnaire also provides the researcher with advantages such as having wider access to data sources at lower expense (Cohen, Manion, & Morrison, 2013). To reduce low response rate associated with emailed questionnaires, the researcher send reminders to non-responders and encouraged full participation in the survey. The questionnaire will be framed around the usability criteria identified in the literature review section of the current study. According to (Flick, 2015), research methodology is a reference to the plan or strategy that will be followed in achieving the objectives of the study. The selection of the data-collection methods and the strategy adopted for this study are discussed in the subsequent sections.

3.4. Selecting Research Methods for the Empirical Study

When studying the usability of a system and the situational factors that underpin usage of that system, an exploratory approach to the study is ideal (Orfanou, Tselios, & Katsanos, 2015).
The main challenge with regard to the research design for the current study is to establish that the selected approach is appropriate, and that the sampling strategy is valid. Much guidance is provided in this regard by David et al. (2015) who suggest that the 2 main approaches to usability evaluation are empirical user testing and a usability inspection involving experts in the field of human computer interaction who perform a [1]heuristic evaluation (also confirmed in Dix (2009, p.

[1]A usability inspection method for software that helps to identify usability problems in the user UI design

345)). David et al. (2015) and Dix (2009) are of the opinion that empirical user testing involving typical end-users who have interacted with the application under review has greater validity than the expert-based approach of usability testing. These sentiments are echoed in the comment by Dix (2009, p. 348) that "…*the best way to find out how a system meets user requirements is to ask the user*". The second aspect under deliberation is the issue of the number of survey participants. Dix (2009) reminds us that the first criterion is that the participants have to be either experienced or novice users of the system. The question of the number of users who are deemed to be appropriate for a usability study is addressed extensively in Nielsen and Landauer (1993) and David et al. (2015). In an article by Nielsen and Landauer (1993), a number of simulations were run to determine the ideal number of respondents for a user-based usability test. The outcome of this experiment was that, for a system that has a large user base, the optimal number of respondents is 20. Hereafter, the law of diminishing return applies, as fewer and fewer problems are identified by adding new users to the study.

As mentioned previously, the usability of a system is essentially related to using the system. When studying the usability of system, there is a need to concentrate on studying how suitable the system is for the work tasks or the users. Bevan et al. (2015) contextualised the preceding statement by referring to the context of use (COU). The COU is a reference to "…all potential contexts of use (when considering overall usability)" Bevan et al., (2015). The focus of the current study is about the overall usability and acceptance of the SASAMS and in terms of the specific core tasks that school personnel performed by the SASAMS, the following functions were identified:

- Capture student and staff information;
- Capture payment of school fees;
- Capture class test and examination marks;
- Produce student and staff reports;
- Produce reports of school fee payment and collection; and
- Produce reports of academic performance by pupils.

Dix (2009) makes the point that Task Analysis is a step by step analysis of the user tasks from the end user's perspective. This perspective provides an indication of the ease with which a task may be accomplished via the user interface and the ease with which an end user is able to access the functionality provided by a software system.

3.5. Research Site and Settings

A research design specifies a site and setting of where the study will be conducted. The site is the overall location in which the research will be conducted. A setting refers more to the specific

place at which the data will be collected. An example on this research would be a particular circuit within a particular district of an entire province.

3.5.1. Study Site

According to Polit and Beck (2004), a study site is defined as the physical location at which the research will be conducted. For this research, the study site is all 45 schools that use the SASAMS in the Piet Retief Circuit, under the Gert Sibande District in the Mpumalanga province in South Africa, which has a total of 221 schools.

3.5.2. Study Sample

The selected participants in the study were mainly administration clerks from all the schools that use the SASAMS. The questionnaires were delivered to 45 administration clerks. The rationale behind this strategy was that the SASAMS usage had not been widespread and had been restricted to the administration clerks. However, there were other education personnel who had used the SASAMS at some of these schools. These staff members were also invited to participate in the study.

3.6. Ethical Consideration

This research took into consideration a number of ethical issues. Firstly, permission had to be obtained from the Mpumalanga Department of Education to conduct the research in the schools in Piet Retief Circuit. Secondly, after the permission had been granted **(APPENDIX B**), ethical clearance for the study was obtained from the Humanities and Social Sciences Research Ethics Committee **(APPENDIX B**). Once this had been granted, permission was also to be obtained from the principals of the affected schools, and the Education Circuit Manager. The consent of all participants in the study was also acquired. The participants were informed of the voluntary nature of the study and of their individual right to withdraw at any point in the study. All participants were guaranteed anonymity in order to uphold their confidentiality.

3.7. Target Population

According to Palys (2008), a target population is defined as the entire group of individuals or objects having specific characteristics to which the researcher is interested in generalizing conclusions. The targeted population in this study will be composed of a total of 45 secondary, combined and primary schools that use the SASAMS within the Piet Retief Circuit. The

researcher carried out a research based on the selection of representatives of three (3) groups, each representing secondary schools, combined schools and primary schools.

3.8. Sampling Strategies

McMillan and Schumacher (2014) refer to a sample as a group of individuals from whom data are collected. They argue that sampling is an activity of selecting participants from a larger group. There are many types of sampling, such as convenience, purposeful, and snowball sampling. In this study, the researcher made use of the combination of the purposive and convenience sampling methods, which are non-probability sampling techniques. Cohen et al. (2013) defines convenience sampling as non-probability sampling. This comprises of the sample being taken from that portion of the population which is easily available and accessible to the researcher. According to Tong, Sainsbury, and Craig (2007), convenience sampling (also known as grab or opportunity sampling) is a non-probability sampling method whereby participants are selected because of their closer proximity to the researcher. In the context of the current study, the SASAMS is being utilised by selected schools in all the provinces of South Africa. From a convenience perspective, the researcher's sample population was chosen because it is easily and conveniently accessible. The researcher used convenience sampling to select all primary schools and high schools in Piet Retief, as they are all currently making use of the SASAMS.

Purposive sampling (also commonly called a judgmental sample), on the other hand, is one in which participants are selected based on the knowledge of targeted subjects and the purpose of the study (McMillan & Schumacher, 2014).The subjects are chosen based on certain characteristics. Palys (2008) argues that in purposive sampling, the sample is chosen because the participants are typical or representative of the study phenomenon, and because they are knowledgeable on the question at hand. Aligned with the strategy of purposive sampling, the main target was to acquire responses from the administration clerks in each of the schools selected. The administration clerks in these schools have all received training and are experienced users of the SASAMS. The purposive sampling approach has thus been perceived as ideal for the purpose of the current study.

3.9. Sample Size

McMillan and Schumacher (2014), refer to a sample as a group of individuals from whom data are collected. Maree (2007) highlighted that one very important consideration is the size of the sample when it comes to sampling. He further stated that, "it would be disastrous to come to the phase of data analysis and then realize that the sample is too small and that a certain subgroup of

the population is not sufficiently represented in the sample". In order to obtain an accurate view of users' perceptions of the usability of the SASAMS, as well as their perceptions on how the usability of the SASAMS could be enhanced, the researcher made an appeal to the principals and administration clerks of all 45 schools. There was a total of 43 responses received, attesting to the acceptance and usability of the SASAMS.

3.10. Pilot Study

Before the questionnaire was fully used for data collection, the researcher had to conduct a pilot testing of the instrument. Pilot testing is the trial use of a questionnaire on a small number of participants prior to conducting the actual research (Phelas et al., 2011). Thus, the pilot study was conducted on the accurate view of users' perceptions of the usability of the SASAMS, as well as their perceptions on ways in which the usability of the SASAMS could be enhanced. The people chosen to participate in the pilot study were excluded from the final sample, as their experience of the earlier questionnaire or interview would have influenced their responses to the questionnaire proper. The questionnaires were pre-tested before the actual survey, and corrections and additions were made. The questionnaires were tested on a sample of three respondents in each stratum. Observations from the pre-test include:

- All respondents had busy schedules; the researcher had to persuade them to complete the questionnaires;
- The questionnaire was rather too long, requiring more than 30 minutes to complete. Some questions did not capture all possible responses, specifically, closed questions; and
- Respondents were not comfortable to reveal how they perceive the usability of the SASAMS.

Through the pilot survey, the questionnaire was refined, and problem questions were modified, so that respondents would not have difficulty in completing the survey. Pilot testing enabled assessment of the questionnaire validity and the reliability of the data that would be collected.

3.11. The Usability Questionnaire

One of the important prerequisites of research is data collection. There are myriads of data-collection techniques, such as interviews, focus groups, surveys, telephone interviews, and/or questionnaires, (Goodman, Cryder, & Cheema, 2013). To evaluate the usability of an information system, the data was collected through questionnaires. A questionnaire was used because it is

particularly effective for assessing programme satisfaction, and the instrument is easily administered. Bouffard and Little (2004) and Maree (2007) suggest that questionnaire design is an important part of the research process, since it is where the data is captured. When the questionnaire is designed, the researcher has to keep in mind the type of data generated by the questions, and the statistical techniques used to analyse it.

For the purpose of determining end-users' perceptions and acceptance of the usability of the SASAMS, and how end-users' perceptions contribute towards enhancing the usability of the SASAMS, questionnaires was used. The aim was also to obtain some quantitative information to support the usability evaluation of the system. Therefore, the number of all the respondents was approximately 45 administration clerks, equivalent to the number of all the schools in the Piet Retief circuit using the SASAMS, and the questionnaire was composed of eight sections.

Questionnaires were used to collect the data to gain a better understanding of end-users' perceptions and acceptance of the usability of the SASAMS and ways in which end-users' perceptions contribute towards enhancing the usability of the SASAMS. According to Dinerman (2002), a questionnaire offers more flexibility, and tends to have a greater and more rapid response rate, which can result in a more precise analysis of the data. The questionnaires were distributed to the respondents through the circuit office. This mode of questionnaire distribution provides the researcher with certain advantages, such as having access to all schools within a short space of time; and low expense, while eliminating travelling costs and labour issues (Swanson & Holton , 2005). This method was chosen, the principals being required regularly to visit the circuit and check their cubbyholes.

The total duration for distributing and returning of the questionnaires from all respondents was three weeks. One week was allocated for distributing the questionnaire, and two weeks were given to follow-ups. The respondents were given a maximum of two weeks to return the questionnaires, avoiding pressurizing them. To ensure that the questionnaires reached the intended participants and a better response rate achieved, a cover letter/instruction form explaining the purpose of the study was sent to participants. In order to achieve high-quality responses, a four-point Likert scale was used.

The responses were collected, stored, and encrypted in a database in the researcher's personal computer, accessible only to the researcher, protected by a password, and also on a secure socket-layer cloud account which the supervisor can access any time. The researcher, his and supervisor and institution assure confidentiality, and the voluntary nature of the survey. Other informed

consent information was obtained at the time of the administration of the questionnaire. All records were kept secured, and only the researcher had access to the results.

The steps used to collect data were as follows:

Step 1: Via the circuit office, the researcher distributed questionnaires to targeted individuals, requesting them to participate in the research survey. The letter contained detailed information on how to complete the questionnaire, when the questionnaire was due, and where to return it once the questionnaire was completed. Contact details were also given in case the respondents needed further clarification.

Step 2: The first reminder was sent to the circuit office a week before the due date during the time all schools submit their SASAMS electronic database and results analysis. .

Step 3: The second and the final reminder was sent two days before the questionnaires were due.

Step 4: No further correspondence was sent after the due date.

3.12. The Research Problem Aligned to the Questionnaire

A questionnaire was designed (see Appendix D) to be used as an instrument for data collection that will enable the evaluation of the research problems identified in Section 1.2 of this document.

A structured survey questionnaire was developed. The questionnaire comprised 8 sections, from Parts 1 to 8. Part 1 was used to collect the demographic and background information of the respondents. The questions about the background of the participants were constructed to gather information about gender, age, job title or position, length of service in the position, duration of using the SASAMS, and years of computer or management-system software usage. Parts 2 to 7 comprised questions that were used to ascertain the usability and acceptance of the SASAMS by a cohort of end-users. The response categories were based on a five-point Likert-type scale, ranging from (a) strongly agree to (e) strongly disagree. The higher the level of agreement, the higher the end-users' perceptions of the usability of the SASAMS. Part 8 was used to elicit information regarding possible enhancements that could be made to the SASAMS allowing it better to conform to end-user expectations of the system.

3.13. Bias in Research Sampling

According to Leedy and Ormrod (2005, p. 208), bias is described as any influence, condition, or set of conditions that singly or together distort the data. The researcher acknowledges that, although not intended, the presence of bias cannot be entirely eliminated. Leedy and Ormrod

(2005, p. 209) cited that research bias can creep into the research project in a variety of subtle and undetected ways, attacking the integrity of facts. Leedy and Ormrod (2005, p. 210) suggested several strategies cited by Rogelberg and Luong (1998) for identifying possible bias on the research questionnaire. These are:

> a. Carefully scrutinising the questionnaire for items that might be influenced by one's educational level, interest in the topic, or other factors that frequently distinguish respondents from non-respondents;
> b. Compare the responses on questionnaire that were returned quickly with responses that were returned later, perhaps after a second reminder letter, or after the deadline imposed. The late ones may, to some extent, reflect the kinds of responses that non-respondents would have given. Significant differences between the early and the late questionnaire probably indicate bias in the questionnaire; and
> c. Randomly select a small number of non-respondents, contacting them by mail or telephone. Present an abridged version of the survey, and, if some people reply, match the answers against those in the original set of responses.

The above guidelines were used by the researcher to minimise and detect as much bias as possible with the dataset. It should be noted that all individuals who identified as part of the purposive sample gave a tentative undertaking to participate in the study. They were assured of the strictest confidentiality with regard to their responses, and were also guaranteed complete anonymity.

3.14. Data Analysis

In this study, descriptive and inferential statistics were used to analyse the data, more specifically, the frequency distribution. Quantitative data was analysed using the Statistical Package for Social Sciences (SPSS). Data was coded and entered into the SPSS computer package for analysis. The analysis of quantitative data included running descriptive statistics, cross-tabulation and the analysis of the statistical relationships. Questionnaires returned by the participants were analysed by summarising the participants' ratings to specific statements in the questionnaires. The data was analysed using a Spreadsheet Package and the SPSS statistical package. From the frequency of respondents, frequency distribution graphs were drawn; the mean scores, variances and standard deviation will be calculated. As proposed by Nielsen (1993), many aspects of usability may be best studied by simply "asking the users" information about users' opinions which may be collected by questionnaires. The questionnaires were administered either on a face-to-face basis, or via the Education Department Circuit office.

3.15. Limitations of the study

An obvious limitation of the study is the lack of generalizability of the study, owing to the purposive sampling approach. However, it should be noted that this study is strongly exploratory, because the SASAMS package is only being released with incremental functionality to selected schools in South Africa.

3.16. Conclusion

To evaluate the end-users' perceptions of the usability of SASAMS and ways in which these perceptions contribute towards enhancing the usability of SASAMS, a survey was conducted. Chapter Three provided an in-depth description about the research methodology used for the study. In-depth details were given about the research design and research approach used in the study; the ethical consideration of the study, together with permission and clearance to conduct research from the respective institutions; the target population, sample and sample size; data-collection instruments and procedures; and reliability and validity of the instrument. A brief explanation of the questionnaire has been provided in order to establish a proper context for the data analysis that will follow in the next chapter. The validity and reliability of the instrument was also examined. Descriptive statistics, multiple regression analysis, means, variance, standard deviation and ANOVA was conducted. The data analysis and interpretation of findings will be described in greater detail in Chapter 4.

CHAPTER 4

4.1. Introduction to the Data Presentation and Analysis

The chapter gives an account of the research findings. Data presentation, analysis of the gathered data, and a discussion of the analysed data is given. The general overview of the survey, questionnaire response rate, demographic background, and evaluation of the end-users' perceptions of the usability of the SASAMS is reflected. Ways in which these perceptions enhance the usability of the SASAMS are presented, analysed, and discussed in this chapter.

4.2. Statistical Tests

The following statistical tests will be used in the analysis of the study's data:

- Descriptive statistics, including means and standard deviations, were used. Frequencies are represented in tables or graphs.
- Regression analysis: Linear regression estimates the coefficients of the linear equation, involving one or more independent variables that best predict the value of the dependent variable.
- Kruskal Wallis Test: Non-parametric equivalent to ANOVA. This is a test for several independent samples that compares two or more groups of cases in one variable.
- Mann Whitney U Test: Non-parametric equivalent to the independent samples t-test.
- Pearson's correlation: Correlations measure ways in which variables or rank orders are related. Pearson's correlation coefficient is a measure of linear association.
- One sample t-test: This tests whether a mean score is significantly different from a scalar value.
- Independent samples t-test: A test that compares two independent groups of cases.

The tests listed above would enable the researcher to obtain overview knowledge of the usability of SASAMS (via the means and standard deviation statistics). The Linear regression and correlation analysis would be used to determine if the main constructs used in the study (Effort Expectancy, Performance Expectance, Social and Facilitating Conditions) determine the end user's behavioural intention to use SASAMS. The t-tests will be used to confirm whether the aggregate values (mean and median) to the individual questionnaire items are significantly different from a neutral value. Demographic characteristics of respondents.

The following section provides an overview of the demographic profile of the sample used in the survey of participants. The response rate gives the researcher the opportunity of judging the

relevance of the research results, ascertaining whether percentages of respondents who were able to respond are adequate to facilitate meaningful explanation and analysis of the data. For this study, a total of 43 questionnaires were given out to respondents; all the questionnaires were returned to the researcher, indicating a 100% response rate. Thus, from this response rate, the researcher will interpret and analyse the gathered data, starting by showing a response rate for all research instruments used.

In this study there was the need to have a demographic profile of the respondents so as to have an understanding of ways in which the demographic characteristics affected the overview of the survey, the questionnaire response rate, the demographic background, and evaluation of the end-users' perceptions of the usability of the SASAMS, including ways in which these perceptions contribute towards enhancing the usability of the SASAMS. The gender of the respondents is presented in Figure 4.1.

4.2.1. Gender of Respondents

The gender of the respondents are illustrated in Figure 4-1.

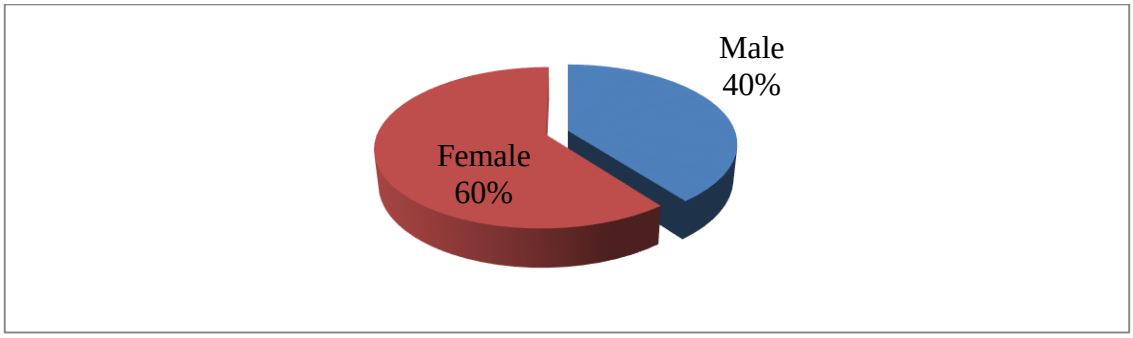

Figure 4- 1: Gender of Respondents

From Figure 4.1, it can be seen that 60% of the respondents were female, with 40% of the respondents were male. From the table it may therefore be observed that, in this study, there were more females than males who responded to the questionnaire.

4.2.2. Job title of Respondents

The results in which are presented in Table 4.1 show the job titles of the respondents used in this study. From Table 4.1 it can be noted that 76.7% of respondents were administration clerks, 7 % were educators using the SASAMS, 4.7 % were heads of departments (HODs), and 11.6% of the respondents were school principals. The majority of the users of the SASAMS in school were administration clerks whilst the least represented from a job category perspective were the HODs.

The number of representatives, according to job title, was deliberately engineered because it is reflective of the typical end-users who will engage with the SASAMS on a daily basis.

Table 4.1: Job Title of Respondents

Job title	Frequency	Percent
Admin Clerk	33	76.7
Educator	3	7.0
HOD	2	4.7
Principal	5	11.6
Total	43	100.0

4.2.3. Age and Experience of Respondents

In order to have a general impression of the experience which respondents had in their various working positions, the age of the respondents and the experience in using the SASAMS, there was need to calculate the descriptive statistics. Thus Table 4.2 indicates the descriptive statistics for age and experience of the respondents.

Table 4.2: Age and Experience of Respondents

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	42	23	54	34.83	8.422
Years of experience as a school administrator	42	1	20	5.33	4.281
Years of experience as a school educator	10	1	28	14.30	11.767
Years of experience in school management	14	1	20	5.93	5.717
Years of experience in using SASAMS	40	1	8	3.60	2.307
Years of experience in general use of management software	36	1	15	5.00	3.505

The results presented in Table 4.2 indicates the age of all the respondents combined. Thus the average age of the respondents was 35 years. The youngest respondent was 23 years old; the

oldest respondent was aged 54 years. The average working experience for the respondents varied between the job titles. However, it may be noted from Table 4.2 that the average experience was highest for school educators (14 years), and lowest for school administrators (5 years). The maximum number of years of experience in terms of usage of the SASAMS is 8 years; and the least was one year, giving an average of 6 years. The results presented in Table 4.8 indicate that the SASAMS has been in use for some time. However, it should be noted that usage of this package has thus far been optional. The current year (2017) heralds the start of a mandatory phased-in approach towards usage of the package by all schools that fall under the jurisdiction of the Department of Basic Education. With regard to experience in the general use of management software, respondents indicated an average experience of 5 years, a minimum of 1 year, and a maximum of 15 years.

4.3. Overview of the Questionnaire Design

The questionnaire was designed using a 5-point Likert scale that was calibrated as Strongly Disagree (coded as 1), Disagree (coded as 2), Neutral (coded as 3), Agree (coded as 4), and Strongly Agree (coded as 5). All questions were positively worded towards the concept/aspect that was being measured. Table 4-3 provides a reference to the concepts covered in the questionnaire.

Table 4.3: Concepts Covered in Questionnaire (Appendix D)

Questionnaire Number	**Concept**
Part 1	Demographic and background information of research participants
Part 2 (1-4)	Performance expectancy
Part 3 (5-8)	Effort expectancy
Part 4 (9-11)	Social Influence
Part 5 (12-)	Facilitating conditions
Part 6 (15-16)	Behavioural intention
Part 7 (17-18)	Type of usage
Part 8 (19)	Suggested enhancements

4.4. Empirical Values for each Construct

The research findings presented in Table 4.4 shows the final values of each construct by the gender of the respondents. Thus the descriptive statistics were used in explaining the mean, standard deviation and standard error of mean of each construct used in the study.

Table 4.4: Group Statistics of Final Values of Each Construct

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Years of experience in using SASAMS	Male	16	3.25	2.049	.512
	Female	24	3.83	2.479	.506
PE	Male	17	1.7206	.63666	.15441
	Female	26	2.0096	.76968	.15095
EE	Male	17	1.9706	.75974	.18426
	Female	26	2.6154	1.02037	.20011
SI	Male	17	1.9412	1.02899	.24957
	Female	25	2.2400	.83066	.16613
FC	Male	17	1.9020	.68480	.16609
	Female	26	2.0256	.48920	.09594
BI	Male	17	1.7941	.66283	.16076
	Female	26	1.8654	.45951	.09012

Results of the study presented in Table 4.4 indicate that females (mean=3.83, SD=2.479) had a slightly higher experience in years of using SASAMS than their male counterparts (mean=3.25, SD=2.049). Results of the study shows that males (M=1.9706, SD = .76) perceive the SASAMS to take less effort than females do (M = 2.6154, SD = 1.02), T (40.205) = -2.370, p=.023). Thus there are significant differences in the performance expectancy between male and female respondents. From the results presented in Table 4.4, it was noted that females (mean=2.6154, SD=1.02037) had a higher effort expectancy than males (mean=1.9412, SD=0.75974). The research findings indicated that females had a higher social influence (SI) than males towards the behavioural intention to use SASAMS. From table 4.4 it can be noted that the facilitating

conditions (FC) and Behavioural Intention (BI) were higher in females and males towards the usage of SASAMS. The final analysis tested whether average scores for the constructs differ significantly by age, gender, or position. For this analysis, independent samples: t-test/Mann Whitney test (gender); Pearson's correlation (age); and ANOVA/Kruskal Wallis (position) were used. The results show that both parametric and non-parametric tests were applied, with results the same for both.

4.5. Current State of Usability of SASAMS

Respondents were asked to answer questions on a 5-point Likert scale on how useful the SASAMS was to their administrative duties. Figure 4.2 indicates how useful the SASAMS was to their administrative duties. The majority of the respondents (58%) agreed that the SASAMS was useful in achieving their administrative duties. A further 35% of the respondents indicated that they strongly agreed that SASAMS was important to their administrative duties. However, a few respondents indicated that they were neutral (2%) and another 5% disagreed that the SASAMS was useful to their administrative duties. Presented in Table 4.5, overall it may be noted that the majority (combining 58% who agreed and 35% who strongly agreed) indicated that the SASAMS was useful in their administrative duties.

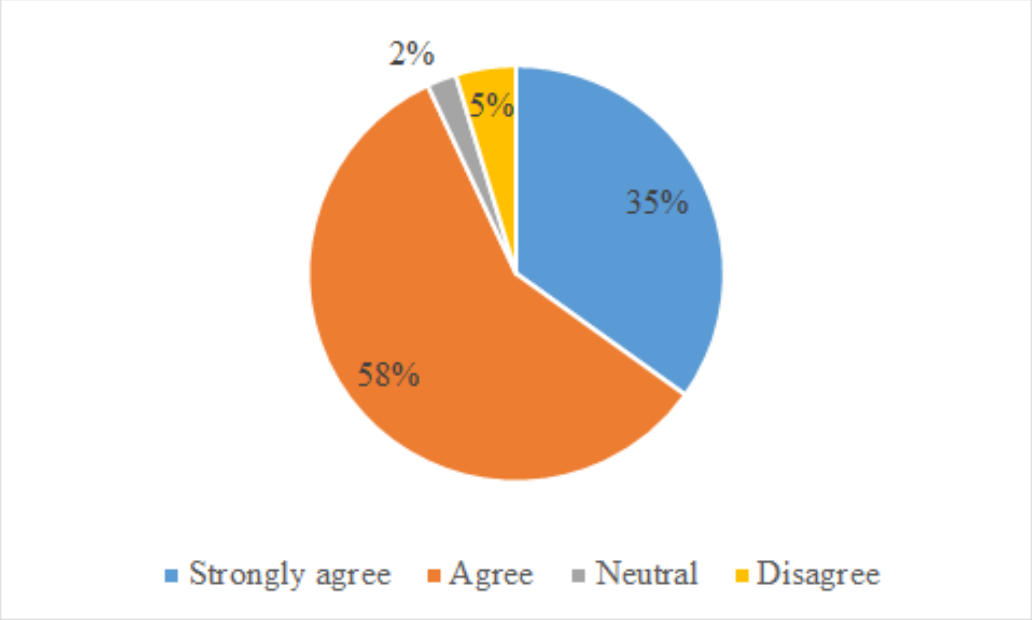

Figure 4- 2: Usefulness of SASAMS for Administrative Duties

Figure 4.2 represents an endorsement (93% positive response) by the cohort of end users that the SASAMS package does provide a useful services that support the administration activities in a school.

4.6. SASAMS and Quick Completion of Tasks

The study determined how SASAMS would enable the quick completion of tasks for the respondents. The responses are presented in Table 4.5.

Table 4.5: SASAMS Enables Quick Completion of Tasks

	Perception	Frequency	Per cent
Valid	Strongly agree	14	32.6
	Agree	17	39.5
	Neutral	10	23.3
	Disagree	2	4.7
	Total	43	100.0

Results presented in Table 4.5 indicated that there were mixed perceptions amongst the respondents. However, it may be noted that the majority of the respondents generally agreed that the SASAMS enabled the respondents to achieve speedy and timeous completion of their tasks. About 40% of the respondents indicated that they strongly agreed that the SASAMS enabled them to perform their tasks efficiently and on time. Some 23% of the respondents indicated that they were neutral on whether the SASAMS enabled them to complete their tasks quickly and timeously; with 5% of the respondents disagreeing with the quick completion of tasks per the SASAMS.

The study findings further revealed that the use of the SASAMS enhanced the productivity of the respondents on the job. To further strengthen the results that have been presented above, there was a need to test for the strength of agreement on the SASAMS, together with the efficient and timeous completion of administrative duties. There was also a need to test for the strength of agreement on the SASAMS the system's facilitating productivity of and related activities more quickly and efficiently.

In order to ascertain whether there is significant agreement/disagreement with the acceptance variables that were used in the questionnaire, the average response to each question was computed (Table 4.5). Responses were then compared with a neutral value of 3 (an approach that is extensively deliberated and endorsed in Tsang (2012). The significance of the difference between the mean response and the neutral value of 3 is subjected to validity testing via the t-test. The t-test results in Table 4.6 have indicated that there is *significant agreement* that: the SASAMS would be useful in performing administrative duties (**M=1.77**, SD = .718), t (42) = -11.251, p<.0005); the SASAMS would enable tasks to be completed quickly and on time (**M = 2.00**, SD = 1.009), t (42) = -7.512, p<.0005). The SASAMS would facilitate the job and related activities

much more quickly (**M=1.93,** SD=1.009) (t(42)=-6.950, p<0.005)); and the SASAMS enhances job productivity (**M=1.88,** SD=0.956) (t(42)=-7.654, p<0.005)). Therefore, from the results presented in Table 4.6 it may therefore be inferred that the use of the SASAMS was beneficial to the user (time and speed of completing the task), enhancing job productivity; also, related activities could be completed quickly.

Table 4.6: SASAMS and Performance Expectancy

Question		Test Value = 3					
						95% Confidence Interval of the Difference	
	Mean	T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
PE1 The SASAMS would be useful for me in performing my administrative duties.	1.77	-11.251	42	.000	-1.233	-1.45	-1.01
PE2 Using the SASAMS would enable me to complete my tasks quickly and on time.	2.00	-7.512	42	.000	-1.000	-1.27	-.73
PE3 Using the SASAMS would help me to accomplish my tasks and related activities much more quickly.	1.93	-6.950	42	.000	-1.070	-1.38	-.76
PE4 Using the SASAMS would enhance my productivity on the job.	1.88	-7.654	42	.000	-1.116	-1.41	-.82

4.7. End-user Intention Using SASAMS

4.7.1. SASAMS is Easy to Learn and Operate

Research findings indicated that most of the respondents found the SASAMS easy to learn and to operate (Table 4.7). Specifically, 42% of the respondents indicated that they agreed that the SASAMS was easy to learn and operate, whilst another 26% strongly agreed that management system software was easy to learn and operate. Therefore, there was a high level of agreement between the respondents on the ease of learning and operating the software. However, it should be noted that there were some 21% of the respondents who also indicated that they disagreed with the notion that the SASAMS was easy to learn and operate. Only 9% of the respondents indicated that they had a neutral opinion towards the ease of learning and operating the SASAMS. A plausible outcome is that a majority of the respondents found that the SASAMS was easy to learn and operate.

Table 4.7: Ease of learning and operating the SASAMS

Perception	Frequency	Percent
Strongly agree	11	25.6
Agree	19	44.2
Neutral	4	9.3
Disagree	9	20.9
Total	43	100.0

4.7.2. SASAMS is User-friendly

Table 4.8 indicates the extent to which the SASAMS system is user-friendly. There were mixed perceptions from the respondents on the extent to which the system is user-friendly. Forty per cent of the respondents agreed that the SASAMS system is user-friendly, 28% strongly agreed that the system was user-friendly, 9% of the respondents indicated that they were neutral towards the user-friendliness of the SASAMS system. Twenty-three per cent of the respondents indicated that they disagreed with the notion that the SASAMS system was user-friendly. From an overview

perspective, a majority of 68% of the respondents agreed that the SASAMS was a user-friendly package.

Table 4.8: SASAMS is User-friendly

Perception	Frequency	Per cent
Strongly agree	12	27.9
Agree	17	39.5
Neutral	4	9.3
Disagree	10	23.3
Total	43	100.0

4.7.3. SASAMS is Clear and Understandable

The respondents were asked whether the SASAMS system was clear and understandable, such that they could become expert at it. Their responses were captured in Table 4.9. Results indicated that a combined total of 63% of the respondents agreed that the system was clear and understandable, and they could establish expertise in the use of the system. There were other respondents who were neutral, and some who disagreed, giving a combined total of 37% of the respondents who were not in agreement on system clarity and understanding. Overall, a majority of 68% of the respondents agreed that the SASAMS has sufficient clarity and is easy to understand.

Table 4.9: The SASAMS system is clear and understandable

	Perception	Frequency	Per cent
Valid	Strongly agree	7	16.3
	Agree	20	46.5
	Neutral	8	18.6
	Disagree	8	18.6
	Total	43	100.0

4.7.4. Complexity of Using SASAMS

Results for the variable regarding complexity and time to learn usage of SASAMS indicated that there were mixed responses on the extent to which the SASAMS system was complicated, and that there was little time needed to learn it from scratch. Most of the respondents (28%) agreed that the SASAMS system is not complicated, and little time is needed to learn it. Some 23% of the respondents indicated that they strongly agreed that the SASAMS system was not too complicated, and that not much time was needed to learn it. However, it is observed in Table 4.10 that 26% of the respondents were neutral on the extent to which the SASAMS system was complicated, and the amount of time needed to learn it. Disagreeing respondents accounted for 21%, whilst 2% of the respondents strongly disagreed that the SASAMS system was not complicated and that little time was needed to learn it.

Table 4.10: The Learnability of SASAMS

Perception	Frequency	Per cent
Strongly agree	10	23.3
Agree	12	27.9
Neutral	11	25.6
Disagree	9	20.9
Strongly disagree	1	2.3
Total	43	100.0

To further strengthen the results that have been presented above, the strength of agreement on the SASAMS was tested, whether it was easy to learn and operate and a user-friendly system. Agreement on the SASAMS was tested, whether it was clear and understandable, easier to become an expert when using it, degree of complexity, and whether it would take little time to learn it from scratch. Thus the t-test results in Table 4.9 have indicated that there is significant agreement that: the SASAMS is easy to learn and operate (M=2.26, SD =1.071), t (42) = -4.556, p<.000). The SASAMS is user-friendly (M=2.28, SD =1.120), t (42) = -4.222, p<.000). The SASAMS is clear and understandable, hence easy for me to become an expert in using it (M=2.40, SD =0.979), t (42) = -4.049, p<.000). The SASAMS is not complicated and it would not take time to learn how to use it from scratch (M=2.51, SD =1.142), t (42) = -2.805, p<.000). The mean

values for the levels of agreement on the SASAMS and the variables discussed above are presented in Figure 4.3. The highest mean value for the level of agreement is that of 2.51. This indicated that the SASAMS is not complicated and may readily be learnt from scratch. There was agreement of 2.40 that SASAMS was clear and understandable and it was easy for one to become an expert in using it. The lowest level of agreement of 2.26 was on easiness of learning and operating SASAMS (Figure 4.3). Thus, it may be inferred that for the respondents, there is ease of use for the SASAMS system. From the results presented in Table 4.11 it may therefore be inferred that the SASAMS is an easy management system which may be learnt from scratch. One may easily become an expert on the system. The results also indicated that the SASAMS system was user-friendly, was clear and understandable, and would not take time to learn from scratch.

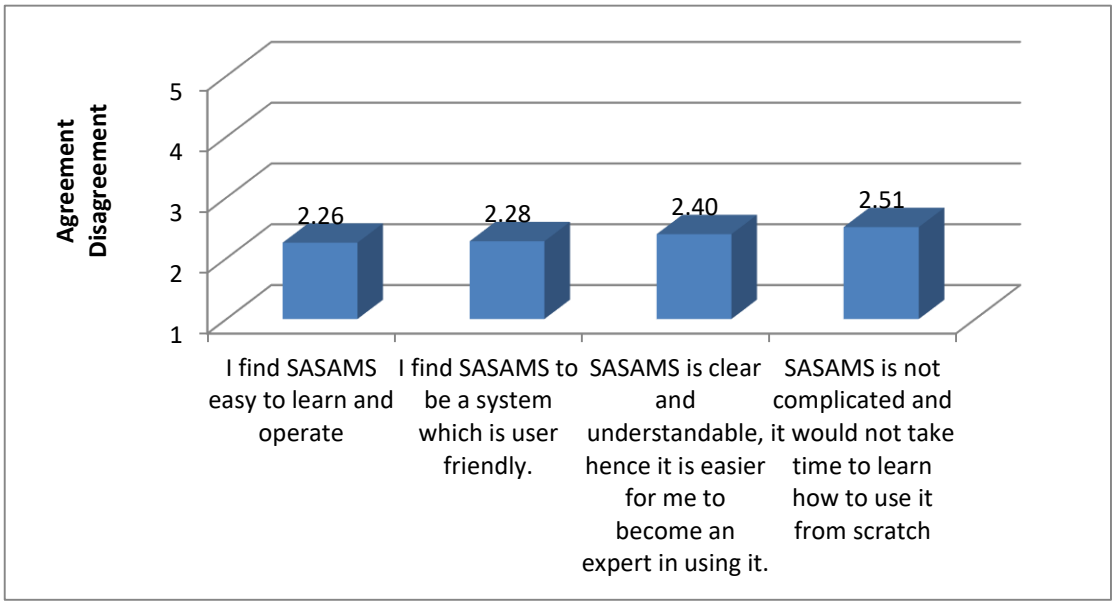

Figure 4- 3 : Complexity and Ease of Use of SASAMS

A detailed version of the results from Figure 4.3 are presented in Table 4.11

Table 4.11: Complexity and Ease of Use of SASAMS

		Test Value = 3					
						95% Confidence Interval of the Difference	
	Mean	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
EE5 I find the SASAMS easy to learn and operate	2.26	-4.556	42	.000	-.744	-1.07	-.41
EE6 I find the SASAMS user-friendly.	2.28	-4.222	42	.000	-.721	-1.07	-.38
EE7 The SASAMS is clear and understandable, hence it is easy for me to become an expert in using it.	2.40	-4.049	42	.000	-.605	-.91	-.30
EE8 The SASAMS is not complicated and it would not take time to learn how to use it from scratch	2.51	-2.805	42	.008	-.488	-.84	-.14

4.8. Social Influence

Results which are presented in Table 4.12 indicated the perception that people important to the respondents think that there is need for the use of the SASAMS. Some 58% of the respondents agreed that people important to the respondents think that the SASAMS should be used. Twenty-one per cent of the respondents also indicated that they strongly agreed that people important at the workplace believe that respondents should use the SASAMS. Some 12% of the respondents were neutral on their thoughts about the usage of the SASAMS. Very few respondents indicated that they disagreed (7%) and strongly disagreed (2%) that there important people thought they should be using the SASAMS.

Table 4.12: Social Influence of Using SASAMS

		Frequency	Per cent
Valid	Strongly agree	9	20.9
	Agree	25	58
	Neutral	5	11.6
	Disagree	3	7.0
	Strongly disagree	1	2.3
	Total	43	100
Total		43	100.0

4.9. Compulsory Usage of SASAMS

The study intended to determine whether the respondents used the SASAMS voluntarily or whether they were forced to use it. Results which are presented in Table 4.13 indicated that the respondents used the SASAMS because they were compelled to use it (51%). Twelve per cent also strongly agreed that they used the SASAMS because they were compelled to use it. Neutral respondents numbered 12%, meaning that they were not sure whether their usage of SASAMS was voluntary or under coercion. However, it may be noted that 23% of the respondents disagreed that their use of the SASAMS was not through compulsion, whilst 2% strongly agreed that they were not compelled to use the SASAMS. Overall, it may be noted that respondents were compelled to use the SASAMS at their workplaces.

Table 4.13: Compulsory Usage of SASAMS

		Frequency	Per cent
Valid	Strongly agree	5	11.6
	Agree	22	51
	Neutral	5	11.6
	Disagree	10	23.3
	Strongly disagree	1	2.3
	Total	43	100
Total		43	100.0

4.10. Management and Educator Support

There were mixed results on the support that the respondents received from the principal, HODs and educators on the use of the SASAMS. Results presented in Table 4.14 indicated that 49% of the respondents were supported by the principal, HODs, and educators on the use of the SASAMS; whilst 9% also strongly agreed that they were supported by the principal, HODs, and educators on the use of the SASAMS.

Table 4.14: School Based Personnel Support for SASAMS

		Frequency	Per cent
Valid	Strongly agree	4	9.3
	Agree	21	48.8
	Neutral	11	25.6
	Disagree	6	14.0
	Strongly disagree	1	2.3
	Total	43	100
Total		43	100.0

However, some 26% of the respondents were neutral on the level of support that they received from the principal, HODs and educators apropos of the use of the SASAMS. Another 14% of the respondents disagreed, and 2% strongly disagreed that they were not supported by the principal, HODs, and educators on the use of the SASAMS. Finally, it may be noted that respondents were supported by the principal, HODs and educators on the use of the SASAMS.

Table 4.15: Social Influence of Using SASAMS

		Test Value = 3					
						95% Confidence Interval of the Difference	
	Mean	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
SI9 People who are important to me in my job think that I should use the SASAMS.	2.12	-6.232	41	.000	-.881	-1.17	-.60
SI10 I am only using the SASAMS because I am compelled to use it.	2.55	-2.756	41	.009	-.452	-.78	-.12
SI11 The principal, HODs, and educators are very supportive of my usage of the SASAMS.	2.52	-3.272	41	.002	-.476	-.77	-.18

To further strengthen the results that have been presented above, there was a need to test for the strength of agreement on the SASAMS and colleagues' thoughts on the use of the SASAMS, compulsory use of the SASAMS, and support of principals, HODs and educators on the use of the SASAMS. Thus, the t-test results in Table 4.15 have indicated that there is significant agreement that important people at the workplace believe there is a need to use the SASAMS (**M**=2.12, SD =0.961), t (41) = -6.232, p=.000). Those who felt compelled to use the SASAMS amounted to (**M**=2.55, SD =1.064), t (41) = -2.756, p=.009). Results for the principal, HODs and educators' support for the use of the SASAMS amounted to (**M**=2.52, SD =0.943), t (41) = -3.272, p=0.002). The mean values for the levels of agreement between the SASAMS and the variables discussed above are presented in Table 4.11. The highest mean value for the level of agreement is that of 2.55, which indicated that the respondents were forced to use the SASAMS (Figure 4.4). Therefore, the results indicated there was support from the principals, HODs and educators for the use of the SASAMS; and also that colleagues were of the opinion that respondents should use the SASAMS.

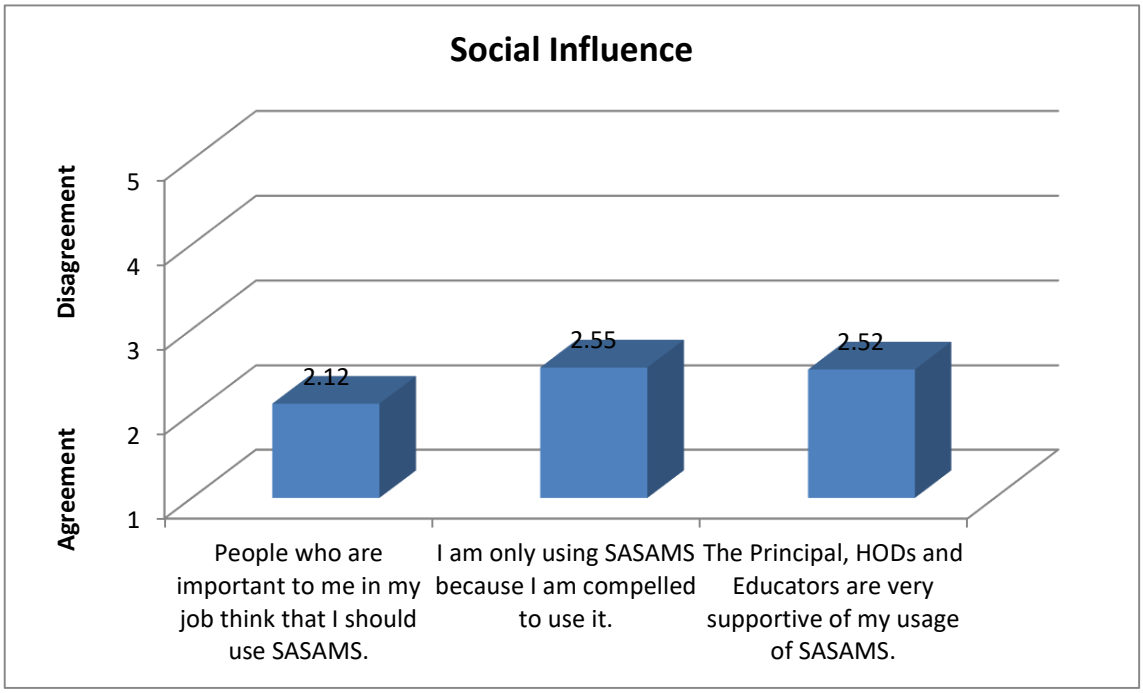

Figure 4- 4: Social Influence of Using SASAMS

4.11. Facilitating Conditions for SASAMS

The study needed to determine whether there were facilitating conditions for the use of the SASAMS, and whether the facilitating conditions were in the form of requisite skills and knowledge. Results presented in Table 4.16 indicated that the majority of the respondents had the

requisite skills and knowledge for the usage of the SASAMS. Some 58% and 23% of the respondents agreed and strongly agreed, respectively, that they had requisite knowledge and skills to make use of the SASAMS.

Table 4.16: Requisite Skills to Use SASAMS

		Frequency	Per cent
Valid	Strongly agree	10	23.3
	Agree	26	58.1
	Neutral	6	14.0
	Strongly disagree	2	4.6
	Total	43	100
Total		43	100.0

Some 14% of the respondents were neutral on their possession of the requisite skills and knowledge for making use of the SASAMS. Some 5% of the respondents indicated that they did not have requisite skills and knowledge to make use of the SASAMS. Overall, it may be noted that the respondents had the requisite knowledge and skills to make use of the SASAMS.

4.12. SASAMS and Compatibility

The other facilitating condition for the use of the SASAMS which was determined for this study was the SASAMS and its updates being compatible with the operating system installed on the respondent's computers (Table 4.17). Some 58% of the respondents agreed that the SASAMS and its updates were compatible with the operating systems installed on their computers. Some 14% strongly agreed that SASAMS and its updates were compatible with the operating systems installed on their computers. Twenty-eight percent of the respondents were not sure whether the SASAMS and the related updates were compatible with the operating system installed on their computers.

Table 4.17: SASAMS Compatibility with the Operating System

		Frequency	Per cent
Valid	Strongly agree	7	16.0
	Agree	25	58
	Neutral	12	27.9
	Total	43	100
Total		43	100.0

4.13. Support for SASAMS

The other facilitating condition for the use of the SASAMS which was determined in the study was the availability of help to support usage of the SASAMS (Table 4.18). Sixty-three per cent of the respondents agreed that help is readily available to support usage of the SASAMS. Some 26% of the respondents also strongly agreed that help is readily available to support usage of the SASAMS. However, 12% of the respondents were neutral on the provision of help readily available to support usage of the SASAMS.

Table 4.18: Help Oriented Support for SASAMS

		Frequency	Per cent
Valid	Strongly agree	11	25.6
	Agree	27	62.8
	Neutral	5	11.6
	Total	43	100.0

Table 4.19: Facilitating Conditions for SASAMS

		Test Value = 3					
						95% Confidence Interval of the Difference	
	Mean	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
FC12 I have the requisite skills and knowledge to make use of the SASAMS.	1.98	-8.501	41	.000	-1.024	-1.27	-.78
FC13 SASAMS and its updates are compatible with the operating system installed on my computer	2.14	-8.591	41	.000	-.857	-1.06	-.66
FC14 Help is readily available to support my usage of the SASAMS	1.86	-12.436	42	.000	-1.140	-1.32	-.95

To further strengthen the results that have been presented above, the strength of agreement on SASAMS and the facilitating conditions thereof were tested. Thus the t-test results in Table 4.19 have indicated that there is significant agreement that there are requisite skills and knowledge on the use of SASAMS (**M**=1.98, SD =0.780), t (41) = -8.501, p=.000). Compatibility of the SASAMS and updates with the operating system on computer was thus reflected: (**M**=2.14, SD =0.647), t (41) = -8.591, p=.000). Help is readily available to support use of the SASAMS: (**M**=2.86, SD =0.601), t (42) = -12.436, p=0.000). The mean values for the levels of agreement between SASAMS and the variables discussed above are presented in Table 4.15. The highest mean value for the level of agreement is that of 2.14 which indicated that the respondents had sufficient facilitating conditions to use the SASAMS (Figure 4.5). Therefore, the results indicated that there were facilitating conditions for the respondents to use the SASAMS.

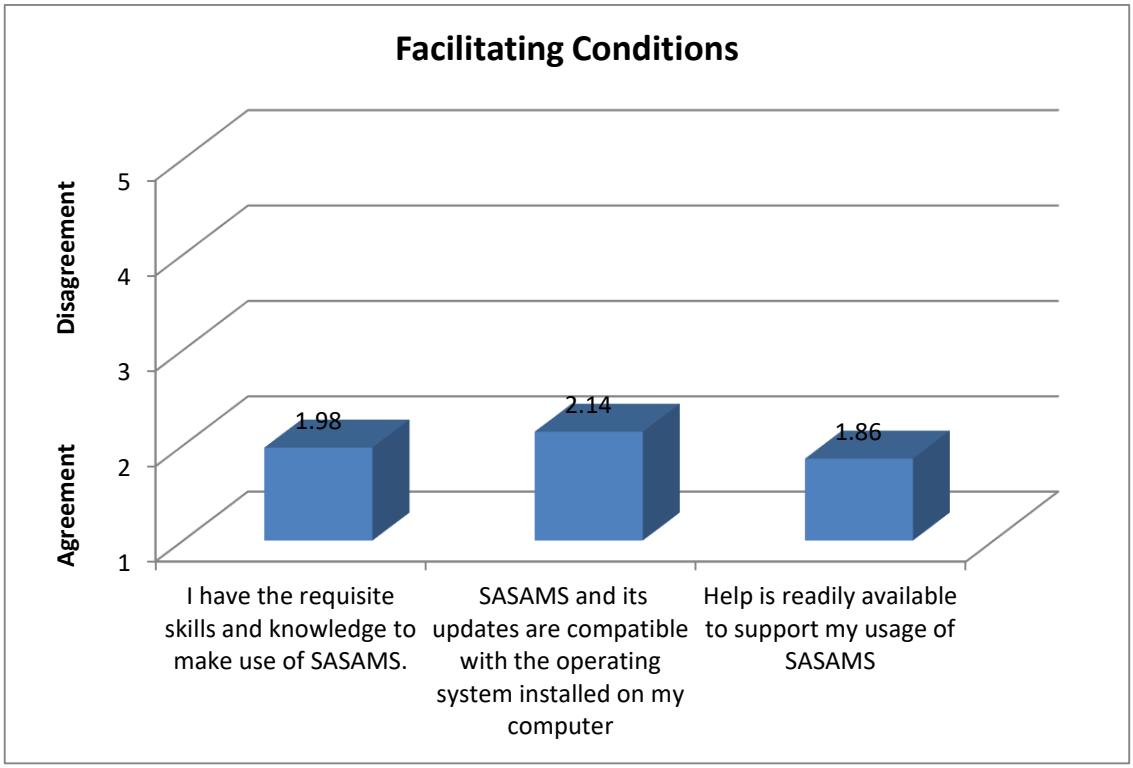

Figure 4- 5: Facilitating Conditions for Using SASAMS

4.14. Behavioural Intention to Use SASAMS

The researcher also wish to determine the behavioural intentions on the use of the SASAMS by the respondents. The aspects which were examined include the intention to continue using the SASAMS, which is presented in Table 4.20. Results indicate that 61% of the respondents agreed that they would continue to use the SASAMS. Some 30% of the respondents also strongly agreed that they would continue to use the SASAMS. There were 7% of respondents who remained neutral about their future use of the SASAMS. On the other hand, only 2% of the respondents disagreed that they would continue to use the SASAMS. It may therefore be inferred that the respondents intend to use the SASAMS in the future.

Table 4.20: Intention to Use SASAMS

		Frequency	Per cent
Valid	Strongly agree	13	30.2
	Agree	26	60.5
	Neutral	3	7.0
	Disagree	1	2.3
	Total	43	100.0

4.15. Job Related Features Supported by SASAMS

Results which are presented in Table 4.21 reflect that the majority of the respondents were anticipating aspects of the job which require the use of the SASAMS. This was indicated by 72%, who agreed that they looked forward to a job that requires the use of the SASAMS. It may be noted that 21% of the respondents strongly agreed that they look forward to aspects of a job which requires the use of the SASAMS. Some 7% of the respondents indicated that they were neutral about a job with aspects which require use of the SASAMS.

Table 4.21: Job Related Support from SASAMS

		Frequency	Per cent
Valid	Strongly agree	9	20.9
	Agree	31	72.1
	Neutral	3	7.0
	Total	43	100.0

Table 4.22: Intention to Continue Using SASAMS for Job Related Support

		Test Value = 3					
						95% Confidence Interval of the Difference	
	Mean	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
BI15 I intend to continue using the SASAMS in the future.	1.81	-11.715	42	.000	-1.186	-1.39	-.98
BI16 I look forward to aspects of my job that require the use of the SASAMS	1.86	-14.494	42	.000	-1.140	-1.30	-.98

To further validate the above-mentioned results, testing was conducted on, the strength of agreement on the SASAMS and intention to continue using the SASAMS and the looking forward to using the SASAMS for aspects of a job. The matters of whether the SASAMS was clear and understandable, whether it was easy to become an expert when using it, and whether it was uncomplicated and would take little time to learn from scratch were also tested. Thus the t-test results in Table 4.9 have indicated that there is significant agreement that there will be continued use of SASAMS in the future (**M**=1.81, SD =0.664), t (42) = -11.715, p<.000). Test results for looking forward to aspects of the job which requires the use of the SASAMS reflected (**M**=1.86, SD =0.5160, t (42) = -14.494, p<.000). The mean values for the levels of agreement between SASAMS and the variables discussed above are presented in Figure 4.6. The highest mean value for the level of agreement is 1.86 which suggest that participants look forward to aspects of the job which require the use of the SASAMS. The mean value of 1.86 indicates a strong level of agreement that administrators have an intention to make use of SASAMS for future administrative tasks.

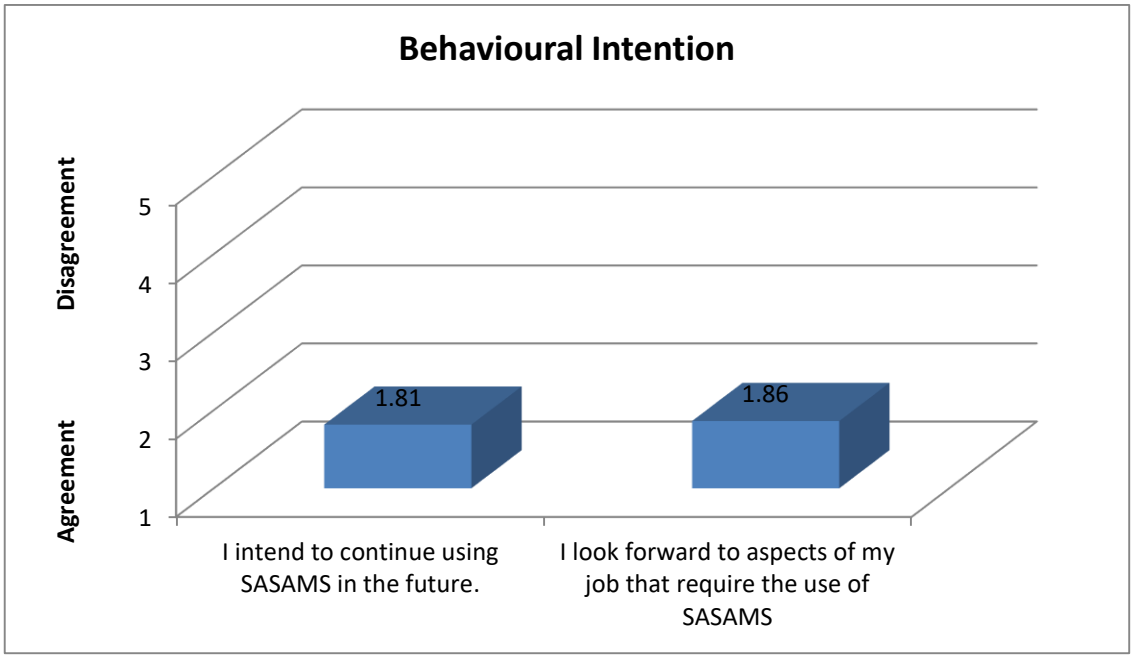

Figure 4- 6: Continued Use of SASAMS

4.16. Correlations between EE, PE, SC and FC with the outcome variable BI

The UTAUT theoretical model has been used to operationalise the concept of acceptance of the SASAMS software package. The independent variables in the UTAUT model are performance expectancy (PE), effort expectancy (EE), social conditions (SC), facilitating conditions (FC), and experience in using the SASAMS. The dependent variable is behavioural intention (BI) to continue making use of the SASAMS. As Venkatesh (2003) points out, the model provides a very good insight into the likelihood of success of the introduction to new technology. Appropriate interventions (such as training and user interface adjustments) may therefore be planned to address the needs of users who may be less inclined to adopt the new technology. A Pearson's correlation computation is used to determine the existence and possible influence of the independent variables on the dependent variable of BI. Significance of the correlation is set at p=0.01.

The results listed in Table 4.22 show the following significant relationship:

- A weak to moderate positive relationship between PE and BI (r=0.48; p=0.001). This statistic reflects that the job performance gain in using the SASAMS has a positive influence on an end-user's intention to continue using the SASAMS. This result is consistent with the findings in Venkatesh (2003);

- A weak to moderate positive relationship between EE and BI (r=0.47; p=0.001). This statistic indicates that the degree of ease in using the SASAMS has a positive influence on an end-user's intention to continue using the SASAMS. This result is consistent with the findings in Venkatesh (2003);

- A weak to moderate positive relationship between SC and BI (r=0.45; p=0.003). This statistic indicates that the influence and attitude of important people in the schooling environment towards SASAMS has a positive influence on an end-user's intention to continue using the SASAMS. This result is consistent with the findings in Venkatesh (2003);

- A weak to moderate positive relationship between FC and BI (r=0.53; p=0.000). This statistic indicates that the conditions that facilitate the use of the SASAMS has a positive influence on an end-user's intention to continue using the SASAMS. This result is consistent with the findings in Venkatesh (2003); and

- A weak to moderate positive relationship between PE and BI (r=0.48; p=0.001). This statistic indicates that the job performance gain in using the SASAMS has a positive influence on an end-user's intention to continue using the SASAMS. This result is consistent with the findings in Venkatesh (2003).

It should be noted that, from a purely statistical perspective, the strengths of the relationships have been classified as weak to moderate. However, the positive direction of this relationship is significant, and is aligned with previous studies that have made use of the UTAUT model to analyse the introduction of new technology. From a relativist perspective, PE is the strongest predictor of BI; and this result is well aligned with previous studies of technology involving the UTAUT model.

It should also be noted that the results suggest that there is a moderate to strong positive significant relationship between performance expectancy (r=0.48, p=0.001), effort expectancy (r=0.47, 0.001), social conditions (r=0.45, 0.003), facilitating conditions (r=0.53, 0.000) and behavioural intention. Thus, from the results, it may be noted that there is agreement between Performance Expectancy (PE), effort expectancy (EE), Social Conditions (SC), and Facilitating Conditions (FC). This is associated with agreement on the behavioural intention. However, it may be noted that there was an insignificant negative association between the number of years of usage of the SASAMS and BI to continue usage of the system (r = -.293, p=.066). Hence, the study is

inconclusive in this regard, suggesting that experience in the use of the SASAMS does not have any significant influence on an end-user's intention to continue using the system.

Table 4.23: Correlation Matrix between the Study's Constructs and Behavioural Intention (BI)

		PE	EE	SI	FC	BI	Years of experience in using the SASAMS
PE	Pearson's Correlation	1	.553**	.192	.401**	.484**	.212
	Sig. (2-tailed)		.000	.224	.008	.001	.190
	N	43	43	42	43	43	40
EE	Pearson's Correlation	.553**	1	.236	.608**	.470**	.246
	Sig. (2-tailed)	.000		.133	.000	.001	.126
	N	43	43	42	43	43	40
SI	Pearson's Correlation	.192	.236	1	.177	.453**	-.209
	Sig. (2-tailed)	.224	.133		.261	.003	.202
	N	42	42	42	42	42	39
FC	Pearson's Correlation	.401**	.608**	.177	1	.527**	.018
	Sig. (2-tailed)	.008	.000	.261		.000	.914
	N	43	43	42	43	43	40
BI	Pearson's Correlation	.484**	.470**	.453**	.527**	1	-.293
	Sig. (2-tailed)	.001	.001	.003	.000		.066
	N	43	43	42	43	43	40
Years of experience in using SASAMS	Pearson's Correlation	.212	.246	-.209	.018	-.293	1
	Sig. (2-tailed)	.190	.126	.202	.914	.066	
	N	40	40	39	40	40	40

**. Correlation is significant at the 0.01 level (2-tailed).

Results of this study indicated that there is a weak to moderate positive relationship with the usage of the SASAMS. These results tend to agree with (El-Halees, 2014; Jain, Dubey, & Rana, 2012) who state that any Information System (IS) that has a high rate of usage and productivity requires very good usability in order for the system to be deemed successful and viable. The usability factor in such systems is pivotal in enhancing the prospect of ensuring that there are minimal errors recorded by end-users, better efficiency from the system, as well as general user satisfaction

in using the system. Usability is often considered equal to “ease of use”, however, it may also be approached, for example, from the viewpoints of error, efficiency, and subjective satisfaction. However, Pfaff (2012) suggests that, in the case of an IS that has a “target audience” of predominantly novice end-users, the user interface (UI) has to be developed/adapted so that it caters for the novice end-users.

According to Lindgaard (1994), the usability of a system is significant for a number of reasons. A crucial aspect of the rationale for better usability is that people with different backgrounds use an IS. In the context of the current study, this will include end-users such as administration clerks, educators, heads of departments (HODs), school principals, and officials from the Department of Education. Because of the diverse group of end-users, poor system usability will have a detrimental effect on end-users’ intentions to use the system in the future. In the case of the SASAMS, system usage is often discretionary in nature. According to Guillemette and Pare (2012), in such instances, poor system usability will force end-users to resort to making use of alternate systems that may be more costly in terms of finance as well as time and effort. However, according to (Bačíková & Porubän, 2014). The biggest problem in such a scenario is that the lack of usage of a mandated system will result in data capture that is redundant and inaccurate. This outcome is entirely contrary to the suggestion by Shapiro and Varian (2013), that the three most important advantages of using an IS are that it ensures the maintenance of data that is accessible, accurate and up to date. In order to make use of the benefits of an IS, it is important that end-users have a preference for using the IS. One of the main criteria in enabling IS usage is that it should have a UI that provides a meaningful and enjoyable user experience.

Results of this study pointed towards significant positive relationships between the dependent and independent variables. The results tend to contradict Marchewka, Liu & Kostiwa (2007) on the usage of the UTAUT model in the education field to analyse user acceptance of study tools. Marchewka, Liu & Kostiwa (2007), concluded that there was no significant relationship between performance expectancy (PE) and behavioural intention (BI). However, a significant relationship may be found between effort expectancy (EE), social influence (SI), and behavioural intention (BI). Therefore the results of their study did not evince strong support for the UTAUT model.

In another article by Thomas et al. (2013), a revised UTAUT model was also used to explain mobile-learning adoption in higher education in Guyana. The data were obtained through a web survey of university students in which there were 322 completed responses. This research confirms several relationships suggested by Venkatesh et al. (2003), such as that performance expectancy (PE) and social factors (SI) have an effect on behavioural intention (BI). Performance

expectancy (PE), effort expectancy (EE) and facilitating conditions (FC) have significant positive effects on attitude. Besides that, attitude has a significant impact on the behavioural intention (BI) as well as on facilitating conditions (FC). It is suggested that contradictions are due to culture and country differences.

Reviewing and summarising studies from various industries makes it clear that the UTAUT model is only partially supported. The most common factor that influences behavioural intention (BI) to use is social influence (SI). Also, half of the reports suggest that performance expectancy (PE) and effort expectancy (EE) have an effect on the behavioural intention (BI). Although not all studies analysed the factor of actual use, those that did, have results showing that facilitating conditions (FC) and behavioural intention (BI) have an effect on usage (USE). Moderating factors such as gender (GEN), age (AGE), experience (EXP), and voluntariness of use (VOL), were not included in the model analyses. However, in those studies where they were partially included, studies show inconsistent results. Furthermore, it appears that the most common tool used to conduct research related to the UTAUT model is the survey with questionnaires.

In line with Venkatesh et al.'s (2003) suggestion, this research confirms that performance expectancy (PE) has a significant positive effect on behavioural intention (BI). Besides that, this research found that effort expectancy (EE) also affects behavioural intention (BI), but social influence (SI) does not influence behavioural intention (BI). Adding to this, behavioural intention (BI) affects actual usage as per the UTAUT model. These findings point out the significant role of facilitating conditions and behavioural intention.

4.17. Conclusion

This chapter presented the research findings based on the objectives which were formulated in the first chapter. The chapter presented the results in the form of tables and figures. There was also an interpretation of the research findings. Statistical tests which were conducted included the t-test to ascertain the significance of respondents' perception regarding the use and acceptance of the SASAMS. The next chapter will present the summary and conclusion, recommendations, and areas for further study.

CHAPTER 5

5.1. Introduction to the Study's Summary and Conclusion

This chapter presents the summary and conclusion in the light of the findings from the previous chapter. The chapter will also provide the summary for the whole study. The current chapter will be used as a forum for discussing the results in the context of the research questions.

5.2. Summary

Chapter One provided the background to evaluation of the usability and end-user acceptance of a management software system in Mpumalanga Province. The background of the study provided some information pertaining to the SASAMS which is a computer application specifically designed to meet the management, administrative, and governance needs of public schools in Southern Africa. The objectives and the research questions of the study were also stated in Chapter One. In addition, the chapter proved the problem statement which triggered the researcher's interest in the study. The chapter reflects the justification of the study.

Chapter 2 consisted of a review of related literature, opening with an introduction, giving an explanation on the usability of software, ways in which to evaluate usability, the factors affecting the system acceptability, and a discussion of Nielsen's usability heuristics. This chapter also provided the conceptual framework, which is based on an integration of the UTAUT model and Nielsen's usability heuristics.

Chapter 3 comprised the research design and research approach used in the study; the ethical consideration of the study, together with permission and clearance to conduct research from the respective institutions; the target population, sample and sample size; data-collection instruments and procedures; and reliability and validity of the instrument. The chapter affords an explanation of the data-collection tools.

Chapter 4 provided the research findings, which in turn answered the research questions formulated in Chapter One. A presentation and interpretation of the research findings were given. A quantitative presentation of research findings and data presentation was shown in the form of tables and graphs. The last chapter (Chapter 5) presented the summary of the study, as well as the conclusions that may be drawn from the study.

5.3. Conclusion

From the results given in the previous chapter, the researcher must be able to draw conclusions for this current study. The results are important in the sense that it provides the administrators of the SASAMS with an insight that attests to the importance of ensuring that there is an adequate IT infrastructure as well as training and resources that provide support for the use of the SASAMS. In this case, the conclusions for the study will be drawn objective by objective.

Objective 1: To determine the current state of usability regarding the SASAMS

For the first objective it may be concluded that, for the majority of the respondents, the SASAMS was highly usable, enabling them to conduct their administrative duties. Based on the research findings it may be concluded that the SASAMS facilitated the speedy and efficient completion of respondents' tasks. The use of the SASAMS enhanced the productivity of the respondents at work. Overall, there was significant agreement ($p<0.005$) between the use of the SASAMS and benefit to the user (time and speed of completing the task), enhancement of job productivity. Related activities could be also be speedily completed.

Objective 2: To determine end-users' intentions to make use of the SASAMS

Based on the research findings, it may be concluded that respondents found the SASAMS easy to learn and to operate. The SASAMS system was user friendly, clear and understandable, such that respondents could become adept at it. The SASAMS system was uncomplicated − little time was needed to learn it from scratch. The overall conclusion may be drawn from the statistical significance in terms of agreement between the use of the SASAMS and the use of the SASAMS as an easy management system which may be learnt from scratch. One may become adept at using the system; the SASAMS system was user friendly, was clear and understandable and would not take novices long to learn it.

Objective 3: To determine possible areas of improvement with regard to the usability of the SASAMS

For the third objective it may be concluded that a number of ways were perceived as making the SASAMS a usable system. Predominantly, there was a need for training and workshops for educators, heads of departments, deputies, and principals. The perceptions of users towards their needs had to be addressed. Steps taken in capturing marks, deleting unwanted information, and linking schools, the SASAMS and the department of Home Affairs had to be followed through.

5.4. Areas of Improvement on the usability of SASAMS

The respondents were asked to make some suggestions on the usability of the SASAMS. This required an open-ended response. A contextual analysis of the open-ended responses yielded a few recurring themes that have been used to classify the responses, as illustrated in Figure 5.1. From this figure, it may be noted that there were a number of suggestions provided by the respondents. The most dominant ones included the need for training and workshops for educators, heads of departments, deputies, and principals; a reduction in the number of steps required to capture marks; that the interface should enable easier deletion of unwanted information; and the need to link schools via the system to the Department of Home Affairs. The most predominant suggestion on the usability of the SASAMS was the need for training and workshops, such that users could become better acquainted with the management system. Some of the respondents indicated that the SASAMS should provide an electronic link between the schooling system controlled by the Department of Basic Education and the Department of Home Affairs, to facilitate the easy transmission of information between both parties. Some of the respondents suggested the need to reduce the number of steps required to capture marks. Other respondents indicated that there should be easier steps to delete unwanted information from the system.

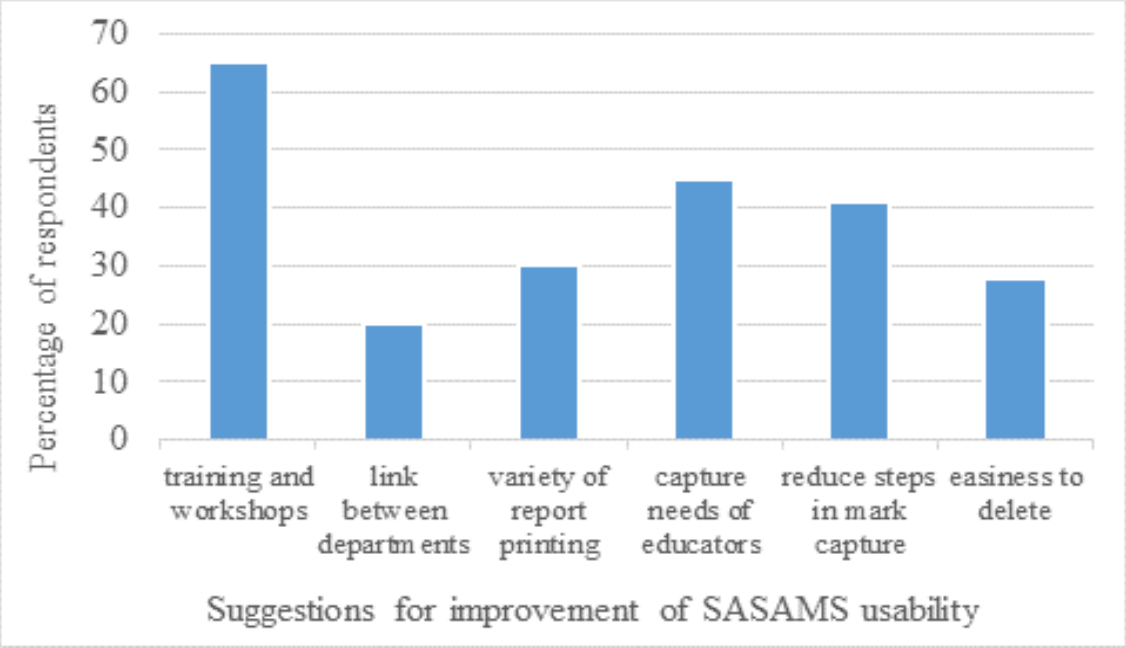

Figure 5-1: Suggestions for Improvement of the Usability of SASAMS

The results illustrated in Figure 5.1 suggest that, whilst there is a relatively strong perception that the overall usability and acceptance of SASAMS is high, there are specific areas of concern that

need to be addressed. Such steps would ensure that continued acceptance and usage of the system is not compromised.

5.5. Recommendations

Based on the shortcomings of the research, the researcher will make some recommendations to the policymakers and the users of the SASAMS system in South Africa. There will be recommendations for future areas of study.

- The present study intended to evaluate the usability and end-user acceptance of a management software system in Mpumalanga Province with a sample of 45 schools in the province. Although some knowledge was produced by this study, there is a need for a larger sample size so as to improve on the quality of the research findings.

- The researcher also recommends a replication of this research type in the various schools within the country, so as to capture variability in the identified problems of usability of the SASAMS management system in South Africa.

- Since there were respondents who indicated that there were problems with using the SASAMS system, especially in terms of its being clear, understandable, and users able to learn it from scratch, the researcher recommends that there is a need to train the users of the system, so that increased and improved use of the SASAMS within South Africa is afforded.

- In order to capture variability in the usage of the SASAMS in South Africa, future studies could make a comparative analysis on the usage of SASAMS within both an urban and a rural environment. This will allow policymakers to make informed decisions in terms of resource allocation, financing, and/or retraining of the end-users.

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APPENDIX A: PERMISSION LETTER TO CONDUCT RESEARCH IN SCHOOLS

education
MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

Building No. 5, Government Boulevard, Riverside Park, Mpumalanga Province
Private Bag X11341, Mbombela, 1200
Tel: 013 766 5552/5115, Toll Free Line: 0800 203 116

Litiko le Temfundvo, Umnyango we Fundo | Departement van Onderwys | Ndzawulo ya Dyondzo

Mr. R. Manzungu
Barbice Primary School
P.O. BOX 723
PIET RETIEF
2380

RE: APPLICATION TO CONDUCT RESEARCH: MR. R. MANZUNGU

Your application to conduct research study dated 20 September 2016 was received and is therefore acknowledged. The title of your study reads: "An Evaluation of the Usability and End User Acceptance of a Management Software System: A Study of the Department of Education's South African School Administration and Management System (SASAMS) in Mpumalanga Province." I trust that the aims and the objectives of the study will benefit the whole department. Your request is approved subject to you observing the provisions of the departmental research policy which is available in the departmental website. You are also requested to adhere to your University's research ethics as spelt out in your research ethics document.

In terms of the attached research policy, data or any research activity can only be conducted after hours as per appointment with affected participants. You are also requested to share your findings with the relevant sections of the department so that we may consider implementing your findings if that will be in the best interest of the department. To this effect, your final approved research report (both soft and hard copy) should be submitted to the department so that your recommendations could be implemented. You may be required to prepare a presentation and present at the department's annual research dialogue.

For more information kindly liaise with the department's research unit @ 013 766 5476 or a.baloyi@education.mpu.gov.za.

The department wishes you well in this important project and pledges to give you the necessary support you may need.

MRS M.O.C MHLABANE
HEAD: EDUCATION
23/9/16
DATE

MPUMALANGA
THE PLACE OF THE RISING SUN

APPENDIX B: ETHICAL CLEARANCE FROM UKZN

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

28 September 2016

Mr Richman Mazungu (215082521)
School of Management, IT & Governance
Westville Campus

Dear Mr Manzungu,

Protocol reference number: HSS/1476/016M
Project title: An evaluation of the usability and End User Acceptance of a Management Software System: A study of the Department of Education's South African School Administration and Management System (SASAMS) in Mpumalanga Province

Full Approval – Expedited Application

In response to your application received on 06 September 2016, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Dr Shenuka Singh (Chair)

/ms

Cc Supervisor: Mr S Ranjeeth
Cc Academic Leader Research: Professor Brian McArthur
Cc School Administrator: Ms Angela Pearce

Humanities & Social Sciences Research Ethics Committee
Dr Shenuka Singh (Chair)
Westville Campus, Govan Mbeki Building
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Website: www.ukzn.ac.za

APPENDIX C: STUDENT CONSENT FORM

Date:_____

Greetings,

My name is **Richman Manzungu (Student No: 215082521).** I am currently studying for a **Master of Commerce (MCom) degree at the University of KwaZulu-Natal (UKZN), in the School of Management, Information Technology and Governance. The discipline of my study is in Information Technology (IT).** My contact details as well as those of my supervisor and the academic department at UKZN are listed below:

Researcher Name: *Richman Manzungu*; e-mail: richmanmanzungu@yahoo.com

Mobile Contact Number: +27 73 899 6554

Supervisor Name: *Mr S Ranjeeth*; email: ranjeeths@ukzn.ac.za ;

Office contact Number: +27 33 260 5641

Department of Information Systems & Technology: +27 33 260 5704; + 27 31 260 7051

You are being invited to consider participating in a study that involves research on the evaluation of the usability and end-user acceptance of a management software system. The title of my study is:

An Evaluation of the Usability and End User Acceptance of a Management Software System: A Study of the Department of Education's South African School Administration and Management System (SASAMS) in Mpumalanga Province

The principal aim of this study is to ascertain the usability of the School Management System used by the Department of Education. The reason for conducting this study is to evaluate end-users' perceptions of the usability of the SASAMS and ways in which end-users' perceptions contribute towards enhancing the usability of the SASAMS. The study will require participants to provide survey-based responses to questions regarding the usability of a management software System (*School Administration and Management System (SASAMS) in Mpumalanga Province*). Should you elect to participate, the duration of the study is expected to be approximately 30 minutes**.**

The study will require your exclusive attention to the details of the proposed model so that you will be able to provide an informed response to the survey-based questions. We hope that the study will be beneficial to the Department of Education by virtue of the envisaged contribution it will make to the usability of the School Management System used by the Department of

Education. It is also envisaged that the outcome of the study will make an academic and practitioner-based contribution to the general discourse on Human Computer Interaction.

This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee (approval number: **HSS/1476/016M).**

In the event of any problems or concerns/questions, you may contact the researcher by making use of any of the contact details provided above, or by contacting the UKZN Humanities & Social Sciences Research Ethics Committee. The contact details are as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001
Durban 4000 KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557- Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

Your participation in the study is voluntary. By participating you are granting the researcher permission to use your responses. You may refuse to participate or withdraw from the study at any time with no negative consequences. There will be no monetary gain from participating in the study. Your anonymity will be maintained by the researcher and the School of Management, IT & Governance; and your responses will not be used for any purposes outside of this study.

All data, both electronic and hardcopy will be securely stored during the study and archived for 5 years. After this time, all data will be destroyed.

If you have any questions or concerns about participating in the study, please contact me or my research supervisor at the numbers listed above.
Sincerely

Richman Manzungu

CONSENT TO PARTICIPATE

I ……. (Name) have been informed about the study entitled *Evaluation of the Usability and End User acceptance of a Management Software System: A Study of the Department of Education's South African School Administration and Management System (SASAMS) in Mpumalanga Province* by Richman Manzungu.

I understand the purpose and procedures of the study.

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at the number provided in **Page 1** of this document.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557 - Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

(Where applicable)

_____ _____

Signature of Translator **Date**

(Where applicable)

APPENDIX D: QUESTIONNAIRE

General Instructions

You are required to read the following questions to ascertain the usability of the South African School Administration and Management System (SASAMS) used by the Department of Education. The questions below have been designed to establish your perception, as an end-user of the SASAMS at your school, of the usability of the SASAMS. The main purpose of the questionnaire is to gain an insight into end-user's acceptance of the SASAMS, their intention to continue using the system, as well as to obtain knowledge of possible improvements to the usability of the system.

Please read and complete the following questionnaire. In those sections where options are provided, please indicate your response by making a cross (X) in the appropriate boxes.

PART 1: Demographic & Background Information

Job Title/Position		
Department		
Gender	*MALE*	*FEMALE*
Age		
Years of experience as a school administrator		
Years of experience as a school educator		
Years of experience in school management		
Years of experience in using the SASAMS		
Years of experience in general use of management software		

PART 2 (Performance Expectancy):

In this section, please provide your response with respect to the following statements concerning the ***possible job benefits that you may experience if you had to make use of SASAMS.***

1. The SASAMS would be useful for me to conduct my administrative duties.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

2. Using the SASAMS would enable me to complete my tasks quickly and on time.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

3. Using the SASAMS would help me to perform my work duties and related activities much more quickly.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

4. Using the SASAMS would enhance my productivity at work.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

PART 3 (Effort Expectancy):

In this section, please provide your response with respect to the following statements concerning ***the effort that it will take to SASAMS to perform school administration duties***.

5. I find the SASAMS easy to learn and operate.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

6. I find the SASAMS a system which is user friendly.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

7. The SASAMS is clear and understandable, hence it is easier for me to become an expert in using it.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

8. The SASAMS is not complicated, and it would not take time to learn how to use it from scratch.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

PART 4 (Social Influence):

In this section, please provide your response with respect to the following statements concerning the extent to which you perceive that ***significant people believe that you should make use of SASAMS*** *for job-related activities.*

9. People who are important to me in my job think that I should use the SASAMS.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

10. I am only using the SASAMS because I am compelled to use it.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

11. The principal, HODs and educators are very supportive of my usage of the SASAMS.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

PART 5 (Facilitating Conditions):

In this section, please provide your response with respect to the following statements concerning the ***role that the school, Department of Education and technical infrastructures*** *may play in your adoption decision regarding use of the SASAMS.*

12. I have the requisite skills and knowledge to make use of the SASAMS.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

13. The SASAMS and its updates are compatible with the operating system installed on my computer.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

14. Help is readily available to support my usage of the SASAMS.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

PART 6 (Behavioural Intention):

15. I intend to continue using the SASAMS in the future.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

16. I look forward to aspects of my job that require the use of the SASAMS.

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

The purpose of the open-ended questions that follow in the next 2 sections is to provide you with an opportunity of making significant comments regarding the use of SASAMS to enable you to perform job-related activities.

PART 7 (Type of Usage)

17. How well do you think the SASAMS meets your needs for school-based work?

18. Describe instances in which use of the SASAMS has improved/not improved your performance at work.

PART 8 (Suggested Enhancement):

19. If applicable, please make a few suggestions about how to improve the SASAMS.

Thank You for Your cooperation

APPENDIX E–CONFIRMATION LETTER FROM THE STATISTICIAN

Gill Hendry B.Sc. (Hons), M.Sc. (Wits), PhD (UKZN)

Mathematical and Statistical Services

Cell: 083 300 9896

email : hendryfam@telkomsa.net

11 September 2017

Re: Assistance with statistical aspects of the study

Please be advised that I have assisted Richman Manzungu (Student number 215082521), who is presently studying for a Master of Commerce in Information Systems & Technology at UKZN, with the analysis of the data for his study.

Yours sincerely

Gill Hendry (Dr)

APPENDIX F– CONFIRMATION LETTER FROM THE LANGUAGE EDITOR

pinpoint
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Lydia Weight
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Pinpoint Proofreading Services

40 Ridge Rd

Kloof

Durban

3610

4th September 2017

To whom it may concern

This is to certify that I, Lydia Weight, have proofread the document titled: An Evaluation of the Usability and End User Acceptance of a Management Software System: A Study of the Department of Education's South African School Administration and Management System (SASAMS) in Mpumalanga Province by Richman Manzungu. I have made all the necessary corrections. The document is therefore ready for presentation to the destined authority.

Yours faithfully

L.Weight