The Impact of System Features on Call Centre Agents' Job Performance and on their Service Delivery

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Abstract

For several decades, contact centres have been at the centre stage of service delivery, and it is the contact centre agents who are the main controllers of service delivery. Many business clients are relying extensively on the service that is offered to them by contact centre agents, so it is imperative for the systems used by agents to complement the role they have to play when it comes to service delivery. This study is aimed at analyzing the impact of system design features on agents' job performance and customer service. The study has been conducted in a contact centre environment within one of the leading insurance organisations in South Africa. The contact centre agents of that organisation were the participants in this study. The researcher adopted a framework namely, *Theoretical Framework of User Satisfaction with a Web Interface* which is adapted from Herzberg's Motivation-Hygiene theory, as guidance to identify and distinguish influential features that impact agents' job performance and customer service in a contact centre environment. The researcher followed a qualitative and interpretive research approach and has used interviews as tool for data gathering. A thematic data analysis approach was used for analyzing the qualitative data. During the data analysis process, categories and themes associated with Herzberg's Motivational and Hygiene factors were identified, and the findings have been discussed with respect to these categories and themes. The categories and themes associated with Herzberg's Motivational Factors are as follows:

- **Work Itself**: Information Seeking Tasks (Strategies), System Integration and Performance, and Information Availability and the Format of the Information
- **Responsibility**: Service Delivery Responsibility
- **Achievements**: Delivering Quality Service to Clients

And the categories and themes associated with Herzberg's Hygiene Factors are:

- **Company Policy and Administration**: Processes on Service Delivery
- **Relationship**: Building Customer Relationship
- **Working Conditions**: Support for Tasks Performance

The study has found that there are several factors impacting agents' job performance and customer service, including systems performance, page loading capacity, complexity and speed of information seeking tasks, system-telephonic integration, system-emails integration, system–system integration, frequent changes of service delivery processes, and difficulties of combining products with systems training. It was found that the greatest impact of these factors was on average handling time (AHT) and "not ready" time which resulted in agents compromising the quality of service delivered to clients. Finally, conclusion were drawn, recommendations were inferred and possible areas of research were identified.

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List of Acronyms

Acronyms	Meaning
ACD	Automated Call Distribution
AHT	Average Handling Time
ANI	Automatic Identification Number
CRM	Customer Relationship Management
CSR	Client Service Representative
CTI	Computer Telephone Integration
DNIS	Dialed Number Identification Service
GUI	Graphical User Interface
IVR	Interactive Voice Response
PA	Personal Assistant
PABX	Private Automatic Branch Exchange
PBX	Private Branch Exchange
PSTN	Public Switched Telephone Network
RDBMS	Rational Database Managements System
TAM	Technology Acceptance Model
VoIP	Voice over Internet Protocol

1. Introduction

1.1. Overview

In South Africa, there are many organisations that provide services to customers, including insurance organisations which provide various forms of insurance products to customers. These organisations deliver their services to customers through contact centres where customers interact with contact centre agents when making insurance claims and general inquiries.

In the past, organisations have provided call centres with the aim of delivering services to customers at low cost (Hale & Owen, 2002). Today, organisations realise that contact centres can bring a lot of benefits that are important in growing business such as increasing market share, achieving customer satisfaction, initiating sales and generating profit (Genesys, n.d.).

Managers in organisations have increased the emphasis on customer satisfaction (Krishnan, Ramaswamy, Meyer, & Damien, 1998) to develop long-term relationships with customers, which will enhance profitability and success. It has been argued that customers remain loyal to an organisation when they are satisfied with service and they often "decide to stay with the organisation for future business" (Krishnan et al., 1998, p4).

To improve customer satisfaction, organisations have adopted call centres as business tools that can be utilized internally in their business processes to facilitate communication between the customers and the business as well as to deliver services to customers (Mithas, Krishnan, & Fornel, 2005; Srinivasan, Lilien, & Rangaswamy, 2002).

With recent technology advances and the growing use of the Internet, most companies broaden their service delivery by using a form of multimedia to remain competitive in the marketplace (Neff, 2000), thus many services are accessible online through a company's website (Ba & Johansson, 2005). For example, financial institutions provide banking functionalities online, where customers can transfer funds and view their bank statement. A company's website thus becomes the "service delivery system", which delivers service to customers anywhere where Internet is accessible, thus adding value to business (Ba & Johansson, 2005).

Contact centres have been at the centre stage of service delivery for many years, and it is the contact centre agents who are the main controllers of service delivery. Due to advances in technologies and innovative ideas many changes have been made to improve service delivery in contact centres, since delivering a high quality of service to customers is instrumental in ensuring success for many organisations (Neff, 2000). Achieving this has always been a challenge for many organisations, and has resulted in them employing technologies in contact centres such as customer relationship management (CRM) software with the aim of delivering quality service and hence achieving customer satisfaction. Some organisations have ended up developing their own internal customer information systems that provide the necessary information needed by the agents when performing service delivery tasks. Others have taken their contact centres offshore not only to deliver high quality service and hence deal with increasing customers' expectations, but also as a means of achieving their business strategy aims (Carmel & Agarwal, 2002; Prahalad & Krishnan, 2004).

Organisations developing systems often tend to concentrate their effort on developing the system's functionality and pay less attention to the systems usability and its interaction with its users. Unfortunately issues such as how the users will perceive and interact with the systems are sometimes ignored. These businesses end up delivering systems that are complex to use. Such a situation is likely to cause user frustration(s) leading to a negative attitude towards the use of the system.

Agents are expected to deliver high quality service to customers at all times. Ideally the systems used by agents to address customers' requests should support these expectations. However, this is not always the case since systems design features such as system interface, information layout, page loading, performance and so forth might have a negative influence on an agent's job performance. As a result, in some instances, a customer might have to wait for a long period of time whilst the agent is busy navigating through the system to get the information needed by customers. Consequently, the agent might feel dissatisfied with the way the system handles the request and would eventually feel as if he is being incompetent and unskilled. This can lead to his level of motivation and job satisfaction being disturbed. Nafziger (2008, p4) states that an agent's motivation depends on agent's self confidence in succeeding in a task. Job characteristics such as task complexity and difficulty, work quality, environment in which the task is performed,

meaningfulness of the work, as well as quantity and routine, play a significant role in an agent's job performance and their motivation.

The purpose of this study is to conduct research regarding system design features (e.g. information layout, page loading, template) for contact centre client systems. It intends to discover if these system design features influence an agent's job performance and to further investigate if they impact on service delivery. The objectives of this study are, firstly, to identify system factors that affect an agent's job performance and the service delivered to customers. Secondly, to identify other system related factors, such as system training, that may impact on an agent's job performance. Lastly, to analyze those influential factors and make suggestions and recommendations to the contact centre management. Although extensive studies have investigated factors affecting service delivery, customer satisfaction and agents' motivation, few studies have reviewed the impact that contact centre systems have on an agent's job performance or on their motivation to deliver quality service to customers. Thus there is a need to make further investigations from these perspectives as the findings might play a significant role, not only in improving the quality of service delivery in contact centres, but also in improving the future design and efficiency of contact centre systems.

1.2. Problem Statement

The main aim of this research is to investigate the impact of system influential factors on an agent's job performance and the service delivered to customers. Based on the Technology Acceptance Model (TAM) proposition (perceived ease of use influences perceived usefulness) (Davis, 1989), technology has a way of influencing individual behavior towards using a system. Technology will be perceived to be more useful if a person finds it easier to use (Falk, Schepers, Hammerschmidt, & Grossenbacher, 2005). This means that technology could have an impact on job performance because, for instance, if an agent finds a system difficult to use, he could develop negative attitudes towards using the system and this would negatively impact his job performance and thus his tasks on service delivery. Thereby the system would be perceived as not being helpful.

Rayport and Jaworski (2004, p331) state that the success of a system is determined by its interface and the ease with which the user obtains the required information. When design features are

applied incorrectly to information they can confuse users, but when applied correctly, they can render the information clear and easy to understand.

Tarafdar and Zhang (2005, p3) suggested that it is important to explore the effects of design features, such as navigation strategies, network delays, layout and information content, and so forth, on system usability. It is therefore important to analyze the system design features of contact centre systems used by agents in order to discover the impact and influence they have on the job performance of agents and on service delivery.

Davis, Bagozzi, and Warshaw (1989, p 987) state that effort saved due to improved ease of use may be redeployed, enabling a person to accomplish more work for the same effort. This sentiment means that given a friendly and an easy to use system, agents should be able to perform their tasks quickly and without interruption.

1.3 Research Questions

Based on the literature, the problem statement and the purpose of the study, the following research questions are posed.

- What system-related factors impact an agent's job performance and customer service in contact centres?
- What intrinsic and extrinsic factors of a system impact an agent's job performance and customer service in contact centres?

These research questions were broadened with the aim of finding other issues related to system design and usage. However, design features remain the main focus.

1.4. Research Methodology

This study follows an exploratory and qualitative approach, which is carried out by means of interviews, mainly of agents in a contact centre. This approach is deemed suitable because the study aims to analyze influential factors impacting the ability of an agent to perform a task when delivering service to customers. By means of this approach the agents are able to voice their views and relate their experiences concerning using contact centre systems. The researcher is thus able to collect qualitative data pertinent to this study and the contact centre management when they need

to make changes to the systems used by agents, with the ultimate aim of improving the quality of service delivered to customers.

Page and Mayer (2003, p17-19) state that the "qualitative approach can be conceptualized as a focus on words and feelings- the quality of events or experience" whereas the "quantitative approach places greater value upon information that can be numerically manipulated in a meaningful way". Therefore, the qualitative approach is chosen because it allows the agents to voice their opinions and relate their experiences of using contact centre systems. The study is aimed at identifying the factors that influence the job performance of agents and their ability to perform their service delivery tasks. This will be done by investigating possible design features (i.e., system performance) and other factors associated with systems that agents use.

1.5. Need for the Research

The problem statement, literature, and goal of the study give a clear indication that there is a need to carry out an extensive investigation on the influence of systems design features and usability on the job performance and service delivered by agents. Agents play a crucial role in service delivery as they are always the first point of contact and their daily tasks involve using computers to address customers' requests. Therefore delivering a quality and successful service is dependent on the agents being motivated positively about using the systems to deliver service and about the systems themselves. This study therefore seeks to investigate what could possibly affect an agent's job performance and the service delivered to customers.

1.6. Structure of the Dissertation

This dissertation is divided into various sections where each section fulfills a specific objective.

Chapter 1 provides an introduction to the study, problem statement, research objectives, underlying research questions, and the research approach.

Chapter 2 provides a detailed literature review which covers information regarding the common technology used in contact centres. It further covers the main challenges faced by agents in contact centres. In addition, issues around systems usability and interactivity are covered followed by the common system design rules to follow in order to design systems appropriately.

Chapter 3 discusses in detail the framework that has been adopted to guide this investigation in order to answer the research questions.

Chapter 4 and 5 cover significant information regarding the research approach, data collection and the analysis of data.

Chapter 6 discusses the results obtained by the data collection process.

Chapter 7 discusses the main research findings, makes recommendations and proposes possible future research areas.

1.7. Summary

This section provides a background to this study and thus the motivation for conducting it, including problem statements. The main goal of the study is to analyze the influence of system design features on an agent's job performance and on service delivery in contact centres. These objectives are clearly stated. The research questions are formulated based on the literature review, the problem statement and the goals of the study. This study uses an interpretive qualitative research approach and interviews are used as tools for data gathering. The structure of this dissertation is also covered. The following section provides a detailed literature review and a background to this study.

2. Literature Review and Background

2.1. Service Delivery in Contact Centres

A call centre has been defined as a "dedicated operation" in which call centre agents respond to requests from customers through inbound operations and perform product marketing through outbound operations (Hart, Fitchner, Fjalestad, & Langley, 2006). Gans, Koole, and Mandelbaum (2003, p3) defined a call centre as a set of resources – "typically personnel, computers and telecommunication equipment – which enable the delivery of services via the telephone".

Call centres have been implemented to serve as a communication path between the customer and business via agents (Hale & Owen, 2002; Hart et al., 2006). These centres usually consist of offices that have been established by organisations to play a vital role in delivering services to customers via telephone (Richardson & Howcroft, 2006).

Typically, contact centres consist of agents who are grouped together to form a team, depending on the duties they perform, and managed by supervisors. The supervisors are responsible for managing the performance of the agents, and ensuring not only that targeted volumes of sales are achieved but also that a quality service is delivered to customers (Neff, 2000). In addition, supervisors handle the more difficult issues that agents find insoluble or that they cannot address, when delivering service to clients. Table1 presents a list of performance measures commonly used for rating an agent's job performance and evaluating the quality of service delivered to customers.

Service	***Quality Measures***
Blockage	First Call Resolution Rate
Abandon Rate	Transfer Rate
Self-Service Availability	Communications Etiquette
Service Level/ASA	Adherence to Procedures
Longest Delay in Queue	
Efficiency Measures	***Profitability Measures***
Agent Occupancy	Conversion
Staff Shrinkage	Up-Sell/Cross-Sell Rate
Schedule Efficiency	Cost per Call
Schedule Adherence	
Average Handling Time (AHT)	
System Availability	

Table 1: Contact Centre Performance Measures (Reynolds, 2003)

Service delivery, particularly in contact centres, is a process whereby an agent or an automated technology is employed to deliver a particular service to customers via telephone and through other communication channels such as e-mails and chats. Due to the increase of internet usage among people, the majority of businesses have extended their service delivery mechanisms to be more electronic; hence corporate websites currently operate as service delivery systems. For instance, most financial institutions provide an online self service whereby a customer can log into a website and perform transactions over the internet without consulting an agent or visiting a branch for assistance. However, this kind of innovation has not been fully implemented in most insurance organisations. Consequently, customers are obliged to call when they need assistance. In addition, some customers prefer talking to an agent rather than interacting with an automated system such as auto answering machine.

2.2. Characteristics and Categorizing of Contact Centres

Contact centres are designed and implemented in various forms i.e., different sizes, functions and locations depending on organisational goals and objectives. Most organisations implement contact centres for various specific reasons, such as delivering services to customers, promoting and marketing products and so forth.

2.2.1. Size and Geographical Dispersion of Contact Centres

The size of a contact centre varies from one organisation to another depending on the magnitude and the manner in which the organisation operates its business. For example, if an organisation's daily operation relies greatly on customer service i.e., an airline, the contact centre will have hundreds of agents servicing a large number of customers the whole day. Therefore, it is more likely for a contact centre to have sub-contact centres (DiData, 2002; Zeacom, 2002).

Some organisations have set up their contact centres in such a way that agents can support service delivery even when they are not in the office. Such a contact centre is known as a virtual contact centre, which routes a customer's call to an agent at home. Normally, this kind of privilege is granted to agents who are knowledgeable about their domain and capable of handling and dealing with customer issues (Hafner, 2002).

It has been argued that the virtual contact centre method brings many benefits to businesses and is ultimately seen as a viable alternative for proper service delivery (Morrell, 2000).

2.2.2. Inbound and Outbound Support

The functions of contact centres differ across organisations. Some organisations use contact centres to deliver service to customers by providing help desk facilities, customer services, and emergency services. Other organisations use contact centres to promote and market their products, for example, telephone order taking and tele-marketing (Derakhshani, 2006).

Contact centres can take different forms according to their functions such as inbound traffic, outbound traffic or a combination of these. Inbound call centres handle incoming calls that are initiated by customers (Whitt, 2002), thus this form provides customer support services. Outbound call centres handle outgoing calls that are generated within the centre to business clients (Gans et

al., 2003). This form of call centre is frequently used by organisations to sell products and services to customers (i.e., Telemarketing).

Some contact centres handle both types of traffic (inbound and outbound). For instance, a contact centre that performs both operations would be a centre that receives a customer inquiry via web-interaction or email, and responds by calling the customer at a later stage (Derakhshani, 2006).

2.3. Technology in Support of Service Delivery

2.3.1. Customer Relationship Management

Because customer relationships are seen as long-term rather than a series of individual steps, a great deal of emphasis is placed on creating good relationships with customers (Krishnan et al., 1998). This has, therefore, caused many organisations to employ Customer Relationship Management (CRM) systems in their call centres to manage the relationshisp with customers (Richardson & Howcroft, 2006). CRM is an integrated tool which can be used in various departments, including customer services and sales, within an organisation. This tool keeps track of all aspects of customer relationships so that customers can hopefully receive a consistent service at all times.

Swann (2002) defined CRM as a tool that creates a positive image of an organisation by creating positive customer experiences through the interaction process between a business and its customers. If a customer can interact with the organisation through multiple communication channels, these channels should be integrated with the CRM system to facilitate good communication (between the customer and business) (Lassman, 2002). In addition, a contact centre is the place where business can best and most easily identify and analyse customer needs (Derakhshani, 2006).

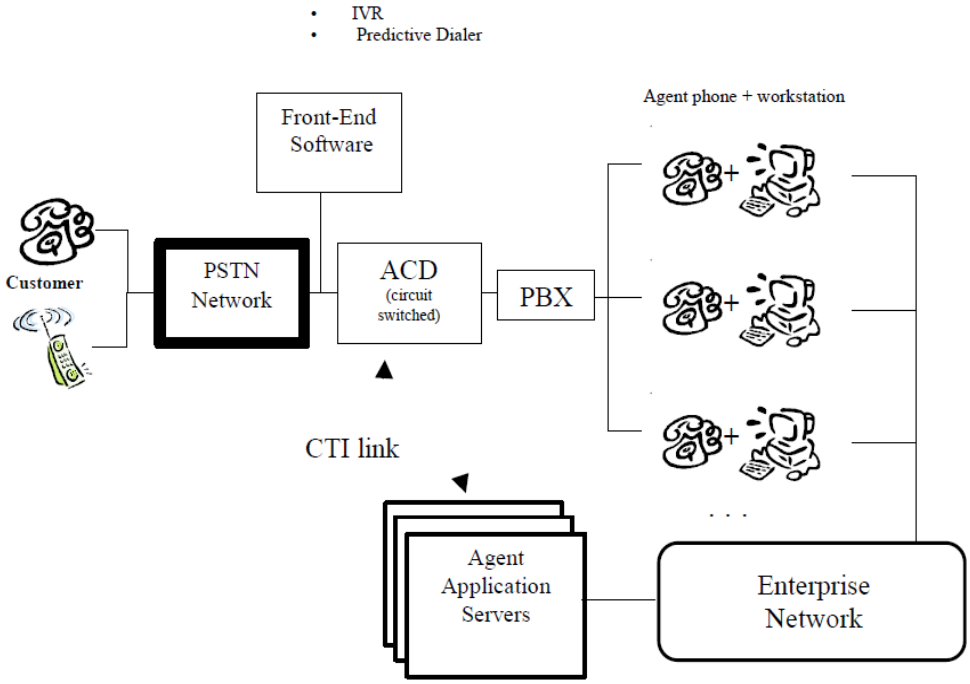
The CRM software integrates with the company's information systems which provide access to all databases, including the customer information database. This integration makes the retrieval of information an efficient process.

2.3.2. Contact Centre Technology

A contact centre consists of various well integrated technologies which support the process of service delivery to customers. These technologies include automated call distribution (ACD) and interactive voice response (IVR), which are normally seen to maximize productivity and efficiency (Richardson & Howcroft, 2006). An ACD supports the delivery of services to customers via a telephone, while, IVR units allow callers to select their choices using telephone handset keys (Gans et al., 2003).

The technologies in contact centres are highly sophisticated and integrated to support large volumes of transactions, digital and analogue signals, enabling the handling of routed calls with a high degree of reliability (Neff, 2000). Figure 1 presents the structure of and the links between the various call centre technologies.

Figure 1: High level Architecture of Call Centre



Source: CosmoCom (2000)

2.3.3. Inbound Operation in Call Centres

This section discusses the inbound operation in a call centre and explains in detail the technologies involved as depicted in Figure 1. Normally, the inbound operation is triggered by customers when they make a call to a call centre. Essentially, this operation involves customers, agents, and technology. The following are the technological steps performed during a call initiating process.

2.3.3.1. Public Switched Telephone Network –PSTN

When a customer calls a call centre, the customer's voice enters the PSTN(Public Switched Telephone Network) circuit- switch which converts the analogue signal to a digital signal and transports it over the backbone network to the call centre (Neff, 2000).

The PSTN uses dialed number identification service (DNIS) to determine what number the caller dialed. The number is used for many purposes such as identifying a suitable agent to respond to the call, and for profiling geographical information for marketing purposes. The Automatic Identification number (ANI) is also used by PSTN to determine the call's point of origin (Gans et al., 2003). For instance, if a customer dials the centre using a landline number, the area code will then be used to determine the customer's location.

2.3.3.2. Private Branch Exchange (PBX)

The private automatic branch exchange (PBX or PABX) is mostly used by organisations that have more than one call centre on the network, where different transactions are reachable via the same number. For instance, the use of number 100 for claims and funds transfer.

The PBX is connected to the PSTN switch through a number of telephone lines i.e., trunk lines. These trunk lines are used by PSTN to determine free lines in the network. If one or more lines are free, then the call will be connected to the PBX. Otherwise, the customer will receive a "busy signal" (Gans et al., 2003).

2.3.3.3. Interactive Voice Response Unit (IVR)

The call, after entering the PSTN circuit, stops at an IVR unit which handles customer inquiries and extracts more information needed for call routing. For example, a customer may be asked to press a certain number to choose a transaction to perform (Aspect, 2004; Gans et al., 2003).

IVRs also monitor and reduce the workload when the agents are overloaded. However, the agents are required to answer calls regardless of the workload (Neff, 2000).

2.3.3.4. Automated Call Distributor (ACD)

When a customer decides to chose the option which enables him/her to speak to a call centre agent, the call is transferred from the IVR (interactive voice response) to an ACD. The ACD routes the call via the PBX to an available agent in the call centre (Gans et al., 2003).When routing the call, the ACD considers the agent skills, agent availability, the ANI, and the DNIS prior to connecting to the private branch exchange (PBX) which redirects the call to an agent (Neff, 2000; Zeacom, 2002).

Normally, when all suitable agents are busy, the ACD puts the customer call on hold and gives the customer an estimated wait time while playing music, and keeps reminding the customer to wait until an agent becomes available (Gans et al., 2003).

The ACD interfaces with customer relationship management (CRM) software that resides on agent application servers, which makes efficient retrieval of customers' and agents' records. For example, when agents log into the ACD, their user IDs are used to retrieve records in the database describing their competencies (Gans et al., 2003; Kraus, 2002).

2.3.3.5. Corporate Information Systems

Once a customer's call is connected to an available agent, the agent can handle the customer's inquiry while performing other tasks, including working on a computer which is connected to a corporate information system. The corporate information system provides the necessary information that may be required by agents when addressing the customers' requests. In large organisations such as insurance, banks and airlines, the corporate information system is treated as a centralized source of information which may be shared across the entire organisation (Gans et al., 2003; Lassman, 2002).

2.3.3.6. Computer Telephone Integration (CTI)

The technologies in call centres are integrated collectively in order to support and deliver a high quality of service to customers. Computer telephone integration (CTI) is middleware which

integrates the telecommunications infrastructure and corporate information systems (Gans et al., 2003; Suomi & Tahkapaa, 2003).

When a call enters the system, the CTI uses ANI to identify the caller and route the call, and checks to see if the customer already exists in the database by querying the customer's record using the ANI. If the customer exists in the database, the customer's information is returned and part of the returned information, such as preferred language, is used to route the call to a suitable agent who can assist using the customer's preferred language (Gans et al., 2003).

CTI enhances the process of identifying customers on a system by displaying automatically the customer's record on the computer screen without the agents entering any identification number such as identity number or account number (Gans et al., 2003). This reduces the call's duration, saves the agent time, reduces cost, and improves service delivery (Blood, 2004).

2.4. Agents in Support of Service Delivery

This section discusses in detail the role of agents, including their training, and scheduling in contact centres.

2.4.1. The Role of Agents

In contact centres, agents play a vital role in service delivery because they are responsible for interacting with and delivering services to customers. An agent is defined as an individual (or personnel) whose duty it is to provide necessary help, handle customer enquiries, and sell products to customers, depending on the operation (i.e., inbound or outbound) to which the agent is assigned.

In most cases, agents are given an extensive training about products, clients' systems and the technology used in contact centres. In the daily operation, agents put on their headsets and sit in front of computer systems (Gans et al., 2003) to perform their duties, which include receiving calls from clients, processing clients' requests, and giving feedback to clients. These agents are supported by a range of systems which are connected to different client databases and which provide easy access to information.

2.4.2. Training of Agents

Training is a very important aspect in most fields of work because it assists employees to be knowledgeable and skilled in a particular field and thus helps them to perform well and conduct their duties in a professional manner. Many organisations have invested significantly in training employees in order to improve the level of competence of the employees and hence increase the company's profitability (Hammond, 2000).

Most agents receive several types of training, including interaction training, interpersonal training, products and systems training, and stress management training so that they perform their duties to a high standard and hence deliver quality service to clients (Frost, van Jaarsveld, & Walker, 2007).

A study conducted in Canada by Frost et al. (2007) reported that it takes an average of 21.1 weeks for newly hired agents to perform work proficiently. For agents in in-house contact centres, it takes 24.1 weeks whereas agents in outsourced contact centres require at least 17.3 weeks to attain an acceptable level of proficiency. These differences, according to Frost et al. (2007, p12), may be attributed to in-house agents being required to execute more complicated tasks than out-sourced contact centre staff rather than being less qualified when they are initially hired.

2.4.3. Scheduling in Contact Centres

Staff scheduling is a mechanism used in most contact centres to administer and control time allocation between agents. In the past, many organisations have used operations research techniques and ad hoc methods to perform staff scheduling (Cleveland and Mayben, 1997). The recent rapid growth of the contact centre industry and the need for improving the traditional staff scheduling have resulted in many organisations employing workforce management software which manages all the scheduling of resources (Fukunaga, Hamilton, Fama, Andre, Matam, & Nourbakhsh, 2000).

When a customer calls a contact centre, the call is often routed to a suitable agent. If the agents are unavailable, the call is then placed in a queue and waits there until an agent becomes available. In most instances, this condition leads to customers' dissatisfaction. Therefore, it is imperative for contact centres to have a sufficient number of agents to handle large numbers of calls, so that the waiting times experienced by customers are reduced and acceptable. However, many businesses

strive to avoid overstaffing so that the costs of running the contact centre operation are minimized, in an effort to maximize overall business profitability (Fukunaga et al., 2000).

2.5. Influence of System Usability on Agents' Job Performance

The concept of system usability has been in existence for quite some time and is found in much of the literature on Human-Computer Interaction (HCI). Generally, system usability is linked to the manner in which systems function and interact with users. System features and characteristics such as ease of use, perceived usefulness, response time, navigation, and tasks completion time are the main elements that have been found to influence and correlate with system usability (Tarafdar & Zhang, 2005). Agerfalk and Eriksson (2004) suggested that systems should be designed appropriately so that they are actable; and enable users to perform desired actions. System designers should bear in mind the information processing requirements so that system performance, interactivity and usability are not compromised. Nielsen (2000) and Palmer (2002) state that incorporating appropriate elements and features in the design of a system could increase system usability. Therefore it is imperative to explore the effects of design features such as navigation strategies, network delays, and layout and content of information on usability of systems (Tarafdar & Zhang, 2005).

According to Biel and Gruhn (2009, p1), system designers should consider usability at the very earliest stage of the system development process in order to support user-system interaction and also to avoid costly changes. Issues that are linked to system usability are sometimes difficult to include or to remedy subsequent to the system implementation. The structure of system features, elements, and behaviour influence and shape systems interactivity and usability.

2.5.1. Design Rules for Enhancing System Usability and Interactivity

Usability is defined as "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (Biel & Gruhn, 2009, p2). Nielsen (2003, p1) cited by (Rowe, 2008) defined usability according to the following set of usability quality attributes: "

- Learnability: How easy it is for users to accomplish tasks the first time they use the system.
- Efficiency: How quickly users can perform tasks once they have learned the system.

- Memorability: How easily users can re-establish proficiency when they return to the system after a period of not using it.
- Errors: How many errors users make, how severe the errors are, and how easily they recover from the errors.
- Satisfaction: How pleasant is to use the system."

Usability is also defined as "a quality experienced by the user during usage of a software product" (Biel & Gruhn, 2009, p1). From the perspective of agents, usability may describe simplicity of working with systems, efficient and reliable ways to accomplish tasks, and pleasantness of using systems. Systems usability can be influenced by many factors depending on the usage context such as number of users, environment in which the systems are used, tasks performed on the systems and devices integrated with the systems. Furthermore, usability is related to other quality attributes such as reliability of a system during usage, fault tolerance, performance, and security. Overall, usability is characterized by the usage context, user perspective, interaction design, and information architecture (Biel & Gruhn, 2009).

Lowry, Spaulding, Wells, Moody, Moffit, and Madariaga (2006) pointed out that one of the main features for enhancing system usability is to handle interactivity, a design factor. Interactivity has been defined as communication between a user and the system (Liu & Shrum, 2002). Pavlik (1996, p.135) defines interactivity as a "process of reciprocal influence". In a contact centre environment it is always expected that the systems used by agents will have a high level of interactivity and usability because of the interaction rate between agents and customers. However, due to many issues regarding systems design and the accommodation of a high number of system users, achieving a high level of system interactivity is challenging. According to Nielsen (2000), Pearrow (2000), and Schneiderman (1998) system designers should follow general usability guidelines, principles, and common practices in order to achieve high system usability and interactivity.

Many authors in the field of Human Computer Interaction (HCI) have identified system design features that need to be taken into considerations when designing systems, including ease of use, perceived usefulness, response time, navigation strategies, tasks completion time, network delays, layout and content of information, error rates, user friendliness, consistency of the interface, interaction style, use of multimedia, technical parameters, and so forth (Agarwal & Venkatesh,

2002; Huang, 2002; Karhanna & Straub, 1999; Nielsen, 2000; Palmer, 2002; Schneiderman, 1998; Tarafdar & Zhang, 2005).

Ease of use inter alia, is the crucial characteristic of system usability which should be sought to attain the best quality systems. When a system such as web or desktop application is developed with a simple interactive interface and good performance this usually leads to high user satisfaction because users find the system simple to use (Napoleon, 2006; Tarafdar & Zhang, 2005).

However, ease of use is not the only trait that enhances users' satisfaction; there are other traits that should be taken into consideration when developing systems, including response duration, navigation, task completion duration and so forth (Huang, 2002; Karhanna & Straub, 1999). A system with low usability and interactivity usually leads to users' dissatisfaction and frustration. Sometimes it is characterized by a high level of rejection amongst users, especially those who find it annoying and frustrating (Lowry et al., 2006). It is therefore important for system designers to design systems that can enhance users' satisfaction, interactivity and usability, and thus allow the users to perform effectively, efficiently, and satisfactorily when performing their tasks (Napoleon, 2006).

Response time is also an important feature for enhancing good system usability and interactivity. McLaughlin and Skinner (2000) stated that slow response time affects system usability. Further, Preece (2001) mentioned that system users expect system features to be available within reasonable response times. In an environment such as a call centre, where the rate of systems usage is high, system response time plays a crucial role in ensuring that agents' duties are executed effectively, efficiently and satisfactorily. For instance, when the response time is short the agents are able to navigate through the systems quickly. Tarafdar and Zhang (2005) mentioned that it is very easy for a user to switch from one system to another when the system response time is short. In cases where the system response time is high, according to Napoleon (2006), the users would lose the impression of interactivity and control of the flow. Consequently, the human data processing becomes affected. According to Napoleon (2006), a system response time between 0.1-3 seconds is considered as being normal and would not upset the logical view of users. A response

time between 3 and 9 seconds it is tolerated, provided the users are informed about the waiting time expected. In the event that the response time exceeds 10 seconds, users are likely to lose concentration and eventually switch to a different website (Heldal, Sjovold, & Heldal, 2004). System response time is linked to user satisfaction, and as a result, systems with a slow response time can lead to a state of anxiety for users (Tarafdar & Zhang, 2005). In a contact centre environment, a long response time could have a negative impact on an agent's job performance and the level of customer service because the customers would have to wait for a long while whilst the agents were waiting for the system to respond.

It is therefore recommended that system designers should minimize the amount of background system calls (i.e., web service calls) that need to be performed each time the application is loading. Tarafdar and Zhang (2005) pointed out that part of the cause for slow response is the underlying technical infrastructures, including system design, database design, wide area network speed, database connectivity, overall distributed computing infrastructure, and so forth. So addressing some of these technical infrastructures can reduce system response time. According to Napoleon's (2006) recommendations, system designers should design more "frugal" pages in order to reduce the number of images and other media elements loaded in a page. Another way to speed up page loading time, as mentioned by Napoleon (2006), is to specify the image sizes in an html file to allow the browser to display a page before the pictures are fully loaded. This adjustment would only assist in web-based systems. Consequently, for desktop systems other measures, such as increasing the size of system processors, should be taken.

Efficiency of Interaction/Ease of Navigation is a dominant usability criterion that when well managed normally results in great user satisfaction. This criterion focuses on the amount of time users spend navigating through the system to perform a desired action; if a system is well designed, the time spent is minimized. Tarafdar and Zhang (2005) stated that ease of navigation depends merely on the way in which information is organized within the application. In order to make a page more useable, prime components such as graphic design, layout, links, navigation mechanisms, and so forth should be well designed and constructed. According to Napoleon (2006), a well designed system interface minimizes the amount of time spent on navigating through the system to get a required link or box for data entry. Preece (2001) pointed out that poor system design leads to navigation difficulties such as disorientation (Park & Kim, 2000), which is a

situation whereby a user loses track of navigation and ends up confused, not knowing whether he is at the right location or not. In a contact centre environment many systems are being used, as a result, the agents have to perform many tasks (i.e., browsing, comparing items, moving from page to page) on various systems simultaneously. Such conditions, according to Tarafdar and Zhang (2005), may lead to cognitive overload, which is a situation whereby a user gets lost.

The efficiency of interaction can be enhanced through a well designed and structured page that ensures easy navigation. Horizontal scrolling should be avoided at all cost because it usually annoys users especially when they also have to scroll up and down to locate information (Napoleon, 2006). In order to enhance navigability (Park & Kim, 2000), according to Tarafdar and Zhang (2005), page links should be made fairly large so that users can easily see them. They suggest that the use of hyper media and graphical media should be encouraged. In addition, context information should be provided to help users understand where they have previously been and where they can go (Park & Kim, 2000).

Text arrangement/Information Content- arranging text properly is very important because it enhances the clarity of the conveyed information. Text within the page should not be fixed: this allows the browser to adjust the text accordingly and thus enables users to set their own preferred font size (Napoleon, 2006). Information content, according to Tarafdar and Zhang (2005), can be classified according to two principles, namely actability and usability. In the actability principle, information content can be used by users to perform desired tasks. For instance, agents in a contact centre can use the provided information to address a client's inquiries. According to the usability principle, users normally perceive a system as being useable by the information the system provides, therefore, comprehensive information can play a role in enhancing usability. Further, Tarafdar and Zhang (2005) stated that information content should be updated at all times so that the information displayed to the users is current and of good quality.

Page arrangement/Customization- page arrangement is another important element that needs to be well handled when building systems. For instance, when a user wants to open a certain page within a system, the page should be rendered within the container of the system, so that the user can see the actual rendered page. Typically, in many systems when a new page is rendered the page is only accessible on a new browser. If this happens, the users are confused because they cannot tell whether the new page has been loaded or not. It can happen that they inadvertently shut down the

main page when they were intending to close the current page; if this is the case then they have no other option but to restart the system to enable them to proceed with their tasks. It is therefore recommended that system pages should be rendered within the main window (Napoleon, 2006). Tarafdar and Zhang (2005) mentioned that a system should be customizable so that it fits the needs of specific users. Further, Huang (2002) states that customization enables systems to be flexible and thus allow users to organize the information they need access to in the way that they want.

Availability and Accessibility- System availability and accessibility are important factors that need to be addressed well at all costs, especially in a contact centre environment, because the agents can only address clients' inquiries efficiently when the systems are constantly available. Tarafdar and Zhang (2005, p.67) mentioned that "the more accessible an information system is, the less effort it takes to use it". This sentiment implies that if contact centre systems are always accessible and available, then agents are able to address their clients' inquiries quickly and easily.

Security- is one of most important criteria of system usability. According to Tarafdar and Zhang (2005), users do not wish to use a system that they perceive insecure. It is a security mechanism that enables users to feel comfortable about sharing private information such as Identity number, bank account, and so forth. However, in terms of usability, according to the findings in the study done by Tarafdar and Zhang (2005), security mechanisms such as server authentication, encryption, and password protection increase the complexity of a system because users may have to remember many passwords. As a result, they are subjected to extra processing of information and extra tasks.

Napoleon (2006) stated that designers should take into consideration issues such as identification of prospective system users, stating clearly the objectives of the system, and the context and environment in which the system will be used, when designing systems. Ideally, doing so could eliminate unnecessary system changes and delays, and hence improve interactivity and usability.

Ideally, prior to implementing any system, the system designers, developers and testers should test and evaluate the usability and interactivity of the system. Nielsen (1994), and Shneiderman and Plaisant (2005) have formulated a list of measures, presented in Table 2, to be used when testing systems usability and interactivity.

ISO/ international standard	Nielsen 1994	Shneiderman and Plaisant 2005
Efficiency	Efficiency The possibility of learning The possibility to memorize	The speed of execution Learning time Memorizing time
Efficacy	Error/ Safety	The rate of errors discovered by users
Satisfaction	Satisfaction	Subjective satisfaction

Table 2: Usability Model proposed by Nielsen (1994), and Shneiderman and Plaisant (2005)

The technique used to test usability and interactivity could be enhanced by involving system users in the testing phase of the system. And doing so could assist in identifying errors and weaknesses of the system before going live.

2.5.2. Use of Client Systems on Service Delivery

The employment of clients' systems in contact centres is to furnish the agents with information, so it is imperative that the design features of these systems correspond with the expectations of the agents. System design features such as level of interaction, ease of use, performance and so forth play a significant role in ensuring that good system interactivity and usability are achieved. It is therefore important to thoroughly investigate and identify the system design features that may have an impact on an agent's job performance and customer service. To achieve these aims, the researcher has to conduct research in a contact centre where agents will be asked to provide information about the problems they experience when they deliver service to customers.

2.6. Summary

The literature review provided a background to the technologies involved in contact centres and further highlighted the integration of these technologies. Relationship building tools such as CRM systems have been found to have the ability of enhancing good customer relationships by keeping track of the interaction history between the agents and their clients. The main role of agents as highlighted in the literature is to provide answers to clients' inquiries, and solutions to their

problems. Products and system training have been found to be the most common type of training offered to agents before they commence their duties in contact centres. According to the literature, agents in some contact centres are faced with challenges that impact on their health.

In addition, good system usability and interactivity have been found to be among the system design features that impact system users positively. According to the literature, system designers and developers should take into consideration system design rules so that quality system interactivity and usability can be achieved.

The following section discusses a framework that has been adopted to investigate, understand, and explain various issues impacting agents' job performance and customer service.

3. Theoretical Framework

This chapter discusses in detail the framework that has been adopted to investigate, explain and predict the impact of system design features on agents' job performance and customer service. The adopted framework is: *Theoretical Framework on User Satisfaction with a Web Interface* (Zhang, von Dran, Small, & Barcellos, 1999) which is adapted from Herzberg's Motivation-Hygiene theory (Herzberg, 1968). The framework has been chosen because its concepts coincide with those of the researcher, and it is the closest framework the researcher could find. The researcher believes that employing this framework will provide an appropriate process for investigating and answering the research questions effectively.

The *Theoretical Framework on User Satisfaction with a Web Interface* (Zhang et al., 1999) is adopted mainly for explaining the impact of system design features on an agent's job performance and customer service. Although the systems used in the contact centre range from web applications to desktop applications, and this framework was originally used for the evaluation of users visiting websites, it is considered by the researcher to be an appropriate framework that can be applied in this contact centre context.

The study seeks to investigate and identify the features/ factors impacting an agent's job performance and customer services. The research questions to be answered are:

- What system-related factors impact an agent's job performance and customer service in contact centres?

- What intrinsic and extrinsic factors of a system impact job performance and customer service in contact centres?

These questions cannot be answered through study alone of the existing literature even though the literature review provides information on a number of features that affect system interactivity and usability. The researcher needs to find out how these features impact on job performance and customer service from agents themselves. In order to answer the research questions, the researcher has conducted an investigation that involves interviewing agents working in a contact centre

environment. Since the adopted framework is driven from Herzberg's Motivation-Hygiene Theory (Herzberg, 1968), it is therefore essential to provide a little background to this theory.

3.1. Background to Herzberg's Motivation-Hygiene Theory

Herzberg's Motivation-Hygiene Theory, also known as Two-Factor Theory, was developed by Frederick Herzberg in 1959. In 1966 Herzberg conducted a study in USA, where engineers and accountants were interviewed. The results showed that there are different kinds of factors that lead to satisfaction or lack of satisfaction and some of these factors vary from one person to another. Further, it was highlighted that these factors are linked to the environment in which the job is performed and the job itself. The factors that are associated with the job environment are referred to as hygiene factors or extrinsic factors while those factors associated with the job itself are referred to motivational factors or intrinsic factors. Herzberg (1966) named these two categories Hygiene factors and Motivational factors.

Hygiene factors tend to satisfy an employee's basic physiological, safety, and social needs (Maslow, 1954). These factors provide no motivation to employees as they are extrinsic to the job itself but the absence of these factors can contribute to dissatisfaction (Zhang et al., 1999). Many managers perceive these factors as motivators without concern that they can be dissatisfiers (Zhang & von Dran, 2000). Hygiene factors include wages, salaries, company policies, supervision, working conditions, administrative rules, and job security. These factors support the mental health of employees (Herzberg, 1968; Zhang, von Dran, Small, & Barcellos, 2000).

Motivational factors, on the other hand, have potential to build a strong motivation and high job satisfaction (Zhang et al., 2000). These factors are called satisfiers and the presence of these factors lead to work satisfaction. Zhang et al. (1999, p2) mentioned that "when motivators were present, individuals felt satisfied with their work, when absent, they felt not satisfied, but not necessarily dissatisfied either". Essentially motivational factors tend to be more intrinsic to the job itself as they are related to an individual's growth, achievement, advancement, responsibilities, and recognitions (Herzberg, 1968; Zhang & von Dran, 2000; Zhang et al., 2000). Table 3 presents the summary of Hygiene and Motivational factors.

Motivational Factors	Hygiene Factors
Achievement	Company Policy and Administration
Recognition	Supervision
Work Itself	Salary
Responsibility	Interpersonal Relationships (with supervisor, peers, subordinates)
Possibility of Growth	Status
Opportunity for Advancement	Job Security
	Working Conditions
	Factors affecting Personal Life

Table 3: Summary of Motivational and Hygiene factors

The following section discusses in detail the *Theoretical Framework on User Satisfaction with a Web Interface* (Zhang et al., 1999) which is adapted from Herzberg's Motivation-Hygiene theory (Herzberg, 1968). This theory has been adopted to systematically investigate system features that contribute to good/poor job performance and good/bad customer service as well as user satisfaction/dissatisfaction with the system interactivity and usability.

3.2. Theory of User Satisfaction with a Web interface

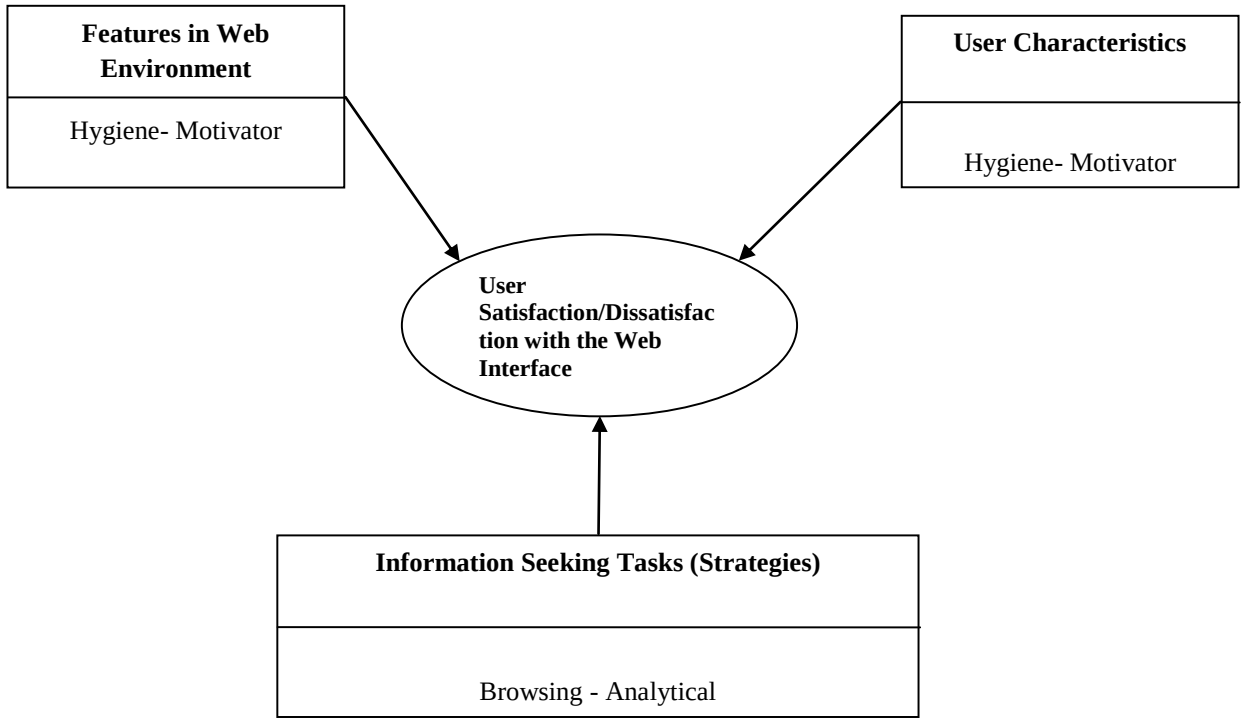
Job performance is one of the most important aspects for any occupation. It is a tool used by employers to evaluate whether or not an employee meets the employer's expectations, and is also used when remunerating employees, and for job promotion. Naturally, job performance can be affected by many factors depending on the working conditions. In the contact centre, which is one of the busiest work places, there are many factors that can influence job performance, such as the systems used by agents and the lack of effectiveness of the training received by them. The focus of this study is to identify features that influence job performance as well as the service delivered to customers. During operation the agents might feel satisfied or dissatisfied with the way the systems operate, and the level of interaction that is possible with the systems may influence their job performance in a positive or negative way.

Many studies in the field of human-computer interaction (HCI) have identified features affecting system usability and interactivity. Yet it is unclear whether there is an inclusive collection of features that contribute to user satisfaction with systems, whether addressing these features is sufficient to make users satisfied with a system, and whether some of these features are more important than others (Zhang et al., 1999). This study aims to systematically investigate features in the contact centre environment which influence agents' job performance, their satisfaction with the systems, and thus service delivery to customers. The *Theoretical Framework of User Satisfaction with a Web Interface* is used as guidance to identify and distinguish those influential features that may be considered motivational factors from those that could be considered hygiene factors in a contact centre environment.

3.2.1. Background to Theoretical Framework on User Satisfaction with a Web Interface

The *Theoretical Framework on User Satisfaction with a Web Interface*, presented in Figure 2, has three components, namely features in web environment, information seeking tasks, and user characteristics. According to Zhang et al. (1999, p2) these components contribute to user satisfaction or dissatisfaction with a web interface, and they further propose that user satisfaction or dissatisfaction with a web interface is a result of interplay between the components. In this study this framework has been adapted to enable the identification of factors affecting job performance and customer service in a contact centre. Zhang et al. (1999) used this framework to identify web features that influence user satisfaction or dissatisfaction with a web interface in a web environment, focusing on users visiting websites and performing information seeking tasks.

Figure 2: Theoretical Framework on User Satisfaction with a Web Interface.



Source: Zhang et al. (1999)

Zhang et al.'s (1999) framework has been formulated as a result of adaptation of Herzberg's Motivation-Hygiene Theory (Herzberg, 1968) into a web environment. On applying Herzberg's Motivation-Hygiene Theory, Zhang et al. (1999) hypothesize that there are two types of features in the web environment that contribute to user satisfaction or dissatisfaction with the web interface. Those features could be either "hygiene features" or "motivational features". The hygiene features are necessary, but hardly contribute to user satisfaction with the web interface. Hence the motivational features are sufficient to ensure user satisfaction with the web interface. Therefore, by applying the concept of this framework in the contact centre environment, as Zhang et al. (1999) have in the web environment, the researcher would be able to investigate and understand features that make agents satisfied or dissatisfied with system interactivity and usability, and the impact of those features on their job performance as well as the service delivered to customers.

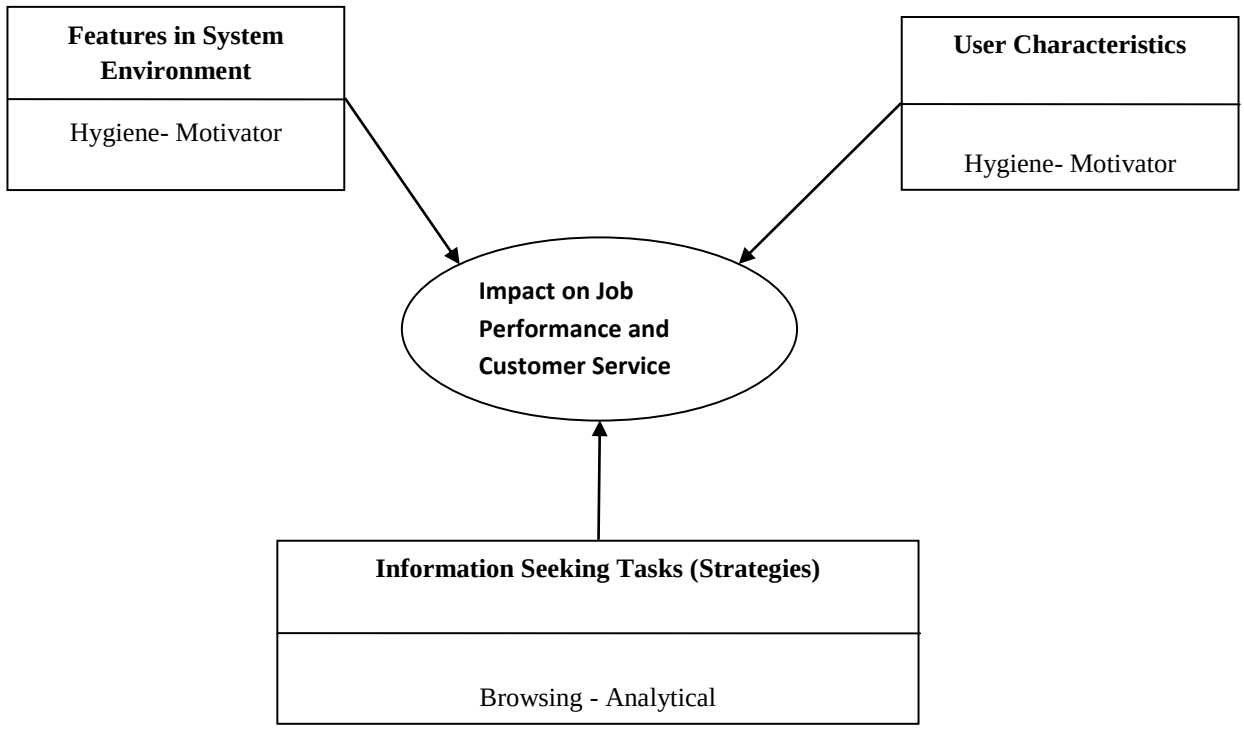
Zhang et al. (1999) proposes that the underlying goals for creating a usable and interactive system that can maximize a user's satisfaction and allow them to focus entirely on their job and thus to achieve high task performance, are similar to those for creating a motivating and satisfactory

workplace. It is therefore important for system designers, as well as developers, to know and take into considerations all the factors that can maximize system interactivity and usability, to enable the achievement of high task performance, whenever they design, develop and integrate systems. The focus of this study is to analyze the impact of system features on job performance and customers service, and further, to identify the intrinsic and extrinsic factors of a system that impact on these. To do this systematic investigation the researcher adopted the *Theoretical Framework on User Satisfaction with a Web Interface* (Zhang et al., 1999) and applied it into a contact centre environment, as described in detail in the following section.

3.3. Operationalised Adapted Theoretical Framework on User satisfaction with a Web Interface in a Contact Centre.

Applying the adapted theoretical framework on user satisfaction with a web interface in a contact centre environment will permit the process of investigating factors influencing agents' job performance and customer service, to be well handled.

Figure 3: Adapted Theoretical Framework on User Satisfaction with a Web Interface.



Source: adapted from Zhang et al. (1999)

The *Theoretical Framework on User Satisfaction with a Web Interface* (Zhang et al., 1999) has been slightly altered to fully accommodate the working condition of agents, including the systems (i.e., web systems or desktop systems) they are using when delivering service to customers in the contact centre. However, the underlying approach used by Zhang et al. (1999) for investigating web features impacting users' satisfaction or dissatisfaction with a web interface remains unchanged. Originally the framework was targeted for a web environment and used as an ideal technique for gathering features in the web environment that satisfy or dissatisfy users of the web interface. Those features were simply categorized into Motivational and Hygiene Factors using the concept of Herzberg's Motivation-Hygiene Theory (1966). Likewise, this study uses the same underlying concept of the theory for investigating and categorizing factors affecting agents' job performance and customer service in contact centre.

Initially, the researcher conceptualizes that the three components of the theory depicted in Figure 3, namely Features in System Environment, User Characteristics, and Information Seeking Tasks, not only play an integral role in impacting agents' job performance and customer service, but that all the components work hand in hand to complement and positively impact agents' job performance and customer service. However, if one of the components fails, the agents' job performance and customer service might be negatively affected. So, there should be a balance between the components so that great job performance and good customer service are attained. The first component, Features in System Environment, is focusing on system features that influence agents' job performance, particularly, the system design features such as ease of use, performance, and so forth. The second component, User Characteristics, is basically covering the agents' experience and their abilities to handle difficult situations. The third component, Information Seeking Tasks (Strategies), sums up all the processes involved, and required to be performed by the agents when delivering service to customers. The researcher believes that the way a system operates (Features in System Environment), the way the process of information seeking is handled (Information seeking tasks), and the way in which an agent deals with any difficult situation confronted with when delivering service to customers have a direct impact on job performance and customer service. So employing this adapted framework would enable the researcher to investigate in-depth all possible factors that impact agents' job performance and customer service, ranging

from the systems used by agents to the processes they have to follow when delivering a service to customers.

According to Marchionini (1995), the information seeking tasks, a function at the heart of service delivery in contact centres, make use of two information seeking strategies, namely browsing and analytical strategies. The browsing strategy focuses on the way in which information is gathered within a system, including web based applications. It is defined as an informal and natural information seeking approach that depends heavily on the information environment and the user's recognition of relevant information (Marchionini, 1995). In contrast, analytical strategies depend on careful planning, iterative query reformulation, recall of query terms, and examination of results (Marchionini, 1995).

Both strategies are relevant in this study because this research centers on system design issues, including its usability and interactivity, and then goes on to investigate the way in which information is gathered and presented in the system. According to Zhang et al. (1999), the browsing tasks are more dependent on system interface designs than the analytical tasks, and are thus more relevant to system designers. Conversely, analytical tasks are highly dependent on the functions of search engines and the way the search engine is implemented.

Zhang et al. (1999) stated that individual characteristics, including level of empowerment, locus of control, and so forth have the ability to modify the effect of system features on user satisfaction because an individual with a high level of empowerment and internal locus of control is likely to be intrinsically motivated (Thomas & Velthouse, 1990). This means that their level of satisfaction with the system interface depends more on the challenges of the information tasks and much less on the system environment.

3.4. Summary

This section discusses in detail the framework that has been adopted in this study. The *Theoretical Framework on User Satisfaction with a Web Interface* is used for guiding the investigation of factors impacting agents' job performance and customer service. The framework was conceptually applied in this study to offer understanding and an explanation of concepts about the use of systems by agents for service delivery in contact centres. It should be noted that it is not the researcher's intention to test or validate the theory.

4. Research Methodology

4.1. Introduction

The purpose of this chapter is to provide a full description of the research methodologies adopted in order to carry out this study successfully. The main focus of a research method is to provide guidelines on how a study should be conducted, and how the information should be gathered and analyzed. A well-designed methodology will assist in carrying out the study successfully by responding to the research questions and inferring valid conclusions (Rowe, 2008).

The study is aimed at investigating system features/factors impacting agents' job performance and customer service in contact centres. The literature review provided information on features commonly known to impact system interactivity and usability. The researcher therefore seeks to investigate and analyze the impact of factors affecting agents' job performance and customer service in a contact centre environment. The following sections discuss in detail the research methods adopted in carrying out this study.

4.2. Research Methodology Rationale

4.2.1. Qualitative and Quantitative Methodologies

When conducting research there are various research aspects that need to be covered, including classification of research methodologies. One common classification is the delineation between qualitative and quantitative research methodologies (Myers, 1997). Quantitative research methodologies are typically positivistic, objective in nature and are aimed at testing and measuring phenomena. Essentially, quantitative studies are based on gathering numerical data that can be measured and statistically analysed using statistical methods and tests (Hussey & Hussey, 1997).

In quantitative research, the researcher may have knowledge of the entire study and will know what is to be measured in advance. Further, quantitative research is restricted to what is observed and which can be measured objectively (Kruger, Mitchell, & Welman, 2005), and thus exists independent of the feelings and opinions expressed by participants.

By contrast, qualitative research is subjective in nature. Qualitative research sets out to communicate a deep and rich textual understanding of a research area. Ideally, the researcher may

have a broad understanding of the research area in which the study is conducted and also have an idea of the information to be gathered. However, the final results and thus conclusions may not be clear until a substantial quantity of data has been gathered (Burns, 2000). Kruger et al. (2005) state that, when conducting research using a qualitative research approach, the researcher should not follow the natural-scientific methods advocated in quantitative research when collecting and interpreting data. Furthermore, qualitative research is suitable when studying phenomena in the human behavioral sciences. In various qualitative studies that have been conducted on issues concerning human behaviour, the human experience is treated as the central focus of that study, and thus cannot be separated from the person who is experiencing it. Likewise, in contact centres the experience of agents using the client systems is a central focus of this study. The comparison between qualitative and quantitative research methodology is well presented in Table 4.

Qualitative	**Quantitative**
"All research ultimately has a qualitative grounding"- Donald Campbell (Miles & Huberman, 1994, p40)	"There's no such thing as qualitative data. Everything is either 1 or 0" - Fred Kerlinger (Miles & Huberman, 1994, p40)
The aim is a complete, detailed description.	The aim is to classify features, count them, and construct statistical models in an attempt to explain what is observed.
Researcher may only know roughly in advance what he/she is looking for.	Researcher knows clearly in advance what he/she is looking for.
Recommended during earlier phases of research projects.	Recommended during latter phases of research projects.
The design emerges as the study unfolds.	All aspects of the study are carefully designed before data is collected.
Researcher is the data gathering instrument.	Researcher uses tools, such as questionnaires or equipment, to collect numerical data.
Data is in the form of words, pictures or objects.	Data is in the form of numbers and statistics.
Subjective - individuals' interpretation of events is important, for example, it may use participant observation, in-depth interviews	Objective – seeks precise measurement & analysis of target concepts, for example, it may use surveys, questionnaires etc.

etc.	
Qualitative data is more 'rich', time consuming, and less able to be generalized.	Quantitative data is more efficient and able to test hypotheses, but may miss contextual detail.
Researcher tends to become subjectively immersed in the subject matter.	Researcher tends to remain objectively separated from the subject matter.

Table 4: Features of Qualitative and Quantitative Research (Neill, 2007, p1)

This study aimed at investigating and analyzing the impact of system features and other system related factors on agents' job performance and customer service, and also to comprehend the circumstances the agents have to deal with when using client systems to deliver service to the customers. The researcher therefore has chosen a qualitative research methodology which was deemed suitable for gathering a rich set of data, and further this approach allowed the agents to fully explain the impact of system features on their job performance and customer service and thus identify those features that strongly affect them when performing their daily tasks. After collecting the qualitative data from agents through interviews, an appropriate data analysis process was performed and conclusions were inferred.

Since agents are the source of data; it is expected that their responses will be subjective and based on individual experience. Further, the researcher's interpretation of the results can also be subjective. According to Myers (1997), interpretive research allows in-depth exploration of the text, and scrutinizes the existence of reality, however, in a much more subjective manner. Therefore, an interpretivist approach was chosen.

4.2.2 Interpretive Research

The ultimate goal of interpretive research is to assist the researcher to arrive at an "understanding of that which is being studied" (Olivier, 2004). The "understanding" in this context, according to Olivier (2004), means understanding or knowledge framed in language. The researcher's perception of this concept is that the findings of the research often rely on the understanding and meanings of the difficulties that the agents are exposed to when delivering service to customers. The meaning of the phenomena is linked to what the agents experience, see and think as they get exposed to the phenomena that this research is studying.

Normally through interpretive research, the researchers become directly involved with human subjects who are the subject of their research, so changes on both researchers' perceptions and the perceptions of the subjects of research during the course of the research are inevitable. Ultimately interpretive research strives for truth through persuasiveness, coherence, and plausibility of the linguistic propositions and presentations of the findings that have been constructed after careful analysis and interpretation of the data (Byrne, 2007). In addition, the main objective of interpretive research is to offer understanding rather than predictions since the truth which it offers is dependent on the understanding, assumptions and prior experience of the human beings involved in it and the meanings that they attribute to the phenomena that they experience during the course of the research. It is therefore permissible that the researcher understands both the context and the process of the undertaken research.

4.3. Qualitative Research Methods

In qualitative research there are various types of interpretive research methodology, including case studies, ethnographic methodologies, action research, and grounded theory (Myers, 1997).
In case studies, according to Myers (1997), the researcher may have an understanding about the environment in which the research is situated, and may also know what to investigate and ask the participants in advance (Myers, 1997). In addition, the research in case studies can involve in-depth investigation into a particular phenomenon (Feagin, Orum & Sjoberg, 1991). as well as, involve understanding a particular case in all its complexity, including those characteristics that make the case unique (Kruger et al., 2005). Likewise, the focus in this study is placed on a contact centre environment where an in-depth investigation is conducted concerning a particular phenomenon.

In ethnography research, the researchers are expected to be involved in the environment in which the study is conducted, they stay in the field for a considerable amount of time whilst studying the lives of the people and also take field notes expressing an insider's point of view (Lewis 1985; Trauth, 2001).

Action research studies are typically defined as a *"systematic inquiry that is collective, collaborative, self-reflective, critical, and undertaken by the participants of the inquiry"* (Jung &

McCutcheon, 1990, p148). Essentially, action research studies are aiming at investigating a solution to a particular problem occurring in a specific setting (Kruger et al., 2005).

Grounded theory is defined as *"an inductive, theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data"* (Martin & Turner, 1986, p141). Ultimately grounded theory studies are very different from other qualitative research methods mainly because of the way in which a theory is developed. Grounded theory typically involves continuous interchange between the gathering and the analysis of data (Myers, 1997).

The researcher has chosen an interpretive research methodology, namely the case study, since it was clear from the outset which environment the study was focusing on, who would be interviewed, and which broad questions ought to be asked. In addition, a case study is good for handling in-depth investigation for a particular phenomenon (Feagin et al., 1991). This approach was deemed suitable for this study since the researcher aimed to investigate in-depth the influence and impact of system factors on agents' job performance and customer service. The influential factors were identified based on agents' experience and their perceptions towards the use of systems and the whole process of service delivery. The questions that were asked were:

- What system-related factors impact agents' job performance and customer service?
- What intrinsic and extrinsic factors of a system impact agents' job performance and customer service?

According to Yin (2002), exploratory case studies are best suited to answer the '*what*' research questions. On this basis, an exploratory case study approach was adopted. The following section discusses in detail the case study research method.

4.4. Case Study Research Method

The case study can be defined as "*a type of qualitative research in which in-depth data are gathered relative to a single individual, program, or event, for the purpose of learning more about an unknown or poorly understood situation*" (Leedy & Ormond, 2001, p114). The case study is mostly used by researchers to investigate in-depth a certain problem and to answer exploratory questions and thus to provide interpretative outcomes. Likewise, this study seeks to understand the

impact of system design features on agents' job performance and customer service. Case studies have been frequently used in many business schools as a method of studying certain methods of operations effectively (Rarick, n.d.), and also across a number of social science disciplines such as sociology, law, anthropology, management, education, economics, and psychology (Woodside & Wilson, 2003; Yin, 1994).

According to Hartley (2004), by using a case study research approach, a researcher can analyse any phenomenon in detail in relation to its environment. Stake (1995) also mentions that a case study can be used to examine a certain situation in order to understand its relation to its environment. The facts obtainable through studying that environment cannot be isolated from this environment (Hartley, 2004). Likewise, in this study the researcher aims to understand the influence of system design features and other system related factors on agents' job performance and customer service in contact centre. Although the results therefore are/will be associated with the environment in which the study is conducted, it is hopes that they can be meaningful in another environment.

The focus of this study is to identify and understand the factors which affect and influence agents' job performance and customer service. An agent's job is to focus on ensuring that customer service, along with service delivery, which is one of the business processes, is achieved and handled successfully. According to Larson (1993), case studies can be used to understand the complexity of organisation process, mainly, because case studies deal easily with processes and multiple stakeholder data. Likewise, this study explores the data from the variety of stakeholders i.e., agents, supervisors, IT technicians and managers. A case study method is useful for investigating in detail any particular phenomenon, providing a clear understanding of the organizational process, and thus the impact of the organization on the environment. The case study can also be used to explore an individual's behaviour and thereby investigate the daily life business practices (Hartley, 2004).

4.4.1. Case Study Advantages

The case study research procedure provides numerous advantages over other traditional research method approaches (Salkind, 2003). A case study research method offers a richer and more in-

depth understanding of the phenomenon being studied, and also provides indicators to new areas of research that can be investigated (Easterby-Smith, Thorpe, & Lowe, 2002).

Leedy and Ormond (2001) stated that a case study research method can help in formulating hypotheses. Yin (1994) maintained that studies conducted using the case approach may contain the same degree of validity as the studies conducted using more positivist approaches.

4.4.2 Case Study Weaknesses

Case studies, just like other research methods, have their own weaknesses. According to Hamel (1993), a case study lacks representativeness, and ultimately follows an inductive process and moves against a deductive process. He also states that researchers who conduct studies using the case research approach do not aim at generalizing their studies. However, Yin (2003) states that the issue of generalization can be addressed by conducting multiple case studies. Another case study weakness, pointed out by Grunbaum (2007), is that a case study lacks appropriate differentiation between the case and its unit of analysis.

4.5. Case Study Selection

This research is sponsored by one of the leading insurance organisations in South Africa, for privacy purpose the name of the institution is not revealed. The organisation offers various products, including a number of policies (e.g. life policies), home loans, savings, insurances, and investment products to its customers. These products are provided over the telephone via a contact centre, where there are a number of agents answering the calls, and at walk-in centres in a multitude of branch offices located throughout the nation. Some of its policies, including the retirement policy, are offered over the internet through the company's website. Most recently, the management has formulated an initiative to provide quality service to its customers and improve customer satisfaction. Success of this initiative relies heavily on agents' job performance, mainly because agents are the individuals who deliver service to customers. It is crucial to identify factors that may impact agents' job performance and which might compromise the good quality of customer service, because when the job performed by agents is not conducted appropriately the customers are those who suffer the most.

Since this study is conducted within an insurance organisation, the contact centre is the target environment, which is where policy holders interact with the organisation. Within the contact centre there are various divisions, including an inbound and outbound call centre which offers various services to customers. The target for this study is the inbound call centre which is where most customers contact the organisation, and where large numbers of agents who service customers over the phone. The inbound call centre has two operations that handle customers' requests, using different systems. The survey was conducted on both operations within the inbound call centre, so that valid reports and recommendations can be drawn.

4.5.1. Sampling

The focus of the study was entirely on agents and their working environment. As a result, the agents became the participants and thus form the sample for this study.

4.5.2. Sampling Size

The inbound centre has a large number of agents. Due to time-constraints and the availability of agents the researcher chose to interview 15 agents per operation which generated a sample size of 30 interviewees. The sample selection was based on convenience sampling and agent willingness to partake in this research.

4.5.3. Data Collection Techniques

There are many data collection techniques that can be used in case studies, including documents, interviews, focus group, direct observation, physical artifacts, archival records, and participant observation, as has been pointed out by Yin (1994) and Stake (1995). The use of these data collection techniques depends on the researcher's approach and the availability of information sources (i.e., documents).

The researcher chose to use face-to-face, in-depth, semi-structured interviews in order to obtain the rich qualitative data necessary to address the research questions posed and also to allow the participants to express their views freely. In addition, Crouch and McKenzie (2006) state that interviewing is one of the research methods that is widely used in qualitative research. The researcher recorded the interviews using an audio recording device. These recordings allowed the researcher to transcribe the interviews for the analysis process. The recorded interviews were

transcribed using Microsoft Office, a tool for data analysis. The entire analysis of the gathered information was conducted using the thematic analysis approach by Braun and Clarke (2006), which involves the creation of categories and themes in relation to the data.

The interview questions were open-ended (see Appendix C) which enabled the participants to put forward any information which they thought might be helpful or appropriate. According to Palvia, Mao, Salam and Soliman (2003), open-ended questions are appropriate and useful for generating sufficient data about the phenomena that are defined in the research question(s).

The interviews were conducted with 30 agents, 15 of them were from an operational team, namely Stratus, which focuses on delivering service directly to external clients. The other 15 agents were from an operational team, namely Legacy, which services internal clients, including brokers and advisors. These agents were selected on the basis of convenience sampling through the help of the contact centre management and they included both males and females of different age and experience.

Before the commencement of the case study, a pilot study was conducted with one of the participants in order to test the comprehensibility of the interview questions. During the interview process, the purpose of the study was explained to the participants. It was important to avoid making leading statements that might give the participants clues to what kind of interpretation might be made with regard to systems as well as to their job performance. Out of the 30 selected participants, three of them did not arrive for the interview so they were automatically left out of this investigation. Additional information was gathered from the contact centre managers, human resources personnel, and IT staff.

4.5.4. Data Analysis

The study employed a theme-based approach to data analysis. According to Braun and Clarke (2006), thematic analysis is a method suitable for identifying, analyzing and reporting patterns from qualitative data that are presented in any number of forms (i.e., interview transcripts or field notes), and can be used for examining and reporting experiences, events, and the reality of participants. Rubin and Rubin (1995, p.226) pointed out that data analysis allows "you to discover themes and concepts embedded throughout your interviews". Accordingly, thematic analysis

approach was utilized to analyze the qualitative data obtained during the interviews, and thus to develop the categories and themes mentioned in the literature review, and from the raw text itself, in order to explain the phenomena being studied.

Braun and Clarke (2006) argue that analysis is not a linear process; it is a recursive process which involves moving back and forth throughout the analysis process. Further, the authors mentioned phases which should be performed when analyzing qualitative data using thematic analysis. The following paragraphs describe the phases mentioned by Braun and Clarke (2006). These phases were performed by the researcher when analyzing the qualitative data using the thematic analysis approach.

Phase one: Familiarizing yourself with your data

The researcher accurately transcribed the recorded interviews into an MS Word document. Thereafter, he went through the transcribed data and read it more than once until the overall meaning of the text was clearly understood. Initial ideas were noted down.

Phase two: Generating initial codes

After reading the transcribed data thoroughly and generating a list of ideas about what is in the data, the researcher identified and grouped features of the data that could be assessed in a meaningful way regarding the phenomenon being studied. As has been pointed out by Tuckett (2005), the process of coding involves organising the data into meaningful groups.

Phase three: Searching, identifying and naming themes

After the data has been coded and grouped in a meaningful way, the researcher identified and named the themes according to the meaning of the data. According to Braun and Clarke (2006, p.93), the names of themes should "be concise, punchy, and immediately give the reader a sense of what the theme is about". Each theme was then allocated to the hygiene or motivational category associated with Herzberg's Motivation-Hygiene theory.

Phase four: Producing the report

After the themes were identified and grouped according to the hygiene and motivational categories, the researcher began to write-up the report. It is pointed out by Braun and Clarke (2006) that the write-up of the report should begin when the researcher has a set of fully worked-out themes.

Table 6 presents details of the respondents. The respondents were coded using coding strategy devised by Miller, Naidoo and Van Belle (2006) which ensures confidentiality to the individuals being interviewed and at the same time provides a mechanism that allows a linkage between the individuals being interviewed and the environment in which they operate. Each agent was linked to his centre of operation. Since this study was conducted in a contact centre which has two call centres, the call centres were coded as C*x*, where the letter C indicates the call centre and the letter *x* indicates the call centre number i.e. 1 or 2. Agents were coded as C*x*.A*n* where the letters C*x* indicate their call centre and A*n* indicates a particular agent in that call centre. The letter *n* represents the number given to each individual agent. Twenty Seven agents were interviewed, and they took the values of A1 to A15 and A1 to A12 respectively, for the two centres C1 and C2. Table 6 presents a list of respondents.

Agent Code	Role in Call Centre	Level of Education	Date of Interview	Years at Current Call Centre
C1.A1	Client Service Representative (CSR)	Matric	07/05/2010	11 Years
C1.A2	CSR	Matric	07/05/2010	4 years
C1.A3	Personal Assistant (PA) CSR	- Matric, NQF level 3 policy service and administration. National Diploma veteran technology	08/05/2010	5 years
C1.A4	PA CSR	Matric, PA secretarial course	08/05/2010	5 years
C1.A5	CSR	Matric, Leanership in Financial service	09/05/2010	3 years
C1.A6	PA CSR	Clothes production	09/05/2010	3 years

		and Social science degree		
C1.A7	CSR	Matric	14/05/2010	1 ½ years
C1.A8	CSR	Matric	14/05/2010	4 years
C1.A9	CSR	B.A Honors Degree	15/05/2010	5 years
C1.A10	PA CSR	B.A. Degree	15/05/2010	5 years
C1.A11	CSR	Financial service administration	16/05/2010	5 years
C1.A12	CSR	Matric	16/05/2010	4 years
C1.A13	CSR	Matric	21/05/2010	5 years
C1.A14	CSR	Matric	21/05/2010	4 years
C1.A15	CSR	Matric	22/05/2010	11 years
C2.A1	CSR	Matric	12/05/2010	5 years
C2.A2	CSR	Matric, Management Diploma	12/05/2010	4 years
C2.A3	CSR	Certificate in leadership	13/05/2010	1 ½ years
C2.A4	CSR	National Diploma in Management	13/05/2010	7 years
C2.A5	CSR	CISCO qualification	14/05/2010	4 years
C2.A6	CSR	Matric	14/05/2010	2 years
C2.A7	CSR	Matric	19/05/2010	7 years
C2.A8	CSR	Matric	19/05/2010	8 years
C2.A9	CSR	Matric, Certificate in Business Studies	20/05/2010	1 ½ years
C2.A10	CSR	Matric	20/05/2010	8 months

C2.A11	CSR	Matric, Certificate in contact centre management	21/05/2010	7 years
C2.A12	CSR	Matric, Diploma in Clothing management	21/05/2010	2 Years

Table 5: List of Respondents

4.5.5. Ethical Considerations

The researcher took every precaution needed to stay within the bounds of ethical concerns as the University of Cape Town and thus the Department of Information Systems is strictly concerned with this issue. An ethics form was submitted to the Ethics in Research Committee at the university, and the Confirmation Letter of Study was presented to the contact centre management (see Appendix A for the Confirmation Letter of Study). An interview consent form was also presented to the participants to ensure that they understood the ethical issues surrounding the research before they partook in it (see Appendix B). Permission to record the interviews was obtained from each participant before conducting the interviews.

The findings of this research will not be shared amongst third parties; however, it can be used for academic purposes. As such, only the researcher and the supervisor will have access to this information. The organisation in which this study was conducted will get a copy of the findings, and the participants will receive a copy of the results upon request. In addition, the information will be stored in a safe file that will require a password to access.

4.5.6. Limitation of the Study

Because this case study was carried out in one location, there can be concerns regarding the application of results more generally. The study was conducted in a contact centre within one of the insurance organisations, the research participants were all drawn internally from that organisation. The findings therefore are within that context and may not be applicable to contact centres in other organisations. However, it is the researcher's belief that the procedures applied and thus the results obtained can be used to understand the impact of system interactivity and usability on any contact centre agents' job performance and customer service.

The framework used in this study originally was meant for investigating factors affecting users visiting websites; however, it has been adapted and applied in this study because its concepts coincide with those of the researcher, and it is the closest framework the researcher could find. It is therefore considered by the researcher to be an appropriate framework that can be applied in this contact centre context.

4.5.7. Summary

This section provides detailed information on the research methods adopted in this study. An interpretive qualitative research approach was deemed suitable, because of the nature of this study, which is an exploratory case study, with the aim of providing extensive information regarding issues impacting agents' job performance and service delivery in contact centre. The insurance organisation in which 30 agents were selected as participants was used as a case study. Interviews were chosen as a suitable tool for data gathering because they allow individuals to freely express themselves and thus provide qualitative data. A coding technique for ensuring confidentiality to the individuals being interviewed was used. A Thematic analysis approach was utilised for analyzing the qualitative data. Issues around the limitations of the study and ethical considerations were discussed.

5. Case Descriptions

This chapter focuses on providing a full description of each call centre and the systems used in the contact centre. There are two call centres within the contact centre in the organization in which this study was conducted. The objective of the call centre is to provide a whole range of services to clients through telephonic conversation, fax and emails. The process of delivering service to clients is fully dependant on the applications used by agents in the call centre. In call centres, agents are always the first point of contact so their interaction with clients and the service they deliver to clients is vital, not only for the success of the business and clients' satisfaction, but also for agents development and growth. The systems that provide the information required to handle every request made by clients should be compatible with the job that is done by agents. For this reason the focus of the study was predominantly on analyzing the impact posed by system design features and other related factors on agents' job performance and the service delivered to clients.

5.1. Case Description: Call Centre C1, Stratus

The agents in call centre C1 interact with external clients directly. Their focus is entirely on addressing clients' inquiries. When a client calls, the first thing the agent does is to verify the client on the system, using policy number or identity number. Once the client is verified the agent then proceeds with the client's inquiry. Client inquiries include requests for documents, changing information, payments, and so forth. In order to service a client, an agent applies the systems to perform all the necessary actions needed to address the client's inquiries. The quality of service delivered to clients is therefore dependent on the systems' performance, interactivity and availability. If some of the systems are not responding or are slow to respond, it is possible that the quality of service delivered to a client might be affected negatively, which also affects the agent's job performance.

5.2. Case Description: Call Centre C2, Legacy

The agents in call centre C2 interact directly and exclusively with internal clients, which include brokers and advisors. Their focus is on assisting the clients of brokers and advisors. An internal client normally calls and requests service from one of these C2 agents who then applies the systems to addresses the client's inquiry. According to the agents in C2, the internal clients make

requests on behalf of their own clients, and they sometimes have more than one request to be addressed by the agent within a particular call. Thus an agent can have more than one request to address within a single call. Sometimes when the agents in C1 are over loaded with incoming calls, the agents in C2 do assist by taking some of these calls.

5.3. Systems used in the Contact Centre

The contact centre uses a range of systems to enable agents to address clients' inquiries. According to the respondents in both centres, there are "*9 -10 systems*" that they use for handling clients' inquiries; however, they "*don't use all 9 systems in every call"*. Most of the respondents pointed out that these systems perform a range of functions, for example handling clients' calls, addressing policy related inquiries, sending attached documents via email, faxing and receiving documents. The most commonly used systems are Sentrix, Lamda, EIP, Jstel, Session A, Intranet, Content Manager, and Lotus notes- email. These systems are shared between both the call centres, C1 and C2, and they perform various functions which are executed by agents in response to clients' inquiries. Hence the systems usage is dependent on the number of inquiries that are handled by both call centres. According to the respondents, the systems were running independently and had been mostly used separately. However, very recently the management introduced a new "*main system*", namely Sentrix which integrates many of the systems. The purpose of this main system is to improve access to the functionalities used for handling clients' requests; this improves usability and increases the speed of navigation through all the systems. It is now possible for the agents to perform most of their tasks using this main system; most respondents pointed out that they *use Sentrix as far as possible, but there are certain applications that are not integrated within the main application, so those applications are accessed separately.* Most of the systems are windows based which allow the use of mouse and graphical user interface (GUI) functionalities to access clients' information stored on the relational database management systems (RDBMS). However, there are older systems (i.e. COBOL systems) that were developed earlier which use command prompt/keyboard functionalities to perform the required functionality as well to access information and programs that run on the mainframe.

The survey conducted in both call centres, C1 and C2, has provided significant insight into the challenges faced by the agents when delivering service to customers, and the impact of these

challenges on their job performance and customer service. The analysis and discussion of the findings were compiled based on the activities and challenges faced by the agents in both call centres.

5.4. Summary

The entire focus of the contact centre is to deliver quality service to clients, including internal clients. Most of the systems used in the contact centre are integrated into the *main system*, Sentrix, for easier access. The integration allows the agents to access various programs and client information from within one application. However, the systems that are not integrated within the *main system* must be accessed separately. The systems are shared between C1 and C2 depending on the inquiries made by the clients. The majority of the systems are windows based which use mouse and graphical user interface and there are also older systems (i.e. COBOL systems) which use command prompts for functionality access.

6. Discussions of Findings

6.1. Introduction

This chapter focuses on discussing the findings obtained during the interview process. The discussion mainly focuses on the findings that are related to the research questions posed earlier in this study:

- What system-related factors impact agents' job performance and customer service in contact centres?
- What intrinsic and extrinsic factors of a system impact agents' job performance and customer service in contact centres?

A number of open-ended interview questions (see Appendix C) were formulated to allow an in-depth gathering of information related to factors impacting agents' job performance and customer service in contact centres. During the data analysis of the transcribed data, themes and categories were identified. Since the adopted framework is driven from Herzberg's Motivation-Hygiene Theory (Herzberg, 1968), the categories and themes which emerged from the interviews were then associated with Herzberg's Motivational and Hygiene factors. The findings will be grouped and discussed using these factors.

6.2. Findings Related to Motivational Factors

According to Herzberg (1968), motivational factors are factors associated with the job itself and they are sometimes referred to as intrinsic factors. These factors are important in most jobs because they encourage workers to improve their job performance, their level of achievement and their job satisfaction. The discussion of the findings related to motivational factors will be discussed under three categories which emerged from the interviews, namely Work Itself, Responsibility, and Achievement. Figure 4 presents a schematic representation of categories and themes related to motivational factors.

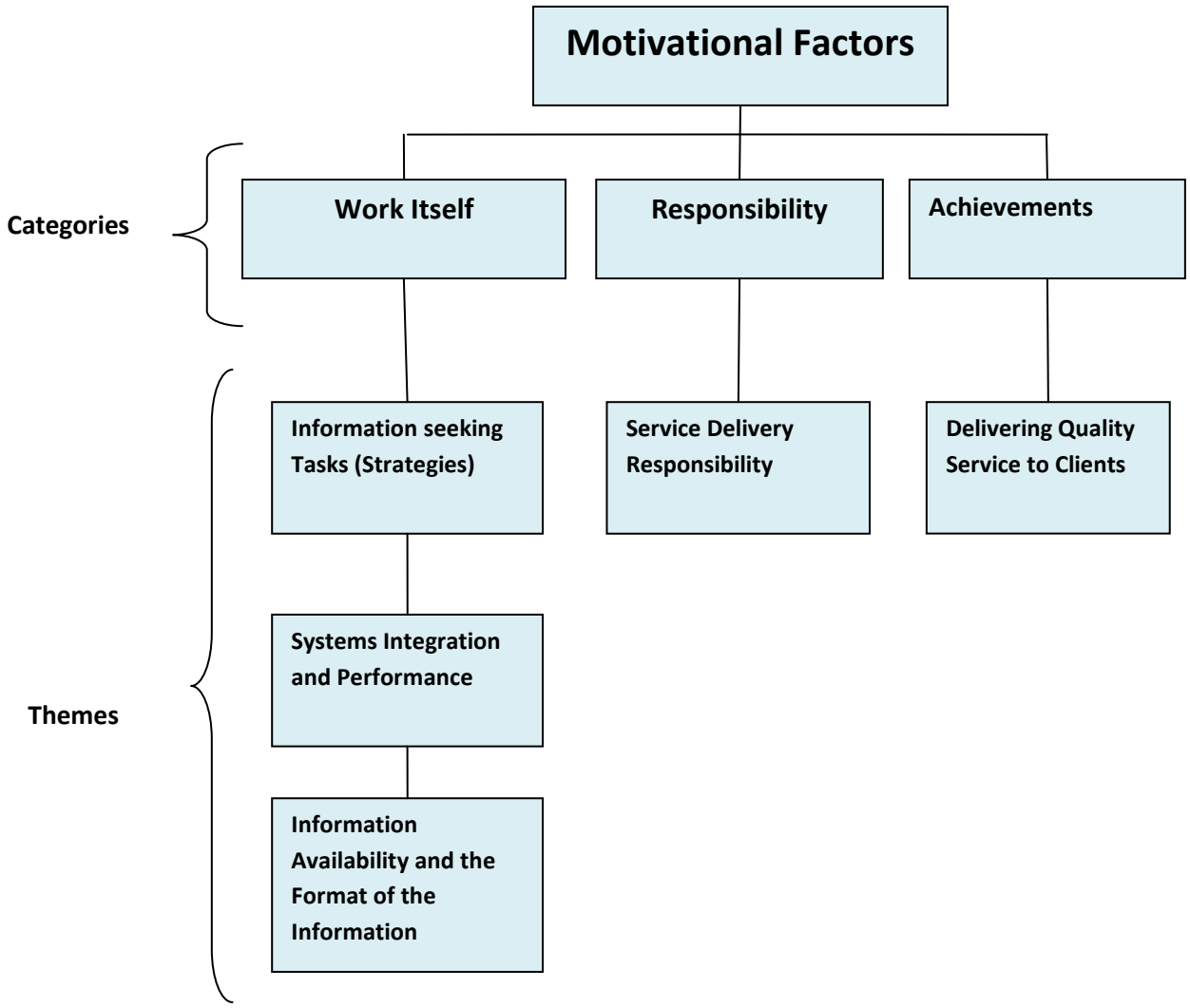


Figure 4: Motivational factors with the associated categories and themes

6.2.1. Work Itself

According to Herzberg (1968), the Work Itself category refers to the actual content of the job, what the individual is asked to do at work. In the call centre agents are responsible for delivering service to clients via telephonic conversation and other media of communication including emails, fax. For this study the Work Itself category refers to the service delivery activities that are performed by agents, including the tools used during the execution of the service delivery activities.

The following themes associated with the Work Itself category were identified during the data analysis process:

- Information Seeking Tasks (Strategies)
- Information Availability and the Format of the Information
- Systems Integration and Performance

6.2.1.1. Information Seeking Tasks (Strategies)

Information is a crucial aspect for service delivery in contact centres because without information agents would not be able to deliver quality service to clients. Information should be easily accessible and agents need to know where it is located. Most of the respondents said that the information is easily accessible, but one needs to know which system will provide the right information. According to the respondents, systems training was provided to them before commencing their service delivery duties, and the training taught them to know where to find the appropriate information. However, most of the respondents pointed out that it is difficult for new recruits to know their way around the systems; for these agents the information seeking tasks take longer. Most of the respondents said that they use between *"9 to 10 systems"* to address clients' requests and sometimes they find "*difficulties navigating between the systems*" when gathering information. For instance, one of the respondents said that "*if everything was available on one application, it could have been easier. So now we have to go through all the applications to get the needed information*". In addition, some of the respondents highlighted that the number of systems they have to go through in order to get information is very time consuming because "*now one have to go there to this application and there to that application"*. As a result, their average handling

time (AHT) gets impacted negatively. Some of the respondents further highlighted that they "*feel like they are working with too many systems"*, as a result, the process of gathering information becomes longer at times because sometimes they have to "*do certain transactions on one application and do another transaction on another application, so that really consumes time"*. However, most of the respondents said that they deal easily with the number of systems because they open the systems in a sequence that works for each of them, and by doing so they easily locate the right information without struggling.

According to the respondents, there is a "*main system*" that integrates almost all the systems into one package, and "*you can almost do everything on that system*" but the system does not perform well. As a result, some agents prefer using the systems separately, as many of them mentioned that "*sometimes I used the systems independently so I don't use the main application because it is slowly and that sometimes helps the problem of delays*".

Most of the respondents highlighted that when they try to open certain "*information or view documents within the main application, the content manager system used for viewing documents hangs";* as a result, their AHT is affected negatively because they have to wait for the application to respond before continuing with the client's request.

Some of the respondents mentioned that "*certain systems logged out more frequently than others when not used for about an hour"*, so they have to frequently reload them. In addition, whenever there is a system down time it takes longer than usual to get access to the other systems that are not down. Some systems take longer to "*generate a client reference number"* than others. As a result, the agents have to wait for the systems to respond and that increases their AHT.

6.2.1.2. Impact of Information Seeking Tasks (Strategies) on Agents' Job Performance and Service Delivery

Looking at the information seeking tasks, most of the respondents said that navigating between the systems consumes time because during the process they had to "*save all the documents on the desktop and attach them to the email"*, and even more time is wasted when one of the systems responds slowly or fails to cooperate. As a result, the agent's AHT is negatively impacted due to the time spent trying to prepare the clients information. According to the respondents, when the average handling time increases, their job performance is negatively impacted because the AHT is

one of the criteria used by the management to measure their job performance. In addition, customer service gets negatively impacted: once there are delays in the information seeking tasks the times spent by clients on the phone while waiting for the agents to respond increases and clients get upset.

Agents are given a certain amount of time to handle a client's request and most agents believe that if the systems performed to standard and had only a few slow responses, then their AHT, job performance and client service would not be adversely affected.

6.2. 1.3. Information Availability and the Format of the Information

The clients' systems are built to provide all the necessary information needed to handle a client's request. Most of the respondents agreed that "*the information we need is all there*". Some said that "*there is enough information to assist on service delivery"*. This clearly shows that the information needed to handle clients' request is always there. However, retrieving the information is sometimes a challenge. According to some of the respondents, the information is there, the only problem is being able to access what you need, when you need it, and as fast as you need to access it. The problem is said to be caused mainly by the systems downtime, errors and the slow response time, as most of the respondents agreed that the "*main system* is *too slow"*, and sometimes when accessing information it takes a long while to respond. In addition sometimes the integrated systems do not open, they hang. Most of the respondents confirmed that it takes "*2-3 minutes for the content manager page to load"*, especially when trying to open documents, and sometimes when generating more than 4 quotes "*you can take easily 15 minutes on the phone*". Further, some of the respondents highlighted that the "*main system"* experienced down time "*at least once a week"*, but lately the problem has been mainly the slow response time. Not been many details have been given on the systems errors, however, some of the respondents pointed out that some of the systems (e.g., Lamda) give error messages that do not relate to the policy itself but the closest message it can give, therefore they had to try to understand what those error messages meant.

Most of the respondents said that the information within the systems is readable and well presented, however, some of the agents complained about the way in which certain information is formatted. A few of the respondents stated "*what I don't like is the format in which the information*

comes through". In addition, another respondent stated that "*the information in Session A is horrendous there. You find yourself staring at that screen thinking what's going on here?*"

There were also concerns around the language and acronyms used on some of the older systems. Some agents complained that at the beginning they struggled to read certain information from the older systems because of the way in which the system interface was written.

6.2.1.4. Impact of Information Availability and the Format of the Information on Job Performance and Service Delivery

It is imperative that information in call centres is always available and easily readable. Most of the respondents complained that they suffer from errors and slow response times in the systems, because it becomes difficult for them to retrieve or update clients' information. According to most of the respondents, the whole purpose of clients calling is to get help, and when the systems fail to retrieve the information clients need then the purpose of the call is negated. Under these conditions the customer service is negatively impacted because the agents have to keep apologizing to clients for the delays, and this makes the clients perceive the agents as not being helpful. Some agents said that they sometimes apologized for the delays which some clients did not understand.

Whenever the systems are down or respond slowly the agents cannot verify clients' details, which is required before they can assist the clients. This could make the clients feel unhappy about the service they get from the agents and thus the company. According to most of the respondents, their call quality gets measured so if ever one of the agents sends information without verifying it, he/she would be penalized. Delivering a quality service to clients is one of the things the agents are striving to achieve because the management uses quality of service as one of the criteria used to rate agents' job performance.

6.2.1.5. Systems Integration and Performance

Systems performance, as it has been revealed in the literature review, is one of the most important aspects of a well designed system. When systems performance is well handled it improves systems interactivity and makes the systems function properly without affecting users. Integration, on the other hand, is a very difficult concept to handle because it involves putting different systems together and making them work. It must be remembered that systems are developed using various

languages (i.e., Java, .Net or COBOL) and run on different platforms. Various integration tools (i.e., web services) have been used to handle systems integration. According to most of the respondents, the systems are accessible separately and as well as through the "*main system*" which integrated almost all the systems used in the call centre. According to the respondents, the separate systems are used whenever there is a problem in the "*main system"*. The "*main system"* has been developed to improve the service delivery process, customer service and hence agents' job performance. However, problems have arisen as it has been pointed out in many occasions in the previous discussions, because the hoped for improvements have not happened. Some of the respondents believe that the integration of the systems was not well handled, which is one of the reasons why the *main system* gives so many problems. The following statements confirm this *"…it is the interaction between Sentrix and Lamda that causes the slow response…" ".. The applications do not communicate well on the same platform" "...The slowness of the response is normally caused by the integration between the systems..."*

The respondents also pointed out that three years ago there was a similar system that integrated many of the systems and the problems at that time were very minimal. However, due to the cost of licensing that system, the organisation developed a similar system in house which is the "*main system"* currently in use.

Most of the respondents complained that even if they did try to assist the clients as quickly as they could; the systems seemed to hold them back. In addition, one of the respondents mentioned that "*sometimes you finished with the call already and waiting for the application to give what you need before you can close the call*". Apparently, when the "*main system"* hangs while the clients are on the line the agents become very frustrated because they do not know if the system will respond or not, and the agents are unsure about what feedback to give to the clients if the "*main system"* does not respond. According to some of the respondents, the only solution in such a situation is to ask the clients to call back. However, doing that makes them look incompetent because they could not give the information that the clients really needed. Most of the respondents felt that the newly implemented system, "*main system*", is letting them down because of the problems that occur. The following statement from one of the respondents confirms that:

"*..The problem starts when you are on the phone and you are requesting something on the system and the system takes forever to give the information then the client will just say listen here I can't wait anymore just send that whenever you ready. And then the clients put down the phone but then I can't take a call because I have to send the information to the client and that affects my not ready time because at that stage I can't take any calls...*"

In addition, some of the respondents believed that system integration has been the cause of the slow response of the main system, which is what has made the "*main system"* hang or not respond to user prompts. Some of the respondents stated that sometimes "*when the phone rings the system does not allow the calls to be taken"* (system-telephonic integration) and as a result, the clients are kept waiting in the queue for longer than necessary. Sometimes even transferring a client to an available agent becomes impossible.

According to the respondents, all these challenges impact negatively on their job performance because the longer the clients stay on the line whilst the agent is waiting for the systems to populate information or to open up, the higher the agent's AHT becomes. In addition, the customer service is negatively impacted if the clients are kept waiting on the line for a long time and at the end of the call have not received the help they needed.

6.2.1.6. Impact of Systems Integration and Performance on Agents' Job Performance and Service delivery

The system integration and performance have a major impact on an agent's job performance and customer service. According to most of the respondents, the delays caused by the slow response time of the systems seriously impact their service delivery tasks and job performance, as it takes a long time to finish a call which results in the AHT being increased. The agents have between 4 – 5 minutes to take and close a call but because of the system slow response they sometimes take 7 -8 minutes per call. This has a negative impact on their remuneration because the time they spend on the phone gets measured and whenever the AHT is higher than expected it negatively impacts their performance. Some of the respondents said that every time the system starts performing slowly they worry and keep thinking about their statistics. The agents said that these conditions made them rush clients in order to get the calls closed quickly. However, doing this has other negative implications, such as poor call quality, because all calls are analyzed by auditors to verify quality

and instances are noted where the agents rushed clients. In addition, clients also feel the impact of the slow response of the systems because they are kept waiting longer than normal on the phone, in addition to the time they have waited before being put through to speak to an available agent.

According to the respondents, the management has asked them to close calls before sending any documents to clients to avoid spending longer than necessary on the phone. This has created other implications on job performance, because the agents still need to perform transactions on the system before taking another call, which clocks up their '*not ready'* time. When the systems are slow and taking longer than usual to respond the agents "not ready" time increases.

These challenges have made most of the respondents frustrated, and some of them feel that it is not their fault that the systems are not responding and performing properly, so why should they be punished for a situation over which they have no control. It is clear from the outset that the problem is within the design and integration of the systems used in the contact centre. Most of the problems experienced by these agents seem to have their origins in the systems, and these problems impact negatively on customer service and thus agents' job performance. Most of the respondents stated that if the systems were performing as they were supposed to, there would not be any problem regarding poor service delivery and job performance.

Summing up, it is clear that system design features have an impact on customer service delivery and agents' job performance, drawing from all the concerns highlighted by the agents around the information seeking tasks, information availability and format of the information, and systems integration and performance.

6.2.2. Responsibilities

According to Herzberg (1968), the Responsibility category refers to the taking of ownership by individuals for the activities of their job. In this study the Responsibility category refers to agents taking responsibility for delivering quality service to clients, to act according to the rules for service delivery stated by the management, and to keep their performance within the boundaries set by management. The following themes were identified under the responsibility category:

6.2.2.1. Service Delivery Responsibility

According to the respondents, their responsibilities and focus are on delivering quality service to clients, including answering calls, addressing any client enquiries and thus building relationships with clients. All these responsibilities rely heavily on their interaction with clients, the service they give to clients, and the speed at which the service is delivered. Most of the respondents commented that "*it is difficult to always give what the clients want and as fast as they want it"* because of the conditions (i.e., slow system response) they are working under. In addition, building a proper customer relationship is also difficult to achieve because of the limited time an agent may spend with each client: most respondents mentioned that most of the time they *"rush clients so that their calls are closed within the AHT"*. Further, some of the respondents confirmed that they "*always want to make the clients happier and give them proper service"* but their hands are tied because everything they do is determined by the systems. For instance, if the system is slow the client will have to wait longer on the call, and at the same time the agent's AHT increases. In the end, the client will not be happy because of the long wait, and neither will the agent, because of the impact the AHT will have on their overall performance.

It is clear that the call centre systems play a fundamental role in ensuring that quality service is delivered to clients, and that the agents do meet the needs of the clients and do deliver what is expected of them. It is therefore imperative for the contact centre to ensure that systems run quickly and without interruption.

6.2.2.2. Impact of Systems on Service Delivery Responsibility

According to the respondents, when the systems start to perform slowly, hang, and delay page and document requests, they normally struggle to address clients' requests for four reasons. Firstly, they cannot give any information to clients without verifying the client details first, secondly, they cannot send any documents to clients, thirdly, they cannot keep the clients on the line for a long time while waiting for the system to respond, because their AHT will increase, fourthly, they are forced by the situation to ask the clients to call again. Even if they promise to send the requested information to clients when the systems respond, they may forget to do so because they might be attending to another request. Some of the respondents pointed out that certain systems do not use "*standard inputs"*, for instance, some of the systems accept a policy number which starts with 0 and ends with X, whereas, other systems demand that the X is removed. As a result, inputs are subject to mistakes. The respondents also mentioned that it would make their job easier if the systems used certain standards for input, because then "*copy and paste"* would be possible.

6.2.3. Achievements

According to Herzberg (1968), the Achievements category refers to the successful accomplishment of tasks assigned to individuals. Ultimately these achievements lead to these individuals experiencing "psychological growth" (Herzberg, 1968). In the contact centre, the achievements of agents would be delivering quality service to clients within the specified AHT, and meeting other service delivery requirements specified by the management. The following themes were identified under Achievements:

6.2.3.1. Delivering Quality Service to Clients

Most of the respondents confirmed that their job performance determines their success in the call centre. So whenever they deliver a quality service to clients, and adhere to the specified AHT and "not ready" time, there is a chance that they might get promoted and be given more responsible roles to play in the call centre. These achievements rely heavily on the performance of the systems. If the systems perform well, the agents' job performance and other customer service will not be affected negatively. Further, the agents will be able to deliver service to customers according to the management's requirements.

6.2.3.2. Impacts of System on Quality Service Delivered to Clients

Most of the respondents reported that when the "*main system"* starts to perform slowly, it takes longer to load pages, and produces errors so that their AHT increases because they have to talk longer than usual on the phone. Even if the agent closes the client's call and sends everything offline they still get negatively impacted because they cannot take another call and hence their "not ready" time increases. As a result, customer service is affected. Clearly the systems design features do have an impact on agents' job performance and thus threaten their chances of getting promotions. In addition, the client service is compromised because the client cannot always get what they want when they want it.

6.3. Findings Related to Hygiene Factors

According to Herzberg (1968), hygiene factors are those factors, which are associated with the job environment. These factors are also referred to as extrinsic factors. Essentially when hygiene factors are not satisfied they tend to negatively impact employees' job performance and thus increase job dissatisfaction. This section looks at these hygiene factors impacting agents' job performance and customer service. In the following discussion, the findings related to hygiene factors that emerged from the analysis, are divided into three categories, namely Company Policy and Administration, Relationship, and Working Conditions. Figure 5 presents a schematic representation of categories and themes related to hygiene factors.

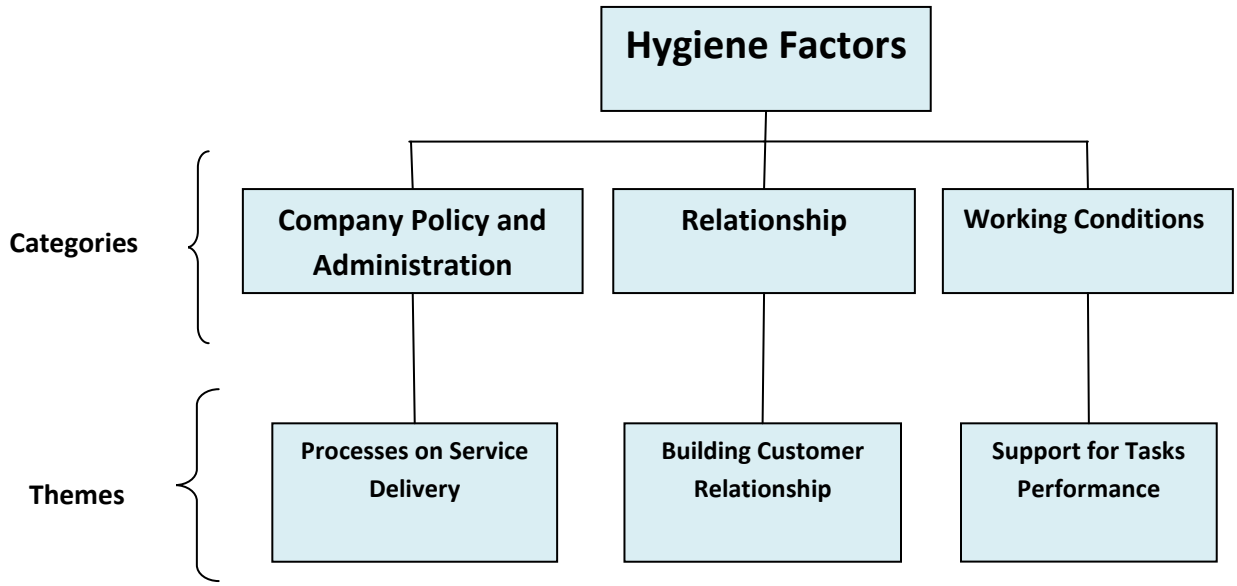


Figure 5: Hygiene factors with the associated themes and categories

6.3.1. Company Policy and Administration

The Company Policy and Administration are procedures created by management to direct the operational activities of an organisation. In this study the contact centre management was responsible for creating procedures that enabled agents to effectively use systems in their service delivery duties. The following themes were identified and linked to the Company Policy and Administration category:

6.3.1.1. Processes on Service Delivery

According to the respondents there are procedures that are stated by the contact centre management for service delivery processes. Those procedures are communicated to the agents via "*training mails*". According to the respondents, the "*training mails*" contain instructions to be followed by the agents when delivering service to clients. These instructions change frequently, as most of the respondents mentioned that "*the management constantly change how you do things so will learn to adjust to the new change. Sometimes it is bit overload*". According to most of the respondents, once these changes are communicated the management gives them at least a week to adjust to the new change and to start delivering services according to the new instructions stated on the latest "*training mails*". If the instructions are not followed within the given period then the agents who do not work according to the instructions stated in "*training mails*" will be marked down on "*quality"*. Most of the agents felt that the change in processes "*kept on pulling them back"* because whenever they think they have mastered a certain process then a new process is introduced and then they have to adjust to a new process all over again. However, some of the agents do realize the importance of implementing these changes because sometimes government implements rules that force organizations to change the way certain things are done, which is the reason why some of the service delivery processes change.

6.3.1.2. Impact of Process on Agents' Job Performance and Service Delivery

According to the respondents, the processes for service delivery that are implemented by the management sometimes impact their job performance and thus client service delivery. Some of the service delivery tasks can be handled very simply, but because of the processes the tasks become longer. For instance, some of the respondents complained that the process to send an email and documents to clients from the main system is already lengthy and when the systems start to perform slowly the efficiency is further decreased. Further, some of the respondents said that when new processes are implemented, they feel dissatisfied and do not even look forward to going to work. In addition, according to the respondents, the processes impact them and the clients negatively. For instance, one can easily send an email or documents to clients via an email application, but because of the processes emails and documents have to be sent via the "*main system"*. According to the respondents, when the system is slow, the emails take longer to reach the clients, mainly because the emails go into a queue. As a result, the agent's AHT and customer

service is affected negatively because clients have to wait longer than expected to receive their emails or documents. Finally, most respondents mentioned that they would love to see the processes simplified so that they can produce a positive impact on agents and the clients alike.

It is clear from the outset that the processes implemented by the management do have a negative impact on agents' job performance and customer service. Most of the agents mentioned the difficulties they have to undergo when new processes are implemented. The change in processes upsets their emotional state of mind; as a result, their job performance is negatively impacted because they spend lots of time being frustrated by the change in processes.

However, the aim of implementing new processes is to improve the situation in the contact centre, so that the centre adheres to corporate standards, and satisfies new rules from government. According to some of the respondents, the management implements processes so that the service delivery tasks get executed in a well structured manner, and also to help keep track of activities happening within the contact centre.

6.3.2. Relationship

The Relationship category looks at the agents' abilities to build a good working relationship with clients. The follow themes were identified and linked with the Relationship category:

6.3.2.1. Building Customer Relationship

One of the duties of the agents is to build good relationships with clients. It has been mentioned in the literature that a good customer relationship helps businesses to sustain clients for longer and thus helps with creating new markets. Some of the respondents reported that "*because of the slow response of the systems, it made us to keep on apologizing to clients, and asking the clients to call back"*. In addition, because of the systems design features (e.g. performance), processes, and the need to avoid increasing AHT, the agents end up delivering service that is not satisfactory to clients. Some of the respondents mentioned that "*sometimes we are under pressure and forced to cut the call, sometimes we do not even say a proper bye bye*". As a result, a good client relationship is not achievable. This clearly shows that system design features and other related service delivery factors have a negative impact on customer service and thus threaten the

relationships that clients have with the organisation. In the end this situation could have a bad impact on the business, such as losing clients.

The respondents said that the management should fix the problems experienced by the "*main system"*, and that doing so would improve the way they interact with clients. This is because, if the system works smoothly, then the agent is not worried about exceeding the AHT and this lack of anxiety makes it easier for them to interact well and build good relationships with the clients. However, in the present circumstances, caused by the problems they frequently face it is impossible to build a proper client relationship.

6.3.3. Working Conditions

The Working Conditions category covers the environment in which employees perform their duties. In this study, this category covers the training and support the agents received for their service delivery duties because it is through the training and support from the seniors that the agents can deliver quality service to customers. Other issues around systems and processes have already been covered. The following themes were identified under the Working Condition category:

6.3.3.1. Support for Tasks Performance

Most of the respondents highlighted that they have received "*3 months training which included system and products training"* before commencing their duties as agents in the call centre. However, the system training was not sufficient to enable them to perform their duties and to use all the systems' features, as some of the respondents highlighted that *"the system training was the shortest training of them all because in the training they focus much on knowing the product; they didn't spend as much time on system. And is not as intensive as it could be, because there are lots of things when you get on the phone that is not going to work and some agents will tell you there is a short cut for doing that transaction"* Furthermore, most of the respondents reported that they experienced difficulties when combining both the use of systems and products when they get into the workplace. However, some of the respondents said that they are given "*a month grace period to be up to speed"* and this helped them to know where "*to click and find the information".*

According to the respondents, "*the products training is very sufficient"* and equips them well to meet the challenges they face when they get into the workplace. In addition, they have confirmed that the management provides additional training for skills upgrades whenever there are new changes implemented on the systems so that agents can be up to speed quickly. Further, most of the agents mentioned that they get assistance from the experienced agents and supervisors whenever they face difficulties.

In summary, although there were some concerns regarding the quality of the training as some of agents have stated that combining the systems and products training into one course is challenging, on the whole the training has been deemed effective and efficient.

6.4. Interview with IT Developer

One of the IT developers, who were involved in the development of the "*main system"*, *Sentrix*, provided insight into the issues around the slow response and systems integration within the "*main system"*. The developer mentioned that the "*main system"* was developed to improve business processes and cut down most of the steps that the agents perform when using the systems separately, so that when the users make a request on the system, the system runs in the background and collects all the information needed for that request and then presents the information to the user. Because of all the background calls that are being processed at the same time, the users might perceive the system as being slow because they have to wait longer for the system to respond. There are integration issues as the "*main system"* is an in-house development but there have been regular upgrades to the system to improve performance and integration. The developer further mentioned that part of the problem is the fact that when the system was developed the focus was primarily on what the system can do for business (i.e., functionality) and much less on how the users will be impacted by the system (i.e., usability). As a result, the users were not involved in the development of the system; they were just trained on how to use it.

6.5. Interview with Management

According to the management, the changes in processes are meant to enhance the service delivery process; keeping track of the service delivery operation, and ensuring that things work properly. The aim is to provide a quality service. Even though changes may sometimes seem too difficult for

the agents to grasp, the changes are made for a good reason which enables the delivery of a quality service to clients. The management mentioned that the contact centre uses "*new generation /variable processes"*, so whenever there are changes in the "*main system"*, the agents are notified so that they are aware of the changes. If the change is minor, the management communicates the instructions through "*training mails"*; otherwise, training is provided for and delivered to the agents. In the contact centre, monitoring takes place and clients' records are verified. Management explained that some of the changes in the processes are for facilitating the verification of clients' addresses and other information. In addition, the contact centre operates under the Financial Services act, so whenever new laws come into force, the processes have to change to cater for the new laws or regulations.

Regarding the slow response time and other issues caused by the "*main system"*, the management mentioned that they are fully aware of the problems and they are working hand in hand with the IT team to resolve most of the issues. The *"main system"* is a fairly new in-house development, therefore problems are still expected and must be resolved as they are discovered. The management further mentioned that whenever the problems with the "*main system"* get out of hand, a recorded message is placed on the AVR system to notify clients about the delays in service delivery. This is made to avoid compromising the agents when the systems are down and the agents are not able to address the clients' inquiries, which results in poor service delivery. In addition, the management stated that they use some of the time while the "*main system"* is offline to build relationships with the agents and allow them to communicate with one another, because during normal service delivery time it is difficult for the management to speak to the agents, or for agents to speak with one another.

6.6. Concluding Remarks

The researcher discussed the findings which were aimed at answering the research questions. The findings were discussed under themes which were identified during the data analysis using categories related to Herzberg's Motivational-Hygiene factors. This provided a smooth structure to the discussion of the findings because there were links between the categories. In addition, factors impacting agents' job performance and customer service both positively and negatively were identified and discussed in this chapter. As a result, the first research question '*What system-*

related factors impact agents' job performance and customer service in contact centres?' was addressed by analyzing the impact of systems design features on agents job performance and customer service. And the second research question "*What intrinsic and extrinsic factors of a system impact agents' job performance and customer service in contact centres?*" was addressed by identifying and discussing factors related to Herzberg's Motivational and Hygiene factors.

7. Conclusion

7.1. Introduction

This chapter provides a summary of the main research findings discussed in chapter 6. In addition, recommendations and potential areas for future research are also set out.

7.2. Main Research Findings

The literature review found that there is significant existing research in the separate research fields of systems design. Some of the factors affecting systems usability and interactivity identified in those studies were also identified in this study. However, few, if indeed any academic research studies have looked at the impact of system design features on systems users, specifically agents, in contact centres. This study has been built on a framework formulated by Zhang et al., (1999), which focuses on users' satisfaction with a web interface. The framework was adapted and applied in the contact centre environment. In addition, the concept of Herzberg's Motivational-Hygiene factors theory has been applied in this study and used in the discussion of the findings. As a result, a new and systematic way of investigating factors impacting agents' job performance and customer service has been formulated.

The study met its objectives and has answered the research questions posed earlier:

- *What system-related factors impact agents' job performance and customer service in contact centres?*
- *What intrinsic and extrinsic factors of a system impact agents' job performance and customer service in contact centres?*'

In answering the first question, the researcher found that several of the factors impacting agents' job performance and customer service were closely related to systems design features, client systems integration, service delivery processes, and training.

Issues around system design features that were identified included slow systems performance, poor page loading, complexity of systems especially to a newer employee, and complexity and slowness of information seeking tasks. In addition, through the discussion of the findings it was clear that

when systems are not well designed, integrated, and implemented they have a negative influence on agents' job performance and customer service. Further, the well known system design features, for example, performance and page loading have contributed to the lack of systems interactivity and usability and thus impacted negatively the service delivered to clients and hence agents' job performance. The client systems integration factors identified included lack of: system-telephonic integration, system-emails integration, and system-system integration. The service delivery process(es) factors identified included: the frequent changing of processes, and the lack of a simple process for service delivery. The main training factor identified that caused difficulties was the practice of combining the products and systems training. Agents found that after this training it was difficult to put into practice what they had learned, back on floor. Most of these identified factors have a major impact on agents' job performance and customer service.

The most frequently highlighted impact was on the AHT. Most agents felt that the poor performance of the integrated systems and the longer processes for preparing and sending information to clients have a negative impact on the average handling time as well as the "*not ready"* time. In order to reduce AHT agents are inclined to rush their clients through calls. However, if emails have to be sent to customers after the call has ended, then the agent's "not ready" time is increased. The result of either of these situations is that the quality of service delivered to clients and thus the quality of the agents' job is negatively impacted.

When measuring the usability of the systems using the set of usability quality attributes (i.e., Learnability, Efficiency, Memorability, Errors, and Satisfaction) formulated by Nielsen (2003, p1), the study has found that in terms of *Learnability* the systems are complex to use and it takes a long time for a new recruit to be comfortable with the use of the systems, as most of the agents pointed out that "*the systems are complex especially when you are a newer employee"*. It can take almost a month for a new recruit to know the way around the systems. However, most of the respondents confirmed that in terms of *ease of use* most of the systems are user friendly. *Efficiency:* most of the respondents stated that they are being trained to work at a fast pace, and that comes easier for them once they know the way around the systems. But the slow response of the *main system* seemed to slow them down. *Memorability*: many respondents reported that they open the systems in a sequence that works for them and that helps to locate the right information quickly. *Errors*: not many errors have been identified by the respondents except minor mistakes such as forgetting to

remove certain wording in an email or fax. *Satisfaction*: most of the respondents were not happy about the systems' slow response and the frequent change of processes.

Looking at the time spent by agents to attain an acceptable level of proficiency with the time mentioned in the study by Frost et al. (2007), the agents in this study have taken up to 16 weeks to be able to work effectively. Frost et al. mentioned that it takes roughly 21 weeks for the newly hired agent to work proficiently. This indicates that the training provided by this organisation must be good and helpful.

Considering the functionality perspective, the "*main system"* is a very useful tool for business because it does many things, including generating reports that can be used for monitoring agents' job performance, and allows easier and less costly integration with other systems. However from the usability perspective, the system seems to have its problems .The findings have revealed that many challenges face the agents who use the system and that many of these challenges impact negatively on job performance and customer service.

7.3. Recommendations

Accordingly the contact centre management has a bigger role to play than they expected in ensuring that quality of service is delivered to clients, and that the tools used by agents to deliver service meet their expectations. Ultimately, all the challenges faced by the agents when delivering service to clients can be addressed by the management through taking appropriate actions. It is understandable that the contact centre team does not develop systems but uses in-house systems for service delivery. Therefore, the onus is on the management to adopt systems that can do the work required properly.

7.3.1. Things to Improve on the Systems

Generally speaking, contact centre systems are very complex, mainly because they integrate many technologies, including older systems that were built long ago by organizations. According to the agents, they would prefer to have one system that does all the work itself without integrating with other systems; because they believe having one system that does everything would improve the performance and allow them to do everything on one screen. In reality, achieving this goal with current technology is impossible, considering the nature of contact centres. Some of the

respondents stated that they would like to have a system that "*controls tasks flow"*, for instance, the system should activate the required functions and guide the execution of the tasks; doing so would eliminate mistakes made by agents such as forgetting to verify certain information that is held on other systems.

On the current "*main system"* there are major problems that need to be fixed, including finding a way of improving the systems performance, information seeking tasks, and the integration between the systems. The designers of the systems should always bear in mind the users and the rate at which the systems will be utilized, because the system functionality is only as good as the users say it is. In addition, systems development best practice should be followed because some of the problems might well have been avoided if only proper integration procedures had been followed.

7.3.1. Things to Improve on the Service Delivery Process

According to the findings discussed in chapter 6, the procedures followed by agents when delivering service to clients are lengthy, frequently changing, and sometimes complex. It is clear that the procedures should be reviewed and planned carefully so that the negative impact on agents' job performance and customer service is minimal. In addition, the management should seek the best framework possible to use for service delivery, because at this stage, it seems that introducing any new process to the current system, only hinders system performance and makes life difficult for the agents. This situation then negatively affects the quality of customer service.

7.4. Possible Areas for Future Study

This study was conducted using a qualitative and interpretive approach. A comparative quantitative study to analyze the impact of system design features on system users in other areas of service delivery could provide further insight into understanding the importance of designing proper systems that meet users' expectations and clients' needs.

Other areas for future research that have been identified during the study include:

- Analyzing the impact of service delivery processes on agents' job performance and customer service.

- Looking for a framework that would improve service delivery processes to enhance agents' job performance and customer service.

7.5. Summary

This thesis has provided insight into understanding the impact of system design features on agents' job performance and customer service. Evidence substantiating the need for research and articulating the benefits which it could produce were shown and research questions were developed. The analysis of existing literature within the research area provided the researcher with a context for the research questions, and it also brought together previous areas of study concerning the interactivity and usability of systems.

The results of the study have shown that system design features such as usability and interactivity are important aspects of system development and need to be taken into consideration by system designers. As the evidence has revealed during the discussion of findings in chapter 6, when the system design features are not well handled they have a tendency to impact users in a negative fashion. So it is imperative that system designers handle design features well so that they could have a very positive impact on system users.

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9. Appendices

Appendix A: Confirmation Letter of Study (Department of Information Systems)

UNIVERSITY OF CAPE TOWN

Faculty of Commerce
Ethics in Research Committee

Courier: Room 2.21 Leslie Commerce Building Upper Campus University of Cape Town
Post: University of Cape Town • Private Bag • Rondebosch 7701
Email: Irwin.brown@uct.ac.za
Telephone: +27 21 650-2311
Fax No.: +27 21 689-7570

13 May 2010

Mr S P Maseko
Department of Information Systems
University of Cape Town
sibusiso.maseko@uct.ac.za

Dear Mr Maseko

Project title: Analyzing the influence of system design parameters on agents' job performance and their impact on service delivery in Contact Centres

This letter serves to confirm that the project entitled **Analyzing the influence of system design parameters on agents' job performance and their impact on service delivery in Contact Centres,** as described in your final submitted protocol dated 10 March 2010, has been approved subject to final confirmation by the Commerce Faculty Ethics in Research Committee. You may proceed with the research.

Please note that if you make any substantial change in your research procedure that could affect the experiences of the participants, you must submit a revised protocol to the Committee for approval.

Best wishes for great success with your research.

Regards,

IRWIN BROWN

A/Prof Irwin Brown
Commerce Faculty Ethics in Research Committee

"OUR MISSION is to be outstanding teaching and research university, educating for life and addressing the challenges facing our society."

Appendix B: Interview Consent Form

UNIVERSITY OF CAPE TOWN

Department of Information Systems

Leslie Commerce Building

Engineering Mall. Upper Campus

OR Private Bag. Rondebosch 77001

Cape Town

Tel: (021) 650-2261

Fax No: (021) 650-2280

23 March 2010

INTERVIEW PARTICIPATION CONSENT FORM

One of the requirements for completing a Master's Degree in Information Systems in the Faculty of Commerce at the University of Cape Town is the completion of a dissertation research project.

The researcher, Sibusiso Maseko, has chosen to perform a study entitled *"Analyzing the Influence of System Design parameters on Agents' Job Performance and their Impact on Service Delivery in Contact Centres"*

The main research objective of this study is to find out:

- What are the factors that influence agents' job performance and customer service in contact centres? Much focus is paid on the technology used by agents for service delivery. Ultimately agents will be the key players in this study since they are responsible for delivering service to customers. Understanding these factors can help in improving agents' job performance and service delivery by employing good systems that will enhance quality of service delivered to customers.

The study will be conducted through a case study, employing interviews as the research instrument for the study.

An issue that is of utmost importance to the researcher and the University of Cape Town at large is research ethics. Consequently, the researcher guarantees the confidentiality and anonymity of the details

and comments you provide, which will strictly be used for the sole purpose of the aforementioned research report.

Furthermore, your participation in this study is entirely voluntary. You may choose to be excluded from the study at any point in time without incurring any adverse consequences.

If you agree to participate, please sign here: Signature: _____

In Closing

Thank you for the time and energy you have spent participating in this study. Your contribution has been most valuable. I would like to assure you once again that your details will remain confidential and your comments will only be used for the academic purposes of this study. As a token of appreciation, the main findings of this study may be emailed to you on your request.

Sibusiso Maseko (MSKSIB013) Prof Mike Hart, Supervisor

Appendix C: List of Interview Questions

INTERVIEW PROMPT SHEET

The Agent

A. DEMOGRAPHIC INFORMATION

1. May you please state your qualifications?

2. How long have you been working as an agent?

3. What are your duties in your position?

4. How many client systems you are using for customer service?

B. SYSTEM RELATED QUESTIONS

5. May you please mention any challenges that you are faced with when using the systems while assisting a customer on the phone?

6. Please explain how those challenges impact your job performance and thus customer service?

7. Could you please state any aspects of the systems that you feel strongly impact your job performance and customer service?

C. POSSIBLE FOLLOW UP QUESTIONS

8. May you please explain any issues you have regarding information gathering while assisting a customer on the phone, and the effect the issues have on your job performance?

9. May you please explain any issues you have regarding the design and layout of the systems, and the effect the issues have on your job performance?

10. Could you please explain any issues you have regarding system usability (i.e. performance, page loading, and access), and the effect they have on your job performance?

11. May you please explain any concerns around information availability and the content of the information, and the impact they have on your job performance?

D. CONTACT CENTRE TRAINING

12. What system training have you received as an employee of this company?

13. Please describe in detail what the training entails?

14. Describe how helpful and relevant has the training you received been to you in performing your duties?

15. How long did it take you to be effective in service delivery after the training?

Appendix D: List of Acronyms

Acronyms	Meaning
ACD	Automated Call Distribution
AHT	Average Handling Time
ANI	Automatic Identification Number
CRM	Customer Relationship Management
CSR	Client Service Representative
CTI	Computer Telephone Integration
DNIS	Dialed Number Identification Service
GUI	Graphical User Interface
IVR	Interactive Voice Response
PA	Personal Assistant
PABX	Private Automatic Branch Exchange
PBX	Private Branch Exchange
PSTN	Public Switched Telephone Network
RDBMS	Rational Database Managements System
TAM	Technology Acceptance Model
VoIP	Voice over Internet Protocol