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TECHNOLOGY AS A FACILITATOR OF CHANGE: A CASE STUDY OF *PAPER TO PAPERLESS*

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A research report for the degree of
Master of Education

At the University of the Witwatersrand, Department of Education

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Declaration

I declare that this research report hereby submitted for the Master of Education degree at the University of the Witwatersrand is my own unaided work and has not been previously submitted by me at another University for any degree.

_____

Michael John Hundermark

May 2010

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I would like to extend my gratitude and acknowledge the patience and love of my wife, Genevieve. She was my pillar of strength through my learning and I will always appreciate her kindness, understanding and love.

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Thank you all.

Abstract

A South African insurance company has embarked on the process of converting the paper which makes up its claim files to digital images in all of its national branches. The removal of paper from this environment could leave a trail of mass destruction in terms of the loss in business production and the damage caused to its already fragile employees; not to mention the loss of potential business as a result of poor customer service during this change. The researcher was commissioned to facilitate the training of the software system which is being used to manage the digital images that replaced the old paper claim files. The purpose of this study was to understand the impact of using an interactive compact disk (CD) as a training instrument on the claims clerks and to gauge whether the business could recover faster than what current research suggests during planned change events by using this technology as a training tool. The paperless system was piloted at the largest insurance branch which formed the research site of this ethnographic case study. The researcher entrenched himself at this site and collected data over a period of 18 months. The CD impacted the claims clerks by assisting them to cope with typical symptoms of change through its carefully planned design, which took cognisance of the pedagogical needs of adults during their learning by blending various learning theory with different multimedia. The research also showed a period of recovery in terms of the productivity of claims processing from the time of the implementation of the paperless system. Although it cannot be conclusively proven that the processing of claims recovered sooner than what research shows, it does create a benchmark for future such cases to use during their paper-to-paperless change events.

1 Introduction

1.1 The Research Issue

> During the next thirty years, cutting-edge technological changes will spin out into everyday life. The importance of economies of scale may diminish. Factories might produce autos on Monday, refrigerators on Tuesday and robots on Fridays. New types of energies and communications grids will contribute to reshaping the political structure of local communities. People in learning organisations will be able to look forward to creating, instead of merely reacting to, the new world that emerges.
>
> (Senge, Kleiner, Roberts, Ross, Smith, 1994: 12)

This prediction presupposes that organisations are open to diversification, technological change and a creative outlook in order to emerge into the 'new world'. Whether organisations have begun to emerge into this 'new world' is debatable. However, the capacity and ability to change in a day's notice in order to keep up with customer demands is apparent in many organisations today. The insurance industry for example, constantly reviews its underwriting criteria to customise insurance cover to suit almost any set of risks; a married 26 year old South African male who is in good medical health and lives in Wilropark Gauteng and drives a 2004 model Ford car will pay a different motor insurance premium to a married 26 year old South African female who is in good medical health and lives in Wilropark Gauteng and drives a 2004 model Ford car. Statistics have shown that South African women drivers cause few motor accidents than their counterpart men drivers. This equates to a favourable reduction in their insurance premiums.

In an attempt to be one step ahead of their competitors, organisations are required to change constantly and employees are assumed to be able to keep up with the change required by organisations to become 'new world' organisations. These change processes have an impact on employees which in turn has direct impact on the productivity of the organisation. Yet recent statistics show that some organisations lose up to 50% of their productivity over a period of between six to nine months during change processes (McKinley, 2007). A business advantage here would undoubtedly be to minimise the loss of productivity and at the same time decrease the negative impact period of the change. Can a technological approach to training, in

order to facilitate a change, contribute towards this business advantage taking into account the people whom the change is intended for?

1.2 The Context

A large South African insurance company has embarked on a technological change. This technological change involves a move from a paper to a paperless environment within the company's claims department. The insurance company consists of six branches scattered across the various provinces of South Africa. Within the larger provinces, such as Gauteng, there is more than one branch to cater for the large volumes of claims. The researcher has embedded himself at the largest branch of the insurance company. This branch is known as the Central West Rand branch and is located in Johannesburg in Gauteng. This branch is where the research has taken place and was designated as the pilot or testing branch for the new 'paper-to-paperless' system.

The intended educational and business benefit of this technological change is to improve the skill of the claims workforce and to improve the overall productivity of claims processing of the company. An insurance claim requires an average of 50 pages which typically include claim registration forms, printed email correspondence, quotations, invoices and assessor reports, clearance forms and printed photographic evidence. *Figure 1.1* shows that there are between 42 and 112 new claims registered every day in a typical month. This means that 2,100 to 5,600 new pages are needed per day. A claim lasts for 20 working days which implies that 42,000 to 112,000 pages are constantly present in the claims environment.

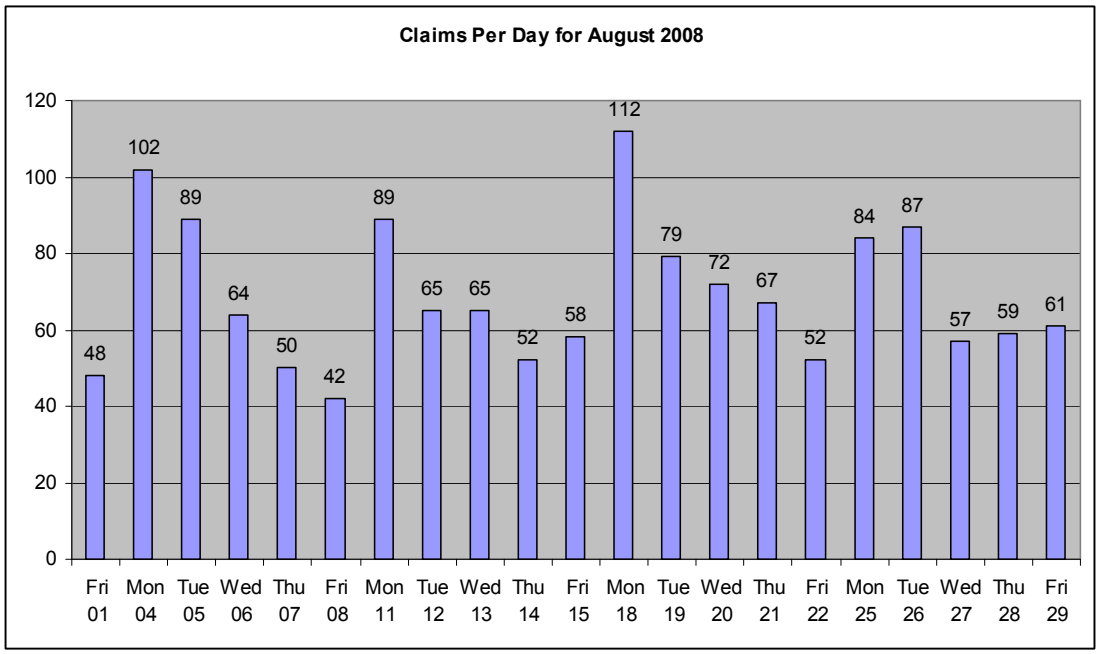


Figure 1.1: Number of claims registered per day for August 2008

The insurance company is experiencing an increase in claims as more people purchase insurance and are thus able to claim. For this reason, the insurance company has decided to develop and implement a new 'paper-to-paperless' system. This system has replaced the old paper-based system in the branch and has removed all paper from the claims environment. The only paper 'allowed' in the claims environment is tissue paper which may be required for sanitation purposes. All other forms of paper are managed by the new system.

As indicated, the old claims process is heavily paper based. *Figure 1.2* outlines the old paper based process:

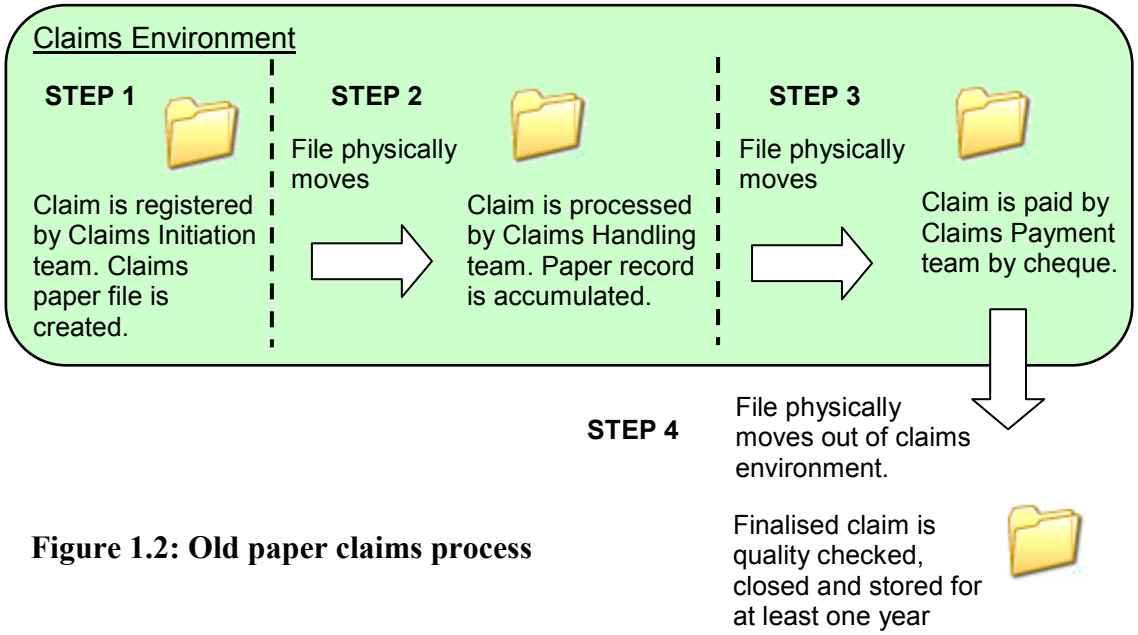


Figure 1.2: Old paper claims process

From *Figure 1.2* we can clearly see that the old paper process involves the physical movement of the paper file from one team to another. This often leads to the paper file being misplaced. The movement of the paper file also results in the claimant being 'pushed' from one claims clerk to the next during the course of the claim as the physical paper file contains the entire history of the claim. The fact that the paper file is required by South African law to be stored on-site for one year means that there is a large amount of paper being stored on the premises. Retrieval of these stored files is often time consuming, frustrating and costly to the organisation.

All of these problems with the paper based process have led to the decline of the insurance company's Customer Satisfaction Index (CSI). The CSI is a measurement of the level of satisfaction of the client which is recorded after the resolution of the claim. *Figure 1.3* shows the decline of this CSI percentage.

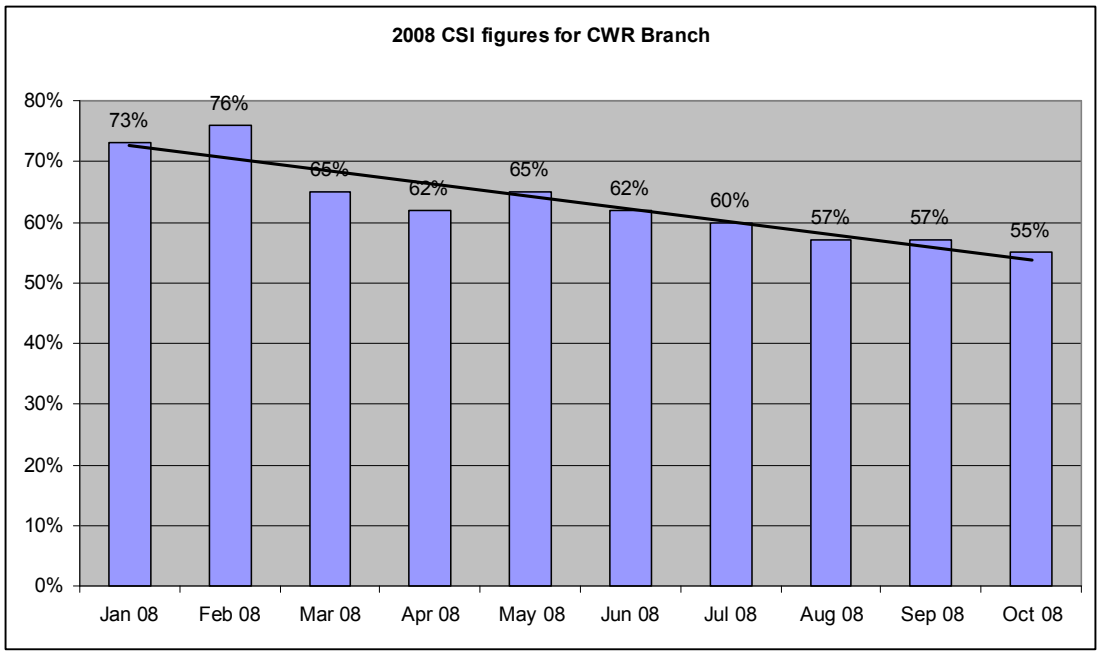


Figure 1.3: 2008 CSI Figures for the Central West Rand Branch

From the above chart it can be seen that for January 2008 the CSI figure was 73% which directly implies that for every 100 claimants, 73 were satisfied with the service given by the insurance company. This figure dropped in October 2008 to only 55%. These figures overwhelmingly convinced the insurance company to implement the new system. This new 'paper-to-paperless' system was implemented in two separate phases namely workflow and imaging.

Phase one of the "paper-to-paperless" system requires the development and implementation of a computer software workflow system. Workflow systems are used to define the work processes of an organisation. These work processes are then assigned to sections of the workforce. The main benefit of computerised workflow systems to organisations is that the productivity of the workforce can be measured. These measurements can provide the business with valuable information; information about productivity bottlenecks and process success which can inform future business decisions and guide current process towards best practice. The main benefit to the workforce of computerised workflow systems is that they are always aware of the work load expected of them while their work is directly credited to them and can be measured as part of their performance.

The workflow stage of the computerised system records all of the details of the processes occurring at every point as it flows from one section of the workforce to another. The paper file still exists, but can be kept outside of the claims environment. *Figure 1.4* shows the processes involved in Phase one:

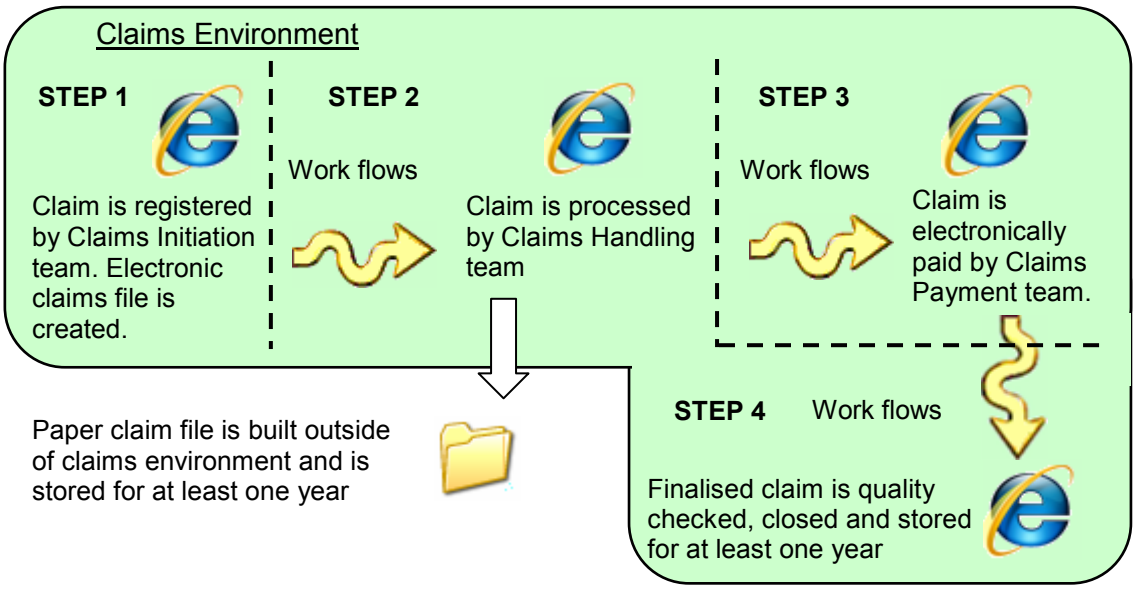


Figure 1.4: Phase 1 - Workflow claims process

From *Figure 1.4* it is evident that the workflow phase is similar to the current paper based process in *Figure 1.2*. The old paper based process (*Figure 1.2*) is in actual fact a workflow process. It relies on the flow of the physical paper claims file from one step to the next. This movement of the paper is the essence of its inefficiency. The computerised workflow phase introduces the concept of a virtual claims file (*Figure 1.4*). Although the virtual claims file does not contain the actual paper documents it provides detailed claim related information about the claim such as the claimants' details, type of claim, quotation and invoice amounts and details about each action taken as the virtual claim file flows from one claims step to the next. The availability of stored details of each claim step allows management to "age" or time the flow of the virtual file as it flows through the steps. This allows detailed management reports to be generated about each process step. Here bottlenecks can be identified and proactive steps can be implemented before problems arise. The actual claims related paper documents are stored outside of the claims environment. This clears the claims office of cluttering paper files. Thus the workflow phase does not prevent the production of paper. If the need arises to retrieve any paper relating to the claim, the claims clerk must still locate the claims file in storage. The problems with the retrieval

of these stored files led to the development and implement of Phase two, the imaging phase.

Phase two of the system requires that the claims-related paper documents be electronically scanned and stored as digital image documents. These digital image documents are then associated and linked to the customers virtual workflow file. The new digital document image is then compared to the original paper document and checked for quality purposes. If the new digital document is an exact duplicate of the original paper document, then the original paper document is immediately sent to a document storage facility off site to be stored for a year. Any electronic claims related correspondence such as emails or electronic faxes are also stored directly to the customers virtual workflow file. The specific digital format which each document is converted to is Adobe© PDF format. This format is used because documents of this type cannot be altered in any way which ensures the integrity of the documents against fraud. This simple yet critical process of storing digital images of the customers claim file allows the claims department of the insurance company to become virtually paperless. The combined process of workflow and imaging is shown in *Figure 1.5* below:

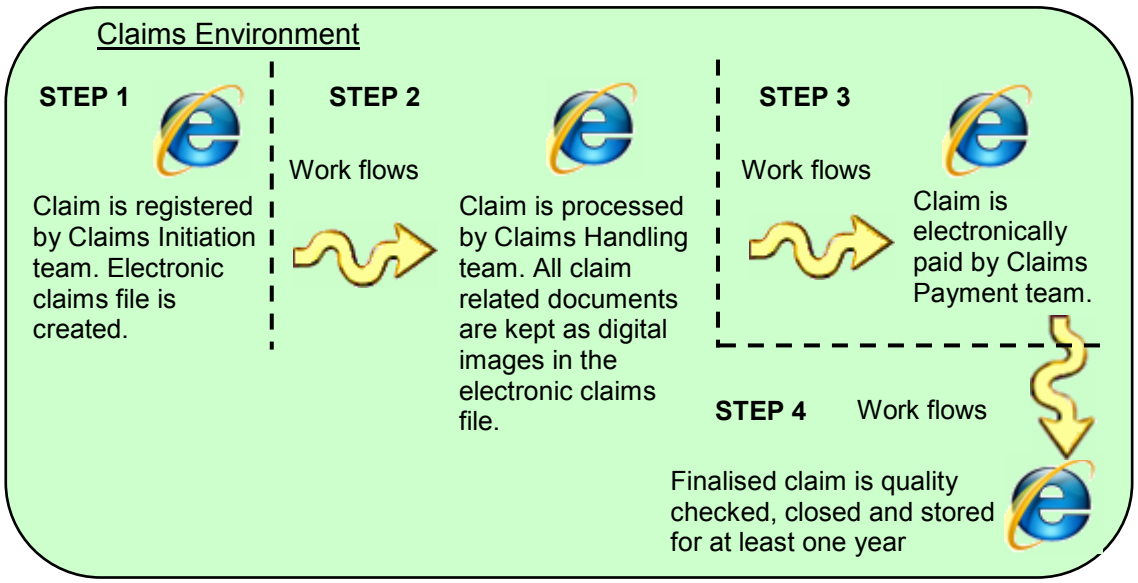


Figure 1.5: Phase 2 – Imaging and workflow claims process

Figure 1.5 shows that all processes are available to the claims environment. The digital claims file is now available at every step of the claims process which implies

that there is no chance of misplacing a customer's claim file as in the paper based process (Figure 1.2). Customers do not have to wait while claims clerks retrieve their claims file in order to find out the status of their claim. Customers do not have to be transferred from one claims clerk to another in order to locate which step of the process their claim is at, as the first claims clerk they talk to will have all of their information at their fingertips. The benefits and success of this new system will be dependant on the effective training of the employees in the use of the system.

All insurance claims clerks will receive training on this new computer software system. A claims clerk is any insurance employee who has any part in dealing with claim related work. The training was contracted to the researcher and was conducted at the pilot branch. The researcher was responsible for the design and development of training support material. This support material was delivered in the form of an interactive compact disc (CD).

The claims staff initially received an introduction to the system by way of a formative training session which took place in a boardroom where the researcher demonstrated the new computer system. Thereafter a CD provided them with video demonstrations, interactive simulations, quizzes, walk-through scenarios and electronic manuals. The claims staff were required to work through the CD and complete all simulations and quizzes, making use of the video demonstrations, walkthroughs and electronic manuals. This approach to training had not been implemented in any of the insurance company's branches and most of the claims clerks had responded that they had never used a training tool quite like this one. This technological approach to the training of the new computer system was studied to establish its contribution towards the facilitation of change taking into account the claims employees who are involved in implementing the change from "paper-to-paperless".

The researcher spent the better part of sixteen months preparing the claims clerks for the introduction of the new system. He presented a course on how to manage oneself during change and how to become a master of one's own change and of the changing environment. During this time he recorded conversations that took place in the hallways, conversations in the kitchen while preparing coffee and tea, in the lunch pause area and of course during dialogue as part of the change course. He thus

became a ‘fly on the wall’ in many instances and felt that he won the trust and respect of many of the claims clerks. He can claim to have earned the right to accurately document the change which has taken place in the claims environment. All of the following accounts (recorded in Chapter 4) have been documented during the interaction between the researcher and the claims clerks and through observations of the claims clerks themselves. The names of the clerks have been changed in order to preserve their confidentiality.

The claims environment is mostly a hostile one. People phoning the claims department are often distressed; being in a position of loss and trying to claim back something of what some unforeseen peril has robbed them of. Claims clerks try to bring back some normality to out-of-control conversations but are often “treated rudely to the point of feeling numb and humanless” as one of the claims clerks put it. Phrases such as “My premium pays your salary”, “you know nothing, are you stupid?” and “are you deaf? I want to speak to someone who has brains!” are enough to discourage any claims clerk. Despite these attacks it takes just one victory to keep their spirits up enough to keep them going. “Thank you very much, you’ve made my day” are amongst the phrases which are like the one perfect golf shot which keeps the novice of golfers coming back to play another day. These are tough people who want to assist where at all possible.

The ages of the claims clerks range between 18 and 58. It seems that the older, more experienced claims clerks feel that they are the “sturdy stalwarts” of the workplace. In their hostile claims environment the younger less experienced claims clerks have no trouble accepting guidance from the older claims clerks; particularly after their first ‘losing battle’ with an irate customer.

There are more women claims clerks than there are men; about two thirds of the workforce is women. From one of the observed conversations between groups of claims clerks during their lunch pause, it was suggested that the fact that more women make up the claims workforce was due to the fact that women in general are good problem solvers; this was attributed to their mothering instinct. This insight was quietly challenged by the only male participant in the group (the researcher) when he reminded everybody of the result of an overdose of motherly advice – biting,

scratching, and so on. His challenge was abruptly squelched and soon after that he agreed that in general women claims clerks are good problem solvers. The informal discussion shows that there is a fair share of rivalry and contestation in the claims environment.

Skirmishes generally arise when the claims environment is under pressure from management to process increased volumes of new claims and to resolve overdue claims. These conflicts are spurred on by the frustration of locating misplaced paper files and a sense of claustrophobia caused by an overcrowded open office. As Ana, the tea lady, so aptly put it "How am I supposed to serve tea when I can't even walk between the desks let alone serve tea with a tray full of teacups?" The overcrowded office contains small desks which house the claims clerk's computers, their telephone and just enough space for only a few claims files. The majority of the claims files which are currently being worked on are kept in a trolley next to the clerks desks. These trolleys line the narrow passageways between the desks and often cause traffic congestion as the claims clerks attempt to hurdle over them like office Olympians. Management on the other hand have private offices with air conditioning and cupboard space from floor to ceiling. This is one of the perks of being a manager in this environment where, on the other hand, the responsibility of handling all the claims lies with you.

Management positions are organised according to a typical hierarchy. Each management position reports to a supervisor and also has subordinates for whom they are responsible. Although this structure allows the claims clerks to aspire towards moving themselves up the hierarchy, many of them have commented that they do not wish to do so. "I would never want Kim's job (Payments Team Leader for geyser claims). She is constantly putting fires out"; "I wouldn't be able to sleep at night if I was Letitia (Claims Manager)". The following figure shows how the claims management structure is arranged:

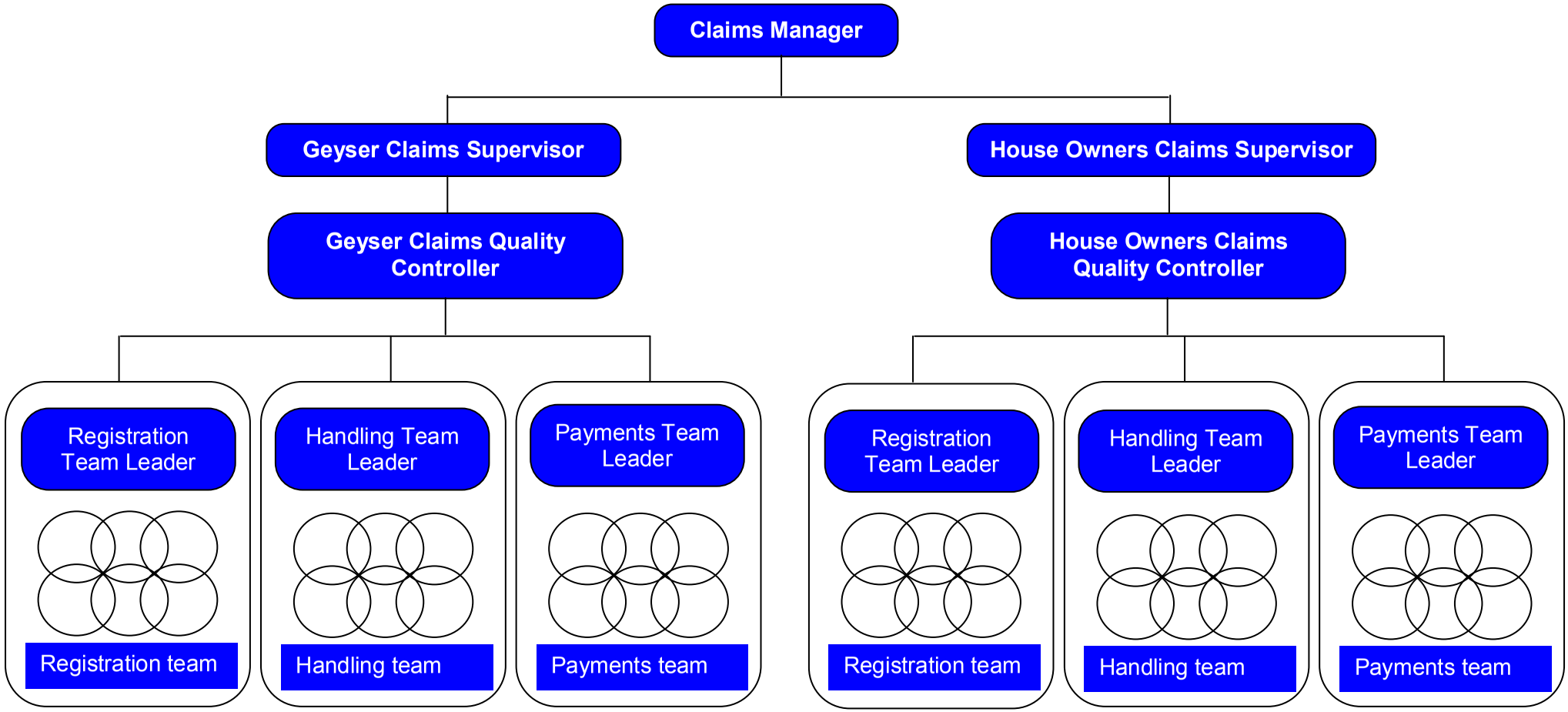


Figure 1.6: The Claims Management Structure

Figure 1.6 shows the two main areas of the claims department, namely geyser claims and house owners claims. Geyser claims are the most common type of claim. The reason for this has been attributed to the fact that the geyser is constantly being boiled so that there is a constant supply of hot water. A geyser claim is sometimes referred to as a 'fast track' claim because this type of claim must be resolved in a matter of hours. The home owner's claims are the remaining types of claims. These include storm (lightning, wind and floods), impact (cars crashing into walls and objects falling from the sky) and theft (gate motors and swimming pool pumps) are to name but a few. These types of claims usually take longer to resolve since they involve timely repair, replacement and installation. A healthy competitiveness exists between the two teams who service these claims areas. "The only reason why the geyser guys have had fewer complaints this week is because we've had two major storms this week so we've had more claims"; "We must help Mvuyo more so that she doesn't slow the team down."

The majority of the claims workforce appears surprisingly positive towards the change from paper-to-paperless. The new computer system is seen by the claims clerks as an attempt by management to give them the tools which they need to improve their working conditions. "Now we can inform our clients about their claims without having to phone them back"; "It's about time! We've been way behind the other insurance companies when it comes to technology"; "Maybe now we won't be shouted at because we'll be rid of those pink claim files" are but a few of the comments recorded by the researcher in the build up to the implementation of the new computer system.

Some concern was shown by a few of the claims clerks. They expressed signs of apprehension and in some cases anxiety. These signs mostly presented themselves in the form of enquiries: "How much will change?", "What will happen if I can't use the system?" and "When will they (management) be able to see how much work we do?"

1.3 Rationale

The reaction of the claims clerks to the change from paper-to-paperless plays a significant role in the productivity of employees and ultimately affects the organisation's bottom line for a period of time.

By minimising the time taken for the claims clerks to return to normal levels of productivity the impact to business should be minimised and this may give the organisation a competitive edge.

For the claims staff at the Central West Rand branch, this change process is a significant one; impacting a substantial part of their everyday working lives. Some of them are accustomed to handling paper-based files and fear the notion of 'losing' the claim information to a 'cyber-beast'. Paper can be touched, smelled and offers a physical comfort for many. The benefits of a paperless system must convince the claims staff to trust the new system and so replace the physical comfort of paper.

Change can often impact employees negatively. Anxiety, stress, headaches and nausea are only a handful of ailments that can be experienced by people undergoing a change process (Luecke, 2003: 86-91). By reducing the impact of this change through fast and effective training delivery methods, these symptoms of change can be minimised.

With the availability and access to technology, electronic learning is fast becoming a feasible support mechanism for training and development. Digital disc technologies can quickly and effectively assist learners to understand and master computer systems such as the new paper-to-paperless system. "We are in my view faced with an entirely new situation in education where the goal of education, if we are to survive, is the *facilitation of change and learning*" (Rogers, 1983).

1.4 Research Aim

This research intends to study the impact of a compact disc (CD) used as a training support tool for claims clerks in an insurance company. It seeks to find out whether the CD assisted the employees to overcome negative effects of change and to restore levels of production sooner than current research shows is usually the case; as discussed later in Chapter 2.

Mastery of the paper-to-paperless system through the implementation of the CD will require certain types of learning and interaction between employees and between employees and the CD. These types of learning and interactions will be recorded and analysed.

The mastery of the new paperless system will depend heavily on the effectiveness of the CD. An intention of the study is to find out how effective the CD is at guiding or facilitating learning and ultimately knowledge construction.

1.5 Research Questions

This study is focused on the following main question:

How does the use of an interactive training CD assist an insurance company to facilitate change from a paper to paperless environment?

In order to answer this question the following five sub-questions will be posed:

1. ***Which aspects of the CD were viewed favourably or unfavourably by the claims clerks? Why?***
2. ***What type of learning occurred during the claims handlers' interaction with the CD?***
3. ***Which symptoms of change were experienced by the claims clerks?***
4. ***Did the training CD assist the claims clerks to deal with change symptoms? How?***
5. ***Did the training CD prepare the claims clerks to use the new paper-to-paperless system?***

1.6 Conclusion - Outline of the Study

This research report consists of five chapters. Chapter Two is a review of literature which covers aspects related to the technology, change and learning involved in the use of an interactive compact disc used as a training tool. Chapter Three discusses the research design, and methodology including data collection and data analysis. Chapter Three describes the research as an ethnographic case study which uses qualitative data collection methods. These methods include questionnaires, observations, document analysis and interviews. The results of the research are presented in Chapter Four. Chapter Five explores the results of the research, organised by taking the research sub questions in turn which leads to a guided discussion around the main research question. The research report concludes with suggestions concerning the use of technology as a training tool to facilitate a planned organisational change.

2 Review of Related Literature

This review will begin by discussing two documents which deal with the implementation of paper-to-paperless systems. One of these documents is a case study of an implementation of an electronic document management system in an insurance company. This document reveals some of the finer details which formed part of the company's transition from paper to electronic documentation. The second document contains an overview of how various insurance companies have benefited from paperless systems. The benefits of these paperless systems do not come without a price - effects of change on employees will be discussed as well as the nature of the learning which is involved when employees engage in computer based learning processes.

2.1 The Case of Paper-to-Paperless

James Kang, Chief Information Officer at NTUC Income, Singapore's largest insurance company, has documented the paper-to-paperless system since its implementation in 2003 (Kang, 2006). Ed McKinley, of Insurance Networking News, has initiated a study of paperless insurance companies in an attempt to illuminate details of their implementation from paper-to-paperless (McKinley, 2007). The works of Kang and McKinley concentrate on describing the processes taking place around the implementation of paperless systems and quantify the impact of paperless systems. Their works, however, do not explain the basic functioning of electronic management systems.

The basic idea or functioning of any electronic document management system is to store all documents as electronic images. Some of these images can be associated with one another by virtue of the fact that they belong to one specific client. These associated documents are then referred to as a case. Each electronic document in the case is indexed with case information. Indexing simply occurs when relevant claims information, such as customer policy numbers, claim numbers and other relevant information, is captured and stored as part of the electronic document. All of this

electronic documentation must be securely stored in a database for later retrieval (Bennett et al, 2005: 27).

The systems implemented in McKinley's study (2007) use a central storage database system for all digital documents known in technology circles as IBM Content Manager, while NTUC Income uses a central database called EMC Centera (Kang, 2006). These databases allow for the storage of billions of client records and are built to be robust 'work-horse' storage repositories. The millions of documents stored in these databases are then accessed and handled by claims employees through various commercial or customised software. This software allows users to see and work with the electronic documents. Reports and other statistical information can also be extracted from these databases by using this software. This, as simple as it sounds, is the start of a myriad of benefits which electronic document management systems give business.

Broadly speaking, possible benefits of information systems, such as electronic document management systems, can be divided into two categories:

- Tactical benefits and
- Strategic benefits

(Bennett et al, 2005: 67)

Tactical benefits according to Bennett et al (2005: 68) are benefits which improve the day-to-day business operations. The biggest tactical benefit of information systems is usually cost savings. By improving manual business operations with automated systems, such as electronic document management systems for example, business will save on costs which would normally be attributed to paper and storage. A different tactical benefit here would be an increase in speed and accuracy of production. This benefit may not directly save business costs but may increase revenue as more work can be completed in less time resulting in an increase in production.

Strategic benefits are about improving the nature or abilities of a business (Bennett et al, 2005: 69). With a new information system which stores electronic claims documents, business could, for example, offer clients a new service. Such a service to

the client could be to access their electronic claim over the internet. Client service is always a forerunner among the benefits of information systems.

The Chief Executive Officer of NTUC, Tin Kin Lian, points to the fact that because of the Internet age, people are accustomed to accessing their data instantly from anywhere. Their new paperless system has provided them with the strategic benefit of allowing their clients to access their claim information over the internet. He points out that NTUC was being crippled by their old system as it was too slow and insufficiently responsive, causing them to lose customers (Kang, 2006). The tactical benefit of their new system was a decrease in their response time when dealing with customers.

The study conducted by McKinley (2007) produced evidence of both tactical and strategic benefits. Various participants' experiences and comments include "improved efficiencies", "better workflow", "the whole idea of taking a piece of paper and walking it around from person to person just didn't make sense", "you're dealing with today's work today instead of a constant backup of mail", "answering an agent's question or processing an agent's change used to take 15 to 20 minutes and now it's accomplished in 30 seconds", "20 people can view the same claim in different parts of the company."

Tactical cost benefits are cited in both documents; McKinley alludes to astronomical figures like ten million US Dollar savings in operational costs per year. Staff productivity at NTUC Income has increased by 23% over-and-above the productivity before the implementation. Customer claims now take an average of five days to process, a 40% improvement (McKinley, 2007).

Both Kang (2006) and McKinley (2007) attribute the success of the implementation of the paperless technologies which they have documented to good project governance. According to Bennett et al (2005: 75) the success of any information system implementation, such as the paper-to-paperless system, is determined by four factors:

- Accurate estimations and requirements,
- Do not change the requirements,

- Good management and
- Proper support structures.

The implementation of any information system must begin with an accurate and reasonable estimation of the time, cost and human impact that will be required to meet the needs of the business. Once the estimations and requirements are realised, no new requirements are allowed to be considered. Good management experience and proper project governance is also key to the success of the implementation. Proper support structures such as training, coaching, mentoring and technical teams are required to ensure the successful role-out of the new systems (Bennett et al, 2005: 78-79).

The successful implementations of the paperless systems in McKinley's study are attributed to "a strategically planned and carefully administered project plan" (McKinley, 2007:11). Jay Smith, Director of IT at Diamond Insurance Group Ltd, explains that the new paperless system was implemented in stages according to their employees' willingness to embrace the cultural change of paper-to-paperless. Mitch McCloskey, Treasurer and Assistant Vice President of Administration for Colorado Bankers Life Insurance Company, describes how within the first few weeks of bringing the system live, productivity dropped by 50%. He further explains that only after five days was there an observable increase in productivity and that people under 30 years of age recovered within weeks while people over 50 years took up to six months to adjust and recover their productivity to the levels achieved before the change (McKinley, 2007). The following graph shows the typical impact of any change on productivity in any organisation over a certain time period.

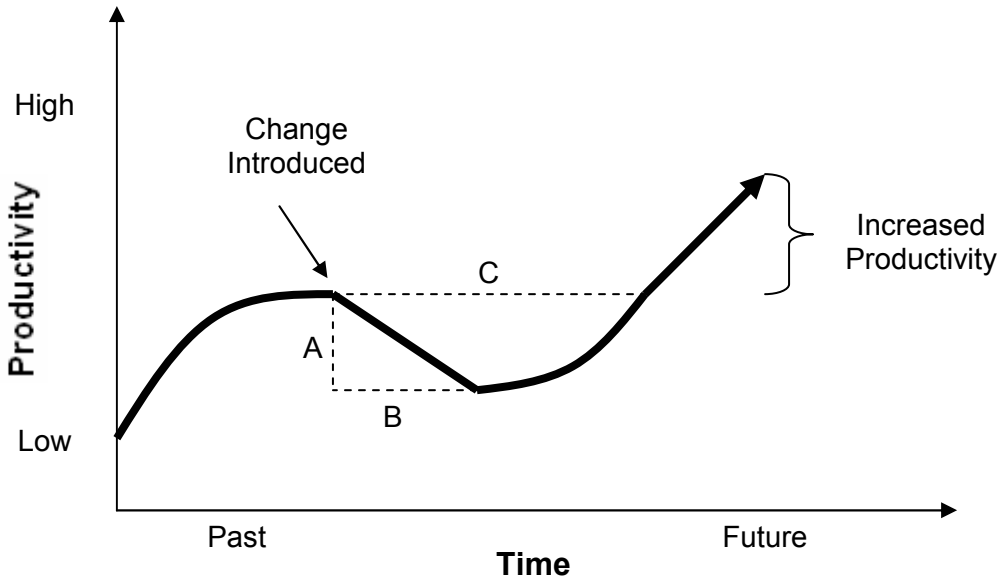


Figure 2.1: Typical Impact of Change on Productivity

(Clampitt & Berk, 1996: 18)

It can be seen from *Figure 2.1* that at the time of an introduced change, the productivity drops by a factor of 'A' (50% according to McCloskey). It takes a time factor of 'B' to start to improve productivity (five days observed by McCloskey). The total time to recovery of the change in terms of productivity is the time factor 'C' (between a few weeks and six months according to McCloskey) after which the productivity surpasses the productivity at the point of change, which is the increased productivity.

Ideally, it is hoped that this study will show that by introducing a compact disc (CD) as a technological training support tool, the factors at 'A', 'B' and 'C' will decrease and therefore further decrease the cost to company by avoiding prolonged loss of production. The following graph shows the expected result of the impact of the CD on productivity.

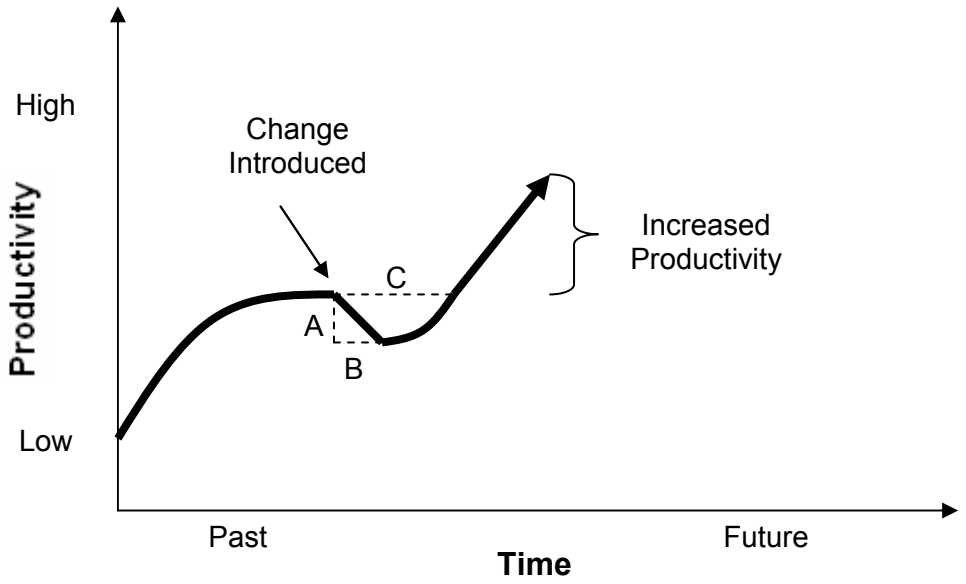


Figure 2.2: Impact of Change on Productivity using Technology
(Adapted from Clampitt & Berk, 1996: 18)

The projections shown in *Figure 2.2* are ideal. The implementation of an information system such as a paper-to-paperless system will add definite benefits to the business as discussed earlier. For this reason new information systems will be implemented according to carefully thought out project plans which rely on the four key factors for success as suggested by Bennett et al (2005: 75). With the use of additional support in the form of interactive training CD's, the loss in production caused by the change may be minimal. Despite this being beneficial to the business, will the technology of the CD assist the workforce to cope with the change in any way?

2.2 The Effects of Change

Change impacts people. We try and avoid change but because it surrounds us like the air that we breathe, we often fail to avoid it. So we try and understand it, make sense of it. Ellsworth (2000: 12) recognises change as a regular part of everyday life and that although there are many suggested models for change as an attempt to understand it, no one model may be seen as 'correct'. Each approach to change must be considered in its own right and dealt with individually according to the purpose of the change (Ellsworth, 2000: 13). This purpose, though devised with good intentions, may imply that tomorrow a price will have to be paid.

Many of the case studies cited by McKinley (2007) of the implementation of paperless systems paid their price in one form or another: Since Colorado Bankers Life implemented their paperless system in 2001 they have evolved from 75 employees and 68 000 policy holders to 58 employees managing 90 000 policies (McKinley, 2006). Increasing policyholders by 22 000 and saving 17 employee salaries may be good for the bottom line of the business but what are the remaining employees thoughts about the change and indeed about the next change? NTUC Income boasts that they had to downsize from 14 claims processing employees to four claims processing employees. The company has redeployed the additional ten staff to other departments (Kang, 2007).

> Organisations are increasingly experiencing resistance and struggling to reduce rumours and miscommunication as a result of major and minor changes. However, rather than viewing resistance as disruptive, it can be seen as a barometer, and rumours can be looked at as indicators that people are lacking necessary information, skills training, and dialogue. Change is a process, not a product. There is no substitute for time and proper facilitation.
>
> (King, 1996: 1)

The 'necessary information' required could be to understand the reasons for change, to be aware of the different types of change, to identify the effects that change has on people and to discuss possible approaches to coping with change. These aspects will be discussed. 'Major' and 'minor' changes referred to by King have significantly different impacts on the people who are involved in any change. 'Major' changes are often referred to as episodic changes (Ackerman, 1997: 10) as they occur

infrequently, discontinuously and intentionally. Ackerman (1997:10) further describes major changes as 'radical' as they often replace one system with another. 'Minor' changes in contrast according to Ackerman (1997:10) are continuous, ongoing, and often evolve as they accumulate new parts of a system.

Luecke (2003: 8) suggests the following possible reasons for change in business organisations:

- To overcome obstacles
- To react to the introduction of new competitors
- To understand and use new technologies
- To be able to engage with new and emerging markets, and
- To enhance business performance.

The above reasons for change are often planned. Planned change is deliberately brought about by organisations as they monitor external factors (such as the economy, competitors' behaviour, and political climate) or internal features (such as the relative power of different interest groups, distribution of knowledge, and uncertainty) (Ackerman, 1997: 10). Ackerman (1997:11) also introduces the concept of emergent change. Emergent change occurs in a spontaneous way as a result of decisions made by managers which are not related to any planned change. However, Mintzberg in Ackerman (1997:12) suggests that these decisions may be based on unspoken, and sometimes unconscious, assumptions about the organisation, its environment and the future and are, therefore, not as unrelated as they first seem. Such implicit assumptions dictate the direction of the seemingly disparate and unrelated decisions, thereby shaping the change process by 'drift' rather than by design.

The change occurring in the Insurance Company is planned and can be termed 'Major' or episodic according to King (1996) and Ackerman (1997). The reason for the change is to enhance business performance through the implementation of a new technology which will guide the process of paper-to-paperless.

Ackerman (1997) has distinguished three different types of change which could occur: developmental, transitional and transformational. Developmental change occurs when there is a need for improvement of skill or process. A person attending an office management training course could be considered to be a developmental change.

Transitional change seeks to change the state of a system. An example of a transitional change could be a person moving to a different office. Both developmental and transitional change maintain the culture and structure of a system. Transformational change requires a system to be changed in such a way that a new culture is created whereby the assumptions of the system have shifted (Ackerman, 1997: 14). A typical transformational change would have resulted from an organisation moving the workforce out of their closed offices and into an open office environment. Here the assumptions of privacy are re-evaluated and a new way of thinking about security needs to take place, for example one may feel more comfortable leaving your personal belongings on your desk in a closed office, while in an open office you would need to consider locking them away in your desk drawer.

The type of change that occurs around the implementation of this new computer system in the Insurance Company is mainly one of development. However, it can be argued that a cultural change may also take place and thus a transformational change would have resulted. The communication between the claims clerks will not be face-to-face as when the paper claims files existed. With the old paper file system the claims clerks would need to move the paper claims files from one claims clerk to the next and this promoted unnecessary 'chatter'. The electronic claims files do not need to be physically moved and so there is very little face-to-face contact between the claims clerks. This will reduce the office 'chatter'. Further to this, the new electronic system records all activity of the claims clerks and so there is an increased accountability for each individual's work as there can be no dispute as to whether the work was done. This should contribute towards increased business productivity. As Ellsworth (2000: 16) points out, the types of change are very often not seen in isolation. Developmental changes can trigger transitional changes and eventually the need for bigger more radical changes prompt transformational changes.

We can clearly see this phenomenon occurring during the implementation of the paper-to-paperless system: Firstly, the need to track the paper files as they move from one claims clerk to another prompted the introduction of an electronic spreadsheet which records the paper claim file details. This early developmental change eventually triggered a transitional change; the claim paper file was not required to physically move from one claims clerk to the next as each claims clerk could access

the electronic spreadsheet from their computer to access claim related information. These changes brought about a transformational change where claims managers could remotely access the progress of any claim from the comfort of their home or office through the internet.

Change due to advances in technology is becoming more common. Technology offers a chance for business to become bigger and better. Both the works of Edwards (1997) and Luecke (2003) discuss the impact of technology on change and of change on technology.

> We have seen that before the explosion of technology, business dictated the pace of change. However, since the benefits of technology have become more evident, technology has taken over as one of the stronger drivers of change in business today.
>
> (Edwards, 1997: 25)

Edwards observes that business is less in control of change than in earlier times. Coupled with this Edwards (1997) suggests that the pace at which technology advances confounds the degree of control that business has over change.

> We can learn a new software package for our computers, but even before we have the chance to become comfortable with using it, an upgrade version is available with new improved and quicker features.
>
> (Edwards, 1997: 26)

As discussed earlier, reasons for new, improved computer systems can be linked directly back to the need for business to hold the competitive edge over their rivals. The dilemma here is that as business attempts to become better and increase productivity through technology, so their control over their change becomes less. Yet as Edwards (1997: 52) explains, "new technology is the spur to increased productivity." Luecke (2003: 18) warns that there are issues about the ways in which change is introduced, particularly rapid change as experienced through technological implementation - questions of whether the human considerations of technology are regarded within the implementation of change. For most competitive organisations the risk of avoiding technological change for the sake of control over change is far greater than gaining control for the sake of technology (Edwards, 1997:56). The fact that business will forsake control for technological advancement places the question of whether the human factor has been considered.

These human considerations include how people typically react to change. Symptoms of change include stress, anxiety, social crisis, conflict, negative speech, anger, shock, defensive retreat and identity crisis (Luecke, 2003: 86-91). This list is by no means extensive. Edwards (1997: 25) further suggests that "the increased rate of change in the contemporary world has an unpredictable quality to it which leaves many people confused and insecure as to their identities and future." Although it seems that change is viewed largely through negative eyes, there are positive aspects to change; positive change symptoms such as hope, excitement, acceptance and eventually adaptation to the change (Luecke, 2003: 87). Hope is one of the main contributing factors for successful change (Ellsworth, 2000: 224). Ellsworth (2000: 224-226) proposes the following guiding checkpoints which can be used by people to motivate them and to keep them hopeful of success when a planned change is about to take place:

- Seek the best possible understandings of the change and the new system
- Establish what your role is in the change
- Lay out your assumptions about the change and challenge these assumptions
- Meet and become aware of all of the stakeholders and understand their roles in the change.

All of the above checkpoints give re-assurance to the 'changee'. Re-assurance is the best motivator for an individual undergoing change according to the Havelock and Zlotolow change model (Havelock and Zlotolow in Ellsworth, 2000: 105). Havelock and Zlotolow point out that the chances of a person not only accepting change but promoting it is directly related to the 'trust relationship' they have with the change (Havelock and Zlotolow in Ellsworth, 2000: 106). Luecke (2003:89) refers to this 'relationship with the change' as 'ownership of change'. Ownership of change implies that the 'changees' not only stand to gain from the change but also have a responsibility to impart the change (Lueke, 2003: 90). As a 'changee' accepts ownership of the change and establishes this 'trust relationship' a transformation occurs where the 'changee' now becomes a 'change agent' (Havelock and Zlotolow in Ellsworth, 2000: 106). Havelock and Zlotolow describe the characteristics to look out for when identifying a change agent:

- An openness toward the change
- Distribution of power equally

- A need to minimise any threats to the change
- An attempt to mitigate any risks to the change
- Identifying and confronting differences
- Including all people equally.

Change agents use dialogic approaches to guide the path of a change (Havelock and Zlotolow in Ellsworth, 2000: 107). These 'dialogic sessions' allow a unique interaction between all participants in the change. Senge (1994: 358) proposes that change processes always involve dialogue between all stakeholders; standards are set where reachable goals are established and power structures are broken down to expose assumptions and allow the truth to be revealed.

A change strategy is required in order to deliver the change successfully. Ellsworth (2000: 21) refers to a change strategy as the framework for change. The framework allows the change to take place in a controlled manner. Ellsworth (2000: 22) emphasises that a simple framework is always the best approach to take so as to remove complications. He proposes that change strategies are based on simple communication models.

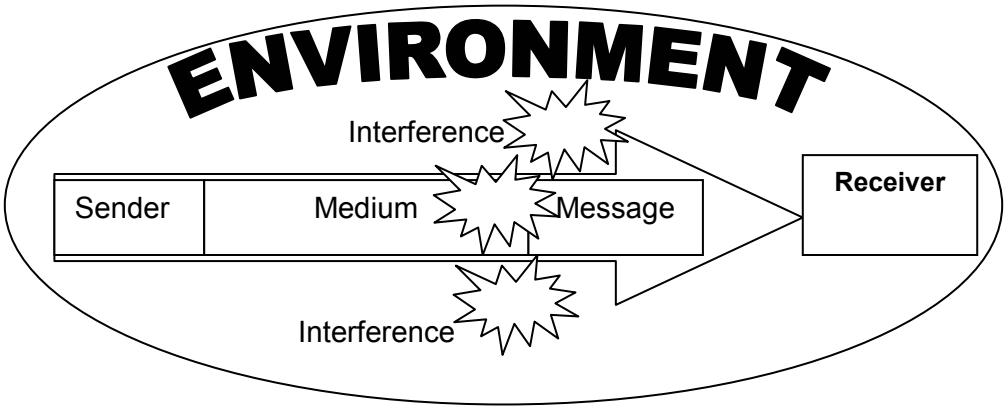


Figure 2.3: Simple Communication Model

(Ellsworth, 2000: 22)

Figure 2.3 shows the path of communication taken between a sender and a receiver. The communication occurs within an environment. This environment is created due to the fact that a need or desire exists to communicate and that there are suitable conditions for communication to take place. A medium must exist in order to deliver a message to the receiver. The medium is typically the communication channel in which

the message moves. Senge (1994: 361) proposes this medium to be dialogue. The medium in this study is the technological CD tool. Interference can occur within the communication environment which could disrupt or distort the message (Ely in Ellsworth, 2000: 61-64).

This simple communication model can be adapted to produce a simple change strategy or model.

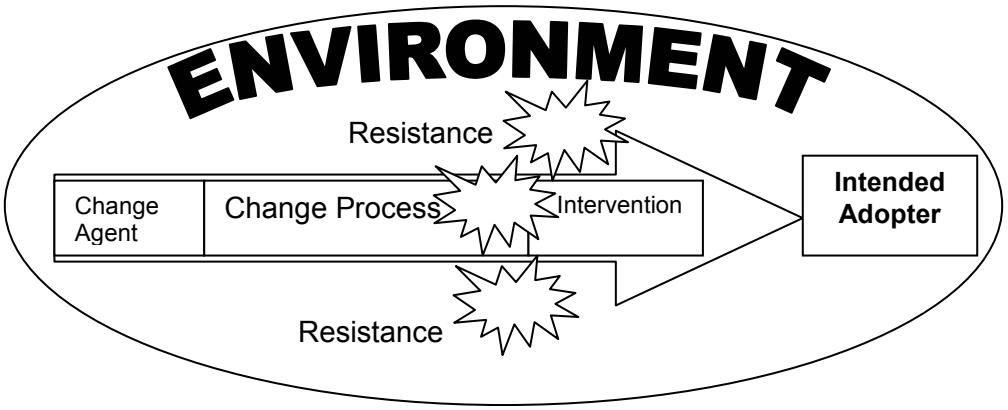


Figure 2.4: Simple Change Model

(Ellsworth, 2000: 24)

Figure 2.4 shows how a simple communication model can be adapted to create a simple change model. The change environment is created primarily by dissatisfaction with the status quo (Luecke, 2003:93); the current environment is not conducive to continued effective production. The sender becomes the change agent, the 'changee' who has a 'trust relationship' with the change itself. The medium becomes the change process, the device which offers hope, insight and re-assurance. The message becomes the intervention, the changed state. The receiver becomes the intended adopter, the people for whom the change is intended. The interference is the resistance to the change.

Resistance to change is an essential part of any change (Edwards, 1997: 59). Ellsworth (2000: 153) points out that despite the negative connotations associated with resistance to change, a careful examination of these resistances will reveal an essential feedback mechanism which forms a valuable tool to gauge the corrective actions needed to be applied to the change process in order to ensure the success of the intervention. Zaltman and Duncan in Ellsworth (2000: 153) cite four main categories of resistors to change:

- Incompatibility of cultural traits with change,
- social systems which do not accept the common set of rules or norms in exchange for the benefits which the change will offer them,
- organisational threats to power and influence, and finally
- psychological resistance residing within the individual partaking in the change process.

The intention, according to Havelock and Zlotolow (in Ellsworth, 2000: 106), is to 'convert' the 'intended adopters' into 'change agents' as the change intervention is executed by the change process. The change model can therefore be adapted to suit the suggestion made by Havelock and Zlotolow:

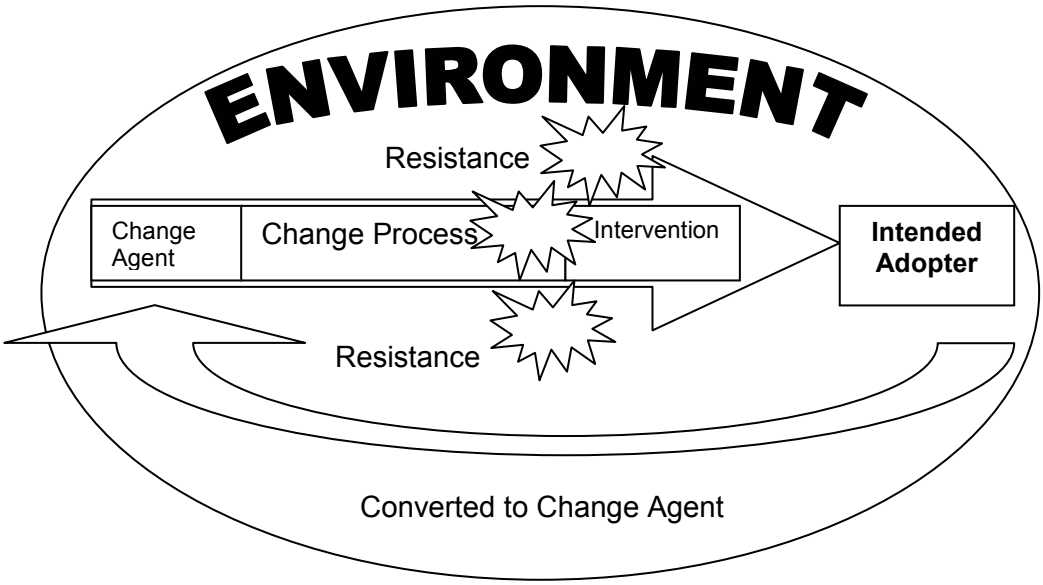


Figure 2.5: Change Model Adapted to Havelock & Zlotolow
(Adapted from Ellsworth, 2000: 24)

This study proposes that a compact disk (CD) used as the training tool could be used by this model as the change process (medium) in order to assist the claims clerks to cope with the intervention (new paper-to-paperless system):

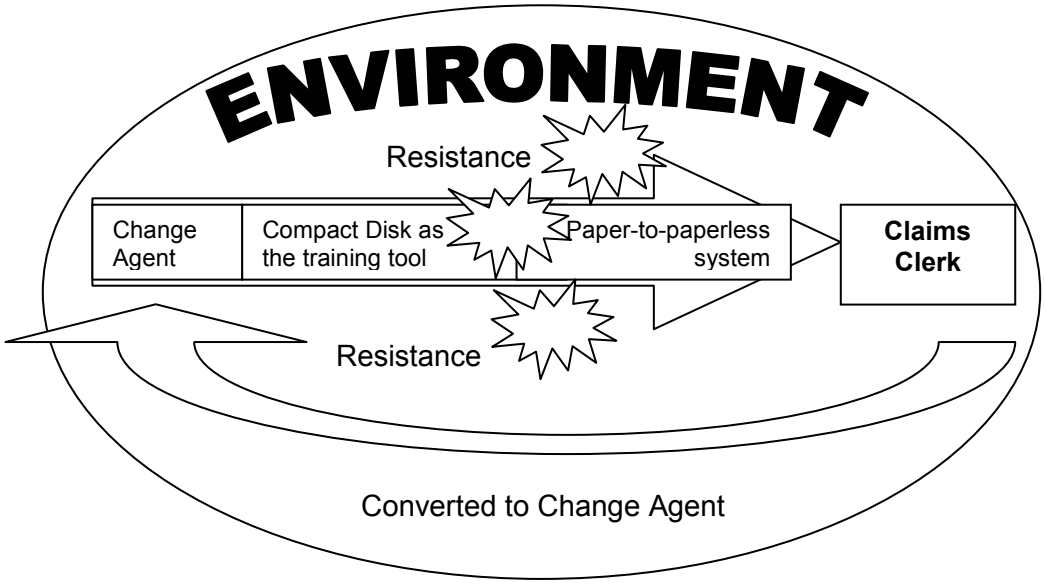


Figure 2.6: Change Model Adapted to the Use of the CD as Training Tool
(Adapted from Ellsworth, 2000: 24)

As seen in *Figure 2.6* above, the compact disk is being used as the change process. According to the Havelock and Zlotolow model, it should serve the role as 'catalyst', 'solution giver', process helper' and 'resource linker' (Havelock and Zlotolow In Ellsworth, 2000: 104). In order to realise these roles, the architecture of the compact disk must be planned, designed and compiled carefully.

The architecture of this training CD will closely follow a design which has been put forward by Scardamalia & Bereiter (1990: 44-46). The following table outlines aspects of the design components which in their view support successful technological teaching tools:

Table 2.1: Technological Design Aspects

Design Aspect	Explanation
Objectification	Break knowledge up into small objects – concrete experience
Progress	Constantly show learners their progress – reflective observation
Synthesis	Objects must be directly related – abstract conceptualisation
Consequence	Something nice happens after each object is accomplished - behaviourism
Contribution	Show how each object contributes to the final result – active experimentation
Cross Fertilization	Connect objects to other objects outside of the course – active experimentation
Sociality/Learning	Encourage cooperation, group work and sharing – co-operative learning. Cater for various learning styles.

(Adapted from Scardamalia & Bereiter, 1990: 44-46)

The new computer software system will be trained through the CD. The CD will be divided into workable modules or objects. These objects will be related to one another through a logical progression until all objects have been mastered. Claims clerks will be able to track their progress through these objects through a graphic barometer.

Scardamalia & Bereiter (1990: 45) emphasise that the goal of any change process is to assist the 'changee' to accept and assist others with the change by constantly providing assurance that the change is never impossible.

Each of these technological design aspects which Scardamalia and Bereiter (1990: 44-46) have discussed in *Table 2.1* can be further associated, described and explained in terms of learning theory. These learning associations will be discussed in the section, '*Learning to Deal with Change*', in *Table 2.2*.

2.3 Learning to Deal with Change

Change, being constant and impacting our daily lives, causes us to adjust our perspectives, challenge our assumptions and re-evaluate our world view. So we constantly learn new ways to address these changes whether these changes are planned or emergent. Curry (1983: 5) explains that intended learning occurs when change is planned. The intentional learning occurring in planned change interventions is both a product and a process:

> The process is adaptive, future focused, and holistic, affecting an individual's cognitive, affective, social, and moral volitional skills. The product is observable as a relatively permanent change in behaviour, or potential behaviour. The process is observable in the improved ability of the individual to adapt to environmental stimuli.
>
> (Curry, 1983: 5)

Curry's point of view of intentional learning 'as a product' seems to resonate with behaviourism. Much of the work on behaviourism as a theory in its own right was developed by B.F. Skinner and supplemented by the work of Thorndike, Tolman, Guthrie, and Hull (Wessner et al, 1999: 7). Three basic assumptions hold true concerning the learning processes involved in behaviourism. Firstly, learning is evident by a change in behaviour. Secondly, the environment in which learning takes places directly shapes the change in behaviour and lastly, the learning process can be

explained by how much the behaviour is reinforced and by how close the cause and the response to the cause are (Wessner et al, 1999: 9). Intentional learning 'as a process' according to Curry (1983:5) involves how the individual adapts their behaviour to the environment.

Intentional learning is seen as a relational construct between how learners approach a particular learning situation and the demands of the learning situation (Gravett, 2005: 37). In this study, the learning situation demands that learners master a new computer system. The new behaviour of using this system will be measured to gauge whether claims clerks can do their work more effectively. In order to reach this measurable behaviour, the claims clerks are required to slowly construct their knowledge by mastering small parts of the system at a time. This new knowledge will be constructed using existing cognitive knowledge structures and thus the learners existing knowledge structures serve as an interpretive framework for the new knowledge (Gravett, 2005: 20). While the claims employees learn, they will be required to make use of their existing knowledge of the old computer system in order to build and create new knowledge of the new computer system. The old logical computer processes will be deconstructed and analysed according to the new processes after which these new processes will be reconstructed into the new knowledge framework. The learners will be encouraged to work together during this process in order to facilitate a shared learning environment. Shared learning environments, although often intentional, also lend themselves to unintentional learning situations (School & Cooper in Curry, 1983: 7).

School & Cooper in Curry (1983) further explain that unintentional learning occurs constantly in contexts unrelated to formal learning environments where intentional learning takes place. Sometimes refered to as incidental or peripheral learning (Watkins & Marsick in Wessner et al, 1999: 11), unintentional learning has been strongly linked to learning environments where learning with computer technology is involved (Wessner et al, 1999: 11). Here learning occurs as one fulfils the need to find out how to accomplish a certain computer task. The learner may process prior computer knowledge or use previous computer experiences to solve new computer problems. This describes cognitive and constructive processes where the environment

is less important in the learning process and the individuals processing of prior knowledge and experiences are more important (Wessner et al, 1999: 12).

The idea that new knowledge is built on prior knowledge and experience belongs to the cognitivist and constructivist outlook to learning (Gravett, 2005: 20).

> When you learn, you make meaning (or sense) of something and develop and build ideas around it. When you are confronted with new information that you need to learn, this new information is understood and learned via pre-existing cognitive structures, in other words, via your existing knowledge framework. You incorporate new information into your existing knowledge structures or you alter your existing knowledge structures in the light of new information… The learner's existing knowledge serves as an interpretive framework for knowledge construction.
>
> (Gravett, 2005: 20)

The learning which occurs in computer aided environments involves a host of general learning theories in different contexts. Wessner et al (1999: 16) describes these environments as behaviourally driven since there are many cause-and-effect or trial-and-error behaviours. These behaviours are often reinforced when learners share their experiences. The learning can therefore also be seen as socially constructed. Curry (1983: 8) associates concepts such as active learning, discovery learning and knowledge building when adults actively engage and discover through social interaction. Curry (1983: 8) further describes that social interaction promotes transformative and experiential learning which involves social cognition and reflective practice.

Transformative learning, as put forward by Mezirow, describes learning as a 'psycho-cultural' process of meaning-making' (Mezirow in Gravett, 2005: 26). This process involves challenging one's own frame of reference (habits of mind and points of view) when one's assumptions, values and beliefs are reflected on. One's frame of reference, world view or reality can be transformed or confirmed depending on whether the learner accepts or rejects the alternative view (Gravett, 2005: 27).

Similar to Mezirow's transformative learning, experiential learning in adults, as put forward by Kolb & Kolb (2005), is best conceived also as a process of relearning where one is called upon to move back and forth between opposing modes of reflection and action and feeling and thinking. Kolb & Kolb (2005: 195) suggest that

relearning occurs through a cycle where concrete experiences form the basis for reflection and observations which can be assimilated and distilled to form abstract concepts. This may result in a new experience or a new abstract hypothesis which can be actively tested through experimentation. Wessner et al (1999:19) agree with the concept of learning through the transformation and confirmation of 'life blocks' (values and beliefs) through the action of sharing real life experiences but adds an additional dimension to learning. Since the 'information explosion' a new aspect of learning is now on knowing how to access information and knowing how to trust information sources.

Wessner et al (1999) eventually call for a new learning culture. This call is substantiated due to the fact that learning over the last decade has been regarded as more and more important due to the increasing amount of knowledge available worldwide, the increasing complexity of this knowledge and the increasing speed of the way in which knowledge changes. Much of this change can be attributed to technological changes. Wessner et al (1999: 22) suggests that a new learning culture consider the following:

1. Learning has to be a life-long process
2. Better support for adult learners whose learning process can be complex and may differ in many ways from those processes which currently exist in formal educational institutions
3. Provide learning methods which support groups of learners in more cooperative and collaborative learning environments
4. Learning must not be limited to scheduled activities; it has to be flexible over various dimensions such as time and space.

Wessner's first consideration for a new learning culture causes one to ask whether one can change without learning. According to Edwards (1997) learning is synonymous with change.

> Change, often unpredictable in its consequence, is endemic to the contemporary world. For adults to be able to understand and act in that world, opportunities for lifelong learning become crucial.
>
> (Edwards, 1997: 24)

It is difficult to change without learning. As organisations seek to 'stay ahead of the pack', so employees are expected to keep up with the changes required to do so. This could imply that lifelong learning in the workplace is endemic.

> While the role of lifelong learning in relation to work and the economy has always been an important concern among certain groups, it is only in relatively recent years that it has become commonplace as a concept.
>
> (Reeve, Cartwright et al, 2002: 1)

It has been in the 'relatively recent years' that technology has exponentially impacted our lives and technology could be one of the main contributing factors for the need for lifelong learning. Bennett et al (2005: 74-76) mentions that it is becoming increasingly obvious that the acquisition of knowledge relies on the ability to access information and that this information will soon only be available through technology, for example e-books. An e-book is an electronic device which can store and digitally display text media. The World Literacy Foundation (WLF) has reported that literature is fast becoming available only in e-book formats and that by the year 2015 every school going child will have to be able to use an e-book to access their learning material and most of the world's media will only be available through digital formats (Bennett et al, 2005: 77). Whether a person is a school going child or an adult wishing to read their newspaper, we will all have to get used to the idea of constantly learning how to use technology.

The second consideration for a new learning culture which Wessner (1999) suggests is to be aware of the complexity which adults bring to the learning environment. Learners in the workplace are seen as adults by definition (Knowles, Holton & Swanson in Gravett, 2005: 9) as they have a self-concept of being responsible for their own lives and for the decisions which they make. They also express the need to be seen and treated by others as responsible human beings. Gravett further explains that adults generally seek to learn according to their needs (Gravett, 2005: 10). In this study, however, adults are learning not because of their own need, but because of a work-related need. Furthermore, adults become involved in organised learning if the learning is linked to life-changing events (Zemke & Zemke in Gravett, 2005: 11) and needs arising from their vocational roles (Knowles et al in Gravett, 2005: 11).

As adults move through their lives like sailing ships on the wide ocean they are guided by unknown and known forces. These unknown forces are like the winds that blow and drive the sailing ship at different speeds through the water. As learning beings we soon learn to watch out for these unknown events and even try and predict them. We trim the sails to control the effect of the wind and so gain some control over what seemed to be an unpredictable situation. These known and unknown forces are both required if the sailing ship is to reach its final destination. So it is with adult learning. Together with the known and the unknown we add to our experiences of life. We may confirm our assumptions and hold fast to our rudder to ensure a straight and steady course. We may challenge existing values and transform our reality and so extend our sails to make more use of the wind. All of these events constantly add to our learning experiences.

This is the premise on which adult learning is based, as Gravett (2005:14) explains; 'adult learners bring a wide variety of life experiences into the educational setting… and these serve as an interpretive framework for learning'. Gravett (2005:14) further explains that these existing experiences can both add and impede meaningful learning. Within the learning experience adults may impede their learning by 'finding it difficult to distance themselves from established convictions and thinking patterns as a result of emotional investment in their existing patterns of experience and knowledge. Adults through their experiences can add to their learning by providing opportunities for interaction as they stimulate reflection and create personal and professional transformation (Gravett, 2005: 15).

Opportunities for interaction are maximised through group and team activities. People who learn better through the interaction provided for by groups and teams fit into the diverger and accommodator learning styles as apposed to the converger and assimilator learning styles described by Kolb (1976: 232). Both diverger and accommodator learning styles describe learners who prefer to bring concrete experiences to the learning environment. Where the diverger will gather knowledge through active observation, the accommodator will gather knowledge through active experimentation. Kolb (1976) describes people who show characteristics of both these learning styles as 'people friendly' as they describe the willingness of these types of people to engage in different cultures and will easily explore new possibilities. The

converger and assimilator styles of learning are both characterised by learning abilities associated with abstract conceptualisation. People who display these types of learning styles prefer to create scientific formulas, models and theories where there is always a logical explanation and mostly one single answer to a problem. Kolb (1976) describes people who show characteristics of both these learning styles as less 'people friendly' as they prefer to deal with 'things' (Kolb, 1976: 233-234).

The call for better support for adult learners is by no means unfounded. As previously discussed, adults use experience as one of the main vehicles for their learning. Social interaction and other learning delivery methodologies which make use of social interaction thus become a key component within the adult learning environment. It therefore follows that Wessner (1999) proposes that adult learning environments should provide learning methods which support groups of learners in more cooperative and collaborative learning environments.

Cooperative and collaborative learning although often used interchangeably are distinct from one another, as Dillenbourg et al (1996: 2) explain: Cooperation involves each team member completing a particular piece of the team work. Collaboration involves the entire team working on all of the work together as a single unit. In this light, a collaborative approach involves more social interaction at a higher level than the cooperative approach would. The aim according to Wessner (1996: 23) is to maximise social interaction in order to broaden the variety of experiences on which to reflect. Experiences where encouragement, rewards and recognition are exchanged ensure that learners remain motivated in cooperative and collaborative learning environments (Wessner, 1996: 24). One of the main advantages of cooperative methods over collaborative methods is the ability to measure individual performance. Collaborative learning methods often treat the team as a unit and as such will find it difficult to score each individual within the team (Dillenbourg et al, 1996: 4). By applying a combination of cooperative and collaborative methods an ideal adult learning environment could be created. Here adults who are divergers and assimilators, according to Kolb (1976), who are less 'people friendly' and more task orientated, can perform through cooperation while the convergers and accommodators who are more 'people friendly' could learn through collaboration and shared experiences.

The final consideration which Wessner (1996) proposes about a new culture of learning is that learning should not be limited to scheduled activities; it has to be flexible over various dimensions such as time and space. This implies that a new approach to the usual 'classroom lesson' be further examined and investigated. Driscoll (2008) outlines a new approach to learning which is not necessarily limited to time and space. This approach to learning is known as blended learning.

The blended learning approach makes use of various computer technologies to reach an educational goal (Driscoll, 2008: 2). Computer technologies such as live virtual classrooms, streaming video, CD ROM interactive training and instruction, web-based internets, networked databases, virtual assessment and on-line open universities. These learning technologies, sometimes referred to as e-learning, are combined with sound pedagogical principles such as constructivism, cognitivism and behaviourism to bring about cooperation, collaboration and self-paced instruction (Driscoll, 2008: 2). It is this culmination of different technologies and the facilitation of sound pedagogical principles which has been coined blended learning. The success of blended learning strategies is often attributed to the 'fun' aspect incorporated in computer technologies (Driscoll, 2008: 2). Table 2.2 outlines the blend between the technological design used in this study and its associated learning theory.

Table 2.2: Technological Design Aspects in terms of Learning Theory

Design Aspect	Explanation	Learning Theory
Objectification	Break knowledge up into small objects and encourage engagement in each object	• Experiential learning - Concrete experience phase
Progress	Constantly show learners their progress	• Experiential learning - Reflective observation phase
Synthesis	Objects must be directly related	• Experiential learning - Abstract conceptualisation phase • Transformative learning
Consequence	Something nice happens after each object is accomplished	• Behaviourism
Contribution	Show how each object contributes to the final result	• Experiential learning - Abstract conceptualisation phase • Constructivism
Cross Fertilization	Connect objects to other objects outside of the course	• Experiential learning - Concrete experience, abstract conceptualisation, reflective observation and active experimentation phase • Constructivism
Sociality/Learning	Encourage cooperation, group work and sharing. Cater for various learning styles.	• Social Theory – specifically cooperative and collaborative learning

(Adapted from Scardamalia & Bereiter, 1990: 44-46)

From *Table 2.2* we can see that the different technological design aspects which Scardamalia & Bereiter (1990: 44-46) have suggested can be associated with different learning theories. The aspect of *objectification,* where knowledge is broken up into small objects, forms the basis of the learner's concrete experiences (Kolb, 1976). As learners are shown their *progress*, they are able to reflect (Kolb, 1976 & Mezirow in Gravett, 2005) and further *synthesis* their knowledge. Mezirow in Gravet (2005: 26) describes this *synthesis* as the possible transformation of the learner's assumptions, beliefs, values and other world views. The reinforcement of behaviour through rewards as a *consequence* of the correct behaviour is a typical behavioural trait (Good & Brophy in Wessner et al, 1999: 18). Each of the knowledge objects are conceptualised and *contributed* towards the final outcome of the learning. Furthermore, these new learned knowledge objects can be related to other knowledge objects which are not necessarily part of the learning intervention. In this way knowledge can be '*cross fertilized*' where knowledge links are made with other existing knowledge objects through the experiential cycle proposed by Kolb & Kolb (2005) as discussed earlier. During the process of '*cross fertilization*' of knowledge objects, the possibility for new knowledge to be constructed may also exist. Here the

new knowledge would be constructed as a result of the learner's reflection on previous experiences (Gravett, 2005: 20). Finally, Scardamalia & Bereiter (1990: 44-46) suggest that as part of the design of a technological approach to learning, *sociality* should be considered. In particular Scardamalia & Bereiter (1990: 44-46) identify cooperative learning environments as a vehicle for *sociality*. However, all social learning theory could be associated with this suggestion. Such social learning theories include experiential learning, transformative learning, social constructivism and situated learning.

Situated learning refers to 'learning which takes place in the social and physical context within which it will be used' (Brown, Collins and Duguid in Lave & Wenger, 1991: 64). Lave & Wenger (1991: 65) describe learning as a process of becoming a member of a sustained community of practice. A member can participate in three different modes of belonging within the community:

- Engagement: doing things together
- Imagination: constructing an image of ourselves
- Alignment: aligning our activities with community processes

(Lave & Wenger, 1991: 65)

These three modes of belonging allow the member to create their identity within the community. The community is further defined by their '*joint enterprise*' which is typically what the community is about. As the members '*mutually*' interact with one another they establish relationships and norms which further produce '*shared repertoires*' of communal resources; language, stories, unique communal styles, routines and sometimes unique artefacts (Lave & Wenger, 1991: 67).

In the case of this study, the community of practice consisted of the claims clerks within the insurance company. The researcher joined this community by initially engaging in the claims handling practice. He then further established his identity as a full participant with regards to the new paper-to-paperless computer system. 'Knowledgeable skill' and a revised identity are developed by a two-way process known as legitimate peripheral participation. Here the two-way process occurs between a newcomer and an old-timer where the old-timer is a full participant and has mastered the skill required to perform a specific task (Lave & Wenger, 1991: 66). All claims clerks are 'newcomers' since they will need to learn the new skill of how to

use the new computer system and the researcher is the 'old timer' since he has a full understanding of the new computer system. An apprenticeship will exist between the master and his apprentices where the role of the apprentices will be to observe the community of practice (Lave & Wenger, 1991: 69). This observation will be at first from the boundary and they will engage as 'legitimate peripheral participants'. The role of the master will be to expose the newcomers to the community of practice and allow them to experience all dimensions of the practice until they too are full participants within the community of practice.

Dillenbourg et al (1996: 5) describes the role of the educator in collaborative and cooperative learning environments which are typical to blended learning: The role of the educator will be that of facilitator where guidance is provided rather than instruction and this can be likened to the role of the master in a community of practice.

> A facilitator is someone who uses some level of intuitive or explicit knowledge of group process to formulate and deliver some form of formal or informal process interventions at a shallow or deep level to help a group achieve what they want or need to do or get where they want or need to go.
>
> Dillenbourg et al (1996: 6)

Driscoll (2008) concurs with the facilitator having 'knowledge of group process'. The social dynamics which can occur in a group can be complex. Understanding how gender, social class, age, personal belief and value structures interplay in groups is required by the facilitator in order to successfully nurture effective learning environments (Driscoll, 2008: 5). Dillenbourg et al (1996: 6) further describes the learning occurring in groups as situated specifically in the group. The learning in one group will not be the same in many ways as the learning occurring in a different group – even when the groups have been tasked with the same assignments. Dillenbourg et al (1996:6) ascribes this to the multitude of social factors, described by Driscoll (2008: 5), present in a group. It is thus difficult for the facilitator to guide specific learning outcomes when facilitating groups. Driscoll (2008: 6) suggests that the facilitator guides group learning according to broad learning outcomes. These broad learning outcomes focus on how the individual operates within the group and concentrates on the relationships established between the individuals who make up the group. These relationships assist to establish each individual's role and position

within the group. Dillenbourg et al (1996: 8) as do Lave & Wenger (1991: 69), likens the learning and social dynamics occurring in groups to a community.

2.4 Conclusion & Going Forward

The change from a paper to a paperless work environment seems to be a logical and sensible one; in the eyes of business at least. It is within the business' interest to reduce the amount of time which it takes to recover from a technological change and further reach above normal production outputs. This planned change will impact the employees whom the change was intended for. It is thus also within the business' interest to attend to the changing needs of its employees during this change as the business productivity relies mainly on its workforce.

A carefully planned change strategy is therefore required by the business to facilitate the best approach to this change. A simple yet effective change plan has been outlined to facilitate this requirement. The change plan takes into account a technological approach to the design of the interactive multimedia compact disc which will assist with the facilitation of the training of the new paper-to-paperless computer system.

Eventually all claims employees will be 'old-timers' through the movement from legitimate peripheral participation to full participant and will have constructed their knowledge and skill through an intentional cooperative and collaborative learning method which is facilitated by a blended learning approach.

The following chapter of this report will highlight this plan; research design and methods used in this study. It will be seen that the theory which has been outlined above has guided this study's research design and methods.

3 Research Design

3.1 Research Methodology

This research used an interpretive empirical design which was informed by an ethnographic and case study methodology.

This research focused on the impact of a technological training tool (compact disc) on claims clerks. The attitudes, values, thoughts, feelings, beliefs and the experience of these claims handlers formed much of the data. This interaction and involvement of human subjects implies that the study was situated in an interpretive empirical paradigm. Empirical designs are guided by evidence from research methods where practical human experience is obtained (McMillan & Schumacher. 2006:10). The interpretivist's outlook on what constitutes reality was focused on human experience and knowledge, which is socially constructed and subjective (Chalisa & Preece, 2003: 27). These experiences were captured through an ethnographic case study methodology.

The ethnographer describes reality as having multiple interpretations. These interpretations typically describe the experiences of the claims clerks and 'how they think and behave in certain contexts' (Chalisa & Preece, 2003: 143). The context here is the change process of paper-to-paperless within an insurance claims environment. Bickman & Rog (1998: 476) further describe the ethnographic researcher as one who approaches the study from an emic and etic perspective.

The researcher approached the study from an emic perspective by being involved in the change process as the 'master' of the new paper-to-paperless system (as described by Lave & Wenger in *2.3 Learning to Deal with Change*). He facilitated the training of the new paper-to-paperless system and used this opportunity to conduct the research. In order to analyse the data without bias or any other personal influence, the researcher had to 'step outside' of the research case and consider all of the data from an 'etic' perspective as an 'outsider'.

Sanday (1979: 524) encourages ethnographers to become part of the situation being studied in order to feel what it is like for the people in that specific situation. In addition she warns that ethnographic enquiry will 'sap' one's emotional energy.

> The ethnographer who becomes immersed in other people's realities is never quite the same afterward. The total immersion creates a kind of disorientation – culture shock – arising from the need to identify with and at the same time to remain distant from the process being studied.
>
> (Sanday, 1969: 524)

The research site provided the researcher with various situated phenomenon which characterised the study. In this way the unique research site presented itself with its own characteristics and culture (as discussed earlier in *1.2 The Context*). Yin (2003, 14) refers to this type of research strategy as a case study.

> A case study is an empirical inquiry that investigates the contemporary phenomenon within its real-life context, especially where the boundaries between phenomenon and context are not clearly evident.
>
> (Yin, 2003: 13)

The case study of *paper-to-paperless* provided an environment for critical inquiry where the data was gathered. It allowed for the investigation of the paper-to-paperless change process as a phenomenon in a real-life workplace context (Yin, 2003: 13). The boundaries of this case study were determined by the claims clerks and the specific change processes being implemented in the South African insurance company. These boundaries include the 'make up' of the branch in terms of its people and its environment. This 'make up' included people's levels of intensity, geographic constitution, commitment and patience needed to cope with the specific change brought about through the introduction of the change from paper-to-paperless within their claims environment (Henning, 2004: 32). The case study is therefore not so much a research method than it is a research strategy where an 'inductive analysis focuses on processes in their social context' (Sanday, 1969: 526).

3.2 The Case Site

The new paper-to-paperless system was implemented in the largest branch of the insurance company. The research took place at a branch in the Gauteng Province of

South Africa, the Central West Rand branch. All insurance employees who are in any way involved in the processing of claims were trained on this new system by the researcher by way of an interactive training CD. The design of this CD took careful consideration of pedagogical and technological aspects required to facilitate blended learning delivery techniques (see *Table 2.2: Technological Design Aspects in terms of Learning Theory*).

This branch was easily accessible to the researcher and the sample was therefore a convenient sample as described by McMillan & Schumacher (2006: 125). The sample of claims clerks was divided into five main categories according to the role carried out by the clerk. The following table shows these categories:

Table 3.1: Sample categories

Category	Role and Responsibility
Claims manager	The claims manager was responsible for all claims and the work occurring in the branch. This includes workload allocation, quality of service, complaints and productivity (number of claims processed per day). This manager had access to the management information which the new system provided.
Supervisors	The supervisors reported to the claims manager. They provided first-line-support to the team leaders and were advised by the quality controllers. They also had access to the management information which the new system provided.
Quality controllers	The quality controllers reported to the supervisors regarding various aspects of the productivity of the claims processes such as the number of claims processed per day and accuracy of claims processing. They were able to access the part of the system which required quality input such as the capturing of the client responses after the work had been completed on a claim.
Team leaders	Team leaders were responsible for a section of the claims process, either geyser claims or house owners claims. They assisted their clerks by providing support when there were queries concerning any claim. They controlled the workflow section of the system ensuring that the claim flowed correctly through the system.

Claims handlers	Claims handlers were the engine of the claims process. They dealt directly with the claimants and worked with the claim from its registration to its closure and in some cases re-opened a claim when required. They used the new system the most by controlling one of the claims processes namely registration, handling or payments.

The following table summarises the sample size per category role in the branch:

Table 3.2: Sample numbers per category role in the branch

Category Role	Geyser	HOC	Total
Claims manager	1		1
Supervisors	1	1	2
Quality controllers	1	1	2
Team leaders	6	6	12
Claims handlers	14	11	25
Total			**42**

The total sample of the research study was 42.

3.3 Methods

This study used as part of its methodology, a multi-method or triangulation method as described by Henning (2004: 103), where the use of different data collection methods allowed "working the data" to new understandings and insights. Participant observations, questionnaires, interviews, focus groups and documentation were used to gather the data required to answer the research questions. Each of these methods was used to gather qualitative data in different contexts as each method offered a different 'angle' of enquiry (Chilisa & Preece: 2005: 152). The use of similar questions in different methods allowed the corroboration or 'triangulation' of responses where responses were verified (Henning, 2004:103).

> Qualitative research requires the presence of the researcher in the setting. Often, researchers do not only hear what participants say, but also see, smell and touch as they interact with the participants.
>
> (Chilisa & Preece: 2005: 155)

Learning to analyse and interpret qualitative data involves a transformation of the researcher as the principal instrument for making sense of the phenomenon under study (Henning, 2004:81). The researcher was therefore committed to the case in order to feel what is was like for the claims clerks to be in the situation of adopting the new paper-to-paperless system.

The researcher used everyday common events as opportunities to 'case the joint' (Yin, 2003: 92). This meant spending time with the claims handlers and claims manager to get to know how they operate and to observe how they were preparing for the change. Typical events such as having lunch in the pause area, taking a coffee break in the claims manager's office and catch-up chatter in the photocopier queue became data collection sessions.

3.3.1 Participant Observations

The researcher used field notes to record events which he observed (see *Appendix A*). These observations revealed behaviours, attitudes and feelings which other methods did not (Chalisa & Preece: 2005: 160). One of the disadvantages with observations as suggested by Chalisa & Preece (2005: 161) was the possibility of the researcher misinterpreting what was being observed. To overcome this problem the researcher recorded only what was seen and heard and did not attempt to interpret the observation. McMillan & Schumacher (2006:207) refer to this as a low-inference observation.

Participant observations were conducted throughout the research study. Henning (2004: 83) suggests that in order for the researcher to gain the truth through observation, they must become part of the culture of the case being studied. This required the researcher to spend as much time as possible, as much as one year, in order to gain an "emic" understanding of the case.

3.3.2 Focus groups

Focus groups were conducted at the research site. The ideal group size of a focus group is between eight and fifteen persons as suggested by McMillan & Schumacher (2006: 360). The 42 participants were divided in number according to this suggestion, which resulted in three focus groups; groups A, B and C each containing 13, 15 and 14 participants respectively. The focus groups allowed the researcher to better understand the change process from a social perspective as group members were stimulated by each others' responses.

As for interviews, focus groups require the researcher to be experienced in listening and negotiating skills as well as being able to manage groups (McMillan & Schumacher, 2006: 361). Failing to meet such requirements could lead to the recording of inaccurate data. The responses from participants during the focus group sessions were captured in a semi-structured focus group data sheet (see *Appendix B*).

Focus groups were conducted initially before the implementation of the new paper-to-paperless system to establish the initial research categories. Focus groups were also conducted during the post-implementation phase of the research to confirm results from data collected from the questionnaires, interviews and participant observations. These focus groups therefore served as a 'check-out' for the research where themes were confirmed and anomalies were investigated and understood (see *3.4.2 Timeline*).

3.3.3 Questionnaires

There are many disadvantages of using questionnaires. As Bickman & Rog (1998: 485) explain, in filling out a questionnaire, the participants answer the questions without verbal exchange or clarification on whether the researcher and participant are on the same 'wavelength.'; Misinterpretations and misrepresentations are common with questionnaires; many people present 'ideal' answers or answers to suit their image; response rates of participants can be poor when questionnaires are used. The questions must therefore be concise, simple, clear and as unbiased as possible and the questionnaire itself must be easy to use and quick to complete.

Despite these disadvantages, questionnaires can be used to reach an entire population of a study (ibid, 486), as in this study. Bickman & Rog (1998: 486) further explain that the questionnaire is a good method to use for the ethnographer as questionnaires can be used to test hypotheses about specific conceptions and behaviours of cultures, as in this study.

The questionnaire (see *Appendix C*) was completed by the participants on-line through the Internet. This was done purposefully not only to provide an easy way for the participants to access and complete the questions, but also to reinforce the 'technological' aspect of the study.

The questionnaire was structured in four purposeful sections. Section "A" asked the participant to provide a few personal details to establish the participants age, gender and number of years which they had worked for the organisation. Section "A" also probed the participants ability to use their computer. Data was gathered on how the employees coped with the change process (Section "B"). Section "C" was used to gauge whether the use of the compact disc (CD) had an impact on assisting the claims employees with coping with the change and looked at the different aspects of the CD technology as a teaching tool. The final section, Section "D", inquired about the learning which occurred during the use of the CD.

3.3.4 Interviews

According to Chilisa & Preece (2005:147) an interview is a conversation or interaction between the researcher and a research participant where the researcher focuses on getting information by asking the research participants questions relating to a specific topic. McMillan & Schumacher (2006: 2003) describe this as a vocal questionnaire.

The strength of any interview lies in the ability of the interviewer to draw true and accurate responses from the interviewee. This skill is necessary in support of the validity of the data being gathered. Lofland has put the matter as:

> I would say that successful interviewing in not unlike carrying on unthreatening, self-controlled, supportive, polite and cordial interaction in everyday life. If one could do that, one already has the main interpersonal skills necessary for interviewing.
>
> (Lofland in Hitchcock & Hughes, 1989: 85)

McMillan & Schumacher (2006: 203-204) highlight weaknesses of using the personal interview as a research method. They suggest that interviews can be subjective and biased and that due to the lack of anonymity, informants may be unwilling to report the truth. Furthermore, if the researcher is not experienced in interviewing or questioning techniques, as suggested by Chalisa & Preece (2005: 147), then the truth may be misinterpreted due to poor recall and poor articulation.

The researcher followed the guidelines for personal interviews suggested by Chalisa & Preece (2005: 147) in order to increase the chances of capturing the truth and making the informant as comfortable as possible while remaining as objective and neutral as possible.

An interview schedule (see *Appendix D*) was constructed which contained semi-structured questions. These questions were guided by the research questions of the study and allowed the participants to freely express their views. The semi-structured interview allowed the researcher to "probe and expand the interviewees' responses" (Hitchcok & Hughes, 1989: 79). The researcher interviewed all of the participants in the sample.

3.3.5 Documentation – Claim Statistics

The number of claims processed per week were gathered as documentation (see *Appendix E*) before the change process began in order to benchmark the productivity of the claims clerks. This documentation was gathered at regular intervals (weekly) throughout the study as an indication of how the business was reacting to the change process and eventually would be used to indicate whether the business had recovered from the change.

3.4 Research Plan

3.4.1 Data Collection

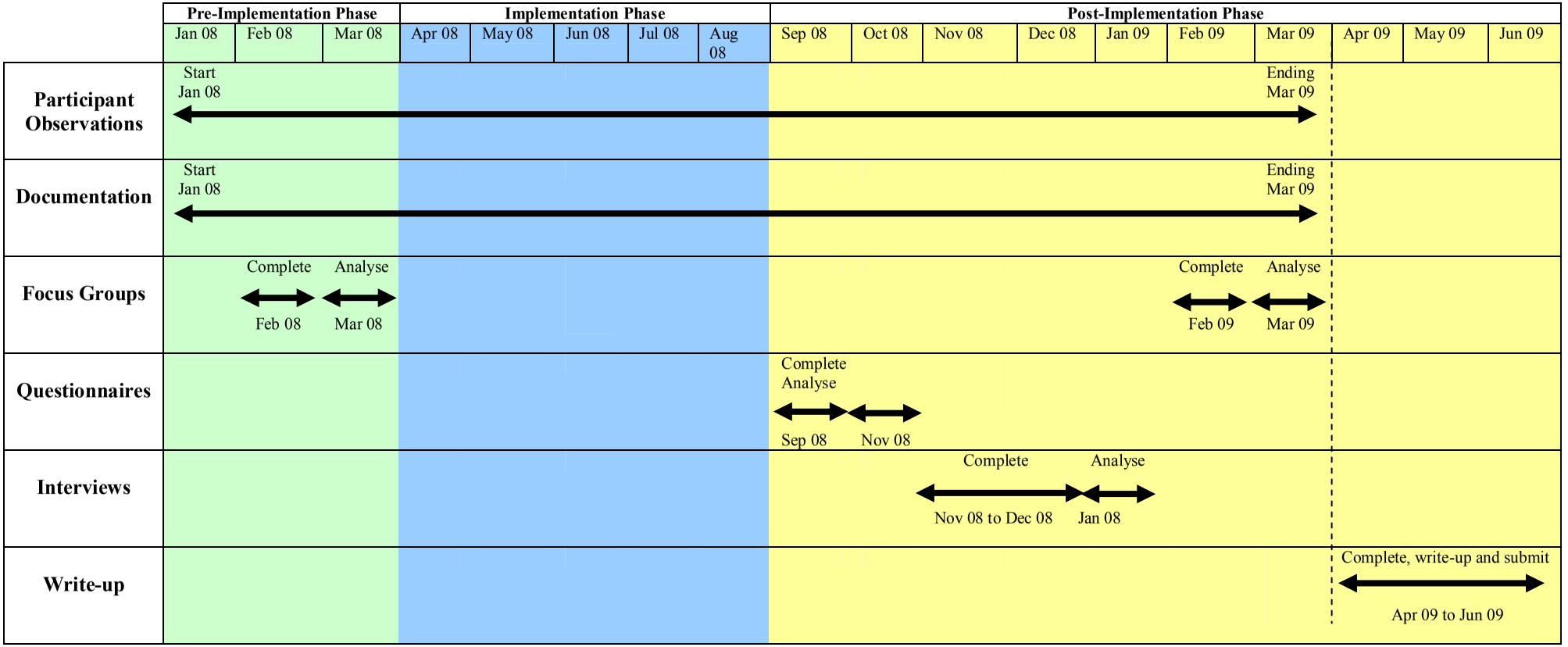
Data was collected in a structured and planned manner. The researcher identified three distinctive phases of the research; pre-implementation of the new system, implementation of the system and post-implementation of the system. These three research phases can be clearly seen in *3.4.2 Timeline*. Data was collected from different methods during each of the three research phases. The training CD was used by the participants during the pre-implementation phase. The researcher made hand-written notes in the record sheets for the interviews, focus groups and participant observations and did not make use of any electronic recording devices. The following table indicates which data collection method was used during each of the research phases.

Table 3.3: Data Collection Methods Used Per Research Phase

Research Phase	Data Collection Method
Pre-implementation of the system	Participant observations Documentation Focus groups
Implementation of the system	Participant observations Documentation
Post-implementation of the system	Participant observations Questionnaires Interviews Focus groups Documentation

The focus groups allowed the participants to interact and discuss issues which occurred during the implementation of the new paper-to-paperless system. This allowed the researcher to initially identify categories and themes within the data. The data gathered from the focus groups and the participant observations allowed the researcher to guide the questionnaires and interview schedule and to further probe the themes and categories identified by the focus group and participant observations data.

3.4.2 *Timeline*



This data was gathered over an estimated time period of between six to twelve months, as suggested by Bickman & Rog (1998: 476) and by Sanday (1979: 524). A long residence of at least a year during which the researcher was devoted to the task of enquiry into the culture and the study of the institutional setting in the culture was followed as suggested by Sanday (1979: 524).

3.4.3 Data Analysis

"Familiarity with various tools is helpful… but every case study should nevertheless strive to have a general analytic strategy" (Yin, 2003: 109). The strategy which was used to analyse the data from this study followed the theoretical propositions which led to this case study (Yin, 2003: 109) - propositions such as the claims employees recovering sooner than expected due to the impact of the training compact disc; the branch productivity recovering sooner than what current research statistics show; learning which took place during the change process of paper-to-paperless.

All of the data gathered from the methods was considered and analysed. This data was coded by using an analysis method known as 'qualitative content analysis' (Henning, 2004: 104): the data was 'fractured' (Straus in Bickman & Rog: 1998: 89) in such a way as to create codes and categories which was compared and matched in order to illuminate common themes and show discrepancies in order to build negative cases (Bickman & Rog, 1998: 89). In these few 'negative cases', where the results did not seem to 'fit' the categories and themes, the researcher built an argument for further study (see *5.3 Areas for Further Study*). Contextual relationships were also analysed by considering the data in its original context (Bickman & Rog, 1998: 90). Codes were created by inspecting the responses for common statements. These common statements were then related to categories which typified the response. The following example illustrates this process:

Response	Code	Category	Theme
"Using the CD was fun, especially building the puzzles as I easily completed the simulations and assessments."	Puzzles made it fun	Rewards	Training
	Easily completed the simulations and assessments	Ease of use	

The data gathered from the methods, once recorded, were analysed as soon after as to capture the essence in which the data was created, that is, as observations were made by the researcher they were recorded and analysed as soon as possible (see *3.4.2 Timeline*), which added to the overall validity and reliability of the study as discussed by Henning (2004: 107). This was in an effort for the researcher to overcome the problem suggested by Bickman & Rog (1998: 89): one of the most common problems researchers have is that they do not record and analyse field notes and transcripts as they collect them.

3.5 Validity and Reliability

According to McMillan & Schumacher (2006: 324), validity refers to the degree of congruence between the explanations of the phenomenon and the realities of the world. It is the truth which is sought after by researchers when using various methods to gather data. The reliability of the data is shown through the consistencies of the responses which can be found throughout the different data collection methods (Henning, 2004: 106).

The truth may be difficult to acquire as participants often know what the 'correct' answers are and rather than volunteer the truth they deposit answers which they think are ideal. In an attempt to enhance validity, McMillan & Schumacher (2006: 325) suggest using prolonged field work, multi-method strategies, participant verbatim language, low-inference description and making use of multiple and participant researchers' member checking. Through techniques such as these, they suggest that reflexivity can be addressed. This study has made use of these validity enhancing techniques suggested.

Prolonged fieldwork was carried out as the researcher immersed himself at the research site and became part of the branch by facilitating the training of the new paper-to-paperless system by way of the interactive compact disc. Multi-method strategies were used to collect data from a range of methods in an attempt to 'triangulate' the data. During the interviews, focus groups and participant observations, the responses from the informants were recorded as literally as possible. This allowed for 'rich' data to be collected that was detailed and complete enough that provided a full and revealing picture of what was going on (Maxwell, 1996: 95). The

responses from similar questions across different methods showed that the methods were reliable and that the data collected was valid.

3.6 Scope, Limitations and Assumptions

The research focused on a single change process of paper-to-paperless as a case study. The case study set the boundaries of the research as only those phenomena occurring within it was studied. The results of the study can not be used to generalise or claim to be true for all change processes, but rather be transferable to case studies that are contextually similar to the case study studied here (Bickman & Rog, 1998: 95).

Furthermore, the use of a convenient sample implies that although it was easy for the researcher to access the sample, the generalizability of the findings is limited to the characteristics of the claims clerks within the case (McMillan & Schumacher, 2006: 125).

Since the researcher carried out all of the training at the research site, for which he was contractually tasked, situations may have occurred where the research and the contracted task became 'blurred'. For example, during the training sessions participants may have reacted in a way toward each other and toward the researcher in a 'training context' which should not be recorded by the researcher as a 'working context'. Thus the researcher did not record observations during any of the training sessions. In addition, the interviews, focus groups and questionnaires were not conducted during the implementation phase of the system (see *3.4.2 Timeline*).

It was assumed that the learners were adult learners and reflected characteristics of adult learners, particularly characteristics of self directedness as described by Knowles, Holton & Swanson in Gravett (2005: 9). These assumptions were tested in the focus groups, interviews and questionnaire methods.

It was also assumed that the learners had basic computer knowledge and knew how to use the training CD. Although the level of 'computer user competence' was recorded throughout the various data collection methods, the participants may not have been as

competent as they thought. Computer competency was not part of the training of the paper-to-paperless system.

3.7 Ethical Considerations

The researcher had a social responsibility to the participants in this research. "Social researchers must take into account the effects of the research on participants, and act in such a way as to preserve their dignity as human beings" (Cohen & Manion, 1994: 359). Cohen & Manion further explain that when there is a conflict between the value of free scientific inquiry and a belief in the dignity of individuals, the individuals' dignity must be preferred (Cohen & Manion, 1994: 359, 360). This advice was strictly adhered to by the researcher.

This research took cognisance of the ethical issues which surrounds social studies as outlined by Henning (2004:73-74). These considerations included informing the participants of their right to withdraw from the study at any point without any consequence; participants were informed that their responses to questions were confidential and that their identity would not be revealed as their name or any identification was not recorded on any of the data gathering instruments (see *Appendix F: Information Letter)*; the questions were constructed in such a way that the language was understandable and avoided bias; where human contact occurred, such as in interviews and focus groups, careful consideration was given to the manner in which the interview was conducted; the institution where the research occurred was fully aware of the study and what was expected of all parties (see *Appendix H: Research Site Clearance*).

The participants were asked to sign a consent form which acknowledged their participation and granted the researcher the right to include their responses as findings in the reporting of the study (see *Appendix G: Consent Form*).

3.8 Conclusion & Going Forward

It can be clearly seen from this chapter that a carefully planned research strategy was implemented, as required by the researcher and by the business, to facilitate the best approach to this research and change. A simple yet effective research design was

outlined to facilitate this requirement. The research design took into account the interpretive empirical design which was informed by an ethnographic and case study methodology by applying a variety of inductive data collection methods. These methods were participant observations, focus groups, interviews, questionnaires and documentation. Each of these methods was carefully constructed in order to establish valid and reliable responses.

A suitable timeframe was adhered to so that the researcher could prepare, collect, analyse and report on the findings. During this timeframe ethical consideration was given to the research site as well as to the research participants.

All of the above mentioned research design aspects were put into motion and yielded results. These results will now be presented in Chapter 4 Results.

4 Results

4.1 Introduction

The results which are presented in this chapter were gathered using the methods discussed in *Chapter 3 Research Design,* including questionnaires, interviews, focus groups, participant observations and documentation collected from the research site.

The results from the methods have been presented as groups of responses according to each of the main research questions. The responses from various questions from each of the methods show interesting, and sometimes unexpected findings. These findings are noted in this chapter and further discussed in *Chapter 5 Discussion, Conclusion and Recommendations.*

Each of the written participant responses have been coded and categorised according to Bickman & Rog (1998: 90) as discussed in *3.4.3 Data Analysis*. The number of occurring categories were then totalled and displayed for each of the questions from the methods used. The following table illustrates this process.

Table 4.1: Code and Category Formation

Participant Response	Code	Category
"Using the CD was fun, especially building the puzzles as I easily completed the simulations and assessments."	Puzzles made it fun	Rewards
	Easily completed the simulations and assessments	Ease of use

It is apparent that the interview results (number of occurring categories) are slightly higher than the questionnaire results. This could be the result of the participants offering more information during the interview than what they did in their written responses in the questionnaires.

4.2 Findings

At the outset of the study, it was established what the participants used their computers for and to what extent the participants thought they were computer literate.

A4: How would you rate your ability to use a computer?

Questionnaire Responses

N=42		
Excellent	**Good**	**Needs improving**
15 (36%)	23 (55%)	4 (9%)

Interview Responses

N=42		
Excellent	**Good**	**Needs improving**
21 (50%)	16 (38%)	5 (12%)

A5: Describe how you use your computer to do your job.

Questionnaire Responses

N=42	
Codes	**Categories (n)**
Use email to gather documents for paper claim file Use email to communicate with colleagues	Effective Communication (37)
Print documents from computer to place in paper file	Produce Paper (21)
Use email to inform supervisors of problematic claims	Resolve problems (14)
Use folders to manage documents	Effective Storage (11)
Capture financial information on the claims system	Financial (9)

Interview Responses

N=42	
Codes	**Categories (n)**
Use email to gather documents for paper claim file Use email to communicate with colleagues	Effective Communication (42)
Print documents from computer to place in paper file	Produce Paper (35)
Use email to inform supervisors of problematic claims	Resolve problems (30)
Use folders to manage documents	Effective Storage (25)
Capture financial information on the claims system	Financial (12)

Focus Group Responses

The focus group responses showed that the majority of the participants thought they were computer literate (excellent and good) and could use their computer to perform their job requirements competently. This concurs with the results from the interviews and questionnaires above (A4). Participants showed that they used their computers to

perform almost all activities that their jobs required of them. These uses included effective communication as the main activity.

Once the level of computer competency had been established and the different ways in which the participants used their computer to fulfil their job requirements had been highlighted, the following five main research questions were explored:

1. ***Which aspects of the CD were viewed favourably or unfavourably by the claims clerks? Why?***
2. ***What type of learning occurred during the claims handlers' interaction with the CD?***
3. ***Which symptoms of change were experienced by the claims clerks?***
4. ***Did the training CD assist the claims clerks to deal with change symptoms? How?***
5. ***Did the training CD prepare the claims clerks to use the new paper-to-paperless system?***

The research showed that only two out of the entire sample did not use the training CD tool to learn how to use the new paperless system (as seen from the results in question D1 below). These two participants were both on maternity leave during the preparation and pre-implementation phases of the research (see 3.4.2 Timeline).

D1: Did you use the CD to assist your learning of the paper-to-paperless system?

Questionnaire Responses

N=42	
Yes	**No**
40 (95%)	2 (5%)

Interview Responses

N=42	
Yes	**No**
40 (95%)	2 (5%)

The research results will now be presented using the research questions as an organising device. These results are primarily drawn from the questionnaire and interviews. Results drawn from the focus groups are mentioned where certain anomalies have been identified or where results from the questionnaires and interviews are confirmed.

3.4.1 Results for Research Question: Which aspects of the CD were viewed favourably or unfavourably by the claims clerks? Why?

C1: Which of the following aspects of the CD did you enjoy using? (You may select more than one option here)

Questionnaire Responses

N=40: 2 participants did not answer this question		
CD Aspect	**(n) Out of 40**	**Percentage**
Puzzles	37	95%
Videos	35	87%
Simulations	33	83%
Assessments	23	57%

Interview Responses

N=40: 2 participants did not use the CD		
CD Aspect	**(n) Out of 40**	**Percentage**
Puzzles	39	97%
Videos	38	94%
Simulations	34	86%
Assessments	29	73%

C2: Explain why you have chosen the options in question C1 above.

Questionnaire Responses

N=40: 2 participants did not answer this question	
Codes	**Categories (n)**
Puzzles made it fun to use	Rewards (27)
Videos could be used at anytime to revisit sections	Reinforcement (27)
Videos provided training / easy to understand	Facilitation (25)
Puzzles were good indication of progress	Feedback (21)
CD aspects were easy to use	Ease of use (21)
Prompts to indicate corrective action were good	Feedback(9)
Simulations allowed interaction/doing	Learning style (8)
Assessments showed where re-training was needed	Training needs analysis (5)

Interview Responses

N=40: 2 participants did not answer this question	
Codes	**Categories (n)**
CD could be used at anytime to revisit	Reinforcement (34)
Puzzles made it fun to use	Rewards (29)
Puzzles were good indication of progress	Feedback(21)
Videos were easy to follow / understand	Facilitation (19)
Prompts to indicate corrective action were good	Feedback (17)
CD aspects were easy to use	Ease of use (17)
Assessments showed where re-training was needed	Training needs analysis (8)

Focus Group Responses

The discrepancy (16%) between the percentage of clerks who enjoyed assessments in the questionnaire and the interviews (C1) was probed and found to be closer to the questionnaire response of 57% rather than 73%. This discrepancy was attributed to the fact that the participants responded more positively in the interviews.

The focus groups also confirmed (C2) that the availability of the CD training tool (reinforcement) and the 'fun' aspect (rewards) were favoured the most while the assessments were least favoured (training need analysis).

C3: Which of the following aspects of the CD did you NOT enjoy using? (you may select more than one option here)

Questionnaire Responses

N=40: 2 participants did not answer this question		
CD Aspect	**(n) Out of 40**	**Percentage**
Assessments	24	60%
Simulations	12	30%
Videos	7	19%
Puzzles	4	10%

Interview Responses

N=40: 2 participants did not answer this question		
CD Aspect	**(n) Out of 40**	**Percentage**
Assessments	18	45%
Simulations	8	20%
Videos	4	10%
Puzzles	2	5 %

C4: Explain why you have chosen the options in question C3 above.

Questionnaire Responses

N=40: 2 participants did not answer this question	
Codes	**Categories (n)**
Not sure if they could answer the assessments correctly	Anxiety (16)
Scared that they would fail the assessment	Fear (13)
Do not like being assessed	Conflict (12)
Were not sure if they were doing the simulations correctly	Anxiety (8)
Prefer reading a manual than watching a video	Learning style (2)
Could not use the video controls properly (volume)	Ease of use (1)

Interview Responses

N=40: 2 participants did not answer this question	
Codes	**Categories (n)**
Do not like being assessed	Conflict (21)
Were not sure if they were doing the simulations correctly	Anxiety (16)
Not sure if they could answer the assessments correctly	Anxiety (16)
Prefer reading a manual than watching a video	Learning style (5)
Scared that they would fail the assessment	Fear (3)
Could not use the video controls properly (volume)	Ease of use (3)

Focus Group Responses

In interviews (C3), a smaller number of claims clerks rated aspects of the CD which they did not enjoy than in questionnaires. When this was probed in the focus groups it appeared that the participants wanted to give as much positive feedback as possible. Despite this, both the interview and questionnaire responses show a similar trend.

The responses from the focus groups showed that the participants disliked being assessed more than anything else. The participants did not like the thought that they could be measured by the assessments. This made them anxious about 'getting it right the first time'. Anxiety was the main contributing factor to the participants' resistance to change (as discussed in 2.2 The Effects of Change and further discussed in Chapter 5 Discussion).

3.4.2 Results for Research Question: What type of learning occurred during the claims handlers' interaction with the CD?

D2: How do you learn best?

Questionnaire Responses

N=42	
Individually	**In a group**
18 (43%)	24 (57%)

Interview Responses

N=42	
Individually	**In a group**
16 (38%)	26 (62%)

D3: Which of the following ways do you learn best?

Questionnaire Responses

N=42		
Doing	**Seeing**	**Hearing**
18 (43%)	13 (32%)	11 (25%)

Interview Responses

N=42		
Doing	**Seeing**	**Hearing**
20 (46%)	12 (27%)	12 (27%)

D4: Which of the following CD tools did you prefer using to learn how to use the new paperless system?

Questionnaire Responses

N=40: 2 participants did not answer this question	
Seeing and listening to the videos	**Doing the simulations**
16 (40%)	24 (60%)

Interview Responses

N=40: 2 participants did not answer this question	
Seeing and listening to the videos	**Doing the simulations**
15 (38%)	28 (62%)

The discrepancy with the total (43 instead of N=40) of the interview responses was due to the fact that three of the participants indicated that they had no preference.

The results in D2, D3, D4 and later in D6 tell an interesting story with regards to the learning mode preferences of the participants which is detailed in *Chapter 5 Discussion*.

D5: Have you used a compact disc (CD) before as a training instrument?

Questionnaire Responses

N=42	
Yes	**No**
9 (21%)	33 (79%)

Interview Responses

N=42	
Yes	**No**
9 (21%)	33 (79%)

Although these two sets of results are identical in number, the results did show that two participants who had stated that they had used a CD before as a training instrument in the questionnaire response had stated that they had not used a CD as a training instrument in the interview response. Similarly, two participants who had stated that they had not used a CD before as a training instrument in the questionnaire response had stated that they had used a CD as a training instrument in the interview response.

D6: Did you work through the CD together with your colleagues or by yourself?

Questionnaire Responses

N=40: 2 participants did not answer this question	
By myself	**With colleagues**
10 (25%)	30 (75%)

Interview Responses

N=40: 2 participants did not answer this question	
By myself	**With colleagues**
13 (33%)	27 (67%)

Focus Group Responses

This question required the participants to choose only one of the options in the questionnaire and interview schedule. However, the focus group responses showed that participants worked through the CD by themselves and with their colleagues.

D7: Did you enjoy using the CD to learn? Things such as video, sound and simulation interaction will be relevant here.

Questionnaire Responses

N=40: 2 participants did not answer this question	
Yes	**No**
32 (80%)	8 (20%)

Interview Responses

N=40: 2 participants did not answer this question	
Yes	**No**
37 (92%)	3 (8%)

D8: Would you say that you learn easily through the medium of technology?

Questionnaire Responses

N=42	
Yes	**No**
23 (55%)	19 (45%)

Interview Responses

N=42	
Yes	**No**
28 (67%)	14 (33%)

A very interesting result here is that between 80% and 92% of the participants enjoyed using the CD to learn (D7) but only between 55% and 67% (D8) say that they learn easily through the medium of technology. This will be discussed further in Chapter 5 Discussion.

D9: Explain why you have chosen the option in question D8 above.

Questionnaire Responses

N=42	
Codes	**Categories (n)**
Yes	
Are competent computer users	Are competent (13)
Learn by seeing and listening	Learning styles (11)
Learn by doing	Learning styles (11)
Learn better by themselves	Learning styles (9)
No	
Need to ask questions	Learning styles (6)
Need more general computer training	Not competent (6)
Prefer trainer	Learning styles, social interaction (5)
Easier to ask colleagues	Ease of access, social interaction, learning styles (3)

Interview Responses

N=42	
Codes	**Categories (n)**
Yes	
Learn through doing	Learning styles (16)
Are competent computer users	Are competent (13)
Allows for a variety of media	Learning styles (13)
Learn by seeing and listening	Learning styles (13)
Learn better by themselves	Learning styles (6)
No	
Need to ask questions	Learning styles, social interaction (6)
Need social interaction	Learning styles (5)
Need more general computer training	Not competent (4)
Easier to ask colleagues	Ease of access, social interaction, learning styles (4)

Focus Group Responses

A substantial number (more than half) of the participants indicated that they did learn easily through the medium of technology. It was also evident that that the participants who did not say that they learned easily through the medium of technology based their responses on the need for social interaction from a trainer or colleagues.

D10: Did you first use the CD to find out something that you needed to know about the new paperless system, or did you first ask your colleagues?

Questionnaire Responses

N=40: 2 participants did not answer this question	
CD	**Colleagues**
25 (63%)	15 (37%)

Interview Responses

N=40: 2 participants did not answer this question	
CD	**Colleagues**
29 (73%)	11 (27%)

Observations

All participants were required to use the CD to initially gain an understanding of how to use the new paperless system and such were observed using the CD. The researcher did however observe and note on 286 occasions where participants were engaged in shared learning about the paperless system. These observations were noted when the participants engaged in 'questioning and answering' with one another.

D11: Explain why you have chosen the option in question D10 above.

Questionnaire Responses

N=40: 2 participants did not answer this question	
Codes	**Categories (n)**
CD	
Preferred videos and simulations	Learning style (18)
CD was easy to use	Ease of use (13)
CD was more available than colleagues were	Ease of access (7)
Colleagues did not know what was needed	Not competent (2)
Colleagues	
Colleagues were easier/quicker to access	Ease of access (12)
Colleagues knew what to do	Are competent (4)
Could not find the solution on CD	Facilitation (1)

Interview Responses

N=40: 2 participants did not answer this question	
Codes	**Categories (n)**
CD	
CD was easy to use	Ease of use (18)
CD was more available than colleagues were	Ease of access (13)
Preferred videos and simulations	Learning style (18)
Colleagues did not know what was needed	Not competent (4)
Colleagues	
Colleagues were easier/quicker to access	Ease of access (8)
Colleagues knew what to do	Are competent (7)
Took too long to find what was needed on the CD	Ease of access (2)

Focus Group Responses

The focus group responses confirmed that for both of the responses to D10 (CD or colleagues) the 'ease of access and use' was the deciding factor; those participants who chose the CD as being the first 'port of call' to find something out about the new system attributed this to the CD being easy to use and being readily available to be used. Those participants who chose their colleagues as being the first 'port of call' attributed this to the readiness of their colleagues to provide the solution.

D12: While you were first using the new paperless system, did you use a 'trial-and-error' approach to learn how to use the new paperless system?

Questionnaire Responses

N=40: 2 participants did not answer this question	
Yes	**No**
30 (75%)	10 (25%)

Interview Responses

N=40: 2 participants did not answer this question	
Yes	**No**
28 (70%)	12 (30%)

It is interesting to note that between 70% and 75% of the participants applied a 'trial-and-error' approach to learn the new paperless system. This response may well indicate that the learning which occurred was behavioural in nature.

3.4.3 Results for Research Question: Which symptoms of change were experienced by the claims clerks?

B1: Did the thought of a change process such as the paper-to-paperless process make you: (you may select more than one option here)

Questionnaire Responses

N=42		
Change Aspect	**(n) Out of 42**	**Percentage**
Stressed	35	83%
Conflicted	32	77%
Negative talk	30	71%
Hopeful	30	71%
Anxious	29	70%
Excited	28	67%
Angry	23	55%
ILL	22	52%
Unsure about your role	22	52%
Shocked	19	45%

Interview Responses

N=42		
Change Aspect	**(n) Out of 42**	**Percentage**
Stressed	31	76%
Anxious	30	73%
Negative talk	24	57%
Hopeful	29	68%
Excited	28	67%
Conflicted	27	65%
Shocked	20	50%
ILL	20	47%
Angry	21	47%
Unsure about your role	13	31%

Observations

N=97	
Change Aspect	**(n)**
Negative talk	57
Stressed	45
Excited	45
Anxious	41
Hopeful	38
Conflicted	31
Shocked	27
Unsure about your role	22
Angry	18
ILL	8

Focus Group Responses

The research participants confirmed that stress and anxiety were the most experienced symptoms while they were not that concerned about their possible 'new' role.

B3: Describe the thoughts, feelings and attitudes that you had when you found out that the change from paper to paperless was about to take place.

Questionnaire Responses

N=42	
Codes	**Categories (n)**
Tired Could not sleep Thought about it alot	Stress (20)
Wanted to delay the change Unsure about what was going to happen	Anxiety (18)
More control and better ability to cope with work	Excitement (14)
Scared about the change	Fear/Anxiety (11)
The change will be good	Hope (9)
Worried about who would be doing what	Unsure about role (8)
More work Questions about the timing of the change (Why now)	Conflict (7)
Could not believe what was going to happen	Shock (4)
Worried about slow production	Less efficiency (4)

Interview Responses

N=42	
Codes	**Categories (n)**
Tired Could not sleep Thought about it a lot	Stress (25)
Wanted to delay the change Unsure about what was going to happen	Anxiety (18)

Scared about the change	Fear/Anxiety (18)
More control and better ability to cope with work	Excitement (16)
The change will be good	Hope (14)
Worried about who would be doing what	Unsure about role (8)
Could not believe what was going to happen	Shock (8)
More work Questions about the timing of the change (Why now)	Conflict (5)
Worried about slow production	Less efficiency (2)

Focus Group Responses

Initial responses showed a 'nervous' excitement and hope about the change. After more probing, it was clear that there was a sense of anxiety and fear which many of the participants shared through stories of how much the change was consuming their thoughts.

3.4.4 Results for Research Question: Did the training CD assist the claims clerks to deal with change symptoms? How?

B2: Would you say that you cope well with change?

Questionnaire Responses

N=42	
Yes	**No**
27 (64%)	15 (36%)

Interview Responses

N=42	
Yes	**No**
23 (55%)	19 (45%)

B4: Describe your experiences, feelings and thoughts after the change process from paper to paperless had taken place.

Questionnaire Responses

N=42	
Codes	**Categories (n)**
More control and better ability to cope with work Better environment	Excitement (31)
Will be able to monitor work progress	More efficiency (12)
More positive (will be better) than at the start of the change	Hope (9)
CD assisted with change	Facilitation (9)
Worried about not using the system correctly	Anxiety (9)
Increased customer service	More efficiency (5)
Still learning how to use the system	Not competent (4)

Interview Responses

N=42	
Codes	**Categories (n)**
More control and better ability to cope with work Better environment	Excitement (35)
Will be able to monitor work progress	More efficiency (22)
More positive (will be better) than at the start of the change	Hope (15)
Increased customer service	More efficiency (15)
CD assisted with change	Facilitation (15)
Worried about not using the system correctly	Anxiety (7)
Still learning how to use the system	Not competent (6)

Focus Group Responses

Most participants confirmed that they were enthusiastic and excited about the change. There was also a sense of caution as some of the participants were still coming to grips with the training and still learning the different parts of the new system.

C5: Did the CD assist you to recover quickly from the paper-to-paper change process?

Questionnaire Responses

N=40: 2 participants did not answer this question	
Yes	**No**
33 (83%)	7 (17%)

Interview Responses

N=40: 2 participants did not answer this question	
Yes	**No**
36 (90%)	4 (10%)

C6: Explain why you have chosen the option in question C5 above.

Questionnaire Responses

N=40: 2 participants did not answer this question	
Codes	**Categories (n)**
Yes	
Assisted with the training of the paperless system	Facilitation (23)
Was easy to use/access	Ease of use/access (17)
Relieved anxiety/stress/change symptoms	Facilitation (13)
Video walkthroughs facilitated quick understanding	Efficiency (7)
CD promoted interaction or engagement with content	Learning style (7)
CD allowed for collaboration between participants	Learning style (3)
No	
Previous experience of paperless systems	Previous experience (5)
Not fully recovered yet	Still recovering (4)
Colleagues assisted more	Learning style (3)

Interview Responses

N=40: 2 participants did not answer this question	
Codes	**Categories (n)**
Yes	
Assisted with the training of the paperless system	Facilitation (27)
Relieved anxiety/stress/change symptoms	Facilitation (24)
Was easy to use/access	Ease of use/access (14)
Video walkthroughs facilitated quick understanding	Efficiency (11)
CD allowed for collaboration between participants	Learning style (5)
CD promoted interaction or engagement with content	Learning style (5)
No	
Previous experience of paperless systems	Previous experience (3)
Not fully recovered yet	Still recovering (3)
Colleagues assisted more	Learning style (1)

Focus Group Responses

The majority of participants agreed that the CD's biggest contribution to the change was the training of the new system. The next benefit was that the CD assisted with helping the participants cope with the symptoms of change. Many of the participants also indicated that the CD catered for a variety of different learning styles. A few participants indicated that they were still learning how to use the system.

3.4.5 Results for Research Question: Did the training CD prepare the claims clerks to use the new paper-to-paperless system?

B6: Do you enjoy working with the new paper-to-paperless system?

Questionnaire Responses

N=42	
Yes	**No**
34 (81%)	8 (19%)

Interview Responses

N=42	
Yes	**No**
37 (88%)	5 (12%)

B7: Which of the following do you prefer using?

Questionnaire Responses

N=42	
Paper files	**Paperless system**
8 (19%)	34 (81%)

Interview Responses

N=42	
Paper files	**Paperless system**
6 (14%)	36 (86%)

B8: Explain your choice in question B7 above.

Questionnaire Responses

N=42	
Codes	**Categories (n)**
Paper Files	
Can make annotations on a paper file	Physical or Tangible (4)
Easier to move a paper file around	Paper Mobility (3)
Paper file is easier to use	Paper ease of use (1)
Paper-to-paperless system	
Electronic file can be accessed quickly	Ease of access (23)
Electronic file allows searching, sorting and filtering	Ease of use (21)
Paper files can get lost, electronic files are secure	Secure (19)
Can monitor workload	Better efficiency (17)

Interview Responses

N=42	
Codes	**Categories (n)**
Paper Files	
Can make annotations on a paper file	Physical or Tangible (4)
Paper file is easier to use	Paper ease of use (4)
Easier to move a paper file around	Paper Mobility (2)
Paper-to-paperless system	
Electronic file can be accessed quickly	Ease of access (27)
Paper files can get lost, electronic files are secure	Secure (24)
Electronic file allows searching, sorting and filtering	Ease of use (18)
Can monitor workload	Better efficiency (18)

Focus Group Responses

The focus group sessions showed that the participants who stated that they preferred using the paper files did so because of the convenience of having a physical object more than the file being easy to access. The majority of participants expressed that the ease of access and the electronic file security was the overriding factor that persuaded them that the paperless system was better to use than the paper files.

D13: Would you say that the CD was successful in preparing you to use the paper-to-paperless system?

Questionnaire Responses

N=40: 2 participants did not answer this question	
Yes	**No**
35 (88%)	5 (12%)

Interview Responses

N=40: 2 participants did not answer this question	
Yes	**No**
38 (95%)	2 (5%)

The difference between the questionnaire and interview responses can be attributed to the fact that the participants in the interviews preferred to respond favourably. Here the questionnaire responses probably represent more of the truth.

D14: Explain why you have chosen the option in question D13 above.

Questionnaire Responses

N=40: 2 participants did not answer this question	
Codes	**Categories (n)**
Yes	
Can perform required system tasks	Are competent (29)
CD covered all aspects of the system	Facilitation (4)
CD simulations ensured their preparation	Facilitation (4)
No	
Not computer literate enough to use the CD effectively	Not competent (2)
Have not completed the video walkthroughs	Not complete (3)

Interview Responses

N=40: 2 participants did not answer this question	
Codes	**Categories (n)**
Yes	
Can perform required system tasks	Are competent (34)
CD covered all aspects of the system	Facilitation (6)
No	
Not computer literate enough to use the CD effectively	Not competent (2)
Have not completed the video walkthroughs	Not complete (2)

Focus Group Responses

Most of the participants thought that the CD prepared them to use the paperless system. When asked whether they would prefer to use only the CD technology to be

trained on such a system, the overwhelming response was that they would not prefer to use technology only. The reason for this was that they would like a trainer to be available for facilitation and questioning.

D15: How would you rate your ability to use the new paper-to-paperless system?

Questionnaire Responses

N=40: 2 participants did not answer this question		
Excellent	**Good**	**Needs improving**
18 (45%)	13 (33%)	9 (22%)

Interview Responses

N=40: 2 participants did not answer this question		
Excellent	**Good**	**Needs improving**
21 (53%)	11 (28%)	8 (19%)

Focus Group Responses

The group of participants who suggested that they need to improve their ability to use the paperless system expressed their need for more engagement with a facilitator in the form of coaching. When asked whether they would be able to improve their ability just by using the CD they responded that the CD alone would not be enough. The majority of the participants who indicated that they had an excellent or good working knowledge of the new paperless system attributed this equally to the CD and the interaction with their peers.

4.3 Conclusion & Going Forward

The results which were gathered from methods which were used in this study have been revealed in this chapter. These results have provided answers for the research questions and have exposed interesting areas for further discussion. This discussion will be presented in the following chapter of this research report.

5 Discussion, Conclusion and Recommendations

5.1 Introduction

Senge, Kleiner, Roberts, Ross and Smith (1994: 12) made the prediction that 'during the next thirty years, cutting-edge technological changes will spin out into everyday life.' There is already evidence for this prediction; the use for paper is now becoming obsolete with the advent of digital document management computer software. A South African insurance company has implemented this change to a paperless environment in their claims department.

Senge, Kleiner, Roberts, Ross and Smith (1994: 12) further predict that 'people in learning organisations will be able to look forward to creating, instead of merely reacting to, the new world that emerges.' This new world assumes that these people, who will enjoy creating it, will be able to accept and deal with the change that it will require. The claims clerks in the insurance company have had to accept and deal with the change of 'paper to paperless'.

Can the same technology that brought about a change be used to assist people to deal with the change and learn how to use the new technology? This is the issue that this research has addressed. The researcher has developed an interactive compact disk (CD) which contained video, assessment, simulations and puzzles. The claims clerks who were required to use the new technological paperless system have used this technological CD to learn how to use the system.

A total of 42 participants took part in the research of which only two participants did not use the CD to learn how to use the new paperless system. These two ladies were on maternity leave at the time that the participants were using the CD to learn how to use the new system. It was gauged that a large number of claims clerks (91%) thought that they were computer literate (excellent and good). It was an assumption that the claims clerks were computer literate and therefore the lack of computer literacy would not be a hindrance for the claims clerks in their learning of the new system.

Various research questions were asked in order to gauge the level of success of the interactive CD.

1. ***Which aspects of the CD were viewed favourably or unfavourably by the claims clerks? Why?***
2. ***What type of learning occurred during the claims handlers' interaction with the CD?***
3. ***Which symptoms of change were experienced by the claims clerks?***
4. ***Did the training CD assist the claims clerks to deal with change symptoms? How?***
5. ***Did the training CD prepare the claims clerks to use the new paper-to-paperless system?***

These questions will now be used to further discuss the success of the CD in terms of its facilitation of the change process.

5.2 Discussion of Results

5.2.1 Discussion: Which aspects of the CD were viewed favourably or unfavourably by the claims clerks? Why?

The following two figures show the distribution of results for the favourable and unfavourable aspects of the CD.

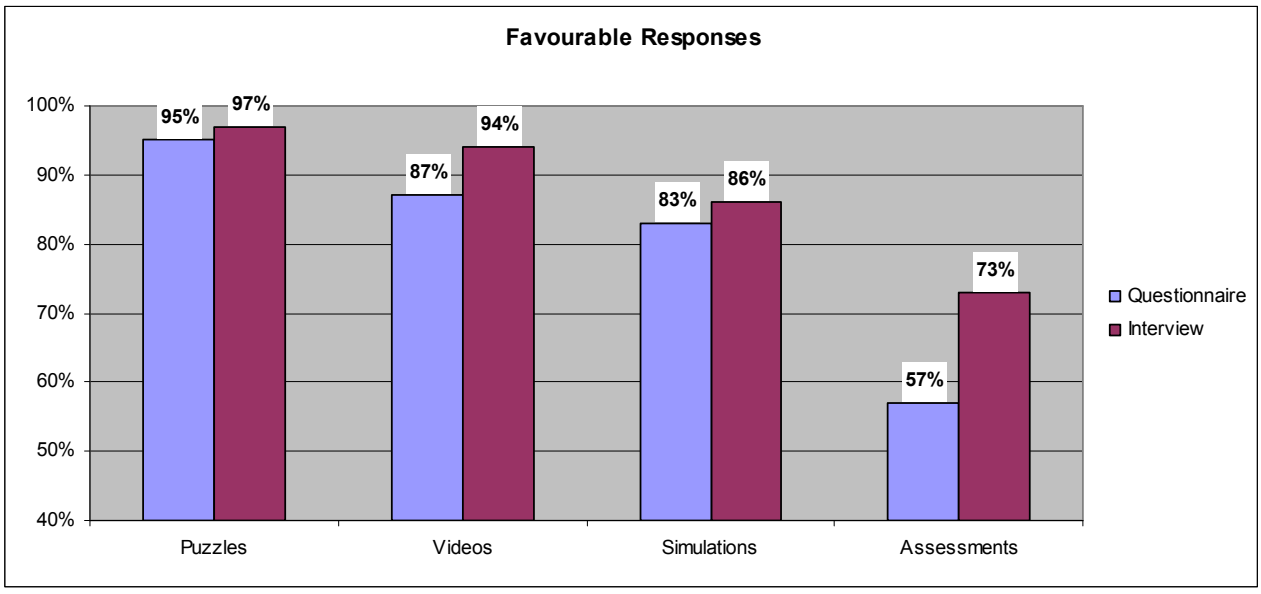


Figure 5.2.1.1: Favourable Responses for CD Aspects

The participants viewed the puzzles as the most favourable aspect of the CD closely followed by the videos, simulations and finally the assessments as the least favourable aspect. This order is reversed in Figure 5.2.1.2 which shows the unfavourable responses for the CD aspects and confirms the fact that the participants viewed the assessments as the least favourable aspect of the CD.

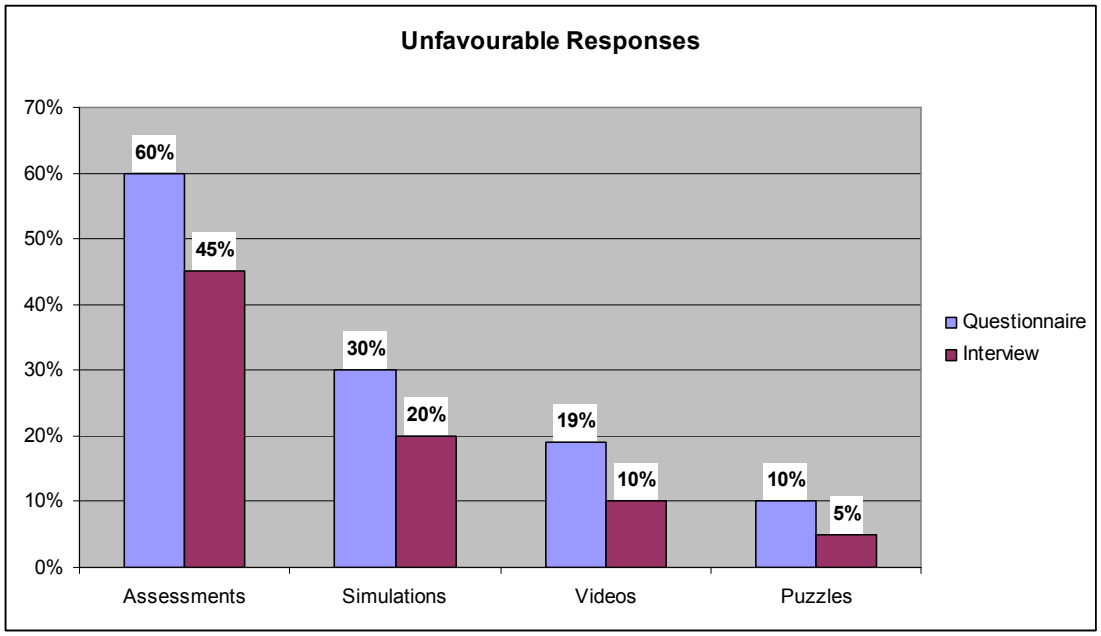


Figure 5.2.1.2: Unfavourable Responses for CD Aspects

As described in *2.3 Learning to Deal with Change*, learners are motivated to learn through the 'fun' aspect which blended learning strategies provide (Driscoll, 2008: 2). Furthermore, Wessner (1996: 24) points out that rewards and recognition form a large part of the motivation which is required to nurture cooperative and collaborative learning. The responses from the participants shown in Figures 5.2.1.1 and 5.2.1.2 reflect this theory; the puzzles and videos provided the fun, rewards and recognition needed to provide the motivation needed to promote cooperative and collaborative learning.

The assessment aspect of the CD was the least favoured aspect. The participants were anxious about the fact that they were being measured by the assessments. Anxiety can be the main contributing factor of the resistance to change (as discussed in *2.2 The Effects of Change*).

5.2.2 Discussion: What type of learning occurred during the claims handlers' interaction with the CD?

It was established that 79% of the participants had not used a CD as a training tool before this research. Despite the high percentage (80% to 92%) of users who enjoyed using the CD, only 67% of the participants said that they learned easily by using technology. The most significant reason cited for not learning easily through technology was that the participants preferred the human interface which a trainer provides; being able to ask questions and engage in discussions. The participants who stated that they learn easily through the medium of technology contributed this to the fact that blended learning lends itself to a variety of learning styles; collaborative, cooperative and individual learning styles.

Between 57% and 62% of the participants indicated that they preferred to use the CD to learn about the new paperless system in a group where learning can be collaborated and shared between their colleagues. In contrast to this, 38% to 43% of the participants indicated that they preferred to use the CD by themselves.

This finding is at first puzzling since the CD technology makes use of audio and video which needed to be worked through individually. However, at a second glance we can see that the structure of the working environment (*Figure 1.6: The Claims Management Structure*) is divided into workgroups. This will encourage colleague interaction and so promote cooperative and collaborative learning. The participants who preferred to use the CD to learn how to use the system individually can be attributed to their preferred learning style and personality; something that this study did not take cognisance of.

The new paperless system allows the claims clerks to manage digital images. This is only possible if the claims clerks perform certain behaviours in certain sequences. Many of the participants have indicated that they had to adopt a 'trial-and-error' approach (70% to 75%) to learn how to use the new system: work through the CD video, practice what they had learned by using the CD simulation, complete the CD assessment to reinforce the learning and then put into action their newly acquired skill (trial). If they fail (error) on the system what they have learned through the CD, then they will work through that part of the CD again (trial again). This will repeat itself until they master the system.

Through the various aspects of the CD (simulations, videos and assessments) the participants were able to learn how to use the new paperless system. The participants expressed that they

preferred doing the simulations, followed by seeing and hearing the videos. Figure 5.2.2.1 shows the preferred learning styles of the participants:

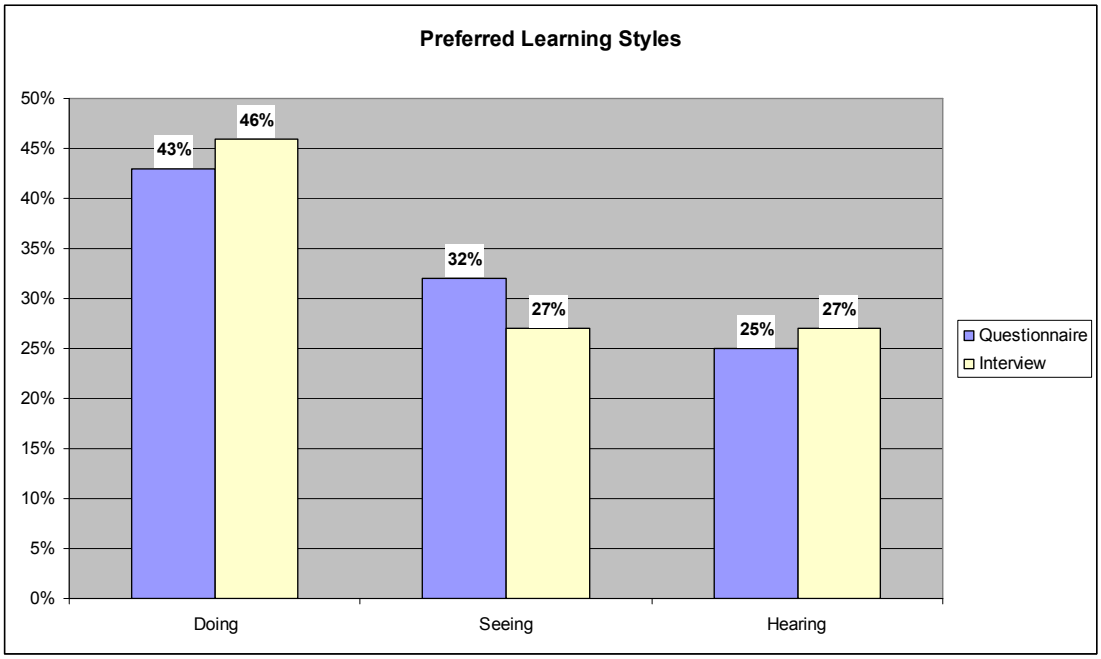


Figure 5.2.2.1: Preferred Learning Styles

These results are reflected by the participants' responses to the CD aspects. Many of the participants preferred doing the simulations to watching the videos. Figure 5.2.2.2 below shows this relationship.

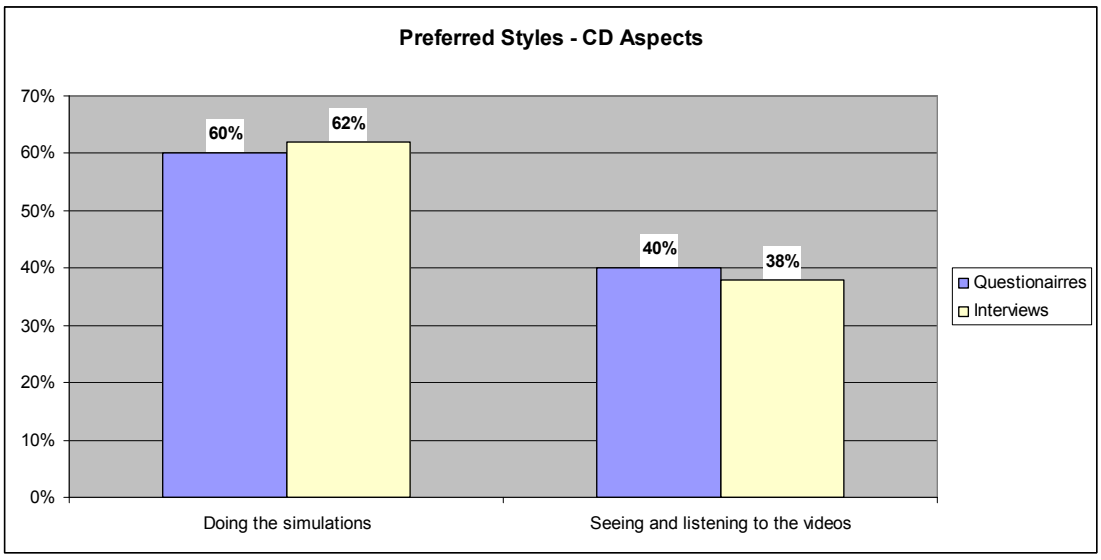


Figure 5.2.2.2: Preferred Styles – CD Aspects

Kinaesthetic (doing the simulations), auditory and visual (seeing and listening to the videos) learning styles are encouraged through the CD's design as suggested in *Table 2.2: Technological Design Aspects in terms of Learning Theory*. The 'Objectification' design aspect encourages engagement (doing) with the CD objects or content while using the CD. Concrete experiences are built by the participants while engaged with the CD content. This forms part of experiential learning theory.

The new paperless system requires the participants to apply a structured behaviour to perform specific tasks in order to manage digital images. The participants experienced a variety of learning types typical to technological learning methods referred to as blended learning. Collaborative and cooperative learning dominated the types of learning occurring during the mastery of the new system as participants were encouraged to learn from each other by engaging with the CD content individually and in groups.

5.2.3 Discussion: Which symptoms of change were experienced by the claims clerks?

The participants were asked to identify which symptoms of change they experience during the change from paper to paperless. These symptoms of change included stress, conflict, negative talk, hopefulness, anxiety, excitement, anger, feeling ill, identity crisis and shock as identified by Luecke, (2003, 86-91) which were discussed in *2.2 The Effects of Change*. The following figure shows the responses of the participants when they were asked to identify the specific change aspects which they experience during any change.

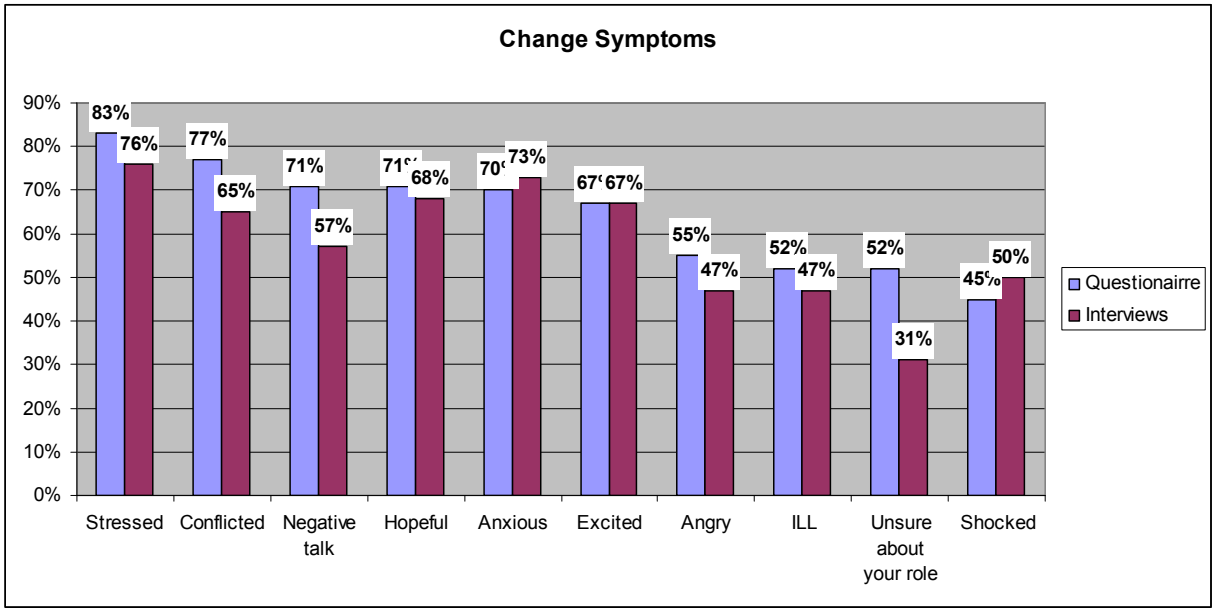


Figure 5.2.3.1: Change Symptoms

Luecke (2003, 86-91) identified 'negative' and 'positive' symptoms of change. It is apparent that the participants identified 'negative' symptoms of change as the most frequently occurring during the change process. This result is not surprising since Edwards (1997: 25) in *2.2 The Effects of Change* explains that people are confronted with the negative aspects of change more frequently than the positive aspects of change. These 'negative' symptoms of change experienced by the participants were stress, conflict, negative talk and anxiety.

Participants shared that they experienced tiredness but found it difficult to sleep since the change constantly occupied their thoughts. They felt that they were not ready for the change and were concerned about the loss and slowness of production during and after the change; their competency is measured by the rate at which they process and complete claims.

The most frequently occurring 'positive' symptom of change was hopefulness closely followed by excitement. The narrative responses from the participants reflected that the participants were excited that the new paperless system would provide them with better control and ability to complete their work more efficiently. They were hopeful that over time they would master the new paperless system and that the working environment would improve.

5.2.4 Discussion: Did the training CD assist the claims clerks to deal with change symptoms? How?

The majority of the participants (83% to 90%) indicated that the CD did assist them to deal with the change symptoms as seem in the figure below:

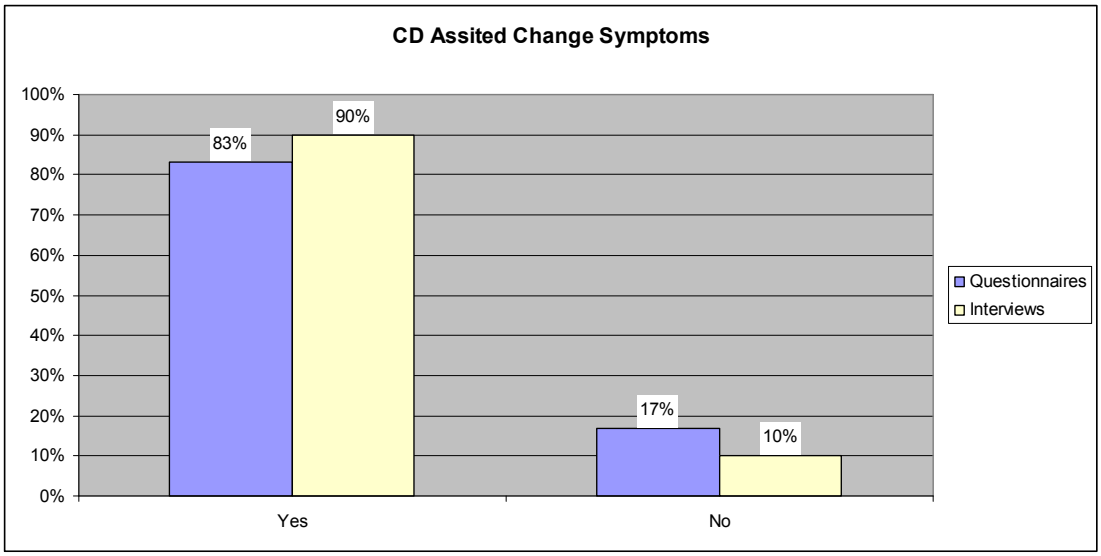


Figure 5.2.4.1: CD Assisted Change Symptoms

The overwhelming positive response to this question was attributed to the fact that the participants could use the paperless system quickly after using the CD. They commented that the CD was easy to use and that the CD suited their style of learning. The CD was designed to accommodate various learning styles as suggested by Scardamalia & Bereiter (1990, 44-46) as discussed in *Table 2.2: Technological Design Aspects in terms of Learning Theory.*

The fact that the CD assisted the participants to feel that they could easily get access to information which could help them to use the system (assurance and re-assurance) was also a contributing factor to the fact that a large number of the participants thought that the CD assisted with them to overcome the symptoms of change. Scardamalia & Bereiter (1990: 45) emphasise that for change to be successful, a constant assurance must be provided that the change is possible.

Those participants who thought that the CD did not assist them to overcome the symptoms of the change expressed that they needed more time to learn the new paperless system and that their colleagues assist them more to overcome the symptoms of change. It was interesting to notice that these participants were over 40 years of age and had been working for the organisation for more than 10 years. Their comments indicated that they learned how the system worked through the use of the CD, but did not associate the CD with assisting them with human feelings associated with change.

5.2.5 Discussion: Did the training CD prepare the claims clerks to use the new paper-to-paperless system?

The researcher was mandated to prepare the claims clerks to use the new paperless system. The researcher created an interactive CD to be used as a training tool to prepare the claims clerks. The participants have overwhelmingly (88% to 95%) indicated that the CD did prepare them to use the new paperless system as can be see in Figure 5.7 below. Although the participants did not receive any formal classroom training and only used the CD to prepare themselves, they have indicated that they made use of their colleagues to discuss the system and to teach each other.

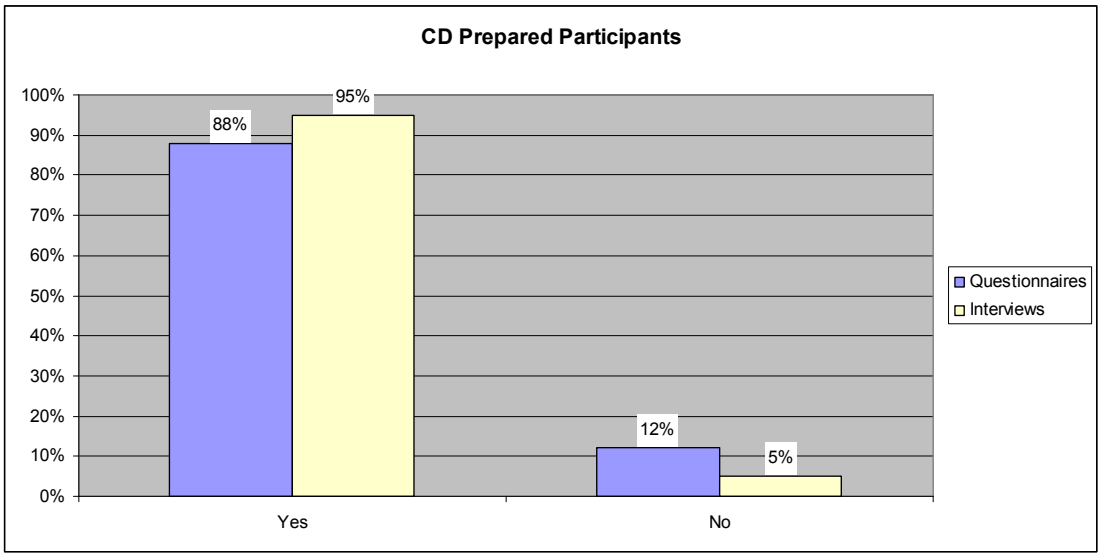


Figure 5.2.5.1: CD Prepared Participants

The majority of the participants commented that they could competently use the new paperless system. They also indicated that this was attributed to the fact that the CD's content covered all aspects of the new paperless system through its videos and simulations.

The participants who responded that the CD did not prepare them to use the new paperless system commented that they had not yet completed the CD walkthrough videos and simulations. Two participants indicated that they were not computer literate enough to know how to make good use of the CD. One of the assumptions of this research study was that all participants were computer literate. The researcher had to coach these two participants on how to use the interactive CD effectively.

Figure 5.2.5.2 below shows that between 78% and 81% of the participants stated that they were excellent and good at using the new paperless system. Between 19% and 22% of the participants claimed to need improvement on the use of the paperless system. It is once again interesting to notice that the majority of the 19% to 22% of the participants were over the age of 40 and had been working for the organisation for a period longer than 10 years. This finding echoes the finding made by the study conducted by McKinley (2007, 11) as discussed in 2.*1 The Case of Paper-to-Paperless*; people over 50 years took up to six months to adjust and recover their productivity to the levels achieved before the change was implemented.

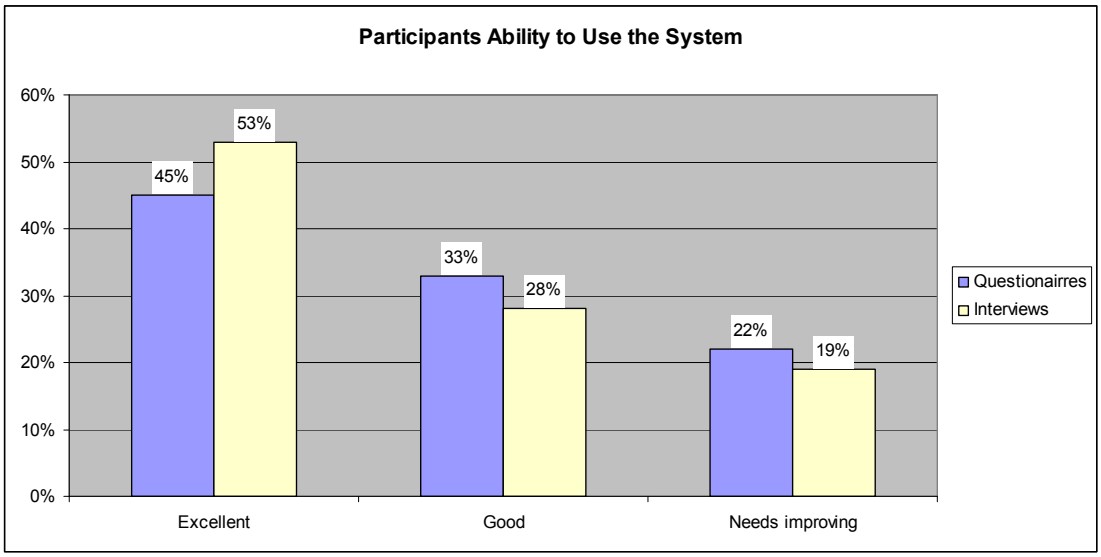


Figure 5.2.5.2: Participants Ability to Use the System

5.3 Conclusions and Recommendations

This research asked the following question: How does the use of an interactive training CD assist an insurance company to facilitate change from a paper to paperless environment? The research aimed to accomplish two things: Firstly to investigate whether the CD could reduce the time taken for the business to recover from the change i.e. reduce the factors ”A”, “B” and “C” in figure 2.1 below and to investigate whether the CD assisted the claims employees to overcome typical change symptoms.

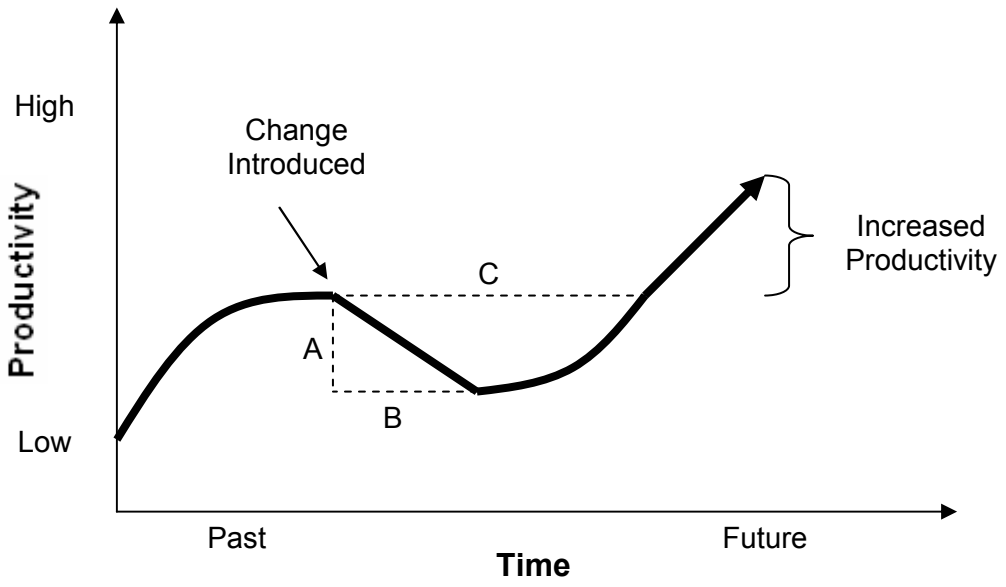
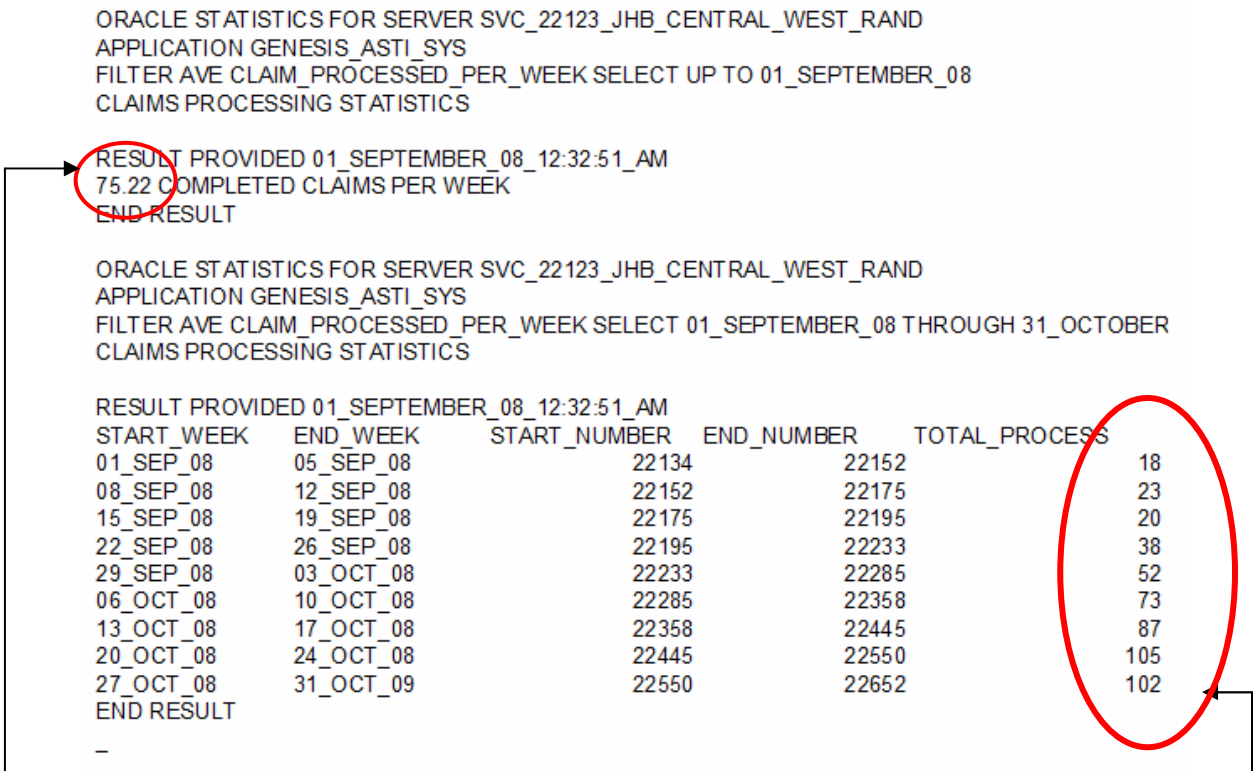


Figure 2.1: Typical Impact of Change on Productivity

(Clampitt & Berk, 1996: 18)

From a business point of view, the following report (Appendix E) was obtained from the organisations main database indicating the average number of claim completed per week:



ORACLE STATISTICS FOR SERVER SVC_22123_JHB_CENTRAL_WEST_RAND
APPLICATION GENESIS_ASTI_SYS
FILTER AVE CLAIM_PROCESSED_PER_WEEK SELECT UP TO 01_SEPTEMBER_08
CLAIMS PROCESSING STATISTICS

RESULT PROVIDED 01_SEPTEMBER_08_12:32:51_AM
75.22 COMPLETED CLAIMS PER WEEK
END RESULT

ORACLE STATISTICS FOR SERVER SVC_22123_JHB_CENTRAL_WEST_RAND
APPLICATION GENESIS_ASTI_SYS
FILTER AVE CLAIM_PROCESSED_PER_WEEK SELECT 01_SEPTEMBER_08 THROUGH 31_OCTOBER
CLAIMS PROCESSING STATISTICS

RESULT PROVIDED 01_SEPTEMBER_08_12:32:51_AM

START_WEEK	END_WEEK	START_NUMBER	END_NUMBER	TOTAL_PROCESS
01_SEP_08	05_SEP_08	22134	22152	18
08_SEP_08	12_SEP_08	22152	22175	23
15_SEP_08	19_SEP_08	22175	22195	20
22_SEP_08	26_SEP_08	22195	22233	38
29_SEP_08	03_OCT_08	22233	22285	52
06_OCT_08	10_OCT_08	22285	22358	73
13_OCT_08	17_OCT_08	22358	22445	87
20_OCT_08	24_OCT_08	22445	22550	105
27_OCT_08	31_OCT_09	22550	22652	102

END RESULT
_

From this report we can see that the average number of claims processed in week 0 was 75 claims (the week before the new system implementation). We can also see the average number of claims completed per week (for nine weeks) after the new paperless system was implemented.

These values have been plotted in Figure 5.3.1 below and show points A, B and C. Point "A" represents the loss in production from the point of implementation of the new paperless system (Week 0). We can see that the average completed claims per week for the claims branch was 75 at the top of point "A". At point "B" we can see that the drop in the number of claims completed in the first week of the implementation of the new paperless system was from 75 down to 18, a loss of 57. Point "B" also represents the time taken for the branch to start to recover from the change; this was one week. Point "C" represents the time taken for the business to recover to the average number of completed claims which the branch processed per

week before the implementation of the new paperless system. The time taken to reach point "C" was eight weeks or about two months.

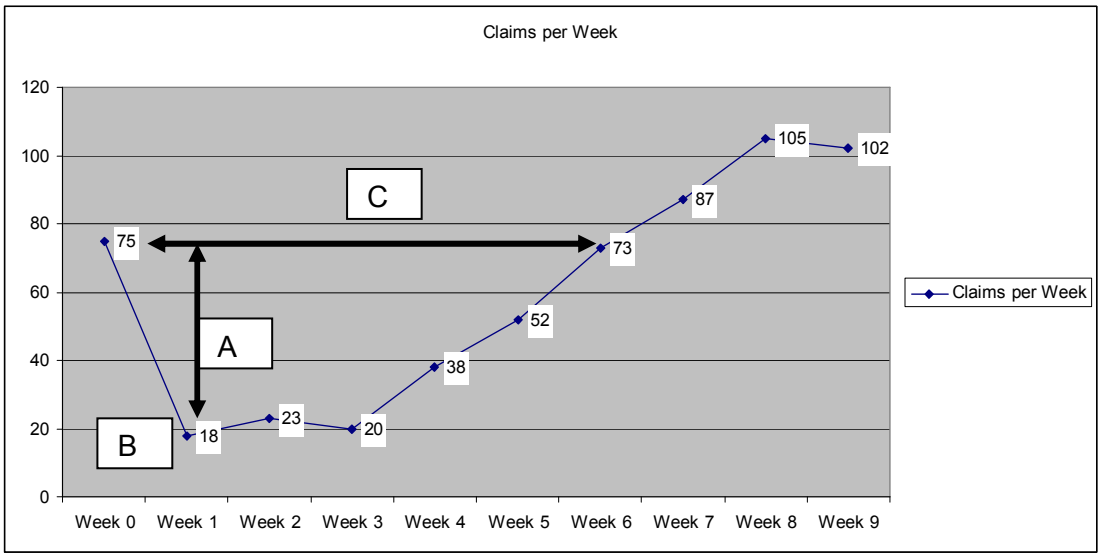


Figure 5.3.1: Claims per Week

(Adapted from Clampitt & Berk, 1996: 18)

According to McCloskey's study in McKinley (2007: 11) the loss in production (point "A") was a drop of 50%. In this research, the drop in production was 76%; significantly more than McCloskey's study. This increased drop in production is the result of a radical change as discussed in *2.2 The Effects of Change*. The time taken for the organisation to start to recover from the change (point "B") takes about 5 days according to McCloskey. In this research, the time taken was 7 days. The impressive comparison between this study and the study made by McCloskey is that the time taken to surpass the initial levels of production before the implementation of the change (point "C") is on average six months according to McCloskey. This research showed that it only took two months to surpass initial production levels.

Before one could claim to attribute the short time of production recovery to the use of the CD, which was one of the areas of focus in this study, one would have to be certain that the two studies were similar cases. In the case of the McCloskey study, the boundaries of the case are not defined. This implies that there may have been a host of other variables which can influence the fact that it only took two months to reach the same level of production as before the implementation of the new paperless system. Internal factors such as participant personalities and the style of management could have influenced how the participants coped with the change. External factors such as

the time of the year which the change was introduced will impact how the participants deal with new experiences; participants had commented that they were glad that the system was implemented during the middle of the year (April to August. See *4.2.2 Timeline*) because they were less concerned with January target meetings and less worried about year-end personal development assessment meetings.

It is recommended that further investigation and study be made where similar cases can be compared where people's personality, management style and external factors are considered. The organisation which has allowed the researcher to complete this study is intending to implement its new paperless system to all of its other claims branches across the provinces within South Africa. The researcher has recommended that this study be furthered across these other branches in order to draw the comparisons earlier mentioned.

More research will be required in similar cases where technology is used to facilitate the implementation of system changes to further substantiate claims of technology being used to assist people to better cope with change. This study has shown that it is possible to implement a radical change in a claims processing environment and recover the lost production after just two months and assist the people experiencing change to better overcome the typical symptoms of change. It is therefore also recommended that the organisation produce similar CD training tools throughout other areas of its business to assist "changees" to overcome the effects of change quicker and to facilitate and nurture a culture of lifelong learning where cooperative and collaborative learning can take place.

In terms of the real live people, the claims clerks, who participated in this study, it was a revelation to uncover that a paperless environment delivers an almost 100% benefit to the business but may never benefit the working people in the paperless environment 100%. This may be due to the fact that paper allows people to express themselves. Even an invoice received for an insurance claim can become a colourful masterpiece. When asked what she liked about the paper claims files, Maria said that she always noticed the rainbow coloured logos which companies used on their quotations and invoices, something that just was not the same in its digital format! Janine liked the fact that the printers were removed and no printing was possible

anymore, but kept her small notepad ready for any telephone doodling and the occasional relief that it gave her as she crumpled a piece in frustration.

This research showed that the claims clerks experienced real symptoms of change; stress, anger, anxiety, illness, hope, excitement and identity issues. Each of these symptoms could potentially be studied in this case by itself. The claims clerks expressed positive and negative feelings about the use of the CD as a training tool – mostly positive. It was shown that the CD training tool facilitated the learning of the content which was required by the claims clerks to use the new paperless system through its technological aspects such as walkthrough videos and simulations. The types of learning occurred were both individual and group learning through collaboration and cooperation and very behavioural in nature. The assessments which were required for the participants to progress through the CD were the least favoured – assessments usually are if you're an adult. The design of the interactive CD followed the suggestions made by Scardamalia & Bereiter (1990, 44-46) to which sound pedagogical theory was applied to produce a blended learning experience which allowed the claims clerks to engage with the CD individually and allowed group collaboration and cooperation.

It can be safely stated that the CD provided stimulus for learning to take place. Its role as an instrument or tool was shown to be exactly that; it can not be used in isolation as the only method of learner engagement. The participants of this study have made this fact very clear. Despite the fact that the CD attempted to provide learning to an audience with a variety of learning style needs, a few claims clerks found it challenging to understand and use the technology. These claims clerks carried the biggest risk of learning very little or not learning at all. In most cases these claims clerks learned how to use the new paperless system by asking and sharing information with their colleagues.

It is somewhat of a twisted irony to say the least… where at the beginning of this study the researcher set out to fly the technology flag high and to look towards a technology that may be used to fulfil the shoes of a breathable teacher, trainer, facilitator and coach. Instead the researcher felt relieved to discover that although the participants of the study felt that the CD did assist them to better deal with the

technological change, they stood firm to their human roots and expressed the need for that breathable human someone. Here is that twisted irony: “We will never be able to avoid technology, but at least we have each other” (Enos Themba, Claims Clerk, House Owners Comprehensive Consultant).

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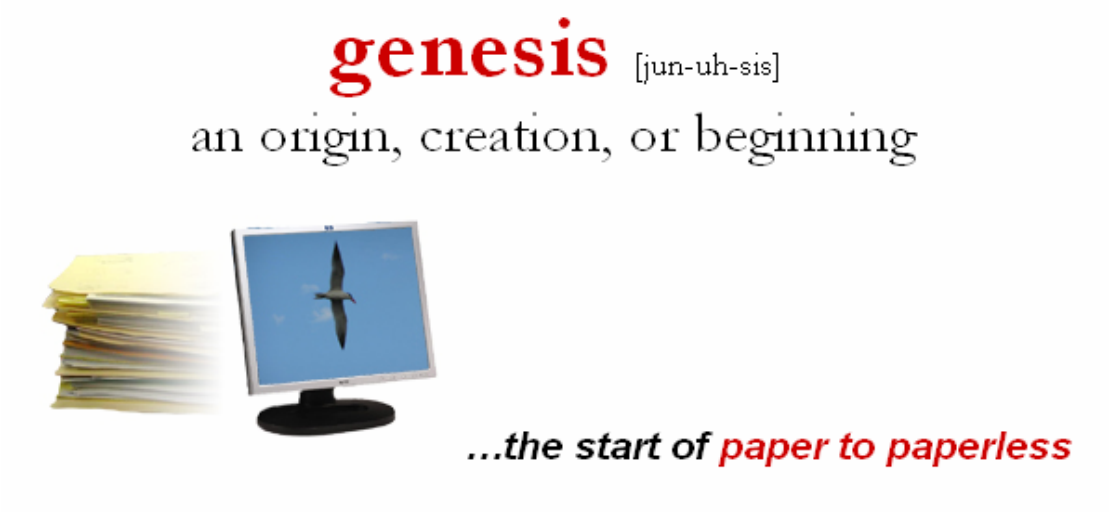
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Appendix A: Participant Observation Field Notes

OBSERVATION NOTES GUIDE



Notes to researcher:

- ONLY record the observed behaviour (low inference) and DO NOT interpret the observed behaviour.
- Record as much observed detail and remember to also record the CONTEXT in which the behaviour occurred.
- TRY and record actual comments.
- Observations should be recorded soon after the behaviour has taken place.

(4)

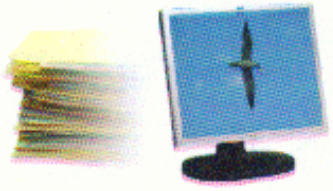
PARTICIPANT OBSERVATION RECORD SHEET	
DETAILS	**WHAT HAPPENED**
Date/Time 21/01/08/12-30 Name/Parties KRISTINA/Hoc	USING CD TO DO SIMULATIONS IN LUNCH HOUR.
Date/Time 21/01/08/3-10 Name/Parties Peter, enos, Joseph. Geyser	Peter explaining to enos & Joseph how to adjust sound on computer for listening to CD.
Date/Time 22/01/08/8-40 Name/Parties Peter Geyser	Asked me how to use CD - Helped him to use windows media player.
Date/Time 22/01/08/11-20 Name/Parties LATIFA & MARIETTE. Quality Hoc.	Used CD together to go over management information reports.
Date/Time 22/01/08/4-10 Name/Parties SARAH + RENE' + JOSEPH Geyser + Quality	Rene set up meeting with Sarah & Joseph to discuss what to do with existing paper files. Paper storage seems to be problem.
Date/Time 23/01/08/9-15 Name/Parties Ned + enos Geyser	" we should have more time to do client enquiries, but how will we see DOCQ and ASTI at same time? Enos

(Adapted from Creswell, 1998: 129)

Appendix B: Focus Group Guide

genesis [jun-uh-sis]

an origin, creation, or beginning



...the start of paper to paperless

Focus Group: 20/02/08 Group B

Focus Group Date: 2:30 - 4:00

Rand
Pete
MARY
ENOS
GREYSTON
MARCO
PATRONCE (13)
MANCHESTER.
WILMA
DAVID
IMAGINE
GARY
KINGSTON.

TOPIC GUIDE FOR FOCUS GROUPS

A – Computer Competency:

1. What do the claims clerks use their computers for?
2. What is the level of computer competency?

B – The Change Process:

1. What are we feeling and thinking about this change?
2. What are the symptoms of change being experienced?
3. What is the difference between our old paper files and the new paperless system?

C – The CD:

1. What are the different aspects of the CD?
2. Can and how can a CD assist with the preparation and training of the new system?
3. Has anybody used a CD before as a training tool / Learning instrument?

D – Learning:

1. How do we learn best, in a group or individually? (Collaborate / Cooperative)
2. Explain concepts of Auditory / Visual / Kinaesthetic learning. What is the breakdown for the group?
3. How do we learn through technology?
4. How can (or did – for post-implementation) a CD prepare us to use the new system?

1 OR 3

Focus Group Record Sheet:

Descriptive Notes	Reflective Notes
Question Code A1 — USE OR COMPUTERS (ON?)	- ASTI - MOSTLY - EMAIL / OUTLOOK. - INTERNET - FOGI WEBSITE - COPSEQ SYSTEM.
Question Code A2 — LEVEL OF COMPUTER COMPETENCY	- COMPETENT 8/13 - NEEDS IMPROVE 2/13 - EXPERTS 3/13. FEEL THAT THEY CAN DO WORK.
Question Code B1 — FEELINGS / THOUGHTS ABOUT CHANGE.	- NOT SURE / EXPECTATION - ANXIETY - WILL BE BETTER AT END - HOPE - QUESTIONS ABOUT COPING - ANXIETY - WHAT WILL ROLES BE / CHANGE - IN PROCESS?
Question Code B1 — "	- NEED GOOD PREPARATION / TRAINING - TRAINING - HOPEFULL THAT IT WILL GO WELL. HOPE - NERVOUS
Question Code B2 — SYMPTOMS (SIMILAR B1)	- STRESS / CANT SLEEP. - EXCITED ABOUT NEW SYSTEM. - ILL (ONLY INITIALLY). - ROLES / IDENTITY.
Question Code B3 — DIFFERENCE BETWEEN PAPER & ELECTRONIC FILES.	- PAPER: CANT FIND OFTEN. : ALPHABET ASSIGNED TO CLERKS : CAN DISPOSE EASILY : NOT EASY TO ACCESS : CAN MAKE NOTES ON.
Question Code B3 — "	- ELECTRONIC : EASY TO ACCESS : STATS EASY TO GET : CANT SEE ENTIRE FILE * : POWER OFF?

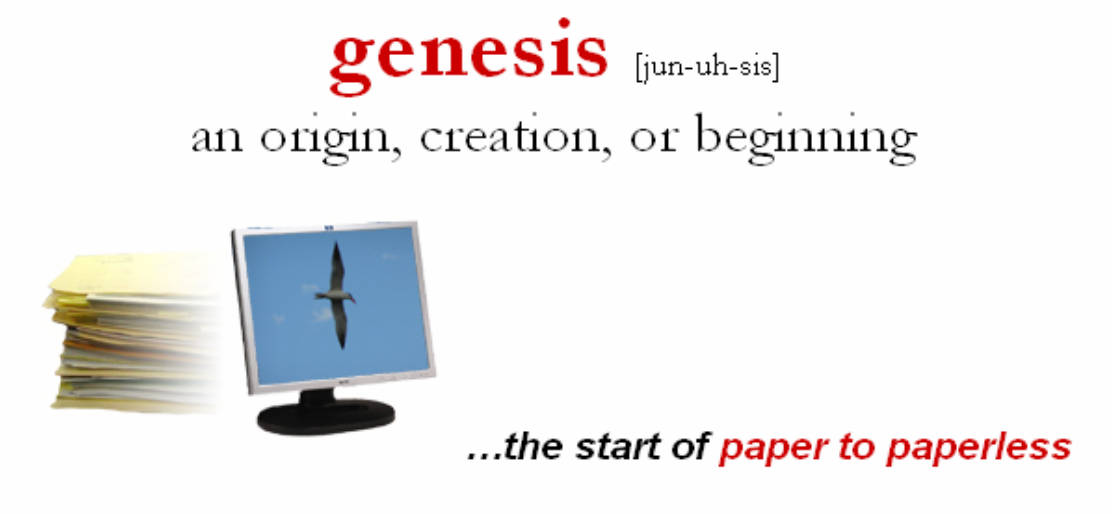
(Adapted from Creswell, 1998: 129)

DONE ✓ B6

FOLLOW UP ON QUESTIONAIRE. 103

Appendix C: Questionnaire

QUESTIONNAIRE



Dear Participant

Thank you very much for deciding to participate in this study! Your open and honest responses are greatly appreciated.

This questionnaire will take you approximately 30 minutes to complete and is divided into three sections. Section A consists of personal questions. Section B contains short response questions while section C contains more descriptive questions.

SECTION A - Personal details and computer competency

A1: Please indicate your gender by ticking the correct block:

[X]	Female	[ ]	Male

A2: Please indicate your age by ticking the correct block:

[ ]	Younger than 20 years	[X]	20 to 25 years
[ ]	26 to 30 years	[ ]	31 to 35 years
[ ]	36 to 40 years	[ ]	Older than 40 years

A3: Please indicate the time that you have been working in the AIC claims department by ticking the correct block:

[ ]	0 to 2 years	[X]	3 to 5 years
[ ]	6 to 10 years	[ ]	More than 10 years

A4: How would you rate your ability to use a computer?

[X]	Excellent	[ ]	Good	[ ]	Needs improving

A5: Describe how you use your computer to do your job.

I have to print out any documents that I recieeve so that I can build my claim file up. Then I need to reply to emails that I get from customers and contractors. I also load new claims on the asti system and update notes on the asti system.

SECTION B: The Change Process

Please provide suitable answers for each of the following questions:

B1: Does the thought of a change process such as the paper-to-paperless process make you: (you may select more than one option here)

☐	ILL	☒	Anxious
☒	Stressed	☐	Conflicted
☐	Talk negatively about the change	☒	Angry
☐	Shocked	☒	Unsure about your role
☒	Hopeful	☐	Excited

B2: Would you say that you cope well with change?

☒	Yes	☐	No

B3: Describe the thoughts, feelings and attitudes that you had when you found out that the change from paper to paperless was about to take place.

I was nervous and scared. Then Mike told us that we would use the new program to do our jobs better. Then I felt that it would make my job easier.

B4: Describe your experiences, feelings and thoughts after the change process from paper to paperless had taken place.

I was still a bit nervous about what I had to do. It was much better after we used the disk to find out what to do. I am excited about the new program but am a bit slow. I will get better after a bit of practise.

B5: Did you enjoy working with the paper claim files?

☐ Yes ☒ No

B6: Do you enjoy working with the new paper-to-paperless system?

☒ Yes ☐ No

B7: Which of the following do you prefer using?

☐ Paper files ☒ Paper-to-paperless system

B8: Explain your choice in question B7 above.

the papeless system always shows us what work we have to do. It is also quicker to do our work. The customers are always sent sms messages to inform them of what is happening with their claim.

SECTION C: The Compact Disc (CD)

Please provide suitable answers for each of the following questions:

C1: Which of the following aspects of the CD did you enjoy using? (You may select more than one option here)

[X]	Videos	[X]	Simulations
[X]	Assessments	[X]	Puzzles

C2: Explain why you have chosen the options in question C1 above.

I like using the computer to find things out. I liked the puzzles mostly because it made me want to keep going so that I could see the completed puzzle. The simulation also told me exactly what I had to do.

C3: Which of the following aspects of the CD did you NOT enjoy using? (You may select more than one option here)

[ ]	Videos	[ ]	Simulations
[ ]	Assessments	[ ]	Puzzles

C4: Explain why you have chosen the options in question C3 above.

I liked all of the cd.

C5: Did the CD assist you to recover quickly from the paper-to-paper change process?

[X] Yes [ ] No

C6: Explain why you have chosen the option in question C5 above.

I was able to use the cd to find out about everything about the program. The cd was interesting and I could watch the video over again if I did not understand it the first time.

SECTION D: Learning

Please provide suitable answers for each of the following questions:

D1: Did you use the CD to assist your learning of the paper-to-paperless system?

[X] Yes [ ] No

D2: How do you learn best?

[ ] Individually (By yourself) [X] In a group

D3: Which of the following ways do you learn best?

[ ] Hearing [ ] Seeing [X] Doing

D4: Which of the following CD tools did you prefer using to learn how to use the new paperless system?

[ ] Seeing and listening to the videos [X] Doing the simulations

D5: Have you used a compact disc (CD) before as a training instrument?

[ ] Yes [X] No

D6: Did you work through the CD together with your colleagues or by yourself?

[X] By myself [ ] With colleagues

D7: Do you enjoy using the CD to learn? Things such as video, sound and simulation interaction will be relevant here.

[X] Yes [ ] No

D8: Would you say that you learn easily through the medium of technology?

[X] Yes [ ] No

D9: Explain why you have chosen the option in question D8 above.

Technology is here to stay. We must get used to learning by using it. I like using it because it is interesting and we can click on different parts when we want to learn again. The only bad thing about it is theat you cant ask questions.

D10: Did you first use the CD to find out something that you needed to know about the new paperless system, or did you first ask your colleagues?

[ ] CD [X] Colleagues

D11: Explain why you have chosen the option in question D10 above.

My friends were able to easily share what they already knew about the program. I did also use the cd but it was interesting to see what they also knew.

D12: While you were first using the new paperless system, did you use a 'trial-and-error' approach to learn how to use the new paperless system?

[X] Yes [ ] No

D13: Would you say that the CD was successful in preparing you to use the paper-to-paperless system?

[X] Yes [ ] No

D14: Explain why you have chosen the option in question D13 above.

I can now use the new program. The cd showed me how to use all of the new program. I can now load new claims in seconds instedd of minutes and I can get access to any claim at any time so my supervisor is very happy.

D15: How would you rate your ability to use the new paper-to-paperless system?

[X] Excellent [ ] Good [ ] Needs improving

Thank you very much for your valuable time which you have so graciously given for this study. Your contribution is much appreciated and will be used to further inform the training of the Genesis paper-to-paperless system.

Regards

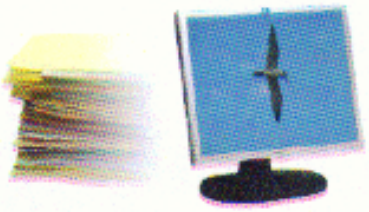
Mike Hundermark and the Genesis Team

Appendix D: Interview Schedule

INTERVIEW SCHEDULE

genesis [jun-uh-sis]

an origin, creation, or beginning



...the start of paper to paperless

PARTICIPANT NAME: INKMA V. DER WATT

DATE: 12/11/2008

2pm - 3pm.

Notes to researcher:

- The following questions serve as a GUIDE and are by NO means EXTENSIVE.
- Informants' responses and other questions are recorded in the interview record sheet (see end of interview schedule)

TOPIC GUIDE

A – Computer Competency:

A4 How would you rate your ability to use a computer?

A5 Describe how you use your computer to do your job

B – Change Process:

B1: Does the thought of a change process such as the paper-to-paperless process make you: (you may select more than one option here)

☐ ILL ☑ Anxious

[X]	Stressed	[ ]	Conflicted
[ ]	Talk negatively about the change	[ ]	Angry
[X]	Shocked	[X]	Unsure about your role
[X]	Hopeful	[X]	Excited

B2 Would you say that you cope well with change?

B3 Describe the thoughts, feelings and attitudes that you had when you found out that the change from paper to paperless was about to take place.

B4 Describe your experiences, feelings and thoughts after the change process from paper to paperless had taken place.

B5 to B8 Explain whether you prefer the paper files or the paperless system.

C - The Compact Disc (CD):

C1 & C3 Which of the following aspects of the CD did you (or DID NOT) enjoy using? (You may select more than one option here)

[X]	Videos	[X]	Simulations
[ ]	Assessments	[X]	Puzzles

C2 & C4 Reasons for the choices in C1 & C3.

C5 & C6 Did the CD assist you to recover quickly from the paper-to-paper change process? Explain

D - Learning

D1 Did you use the CD to assist your learning of the paper-to-paperless system?

D2 How do you learn best? (Individually or in a group)

D3 Learning style: Auditory / Visual / Kinaesthetic

D4 Which preferred: Videos / Simulations

D5 Used a compact disk before as a training tool (Yes / No)

D6 Worked through the CD with colleagues or by themselves

D7 Enjoy using the CD to learn?

D8 & D9 Learn easy using technology? Reasons?

D10 & D11 Rely on CD or colleagues when needed to find out how to do something? Reasons?

D12 Use 'trial-and-error' approach when first using the system

D13 & D14 Was CD successful in preparing you to use the new system? Reasons?

D15 Rate ability to use the system: Excellent / Good / Needs improving

WUMA. U. J. MAST.

(1) OF 3

Interview Record Sheet:	
Descriptive Notes	**Reflective Notes**
Question Code A4 — COMPUTER ABILITY.	COMPETANT TO EXPERT.
Question Code A5 — USE COMPUTER TO DO?	- ASTI - PAYMENTS / QUERIES - EMAIL - INTERNET / ROM REPORTS.
Question Code B2 — COPE WELL WITH CHANGE.	YES - BEEN IN TECH CHANGE BEFORE.
Question Code B3 — THOUGHTS / FEELINGS BEFORE CHANGE.	- SHOCKED AT FIRST - TOO SOON. - EXCITED WHEN FOUND OUT MORE. - STILL ANXIOUS.
Question Code B4 — THOUGHTS / FEELINGS AFTER CHANGE.	- BETTER AFTER TRAINING - STILL LOTS TO LEARN (Hopeful) - EXCITED.
Question Code B6 — DIFFERENCE BETWEEN PAPER & ELECTRONIC FILES.	PAPER IS PROBLEMATIC. - LOOSE FILES - NOT EASY TO MANAGE. - DUPLICATION.
Question Code B5 — M	ELECTRONIC - ALWAYS AVAILABLE - VISIBILITY TO ALL CLAIMS - MEASURABLE WORK

(Adapted from Creswell, 1998: 129)

(2) OR 3

WILMA V.O. WANTS.

Interview Record Sheet:

Descriptive Notes	Reflective Notes
Question Code C2, 4 — REASONS FOR CD ASPECTS ENJOYED?	- AUDIO/VISUAL LEARNING - LEARNING STYLES - WAS PRESENTED - EASE USE - COULD GO BACK WHEN NOT SURE - RE-INFORCEMENT
Question Code C3, 4 — "	- DON'T LIKE ASSESSMENTS BUT WERE OK. - CD PUZZLES WERE BEST - FUN TO USE.
Question Code C5, 6 — DID CD ASSIST RECOVERY - REASONS	YES - COVER ALL OF SYSTEM - COMPREHENSIVE - ENJOYABLE - TOOK A BIT/WHILE TO GET USED TO.
Question Code D1 — USED CD TO LEARN SYSTEM.	YES.
Question Code D2 + D3 — INDIVIDUAL / GROUP STYLE - LEARNING	GROUP - FRIENDS TOGETHER OR EITHER SOMETIMES INDIVIDUAL. KINAESTHETIC + VISUAL.
Question Code D4 — VIDEOS / SIMULATIONS D5 USE CD TO LEARN BEFORE → NO / FIRST TIME	
Question Code D6 — COLLEAGUES / SELF D7 ENJOY USING CD?	MOSTLY BUT SOMETIMES SELF YES

(Adapted from Creswell, 1998: 129)

WILMA V. D. WIKET

(3) OF 3

Interview Record Sheet:

Descriptive Notes	Reflective Notes
Question Code D8 LEARN BEST/ USING TECH? D9 REASONS	- YES - LIKE TECHNOLOGY - CASE USE. - AUDITORY + VISUAL - LEARNING STYLE
Question Code D10 CD / COLLEAGUES WHEN FIRST NEEDED INFO D11 REASONS	→ CD THEN COLLEAGUES CD HAD ALL CONTENT - COMPREHENSIVE - ENJOYED USING - FUN
Question Code D12 TRIAL - ERROR APPROACH	YES - USED CD - TRY - ASK COLLEAGUES IF ERROR.
Question Code D13 CD SUCCESSFUL? D14 REASONS	YES - KNOW HOW TO USE SYSTEM NOW. - COMPREHENSIVE - FUN EXCITING
Question Code D15 RATE USE OF SYSTEM.	GOOD - NOT EXCELLENT YET - NEED MORE PRACTICE / USE
Question Code	
Question Code	

(Adapted from Creswell, 1998: 129)

Appendix E: Documentation – Claim Statistics

ORACLE STATISTICS FOR SERVER SVC_22123_JHB_CENTRAL_WEST_RAND
APPLICATION GENESIS_ASTI_SYS
FILTER AVE CLAIM_PROCESSED_PER_WEEK SELECT UP TO 01_SEPTEMBER_08
CLAIMS PROCESSING STATISTICS

RESULT PROVIDED 01_SEPTEMBER_08_12:32:51_AM
75.22 COMPLETED CLAIMS PER WEEK
END RESULT

ORACLE STATISTICS FOR SERVER SVC_22123_JHB_CENTRAL_WEST_RAND
APPLICATION GENESIS_ASTI_SYS
FILTER AVE CLAIM_PROCESSED_PER_WEEK SELECT 01_SEPTEMBER_08 THROUGH 31_OCTOBER
CLAIMS PROCESSING STATISTICS

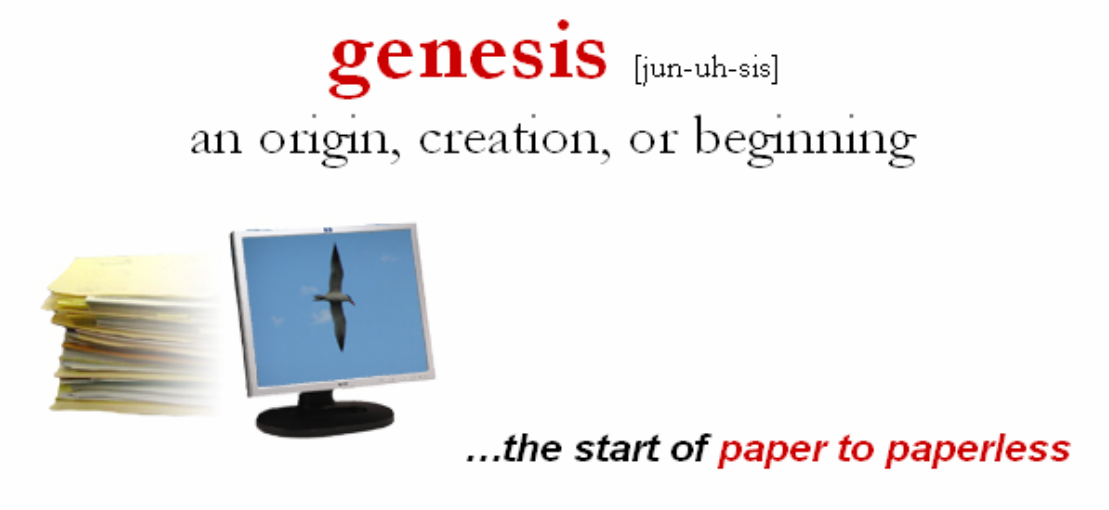
RESULT PROVIDED 01_SEPTEMBER_08_12:32:51_AM

START_WEEK	END_WEEK	START_NUMBER	END_NUMBER	TOTAL_PROCESS
01_SEP_08	05_SEP_08	22134	22152	18
08_SEP_08	12_SEP_08	22152	22175	23
15_SEP_08	19_SEP_08	22175	22195	20
22_SEP_08	26_SEP_08	22195	22233	38
29_SEP_08	03_OCT_08	22233	22285	52
06_OCT_08	10_OCT_08	22285	22358	73
13_OCT_08	17_OCT_08	22358	22445	87
20_OCT_08	24_OCT_08	22445	22550	105
27_OCT_08	31_OCT_09	22550	22652	102

END RESULT
_

Appendix F: Information Sheet

INFORMATION SHEET



Dear Participant

I am Mike Hundermark, Genesis trainer and a Masters student at the University of the Witwatersrand.

As you may be aware, Absa Insurance Company (AIC) is about to implement a change process of paper-to-paperless across all of its branches. As the success of this implementation lies greatly in the hands of its users – YOU, we have endeavoured to make sure that your voice is heard.

The completion of the questions in this study should not exceed 30 minutes.

This questionnaire serves two purposes:

1. To gauge the impact of a change process which has been implemented by AIC so as to address the effect on the productivity at each AIC branch.

2. To understand the impact and effect of the use of a technological approach to the training of the change process.

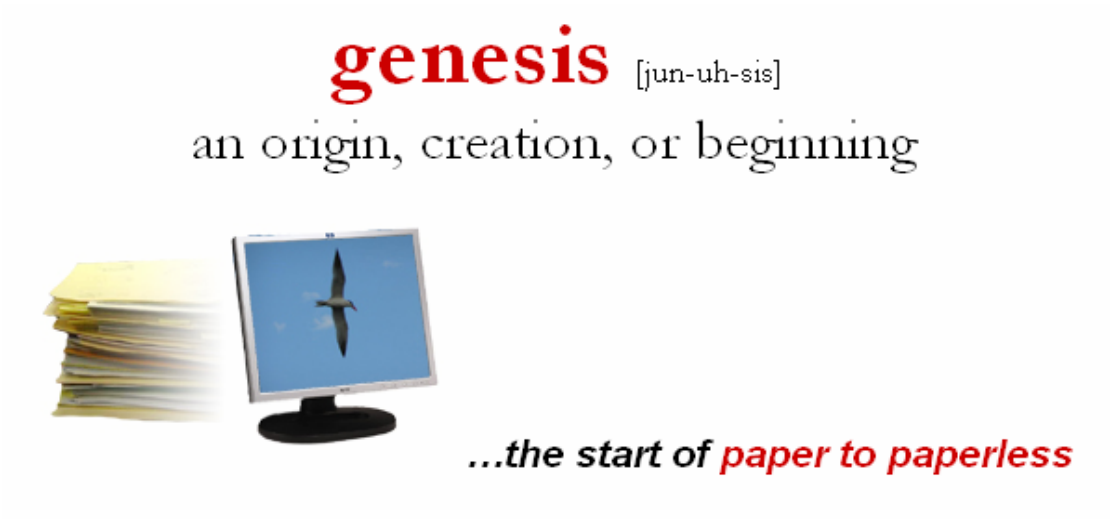
It is very important that you understand the following:

- Your participation in this study is entirely voluntary.
- You may at any time withdraw from the study with absolutely no consequence.
- Your participation in this study will not affect your employment conditions.
- Your responses will be kept safe, secure and confidential.

- The findings of this study will not be used for any financial gain.
- The findings of this study will benefit you by informing better ways of implementing change processes in your working environment.
- The findings of this study will be used in a research report as part of the submission for an academic Masters degree in Adult Education submitted by Mike Hundermark to the University of the Witwatersrand.

Appendix G: Consent Form

CONSENT FORM



The following form is necessary for you, as the willing participants, to read, understand, complete and sign in order for the researcher to make use of your valuable responses in the research report:

Declaration

I _____ have read the above mentioned important points in the **INFORMATION SHEET** and understand what my rights are in terms of this study. I choose (to take part in the study) (not to take part in the study) and understand that this choice has no bearing on my employment and has no consequence what so ever.

Signed _____ this day _____

Appendix H: Research Site Clearance

Absa Insurance Company Limited
2nd Floor 21 Kruis Street
Johannesburg 2001
PO Box 421 Johannesburg 2000
Tel 011 350 2111
Fax 011 331 2179
http://www.absa.co.za

Absa Verskeringsmaatskappy Beperk
2de Verdieping Kruisstraat 21
Johannesburg 2001
PO Box 421 Johannesburg 2000
Tel 011 350 2111
Faks 011 331 2179
http://www.absa.co.za

24 July 2007

FORMAL PERMISSION FROM A HOST ORGANISATION

To whom this may concern

It is hereby acknowledged that Absa Insurance Company (AIC) has granted Michael Hundermark (student number 9108467H), an M.Ed (Adult Education) student at the University of the Witwatersrand, permission to use Absa Insurance Company as a research site.

Absa Insurance Company is aware that he will be gathering research data from all of the claims handler employees throughout all ten branches nationally by using questionnaires, interviews, group discussions, documentation, and naturalistic observations.

This research will be conducted before, during and after the implementation of the paper-to-paperless change process entitled Genesis, and should last approximately nine months. The research fulfils two purposes:

1. To gauge the impact of a change process which has been implemented by AIC so as to address the effect on the productivity at each AIC branch.
2. To understand the impact and effect of the use of a technological approach to the training of the change process.

The findings of this research will be documented and presented by Michael Hundermark to the University of the Witwatersrand.

The research report will also be made available to Absa Insurance Company in order to inform future implementations of change processes.

For and on behalf of Absa Insurance Company:

Full Name: Emmarentia Peens Job Designation: Manager: Customer Experience

Signature: Date: 25/07/2007

Insurance Fraudline 0860 002526

ABSA Insurance Company Limited/
Versekeringsmaatskappy Beperk, Reg No 1992/001757/06

Member of the Barclays Group

Directors/Direkteure: WT Lategan (Chairman/Voorsitter) CF de Jager (Managing Director/Bestuurende Direkteur) DC Cronjé G Griffin LL von Zeuner E Wasserman Secretary/Sekretaris: ABSA Secretarial Services (Pty) Limited/ABSA Sekretariële Dienste (Edms) Beperk
Reg No 1970/010415/07 Ashes