Chapter 2: Literature study

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2.1. Introduction

> *Man has long been concerned to come to grips with his environment and to understand the nature of the phenomena it presents to his senses*
> (Cohen & Manion, 1980:11).

It is important to take into account that the knowledge about the phenomena that Cohen and Manion (1980) refer to does not exist in a vacuum and that the new insights that the researcher creates only has value when seen in context of existing explicit knowledge (Jankowicz, 1995). The **aim of the literature study** was therefore to explore current knowledge with regards to the phenomena with the intended consequence being to:

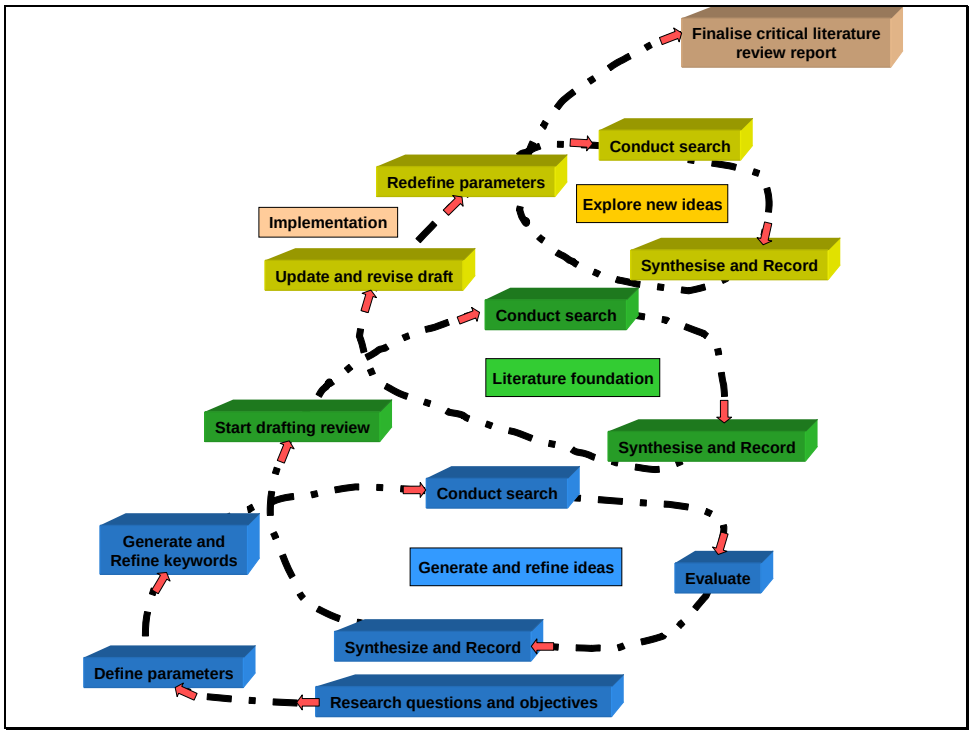
- demonstrate the researcher's current state of knowledge; and
- determine ultimately how the findings of this research study are the same or different from other knowledge sources (Saunders *et al.* 2000).

In order to realise the aim of this chapter, a formalised literature review process was followed.

2.2. The literature review process

A literature review was carried out firstly to **generate and refine** the research ideas. Secondly, a critical review of the literature was conducted to examine the **foundation** upon which the literature was built (Saunders *et al.* 2000). After the implementation of the research process (defined in Chapter 3), the researcher returned to the literature review to **explore concepts and ideas** introduced during the implementation phase of the research project. Figure 2.1 illustrates the literature review process applied during this research project.

Figure 2.1: Literature review process



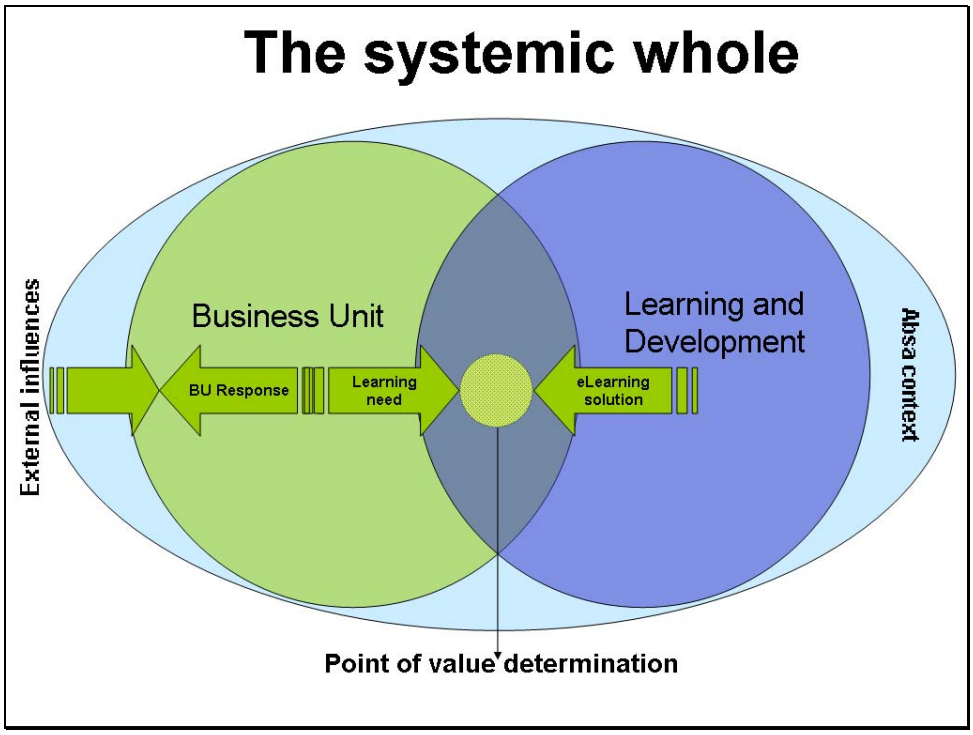
Adapted from Saunders *et al.* (2000).

The following **principles** were adhered to during the review of the literature:

- A funnel approach was used to widely review literature **before narrowing** down to the issues related to the study. To this extent, the general trends in the changing **world of work**, **business performance** and **eLearning** were examined. The review then narrowed down to the phenomenon at hand – eLearning contributing to business performance. A further detailed review of Systems Thinking (which represents the theoretical framework of the study)

was carried out. The literature review relates clearly to the research question and objectives. Figure 2.2 illustrates the boundaries of the literature review.

Figure 2.2: Boundaries of the literature study



- Key literature was covered taking into account recognised **expert opinions** in each of the fields of eLearning, business performance and Systems Thinking. The **criteria** used for filtering literature was the:
    1. relevance of the article within the defined boundaries of the study;
    2. date of publication of the article;
    3. additional perspectives on the intellectual puzzle (Mason, 2002) that the study was painting; and
    4. the representation of different angles of a specific topic at hand (Saunders *et al.* 2000).
- From an ethical point of view all literature was referenced and the researcher attempted to objectively reflect the content of other people's work (Saunders *et al.* 2000).
- At the end of each section, the **significant implications for this study** were briefly summarised.

The literature sources used in this study were obtained from three categories of sources (Saunders *et al.* 2000):

1. **Primary sources**: Reports, theses, emails, conference reports, company reports and government publications.
2. **Secondary sources**: Books, journals and the Internet.
3. **Tertiary sources**: Abstracts, encyclopaedias, bibliographies and citation indexes.

The literature review process provided the researcher with a guided pathway to follow during literature review. The literature review starts with a reflection on the theoretical construct of the title provides insight and a general understanding of the main concepts relevant in this study.

2.3. Theoretical construct of the title

Using a leverage point to improve business performance through eLearning

Each concept captured within the title will be discussed below.

'Identifying a **leverage point** …'
A leverage point (or points) presents a place to pursue business goals in a way that **takes advantage of**, instead of working against, the **systemic structures that support them** (Senge *et al.* 1994). In this study the leverage point is also seen as the **starting point of the systemic story** (Conversation with Christa Swart on 19 April 2004). The leverage point should however not be seen as a sole answer or in isolation. It should only be interpreted in context of the systems dynamic model.

'… to **improve** …'
Contributing to a positive influence, or taking advantage of (Senge *et al.* 1994). The improvement in this study is seen in the context of a total system. While the leverage point is seen as the co-producer with the most influence on the systemic model, it is not seen as the sole contributor to the improvement.

'… **business performance** …'

Business performance is about setting a company's strategic goals and then tracking the progress towards meeting the goals (Becker, Huselid & Ulrich, 2001; Mayo,1997; Porter, 2001; Whitting, 2004). In Absa the balanced scorecard, based on the model of Kaplan and Norton (1996), is utilised to define strategic goals and measure business performance from four perspectives:

1. Financial;
2. Customer;
3. Internal Business Processes; and
4. Learning and Growth.

'… through **eLearning**'.

Rosenberg (2001:28) refers to eLearning as:

> *… the use of Internet technologies to deliver a broad array of solutions to enhance knowledge and performance*.

eLearning within the **Absa context** is defined as a style of **distributed learning** that includes digital courseware. It is experienced through a technology interface **and** is net-enabled. The technologies that underlie this are predominately:

- **Internet** (global in nature and includes communication with multiple stakeholders); and
- **Intranet** (internal communications leveraging the corporate technology infrastructure) (Korpel, 2002).

The theoretical construct of the title further defined the **boundaries for the literature** research of this study. The first section of the literature study explores the **external influences** in the business environment which create the need for learning to contribute to business results. The second section focuses on **business performance**: what it means, how it is expressed, and the challenges that are a reality in the field of business performance. This

section concludes with the **assumption that eLearning** is one of the solutions that Business[1] is looking towards to improve performance.

The third section explores **eLearning**, what it is and how its value is articulated. The advantages and disadvantages of eLearning are debated and the 'return on investment' debate is framed.

The fourth section focuses on the combination of **eLearning and business performance** in an attempt to understand how theory and practice describes the overlay between the two disciplines. The 'return on investment' debate is explored further to determine how it is measured and how relevant it is in ensuring that eLearning contributes to business performance. At this point the **research problem is defined**.

In the fifth section, the researcher debates the **design of the inquiry system** for the problem at hand. The different options for the inquiry design are discussed and systemic thinking is motivated as the theoretical framework for the study.

The external influences on organisations representing the reality of the bigger world that organisations have to exist in, is a discussion on the first part of the context that is seen within the specified boundaries.

2.4. External influences – a changing world of work

> *If the 1980s were about quality and the 1990s were about re-engineering, then the 2000s will be about velocity. About how quickly the nature of business will change* (Gates, 1999:1).

In today's new economy and changing world of work, corporations are increasingly facing new challenges (Gates, 1999; Handy, 2001; Porter, 2001;

[1] In this study the word **'Business'** refers to the eChannels: Contact Centre Division. It implies that the following stakeholders are part of the grouping – operational management responsible for business results, team leaders, and the employees (also referred to as learners). A detailed description of this sample is available in Chapter 3.

Thinq, n.d.; Ward & Griffiths, 1996; Weill & Broadbent, 1998). Examples of the major trends in the changing world of work are listed below.

- Integration and globalisation, with increased competition and maturing markets and growth in the services sector.
- Rapid growth in information and communication technologies and innovative solutions for the challenges in this field.
- Changing management structures – organisations are becoming flatter, smaller and leaner, including new forms of work such as telework, self-employment, subcontracting or temporary employment.
- Ageing workforce and shrinking corporate resources.
- Increasing work-pace and workload, requiring new qualifications and increasing participation of women in the workforce (Corporate Leadership Council, 2001a; European Agency for Safety and Health at Work, 2003; Thinq, n.d.).

Gates (1999), Handy (2001) and Porter (2001) report similar trends of change in the new economy with focus on the **rate of change** and the **innovative capability of people** to cope with change.

In addition, corporations are driven by the demand to **show short term results** no matter what circumstances exist (Thinq, n.d.; Weill & Broadbent, 1998). Firms also often have difficulty in understanding how their enterprises should react to external economic conditions. This creates frustration with business planning and performance management processes (Sribar & Van Decker, 2003). According to Gilman (2002) another huge challenge is the **execution of business strategy**. The reason for this is the inability of business to align the individual and departmental objectives with the overall strategy of the organisation (Gilman, 2002).

Countries and organisations have to change rapidly to accommodate the demands of the **Internet economy** in order to survive in a world market-place that is increasingly competitive. Countries must educate their citizens, business must train their workers and educational institutions must offer innovative programs (Cisco, 2002b:1; Gates, 1999; Parikh & Verma, 2002; Sribar & Van Decker, 2003; Van Decker, 2003).

> *To succeed in today's global Internet-based economy, businesses, governments, and educational institutions must assimilate large amounts of information* (KPMG consulting, 2001:2).

According to Van Diggelen and Du Plessis (2003:2), South Africa presents a "fascinating dichotomy of First World business operating in a Third World developing country." This highlights **additional challenges for businesses** in the South African market, for example, managing a first class business with a third class workforce, or training employees with technology when there is still a mammoth illiteracy issue (Van Diggelen, & Du Plessis, 2003).

The rate of change, the continuous rapid creation of new information, and the continuous demand for new skills, imply that organisations are faced with **significant learning challenges**, for example, retraining qualified workers, delivering just-in-time training to a globally dispersed workforce, accommodating ongoing demographic changes and to reduce gaps in employee skills sets. Furthermore organisations need to provide employees with **flexible access to life-long learning opportunities** (Cisco, 2002a; Gates, 1999; KPMG consulting, 2001; Parikh & Verma, 2002; Weill & Broadbent, 1998). Employees also express the need to continuously master new skills, owning the accountability to renew their skills to gear them for the future (KPMG consulting, 2001).

Absa as a financial institution is also faced with similar challenges, creating the urgency to adopt electronic business mechanisms. Thus, Absa embarked on an **eBusiness strategy** in 2000 (Absa, 2001). The strategy aimed to position **Absa as a market leader** in the e-space, dominating the minds and market in Internet banking. The domination would be achieved through the provision of convenient, high-performance and **value adding electronic services to customers**. The eBusiness strategy included focus on Business-to-Customer (B2C), Business-to-Business (B2B) and **Business-to-Employee** (B2E) (Absa, 2001).

Organisations **face these modern day challenges and requirements in different ways**. New strategies, technologies, process engineering, **learning**, people, organisational redesign and operating model changes are all attempts to survive the requirements of the new economy (Gates, 1999;

Porter, 2001; Van Diggelen & Du Plessis, 2003; Voisey, Baty & Delany, 2002).

The implication for this study:
The world of work is rapidly changing. Although technology enables us to accommodate the speed, all individuals have to continuously renew their skills. This renewal also needs to happen at a rapid pace.

The current economic climate is driving increased executive attention on **business performance** management, putting this topic high upon the management agenda (Neely, 2000; Sribar & Van Decker, 2003). The concepts, theoretical foundations, research in, and practices with regards to business performance are discussed next.

2.5. Business performance

> *Business … has multiple objectives which include providing good value for its customers, offering a worthwhile job and opportunities for personal growth for its workers, investing in its future stream of products, respecting the needs of the local communities in which it operates and the environment in general … making sure of a proper return for its financiers* (Handy, 2001:28).

The performance of this business can be measured in both a **tangible and an intangible way**. The most commonly known tangible measures are the **financial statements** of the company. The financial statements are published and are easily accessible. The intangible assets such as brand value or employee brand are much more difficult to determine. There is a concern though, that the value of the intangibles fluctuates within short periods of time, while the financial statements are audited only once a year (Mathews, 2003).

Financial measurements or ratio's are used as very simple mechanisms to describe the performance of a business (TheFreeDictionary.com, 2004). The measures are designed to **support strategies** and to compare year-on-year **results** (Leahy, 2001; The FreeDictionary.com, 2004). These financial measures have evolved over decades, and continue to evolve. The measures have been tested in various scenarios (Smith, 2001a). However,

the comparison of performance cannot be done significantly using only one measure. Various categories of measures should be applied depending on the objective for measurement or tracking, for example performance, turnover, liquidity, valuation ratios, dividends, percentage growth, financial strength and assets (Dunn & Welling, 2003; Smith, 2001a; Symantec Corp, 2004; TheFreeDictionary.com, 2004).

Even though there are **many measures** used in an attempt to **articulate how business value is created**, Neely (2002) states that traditional management **systems are flawed**. Utilising the financial measures in **isolation**, can **lead to undesired behaviour** and **possibly destroy the value** of the organisation. Neely (2002) further explains that there should be a **combination of tangible and intangible**, of **financial and non-financial** performance data. The combination leads to superior business performance.

Companies are **acknowledging the intangibles** and are **investing large amounts** of time and effort in new methods of systems managing and measuring business performance that include the value of intangible assets (Neely, 2002; Smith, 2001b).

The intangible assets are specifically relevant to defining the **holistic value of business performance** (Neely, 2002; Leahy, 2000). Smith (2001a) states however that, in the light of **high quality defined financial** measures, the design of performance frameworks for non-financial measures seem **unattainable**.

Financial institutions like Absa focus mainly on measures such as return on equity, headline earnings, headline earnings per share, credit loss ratio and cost-to-income ratio (Cooper & Maree, 2003; Bosman, 2004).

Adams and Andersen Consulting (n.d.) suggest that in many organisations **confusion and uncertainty** exist with regards to business performance. This state of confusion is also described by Porter (2001) and Weill and Broadbent (1998). Adding to this confusion is the **paradox of the Internet benefit measurement** – while it makes business easier for clients and information freely available, it also makes it increasingly difficult to capture the benefits as profits (Porter, 2001).

The implication for this study:
Most business performance measures focus on tangible quantitative measures. In order to have a balanced holistic perspective of the organisation, the intangible measures should be taken into account in order to determine an integrated value.

Various theoretical frameworks inform the way business performance is evaluated.

2.5.1. Theoretical foundations of business performance

Business performance has evolved significantly over the last few years. Various frameworks and methodologies have been suggested as sole solutions to **understanding the measurement of business performance**. "Each framework purports to be unique" (Adams & Andersen Consulting, n.d.:2). However, each framework has its own strengths and weaknesses (Adams & Andersen Consulting, n.d.). Examples of frameworks and methodologies are the Balanced Scorecard, Business Excellence Model, Shareholder Value Add, Activity Based Costing, Cost of Quality, Competitive Benchmarking, Six Sigma, Economic Value Add or Value Based Measurement (Adams & Andersen Consulting, n.d.; Kaplan & Norton, 1992; Leahy, 2000; Smith, 2001a; Snyder, 2004).

Walters (n.d.) states that the problem with business performance frameworks is that they are simply just frameworks. The frameworks suggest some areas where measures of performance might be used, but **do not provide clear guidance as to how the right measures can be identified, introduced and ultimately exploited.**

However, Adams and Andersen Consulting (n.d.) state that **stakeholders and their requirements** are far more important in deriving success measures than strategy or performance frameworks. If the stakeholder requirements drive the performance framework, the performance measures will be designed to help the people executing the strategy to track if they are **moving towards their targeted destination**.

Currently, performance frameworks focus mostly on precise tangible measures (Kaplan & Norton, 1992; Smith, 2001a). Leahy (2000) however, suggests that there is a move away from detailed precise financial measurements towards more value-based measurements focusing on **how value is created** in the company. The value creation process linked to compensation incorporates employee performance evaluations.

The implication for this study

There are various frameworks that are used to measure and articulate business performance. The frameworks should be populated with data based on the requirements of the stakeholders owning the strategy.

Policies regarding business performance add another perspective on the topic of business performance.

2.5.2. Policies regarding business performance

Business results or performance is generally governed by a common set of accounting principles, standards and procedures, referred to as 'Generally Acceptable Accounting Principles' (GAAP). GAAP combines authoritative standards set by policy boards and the accepted way of practicing accounting. All financial statements have to be prepared using GAAP principles (Investopedia.com, 2004; Smith, 2001b).

However, the rate of change seems to have exceeded the flexibility of GAAP to adapt to business needs. Greater insight is needed into the cause-and-effect relationships between events and financial results. These cause-and-effect relations can be used to build common understanding between traditional accounting systems and non-financial measures resulting in the growth of business value (Smith, 2001b).

The implication for this study:

The governance of business performance is based on financial measures. However the understanding of the cause-and-effect relations between financial measures will assist in increasing the understanding of the aspects contributing to the growth of business value.

eLearning has the potential to contribute to meeting the requirements of the new world of work. Although not seen as a sole solution, the specific benefits of eLearning could allow an organisation to learn at the same pace as the rapidly changing world of work.

2.6. eLearning

John Chambers, president and CEO of Cisco Systems, states that (cited in Cisco, 2002b:1):

> *There are two fundamental equalizers in life - the Internet and education. eLearning eliminates the barriers of time and distance, creating universal learning on demand, opportunities for people, companies and countries*.

The micro computer was invented towards the end of the 1970s. This brought computing into homes and businesses and schools. The Plato Project represented one of the first computer-based instruction projects (Alessi & Trollip, 2001). Computer-Based Training (CBT) was dominated by the instructor providing linear, asynchronous and static content courses delivered mainly via CD-ROM. Large content libraries were touted with the primary benefits stated as lowering training costs by reducing travel, facilitation requirements and instructor expenses. Other benefits were consistent quality, twenty-four hour availability and better learning retention (Oakes, 2003).

In the 1990's the eLearning era began, starting with a debate about the size of the 'e'. As opposed to CBT on desktops, eLearning is enterprise focused and network-driven. It introduces technologies such as:

- Learning Management Systems (LMS);

- Learning Content Management Systems (LCMS); and
- Virtual classrooms (Oakes, 2003).

However, the content is still static, designed on the basis of the CBT era – the main benefits remaining the same as in the CBT era (Oakes, 2003). The primary problem seems to be stated aptly by Oakes (2003:65): "The **focus on cost reduction** has been one of the **biggest failings** in the eLearning industry as a whole". Business seems to ask: **We've already done the cost saving bit with CBT – so what's the point?** (Oakes, 2003).

eLearning is now moving towards a **productivity era** focusing on "value propositions, such as faster time to market, increased customer satisfaction, and improved readiness of the organisation" (Oakes, 2003:66). **Explicit content** is designed with short, just-in-time learning objectives that **support workplace performance**. Organisations are also starting to leverage off the tacit knowledge that comprises the majority of knowledge in businesses today – eLearning is **now** about connecting minds of people supporting the organisation to "move faster, share best practices, leverage experts and ultimately improve productivity" (Oakes, 2003:66).

The implication for this study:
While eLearning as a solution is promising impressive opportunities for people and companies, there are several challenges that must be faced to realise the potential.

In order to create a common understanding of the eLearning environment the concepts, terminology and definitions are discussed below.

2.6.1. Concepts, terminology and definitions

> *The process of eLearning is a series of operations that involve humans, computers, the Internet, and instructional material, and that produces the outputs to learners and the organisation* (TelliYamamoto, 2004:66).

Rosenberg (2001) **describes** three fundamental criteria for eLearning. eLearning is:

- **networked** and capable of **immediate storing**, retrieval, distribution and sharing of information and training;

- delivered to the end user via standard **computers** and **Internet** technologies; and
- focused on learning in a **broad spectrum**, extending beyond the traditional boundaries of training.

A wide variety of descriptions and definitions about eLearning exist in the industry. Depending on which perspective eLearning is defined from, it can include anything from blended learning to networked learning. Other descriptions used in the context of eLearning are web-based training/learning; Internet based training/learning; online training; knowledge management; interactive electronic technology or performance support tools (Carter, 2002; Einstadt & Vincent (1998); Hartley, 2004b; Rosenberg 2001; Rossett & Mohr, 2004).

Recurring messages are reflected in **eLearning definitions**. The recurring messages were summarised and are clustered around the **intent of eLearning**, **delivery strategies** and **mechanisms** and **accessibility**.(eLearning Alliance, 2003; Hartley, 2004b; Hartley, 2004c; Mayor 2001; NetTel@Africa, 2004; Rosenberg, 2001; Rossett & Mohr, 2004). The summary for each of the clusters are provided below.

- **The intent of eLearning**

  eLearning started as a result of the movement towards eBusiness. It has the intent of exploiting the technology of the World Wide Web (WWW), but is not restricted to the WWW. eLearning intends to improve and extend the reach and quality of learning through making information and knowledge accessible, and to help people learn new skills and prosper in an information society. This could lead to improved individual development and performance. In some cases, the intent of eLearning was referred to as learning being reinvented in a digital world. However, it includes much more than just eTraining – it is an overarching umbrella that includes aspects of education, information, communication, training, learning, knowledge management and performance management. The further intent of eLearning is to integrate education, training

and structured information with the focus on both formal and informal environments.

- **Delivery strategies (Through …)**
  eLearning is delivered through facilitating access to resources services, remote exchanges and collaboration. eLearning also facilitates the support of learners (through mentors and experts from a local and global community) and the provision of content and management of learning. eLearning should be designed and delivered based on sound learning principles.
- **Delivery mechanisms (By using …)**
  eLearning is delivered by computers through the Internet, the Web or the organisation's network (Intranet). Digital content can be delivered via CDs, cell phones, computers and the Internet. In some cases there were references to digital interactive television and the use of eLearning in combination with blended learning solutions.
- **Accessibility (When, where and whom …)**
  eLearning should be accessible whenever the learner needs the content in both an asynchronous or synchronous manner. eLearning can take place anywhere through remote access. It can also take place in various environments such as colleges, universities, at work, at home, the local library, or even shopping centres. Educators and learners alike, who want to learn, who have the required competence (technological literacy), and competencies (are inquisitive in nature - 'wanting to know' and self-motivated), can access eLearning.

From the summary it can be seen that eLearning, therefore, has the specific characteristics of **spanning distance, time and space** so that a learner can access any type of learning experience on demand (Rosenberg, 2001).

The following aspects are generally part of eLearning courses:

- **eLectures**: online lectures explaining the crucial concepts or techniques for students to apply in problem solving or discussions.

- **Discussion forums**: online interaction between course participants. The participants can initiate debates or post replies. The discussions can be synchronous or asynchronous.
- **Ask-an-expert**: an online course could have a subject matter expert who can respond to technical questions and stimulate debates.
- **Mentorship**: an online mentor is a professional in a particular subject matter area who provides specific answers to questions regarding the content of the course to individuals.
- **Local learning facilitator or tutor support**: a facilitator or coach that is available for face-to-face interaction when needed by the student.
- **Networked resources**: links to additional relevant reading material to enrich the learning experience of the online participants.
- **Structured group activities**: as part of the total learning process, off-line activities can be arranged to allow learners to interact with each other in a structured way, such as seminars, small group discussions or simulations and role plays.
- **Informal peer interaction**: peers interact informally in a face-to-face manner or online. This allows for informal learning to take place from a different perspective (Hartley, 2004b; NetTel@Africa, 2004; Rosenberg, 2001).

TelliYamamoto (2004) looks at eLearning from a process perspective and states that eLearning requires the following **inputs**:

- information;
- technical equipment;
- a preparatory team;
- teaching specialists; and
- demand for learning …

These inputs are needed in order to deliver the following **outputs**:

- product or service; and
- information or experience …

These outputs represent the **results** at the end of the **execution**.

eLearning in Absa is defined as networked learning that includes aspects such as eLectures, discussion forums, tutor support, coaching and peer interaction. The Absa eLearning environment is contained behind the Absa firewalls, utilizing the company Intranet infrastructure (Korpel, 2002).

The implication for this study:
eLearning represents a networked environment enabled by Internet-like technologies. Learners using this type of learning delivery should be technological literate and self-motivated. With eLearning a boundary-less world opens up to people who want to explore and learn more.

eLearning exists within the **learning world** and is **underpinned** by similar theoretical foundations.

2.6.2. Theoretical foundations of eLearning

eLearning underpins learning with technology. Technology though, can paradoxically both liberate and constrain learners. On the one side it allows the learner opportunities for expression and contribution. On the other hand we are limited to what technology can or cannot do (Heppell, 2000).

In order to **articulate the value of eLearning**, the benefits that eLearning can have for the different stakeholder groupings need to be explored. The Corporate Leadership Council (2001a) suggests three areas of categorisation of eLearning benefits:

1. cost saving factors;
2. performance improvement factors; and
3. competitive position factors.

The **benefits for the stakeholders** – the company, the learner and the customer – are defined for each of the three areas (Barbazette, 2004; Carter, 2002; Cisco, 2002a; Cisco, 2002b; Docent, 2003;

Forman, 1994; KPMG Consulting, 2001; Levy, 2004; Mayor, 2001; U.S. Department of Agriculture, 2002; Nucleus, 2001; Oakes, 2004; Rosenberg, 2001; Rossett and Mohr, 2004; Swanson, 2002a; Thinq, n.d.; Wick and Pollock, 2004).

- **Area One**: Cost saving factors. The factors that are measured in this area include: revenue impact, cost optimisation and company infrastructure, for example:

  Company benefits: Increased revenue, shorter time to product implementation, increased sales effectiveness, savings in instructor travel time, accommodation, printing, distribution and storing, and leveraging off the company technological infrastructure.

  Learner benefits: Improved performance resulting in potential increased earnings and reduced infrastructure to spend time away from home.

  Customer benefits: Growth in profit through better informed decision making and limiting erroneous investments resulting in loss of money or additional expenditure.

- **Area Two**: Performance improvement factors. The factors that are measured in this area include: retention and transfer of learning, for example:

  Company benefits: Consistently higher learning results can be achieved over traditional learning and increased employee retention.

  Learner benefits: Up to date competence to provide an enhanced customer experience, greater variety of information sources, enables employees to build communities of practice that sustain continuous learning, consistent quality of course content to all learners and improved knowledge retention.

  Customer benefits: Learning opportunities for customers, rapid adoption of new information.

- **Area Three**: Competitive position factors. The factors that are measured in this area include: change, empowerment and diversity, for example:

  Company benefits: Launch of business programs benefiting the customer faster.

> **Learner benefits**: Rapid adoption of new information to improve client service, and more motivated employees.
> **Customer benefits**: Increased client satisfaction, client is also up to date with rapidly changing business practices.

The benefit areas describe how **eLearning attempts to articulates its value** to other stakeholders. Although these benefits are theoretically seen as the way to articulate the value of eLearning, the **stakeholders** still have their **own interpretation** of the measures and there is not always alignment between the different interpretations. For example, **business** traditionally wants an impact on the bottom line[2] expressed in **Rands and cents** value. The **learner** wants to know, '**What's in it for me?**' and the **customer** wants **value for money** (Docent, 2003; Porter, 2001; Rosenberg, 2001).

However, expressing the **actual value of the effect of eLearning** in **business terms** proves to be difficult (Chen, 2001). This problem seems to be compounded by the difficulties inherited from the field of technology in proving its value. Wettemann (2003) states that although there are many frameworks for measurement of technology solutions, few companies are actually able to **precisely express the solution's value add to performance**. Wettemann (2003:2) found that companies based their technology decisions on:

> *Educated guesses, opinion-based research, end-user preference, industry hearsay, executive mandates, and worst of all, ROI[3] estimates provided by vendors*.

Wettemann (2003) further found that even if there was an attempt to define measures, **few companies actually did rigorous benefit or cost tracking**. This leads to a further **inability to express the real-world impact** that the technology solution implemented had on the organisation.

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[2] The term 'bottom line' is used in Absa as describing the end result of business i.e. the profit or loss that the business unit makes at the end of the day.

[3] ROI: Return On Investment

Malholtra (2000) indicates that there is a similar **disconnection** between technology expenditures and the firm's organisational performance in the context of knowledge management.

While organisations acknowledge the **value of learning, and eLearning,** through visible increases in budgets, they also have a **greater need to show accountability** for investments – they require **evidence** that training initiatives bring **tangible benefits** to the organisation (Hall & LeCavelier, 2000; Mathews, 2003; Parikh & Verma, 2002).

In order to understand the **actual value of eLearning** to its stakeholders – business, learners and customers – we need to understand **how to capture** the value.

One of the most acknowledged frameworks to measure learning is the **Kirkpatrick Model** (Stone & Watson, 1999). This model is also used in the eLearning environment. This model measures on four levels (Kirkpatrick, 1994; Human Performance Centre, 2002):

- **Level 1: Reaction** – What did the learners think of the training?
- **Level 2: Learning** – What did the learners learn?
- **Level 3: Behaviour** – Did the learner's behaviour change in the job environment?
- **Level 4: Results** – What changes in productivity and results are observed in the organisation?

According to the 2002 ASTD survey 78% of organisations measure **Level 1,** 32% measure on **Level 2,** 9% on **Level 3** and 6% measure the impact on **Level 4** (Saba, n.d.).

The Kirkpatrick Model has both supporters and detractors. The **supporters** believe that the Kirkpatrick Model is still holistically representative of everything that can be measured in a training intervention (Winfrey, n.d.; Stone & Watson, 1999).

Phillips (1991) however, added an additional perspective to the Kirkpatrick Model – **Return on Investment** (ROI) including a cost-benefit comparison. According to Wegenast (2002) the fifth level ROI is a useful model to **communicate benefits of training** to stakeholders. The addition of a fifth level measuring financial returns is also supported by Kurse (n.d).

ROI is a well known financial measure that can be applied in the broader evaluation framework. However, it provides only **one perspective** of the investment decision and does **not factor in risk or intangibles**. Three data points are needed to calculate the ROI:

1. time period, i.e. 1 year;
2. investment, i.e. software licences, maintenance costs or hardware costs; and
3. return, i.e. sum of costs savings and revenue enhancements gained from implementing the solution (Docent, 2003).

The ROI can be expressed as a **percentage, a ratio, or a time to break even** (Docent, 2003).

Docent (2003) states that ROI is specifically effective in:

- facilitating investment **prioritisation** through supporting investors to make comparisons between investments;
- allowing decision makers to focus on **intangible benefits separately**;
- setting investment screening thresholds;
- providing a **framework** of discipline for vendors and decision makers to ensure that the investment is financially sound; and
- enforcing insight into the **top and bottom line business impact** of the investment.

Kaufman, Keller and Watkins (1995) outline a model similar to that of Kirkpatrick, but use alternative descriptions. They also add a fifth level – **societal consequences**. On **Level 1** they look at a wider context,

defining input in conjunction with reaction. The **input** includes human, financial and physical resources.

One of the **detractors** of the Kirkpatrick Model, Islam (2004), states that the **paradigm of learning measurement** should be changed. In the Kirkpatrick Model, the training designer makes all the decisions, despite initial interviews, about the meaning of the training to the organisation. Islam (2004) further states that there is a supposition on the part of training professionals that:

- *training is exempt from rules that apply to other business processes; and*
- *there are some universal metrics that quantify the effectiveness of every training program.*

These two assumptions tend to **prove false**, as they do not necessarily include corporate goals, culture, audience type and the position of the process in the organisation (Islam, 2004). Islam (2004) postulates that the learning creator should:

- *understand the organisation's business, its business mode and how it makes money in the industry;*
- *speak the language of the business to gain credibility; and*
- *understand the balance sheet and how it relates to business success measures*.

Islam (2004) concludes that **critical business requirements, the voice of the customer and the voice of business should be taken into account when measuring the value of learning programs**.

The implication for this study:
eLearning represents an integration of learning and technology and theoretically represent various benefits to its stakeholders. The stakeholders invest in eLearning based on the benefits. However, they require evidence that their investment is addressing the critical business issues resulting in unproved business requirements.

The research into eLearning focuses on the research highlighting eLearning benefits, failures and challenge, measurement frameworks and alternatives to eLearning solutions.

2.6.3. Research into eLearning

Research indicates that some of the unintended benefits of eLearning include:

- providing a richer environment of information sources;
- encouraging meaningful interaction between different stakeholders regarding the content at hand; and
- bringing people together over virtual boundaries to challenge, support or respond to each other (NetTel@Africa, 2004).

The United States Department of Agriculture (2002) implemented an eLearning pilot that sought to measure **three criteria**. The degree to which:

1. students take advantage of needed training;
2. report a positive experience regarding the ease of use of courses via eLearning; and
3. report that they benefit from learning.

Overall, the pilot met the criteria for success:

- sixty-six percent of the participants took the needed courses;
- students reported a **positive experience** to the extent that they would use eLearning again;
- various **benefits** were reported by both the students and the supervisors, i.e. using skills learnt on the job, including writing, computer skills, better communication and management skills; and
- additional benefits that were reported included the ability to schedule classes conveniently, consistent training for all, convenient locations and less travel time and more time to study, resulting in more thorough responses (United States Department of Agriculture, 2002).

Despite the advantages, **some of the participants were unable to complete the course**. Most of these students cited **busy schedules** and **lack of time** as reasons for not being able to complete the courses. A further reason was **computer-related problems** (United States Department of Agriculture, 2002).

Many training organisations discuss eLearning as a **solution to responding to business needs** (Pope, 2001; Knott & Bailey, 2001; Sanders, 2001). Pope (2001) further states that the eLearning environment was able to emerge due to the **convergence** of three specific elements:

- Demand for **skills to be transferred** in a time-and-cost-effective manner from individual learner and organisational point of view;
- Computer-based training market had **matured sufficiently** to have the necessary financial resources and innovation to address a new opportunity; and
- Technology (the Internet) had **evolved to a point** where it was available to a critical number of users due to cost-effective and user friendly access points (personal computers and browsers) (United States Department of Agriculture, 2002).

Opposing the alternative view on the emergence of eLearning, research conducted by the Corporate Leadership Council (2001a) finds that **accessibility, browser technology and download time** are **limitations** of eLearning. Learners needing **access to computers, Internet or Intranet** in order to participate in eLearning is also perceived as a **barrier to** eLearning (Corporate Leadership Council, 2001a; Ravet & Layte, 1997).

Pope (2001) states though, that the eLearning market has moved to a level of maturity making it **more attainable** and viable for organisations to implement. This is due to three **separate areas of expertise integrating** – content, learning management systems and consulting services (Pope, 2001). Due to advanced Internet technologies, eLearning content can be distributed relatively easily

across geographical, organisational and time boundaries. The matured eLearning environment provides the ability to create, access, and update training material from a single location and easily distribute it across the globe, essentially in real time (Fireman, 2002; Ravet & Layte, 1997).

However, even with the maturing eLearning technologies, the barrier to **access any type of technology-based learning**, including eLearning, is specifically relevant in the South African context where there are several areas without **access to water and electricity** – not to even mention **computers** (Technobrief, 2001). Where computers are provided to schools in rural areas, very little is achieved as the **teachers lack the technological skills** to teach the children. The teachers feel **daunted** by the technology and they are expected to **learn too many skills in too short a time** with little or no after support (Stones, 2003).

According to Mulama (2004) rural **Africa is yearning for Internet** and connectivity but, while there are various plans on the table to enable all people to be connected, most of the **communication infrastructure** in Africa is concentrated in urban areas, where only a handful of people live (Herselman, 2003; Mulama, 2004).

The visionaries of eLearning paint a more hopeful picture for eLearning (Pope, 2001). Technologies are moving towards an integrated platform, quality content is delivered seamlessly and is effectively implemented and tracked effortlessly. This results in organisations becoming learning enablers (Barron, 2002; Lavigne, 2003; Pope, 2001; Ravet & Layte, 1997). Fireman (2002:4) supports this by stating that:

> *eLearning is poised to become a ubiquitous element of all corporate training programs. More than ever the technological pieces of the puzzle are in place to ensure eLearning success.*

However, in terms of **browser technologies**, the current HTML[4] standards allow for **limited integration of content on different platforms**. This implies that companies are locked into a specific supplier. Even though open coding, AICC[5] and SCORM[6] compliance standards are on the table, this is **still a challenge and not quite yet a reality** (Cheese, 2003; Corporate Leadership Council, 2001a; Gordon, 2002; Shackelford, 2002). Gordon (2002) also states that the first major goal to be achieved is a reality of the **plug-and-play interoperability**.

Bandwidth restrictions may impede the download time of training material using animation, audio or video (Corporate Leadership Council, 2001a). This is a specific reality in the South African context where **bandwidth** is not generally available and is monopolised by Telkom. "Both the dial-up services and the digital leased lines offered by Telkom are **very expensive in comparison to those available in 'first world' countries**" (Zomerlust Systems Design, 2003). These high costs of South African bandwidth supplied by Telkom, South Africa's sole supplier, is also seen to impede market growth (Storm, 2003; Thomas, 2003). In terms of ADSL[7], an Internet access technology, there are data **download limitations and download speeds are not guaranteed**. Furthermore, these services are mainly available in the **urban** areas and **not** in the **rural areas** where education is needed (Loewen, 2001; Storm, 2003; Thomas, 2003; Weideman, 2004; Zomerlust Systems Design, 2003).

Bandwidth for learning in Absa is also an issue. Firstly, the total bandwidth is governed by Telkom and secondly, the **bandwidth is prioritised within Absa**. Priority is given to **business transactions**. Thus a very small percentage of bandwidth is allocated to eLearning (Conversation with Karin Hamman, Manager: Shared Systems, 23 March 2004).

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[4] HTML: Hyper Text Mark-up Language

[5] AICC: Aviation Industry CBT (Computer Based Training) Committee

[6] SCORM: Shareable Content Object Reference Model

[7] ADSL: Asymmetric Digital Subscriber Line

According to Permalink (2003), there have been three generations of eLearning, each making vast promises and each failing so far, to meet expectations. The reasons for categorising **the first generation** of eLearning as a failure are listed below.

- eLearning solutions concentrated on the **how** rather than the why – the **technology was more exciting** than the contribution to business performance. Not enough attention was paid to **economics**. There was a lack of understanding of where eLearning could add value, the scale of economics and the costs involved.
- The definitions of eLearning as a learning strategy were too narrow, stating that the **content could just be put online**, giving no attention to the overall learning experience. Existing training programs, based on different learning strategies to that of the philosophy of eLearning, such instructor lead training in a classroom, were **put behind glass**.
- The learner was not taken into account, the instructional designers did not adhere to **adult learning principles** and so the learners did not come. **Integration** was lacking from an organisational, learner and content point of view. eLearning was seen as a **point solution** with no integrated outcome.
- eLearning was implemented **without change management** (Permalink, 2003).

The **second generation** of eLearning looks very much like the first. There is some movement in creating learner experience (back to adult learning principles), blended learning and the realisation that it is about people – the learner. However, eLearning was **still failing** to deliver on the organisational contribution promise.

The **third generation** of eLearning sees the focus moving to execution – **focusing on doing** and making the promise real (Permalink, 2003). Mayfield (2001) states that today the eLearning market continues to grow but at a much slower pace.

Driscoll (2002) finds that the 'generation one' mistakes can still be seen. "**Death by overhead** refers to the experience in which learners are subjected to one-way information dumps … referred to as training" (Driscoll, 2002:1). This **death by overhead has also gone online** turning virtual classrooms and asynchronous self-paced programs into electronic overhead page-turners, the excuse being that trainers are busy, it is faster to make slides than to design eLearning and it is a familiar format (Driscoll, 2002).

So, the problems common to bad overheads in classrooms have been transferred to the online eLearning environment and are being compounded by technological constraints of the WWW. Illegible and too many slides, irrelevant animation and an overall lack of design contribute to the '**Virtual overhead death**' - contributing ultimately to the eLearning death (Driscoll, 2002).

Metacourse (2001) states too many eLearning vendors are **delivering courses rather than building sustainable learning communities** with the ability to construct their own knowledge and skills. In addition, the eLearning courses stress the **memorising of facts**, testing with multiple choice questions, rather than having learners acquire their new knowledge and skills as part of **collaborative online projects**.

Contrary to the benefit of eLearning – any-time-anywhere – research shows that training on a global scale is **slow to reap benefits, due to cultural and technological barriers** (Corporate Leadership Council, 2001a). The Corporate Leadership Council (2001a) further indicates that the **rate of growth in technology-based training** is slower than in 2000 due to **failures experienced** by companies.

> *Failure of … initiatives and reported poor return on investments (ROI) often stem from the lack of executive support and business strategy and poor design of communication*
> (Corporate Leadership Council, 2001a:13).

Technical skills are intuitively deemed to be more suitable than 'soft skills' for the eLearning environment (Corporate Leadership Council, 2001a). However, training providers want to take advantage of the benefits of the eLearning environment. The interest in the eLearning environment is shown in the growth of online 'soft skills' training (Corporate Leadership Council, 2001a).

The implication for this study:
While research shows eLearning to be **extremely beneficial**, it is complicated to implement, the **uptake is generally much slower** than expected, and it faces significant challenges in the South African context. Thus the promises **of eLearning benefits might take a while** to realise if it is viewed from the current perspective of financial measurements.

In the **current way of thinking about of measurement**, where non-financial measurements are not commonly acknowledged, eLearning is regularly put under pressure to prove a 'Return on Investment' (Corporate Leadership Council, 2001a). While vendors and eLearning supporters provide absolute proof of ROI, companies implementing eLearning have severe difficulties in reporting ROI because basic measures prior to implementing technology solutions were never calculated for comparison purposes (Corporate Leadership Council, 2001a). Chen (2001) reports a similar trend where supporters of eLearning and eLearning vendors claim various successes with regards to eLearning implementations (Chen, 2001).

As a result, Chen (2001) designed a framework that evaluates and **rates eLearning ROI success claims**. The framework is theoretically based on the combined measurement models of Kirkpatrick (1994) and Phillips (1991). The model is tailored to eLearning. A **low rating** indicates that eLearning as a solution has been implemented, but it does not measure the effectiveness of the implementation. A higher rating, **towards 5**, indicates demonstrable business impact (Chen, 2001). The rating descriptors are listed below.

1. User adoption of eLearning.

2. User learning or satisfaction.
3. Gross savings in cost or time.
4. ROI: Net cost savings.
5. Gross increases in revenues.

Additionally, just as with the move towards non-financial measures in business performance, companies should also look at the intangibles such as competitive position and customer satisfaction to determine the value of eLearning (Corporate Leadership Council, 2001a). According to Barron (2002), the key driver of the eLearning demand seemed to be cost savings. However, many companies seem to have realised that long term benefits such as, **increased productivity, improved employee retention or a more agile and competitive organisation**, is more important. Carter (2002) and Cisco (2002b) also state that the driver for eLearning programs are becoming more aligned with organisational goals and customer needs, rather than cost savings.

The implication for this study:
When moving away from the first generation eLearning benefits of cost savings, the expression of the eLearning value-add becomes more complex. However, there are many vendors and eLearning evangelists touting the value of eLearning to organisations. Chen (2001) provides an evaluation tool to differentiate between what is real and value-added.

According to Van Diggelen and Du Plessis (2003) almost everything has been 'e'-enabled in the last few years. Even the most human aspect – learning – has been touched by 'e'. Although eLearning has significantly advanced the learning theory, development and dissemination, Van Diggelen and Du Plessis (2003) feel that there is **still significant value in the change and learning principles pushed aside by technology.**

Play is traditionally seen as part of the world of children, but in the unique circumstances of South Africa, **play has become a strategy** to **bridge the gap in skills and requirements**. Industrial theatre is

uniquely applied in South Africa to **achieve business related goals**, influence mindsets, beliefs and behaviour patterns, and as a transformation mechanism to reduce resistance to change. Industrial theatre conveys complex issues in an entertaining and simplified matter (Van Diggelen & Du Plessis, 2003).

Challenges facing play as a learning strategy is that it is not **geographically tolerant** and that it is not a mass medium that can be used to influence great numbers of people **quickly**. The other problem is the relevance of a generic theme in a **culturally diverse nation**. It also does not provide people with necessary know-how and skills viewed as critical in the new world of work (Bryce Heath, 2000).

Another learning strategy under discussion in the theory and practice of adult education, informal education and life-long learning, is **experiential learning**. This term is used to describe two types of learning 1) a direct encounter with the phenomena being studied; and 2) education that occurs as a direct participation (Smith, 2004a).

Smith (2004a) however **highlights some problems** with experiential learning:

- experiential learning does not allow for a process of reflection;
- the model does not take different cultural experiences and conditions into account;
- learning is seen as a mechanistic step-by-step process contradictory to the reality of thinking;
- empirical support for the model is weak; and
- the relationship of learning process to knowledge is weak.

Cheese (2003) suggests that rather than looking at different learning strategies and media in isolation, a **mix of what is best for a learning experience** at any given time should be considered. Cheese (2003) defines **blended learning** as “a continuous process of job experience, knowledge gathering, guidance and counselling, with reinforcement and performance feedback”. Oakes and Green (2003:17) state that “… blended learning has been the **most overused buzzword** in the

learning industry over the past couple of years." In fact, training has been blended for years as, technically speaking, any combination of delivery methods is a blended learning solution. The line therefore between formal learning interventions and continuous learning experiences is becoming more and more blurred.

The Corporate Leadership Council (2001a) also indicates that classroom and technology training – including eLearning – should not be seen as mutually exclusive. Companies need to balance the two methods of training by combining the most appropriate medium with the most appropriate topic of learning.

> *The merging eLearning model blends online learning for information transfer and procedural skills training with classroom training for role-plays and face-to-face discussions* (Corporate Leadership Council, 2001a:10).

The implication for this study:
eLearning is **not the exclusive answer** to build organisational competence. The **aim of all learning** – eLearning, pLearning[8], bLearning[9], experiential learning – is to **align with organisational goals** to create **competent individuals** that will contribute to business performance. All learning strategies have weaknesses and strengths. In this study, the focus is on understanding the strengths and weaknesses of eLearning and how it aligns with business requirements.

Policies regarding eLearning add another perspective to the understanding of how eLearning contributes to business performance.

2.6.4. Policies regarding eLearning

The realisation of eLearning created **various unique policy issues.** The issues range from financing of courses to ownership of content (Edutools, 2004).

[8] pLearning: play learning

[9] bLearning: blended learning

In the **Netherlands**, eLearning is not documented in a separate policy. eLearning is referred to as part of the general educational policy. They specifically refer to eLearning in their 'Life-Long Learning' policy (Baak, 2003).

In the **United Kingdom (UK)** extensive research was done with various eLearning projects. These sometimes maverick projects illustrated their worth by allowing the educational sector to seize specific opportunities (Heppell, 2000). In order to move the educational policy to adopt the lessons learnt from these innovative projects, better measures of educational progress were needed. These measures had to focus on three aspects:

1. keeping track of educational progress;
2. allowing people to learn from the experience throughout the process rather than just experiencing the end results; and
3. allowing creativity to be valued above predictability. This allowed for different learners using different ways to reach the same results (Heppell, 2000).

Finally Heppell (2000) suggests that the UK should update their technology infrastructure more aggressively and continuously in order to ensure an innovative learning environment, as technology continually advances.

In **America**, eLearning policies are directly addressed and grouped around the following areas:

- funding;
- intellectual property;
- quality assurance;
- transfer and articulation; and
- tuition and fees (Edutools, 2004a).

Funding specifically includes issues such as:

- financing eLearning courses and programs;

- debating the accountability of the upfront eLearning infrastructure costs;
- distributing of funds to the sponsoring unit; and
- funding formulas of the state (Edutools, 2004b).

Edutools (2004c) defines **intellectual property** as:

> *Any product of the human intellect that is unique and novel and has some monetary value in the market place.*

Intellectual property is traditionally protected in the market place through mechanisms such as copyrights, patents and trademarks. These mechanisms allow the intellectual property-owner to decide who may access and use their property. It further protects their property from abuse and illegal application (Edutools, 2004c).

Traditionally, the **content or property owned** by a person has very set boundaries, for example, a book, inventions or software programs. The eLearning environment allows for more diverse learning environments where learners create their own courses and participate in online collaborative discussions. If an institute decides to resell some of the content to another institution, they are suddenly faced with questions of content ownership (Edutools, 2004c).

Quality assurance ensures high performance and academic rigor. It can include benchmarks, continuous improvement and adherence to quality standards (Edutools, 2004d).

> *Quality assurance in eLearning has been of paramount concern for institutions nation wide* (Edutools, 2004d).

Quality assurance policies provide guidance to new eLearning programs. They also serve as an evaluation of quality control tools for current courses. The quality assurance process includes standards on how courses can be evaluated and how new programs can be approved. It determines how the students learning is measured, how the learning is accredited, or the course structured. **Quality**

assurance further ensures that the eLearning environment represents as good a challenge as the classroom environment (Edutools, 2004d).

The policy cluster area for **transfer and circulation** focus on creating a common understanding about credits for courses between institutions. The cluster area also looks at where the talent is offered and how the students' knowledge is accessed for admission purposes (Edutools, 2004e).

The policy area **tuition and fees** represent decisions and standards around what institutions charge for online courses and what services the payment include when dealing in the online environment (Edutools, 2004f).

In **South Africa**, the quality standards of content and qualifications are protected by the South African Qualifications Authority (SAQA). SAQA prescribes the requirements for the inclusion of content for specific levels of learning (SAQA, 2004). The quality standards are focused on content rather than eLearning as a delivery mechanism (SAQA, 2004).

The implication for this study:
eLearning stakeholders world wide face similar policy issues. The eLearning **maturity** in a specific environment seems to influence how much attention is given to specific eLearning policies versus inclusion of eLearning in general learning strategies. The typical areas that are influenced by policy can be summarised as **financial, content, quality, intellectual property and costing models** for eLearning courses. However, in the quest to articulate eLearning value to business, one must be careful not to overstep the policy boundaries, for example selling content that was created as part of learner dialogue.

eLearning is adopted as a learning medium world wide with various levels of success. The current practice including successes, challenges and lessons learnt, is discussed next.

2.6.5. Current practice with regards to eLearning

> *Sometimes the space between adoption and denial is measured in decades, sometimes in months. What is clear is that between those two phases lies opportunity. It is that space in which real progress is made and where we find the relatively few organisations exploring eLearning, developing the concept in a rapid and arguably submersive way* (Heppell, 2000).

Thus, Heppel (2002) implies that we need to learn from our mistakes in order to explore and improve what we know about eLearning.

Case studies and companies reveal **various problems and challenges with the implementation of eLearning** (Carter, 2002; Coné and Robinson, 2001; Fireman, 2002; HRD Group Ltd (UK), 2003; Osberg, 2004; Tanquist, 2001).

Implementers of eLearning **assume that the uptake of eLearning** will automatically happen. This assumption leads to **unrealistic expectations** and, ultimately disappointment when the uptake levels among employees fall below expectations. The slow uptake baffles

senior management and eLearning champions alike (Carter, 2002; HRD Group Ltd (UK), 2003; Osberg, 2004; Tanquist, 2001).

One of the reasons is that people **resist any change** – even positive change – for many reasons. In some cases, learners view **eLearning as a threat** that will take away their traditional classroom or instructor-led options. In these traditional environments, the learner is allowed to be a passive participant. With eLearning, the learners have to be personally accountable, reaching out to take hold of their own future – this requires much more effort (HRD Group Ltd (UK), 2003; Tanquist, 2001, ASTD and The MASIE Centre, n.d.).

Lack of **motivation of employees** to take advantage of eLearning materials also seems to be a common problem (Fireman, 2002). eLearning implementers fail to understand learners, to invest in people, and to continuously follow up through providing a social support network (HRD Group Ltd (UK), 2003; Carter, 2002). The initial enthusiasm fades quickly, specifically if there is inadequate support in the eLearning environment, or if the reality falls short of the created expectations (Tanquist, 2001).

Companies implement eLearning **without a thorough understanding of the user group** and the learning culture (Tanquist, 2001). Mindsets of company managers hinder the effective implementation of eLearning as they see it as being less effective than traditional classroom training. Managers do not understand or value the integrated approach of using both classroom training and eLearning as a blended solution (Fireman, 2002). Managers can also hinder the process by not allowing employees to experience learning outside their field of work (Carter, 2002). However, in some cases, a poorly designed assessment process does more damage than good if it creates incorrect or supports the wrong assumptions (Tanquist, 2001).

People may also resist eLearning due to a seeming ‘lack of social interaction’. They perceive the environment as cold and impersonal. The flexibility of eLearning cited as an advantage by management is seen by some people as another infringement by the company on their

personal time. The **human resources department might also see eLearning as a threat as they are traditionally accountable for training and development** (Tanquist, 2001).

Failure to **understand the eLearning medium** and the subsequent **technology infrastructure requirements**, for example, bandwidth and a solid network infrastructure in order to scale across large enterprises, can lead to costly mistakes or redundant infrastructure (Fireman, 2002; HRD Group Ltd (UK), 2003; Mayor, 2001). **Software issues**, such as the lack of interoperability between applications (Fireman, 2002) and failure to **integrate** with existing learning and administrative systems, also presents a challenge (HRD Group Ltd (UK), 2003). Market leaders are in the process of **creating standards**; however, individual tools do not always integrate (Fireman, 2002). Many organisations have a distributed training model, while **eLearning requires a centralised, more comprehensive** system and resources (Fireman, 2002).

In some cases the **eLearning solution fails to meet with business needs** (HRD Group Ltd (UK), 2003). This includes the integration of the eLearning environment with the working environment. If this is not done, it leads to a lack of momentum and sustainability of the eLearning programme. It also decreases the transfer of learning to the work environment (Coné & Robinson, 2001; Wick & Pollock, 2004). This problem is further impacted through the difficulty in ascertaining the hard cost and revenue impact to produce credible ROI (Docent, 2003).

Misconceptions of eLearning are one of the major reasons for employees not taking up eLearning. Even if a rigorous communication and marketing strategy is followed, the **message does not always reach the audience**. This could be due to too much hype and oversell from vendors or underselling to the employees about how they can personally benefit from eLearning. This misconception is also enhanced by the, sometimes incorrect, assumption that employees in different disciplines, levels and departments in an

organisation would have the same need and commitment towards the eLearning implementation. This assumption leads to a **blanket approach** being used for eLearning implementation (Carter, 2002).

Poorly designed eLearning that reflects text that was simply put online, is another problem. None of the benefits of eLearning are used and in such cases limited learning occurs. On-the-job performance change is also almost impossible (Coné & Robinson, 2001). Too many companies are 'delivering course materials' rather than cultivating knowledge building communities. This also reflects in the assessment strategies where companies stress the testing of memorisable knowledge with multiple choice questions, rather than letting the learner construct new knowledge and skills as part of a collaborative project (Metacourse, 2001).

The Corporate Leadership Council (2001c) states that eLearning is in some **cases not effective when learners show discomfort with technology**. The legacy of traditional corporate training leads to lack of high level management support and trainers fearing that they will become obsolete as a result of eLearning. In another Corporate Leadership Council report (2002), the ownership that adult learners take for their own learning is also listed as a challenge for the successful implementation of eLearning.

The lessons learnt from eLearning failure inform **strategies for successful implementation of eLearning**. The strategies touch on:

- **people change** enablement (Carter, 2002; Hartley, 2004b; Osberg, 2004; Tanquist, 2001);
- **limited roll-out** strategies (Carter, 2002; Tanquist, 2001);
- alignment with **business objectives** (Coné & Robinson, 2001; Carter, 2002; Corporate Leadership Council, 2001b; Gilman, 2002; Osberg, 2004; Tanquist, 2001); and
- **adaptable eLearning** content (Carter, 2002).

Unisys used various marketing approaches to the different stakeholders ensuring that all people get the **same message** from a

variety of sources on different levels. Every individual coming on board is one step closer to creating the necessary critical mass ensuring the success of eLearning (Carter, 2002). **Cartmore Investment** adopted a more needs-based strategy providing eLearning, where appropriate, as a best solution on a project to project basis. This allowed for the acknowledgement that not all subjects can be covered by eLearning from the outset. The limited roll-out strategy allowed Cartmore to manage **learner expectations** at a more practical level (Carter, 2002).

Nige Howard (cited by Carter, 2002) believes that the **starting point of everything** you do should be aligned with what the business wants to achieve. Howard also suggests that the **role of the human resources personnel should be re-contracted with them in that eLearning does not replace the traditional training role, but rather changes it to online coaching**. In terms of measures, Hall and LeCavalier (2000) found that potential implementers of eLearning should first determine **what managers want in terms of metrics** before they invest a great deal in metrics.

Critical success factors represent **the current leverage points** on which experts advise **eLearning adopters** to **focus**. Various role-players suggest **critical success factors** that will contribute to the success of eLearning initiatives (Fireman, 2002; Carter, 2002; Coné & Robinson, 2001; Corporate Leadership Council, 2001a; Swanson, 2001b; Tanquist, 2001; The HRD Group Ltd (UK), 2003; United States Department of Agriculture, 2002).

Company leaders should be involved in the eLearning initiative to the extent where they also use the tools provided. Swanson (2001b:1) cites Brian Corbett, Air Canada's director of eLearning and knowledge management: "Without executive sponsorship, any project will be lost in the priority list." This concept of ownership is supported by Fireman (2002) and The HRD Group Ltd (UK) (2003).

eLearning should be presented as an **integrated part of the company learning strategy** delivering on the company objectives. eLearning should be incorporated in the total human resources development process, for example, integration into the performance assessment, training needs analysis and personal development plans. Further to this, eLearning should be blended with other training resources, learning methods and corporate learning programs. eLearning should be blended with other learning programs for their mutual reinforcement. The integration of eLearning into organisational processes is a key factor that should also be considered (Fireman, 2002; Carter, 2002; Swanson, 2001b).

eLearning is only **one valuable component** in the human resources toolbox and the processes that lie beneath. It is **unlikely that eLearning on its own can realise a responsive learning organisation**. Fitting eLearning into an organisation's overall business learning, change and development strategy is of critical value. Without this, eLearning becomes an expensive curiosity and potentially an expensive failure (Fireman, 2002; The HRD Group Ltd (UK), 2003).

eLearning in Absa represents **only one of the learning** delivery mechanisms. The delivery mechanisms are integrated at a central point, offering one solution to all business units. It aligns closely with the organisational eBusiness strategy (Absa, 2001).

All employees should have the **necessary equipment, tools, knowledge and skills to leverage the eLearning environment**. eLearning is not only a cheap, fast substitute for face-to-face training. The benefits and limitations that technology brings to learning should be clearly understood and incorporated into the learning design. A solid network foundation is necessary to support a comprehensive application framework, enabling efficient management of complex eLearning programs (Fireman, 2002; The HRD Group Ltd (UK), 2003).

In Absa, **technology is one of the most challenging limitations** that eLearning can face. Only about **33% of the Absa target population has direct access** to eLearning on a personal computer. Employees in the Absa branches have to share a computer or have no computer with Internet capability. The shared computers are usually on the branch manager's desk which hampers the accessibility of the computer. These computers are older models and are therefore also slow and clumsy to operate. An extensive roll-out strategy has been put in place to upgrade all infrastructures in Absa and 'Internet-enable' all employees. It is, however, a costly exercise that will only be completed in 2006 (Conversation with Harry van Staden, Absa Project Manager of the technology enablement project on 12 February, 2004; Conversation with Bev Judd, manager Learning and Development: Design and Development on 15 April, 2004).

The **culture change** should foster a climate that **encourages and supports learning**. A culture should be developed where co-workers support learners during their training time by answering their phones and emails and diverting interruptions. Management commonly **overestimates short-term expectations and underestimates the time and cost needed before the benefits of eLearning can really be obtained**. The return on investment from eLearning comes through an **integrated successful approach** and **not** only from the successful implementation of an **eLearning system** (The HRD Group Ltd (UK), 2003).

Lastly, eLearning should flow from and **be driven by the organisation's business strategy**. eLearning must also be monitored and measured. If an organisation does not deal effectively with human resources processes, **eLearning won't solve it – it will either force a quantum leap or bring chaos** (The HRD Group Ltd (UK), 2003). Fireman (2002) also promotes the creation of protocols and metrics to help assess progress and the value of eLearning initiatives.

The implication for this study:

Lessons have been learnt on different aspects of eLearning, for example people change, failing business requirements, misconceptions of eLearning and poorly designed eLearning. These lessons learnt provide valuable input to future eLearning applications ensuring continuous quality improvement and in some cases prompt us to question our own beliefs and assumptions regarding eLearning.

Furthermore, the lessons learnt regarding **eLearning** and case study successes inform the success strategies advised for eLearning implementations. **Critical success factors** on which eLearning adopters focus on are executive involvement and ownership, integrated eLearning, stable technology infrastructure, cultural change and focused measurement aligned with company objectives. These critical success factors **create focus points** and therefore represent the current **theoretical leverage points**.

eLearning in itself cannot realise benefits without business. Thus, the interrelationship between eLearning and business needs to be explored with focus on how eLearning is measured in business context.

2.7. eLearning improving business performance

2.7.1. Research into eLearning improving business performance

Organisations are increasingly acknowledging people as key to corporate performance and the creation of sustainable strategic advantage. Yet, many still question the **value that specific people management strategies add** to the organisation (Saba, 2001; Voisey, Baty & Delany, 2002). According to Wick and Pollock (2004) learning will only result in **business performance if the learning is transferred and applied in the workplace**. The effectiveness of the learning transfer will then **directly impact on the required measurable** results.

eLearning, based on Internet technologies, is an ideal tool to assist employees in **gaining a competitive advantage in the marketplace**

(KPMG Consulting, 2001; Parikh & Verma, 2002). KPMG Consulting (2001) claims that by aligning learning needs with technological advances, organisations **can obtain significant results through aligning the organisation around its strategic objectives**. This can be done through delivering live or on-demand rich learning content, quickly re-skilling and updating employees and deploying content to widely dispersed audiences at greater speed than traditional approaches, showing substantial cost savings.

Bowers (2003) provides a **different view**, stating that world class organisations are led by people who know that "**measurables such as profit, productivity and customer satisfaction, are the outcome of staff performance, not the cause of it.**" And, the **way to get employees to meet with the business goals is through better leadership and coaching** (Bowers, 2003).

> *Best performing organisations are seeking to understand economics of their own learning initiatives and to leverage that understanding to create the efficiencies and effectiveness that are the hallmark of market leaders* (Saba, 2001:1).

Business owners are therefore aiming to **measure learning results in the same context as business results** and to quantify the return on investment of implementing learning solutions in a **language that is understandable by all participants** (Saba, 2001). Thinq (n.d.) also concurs that the measurement of the ROI of training programs will demonstrate the **value of eLearning in business terms**.

The implication for this study:
Thus, the **responsibility for creating value** from learning lies with the **organisational leadership** and not only with the **training or learning** departments. A **common framework** for the articulation of value and the implementation of the learning solution is required, i.e. what is the leverage point that will improve business performance through eLearning?

However, Wick and Pollock (2004:50) state that **measurement is relative** "… the most persuasive measures depend on the audience and their goals for the program."

McLemore (1996) suggests some strategies to enhance the finance department's image as a valuable business partner. These strategies also seem relevant to the eLearning and business performance environment. Some of the best practices include:

- reporting based on **diverse client requirements**;
- having **online access** to **one place of consolidated data** for managers;
- **automatic identification** of trends and exceptions; and
- reports and commentaries addressing the **future actions** instead of explaining the history.

This type of reporting **becomes critical** when trying to align organisational or divisional requirements with the solutions provided by a learning department. In Absa, this type of reporting for eLearning is urgently required. The current reporting represents mostly historical data, which in most cases cannot even be explained. There is no focus on trends; and diversity of client requests, with regards to reporting, cannot be accommodated (Conversation with Basadifeela Letsoalo, Manager of the Absa People Management Information Management Department, 15 March 2004).

According to Hartley (2004a), learning analytic tools can be used to support the **determination of the learning contribution to business performance**. If implemented correctly, the data is accurate, reliable and current. SAP[10] and People Soft are examples of the tools that can be used to do the analysis of learning data. These tools can be integrated into the business processes of finance, human resources

[10] SAP is a system that allows users to gain powerful tools for self-services, analytics, financials, human capital management, operations and corporate services (SAP.com, 2004). The Human Resources module of SAP has been implemented in Absa. This module tracks the people management products for example, appointments, organisational structure and training statistics.

and business. The data retrieved from these systems should, however, be seen in context of business results as the data in isolation will not provide the necessary links to prove a valuable contribution (Hartley, 2004a).

In Absa the SAP system has been deployed and is destined to be used for the analysis of learning data. This is proving to be a challenge as the data currency on the system is dependant on the ownership of line management to update the relevant learning data. This ownership of learning data is a general struggle in Absa, frequently resulting in incorrect information dissemination (Conversation with Gayle Piek, Head Learning and Development, Absa People Management on 3 August 2004).

According to Voisey *et al.* (2002), one clear area for **improvement is the tracking of relevant metrics**. Given the strategic importance of proving value to the organisation and accounting for investment in people, it is a "deficiency that needs correcting in many organisations" (Voisey *et al.* 2002:5). Gilman (2002) states that the **lack of metrics linking learning activities to business outcomes** makes it difficult to ensure that eLearning contributes to business results. Furthermore, a lot of learning and skills creation happen between people through **collaboration in different communities** who are **not part of formal training**, and therefore **not formally reported** (Gilman, 2004).

Hall and LeCavalier (2000) further state that few companies collect data on exactly how eLearning contributes to business performance. This seems to be due to the complexity of formally assessing eLearning effectiveness at the job performance level. They suggest however, that job performance would be the most effective way to evaluate learning in context of business performance. Berk (2004) also states that the largest gap currently is in conducting the job, business impact and ROI analysis. However, "These are the items that matter most to stakeholders" (Berk, 2004:36).

The implication for this study:

Measurement is relative to the context in which it is applied. Measurement of eLearning and the articulation of its value to business are complicated due to reasons such as:

- **measurements not linked** to outcomes;
- difficulty in defining and measuring the **actual outcome**; or
- the action of learning is **not part of a formal process** and can therefore cannot be tracked.

Despite these difficulties, stakeholders still require an explanation of their investment.

The research towards business performance improvement through eLearning provides a valuable base from which to work. However, there are valuable lessons to be learnt from practice.

2.7.2. Current practices with regards to eLearning improving business performance

Many learning organisations are evolving into pragmatic and business-driven entities. As a result, learning organisations enable more access to upper levels and across a wider range of boundaries in the organisation (Hartley, 2004a). According to Gilman (2002) eLearning aided many of the world's leading organisations in dealing with the enablement of organisational effectiveness.

Hartley (2004a) states that he is concerned about measuring learning in terms of training effectiveness …

> *I hope that one day, the term learning analytics goes away and everyone in organisations will be using business analytics and business measurements to describe the effectiveness of learning interventions* (Hartley, 2004a:20).

Some companies have taken up the challenge to prove the alignment between business performance and eLearning. Examples of the benchmark companies include AstraZeneca, IBM, Cisco, Air Canada, Du Pont, John Deere, Ford, JP Morgan Chase, Hewlett-Packard and the Harvard Business School (Cisco, 2002a; Hall & LeCavalier, 2000;

Harvard Business School Publishing, 2002; KPMG Consulting, 2001; Nucleus, 2001; Wick & Pollock, 2004).

The objectives of the eLearning initiatives ranged from **leadership development** in IBM (Cisco, 2002a) to **practical hands on** training in Johan Deere (Swanson, 2001a). The Harvard Business School addressed the **soft skills challenge**, training managers on **interpersonal communication** skills via eLearning (Harvard Business School Publishing, 2002). AstraZeneca created a **coaching culture** through eLearning (Wick & Pollock, 2004).

Examples of the **types of measures** that were used in these benchmarked studies are:

- Return on Investment (ROI);
- Payback period (years);
- Net Present Value (NPV);
- average yearly cost of ownership;
- savings on instructor time, travel time and accommodation;
- increased customer satisfaction; and
- Improvement in business results (Galahan, 2002; Hall and LeCavalier, 2000; Nucleus, 2001; Swanson, 2001a).

These measures are as much focused on revenue creation and productivity as cost savings. It indicates that the measures are therefore becoming more balanced. However, even though the measures are looking wider than cost savings, they are **still focused on financial measures** and non-financial measures are visibly absent.

Examples of the **benefits reported** in the benchmark studies are listed below:

- Cisco, who saved an excess of $100 000 per year in instructor time, countless hours of the course participants' time and 40% - 60% in training costs.
- IBM, who reported benefits on direct savings such as reduced travel and reduced cost of content deployment and indirect benefits from increased manager productivity. They also

reported that in the long term, managers could make sustained behaviour changes that lead to **significant business performance improvements**.

- John Deere, who reported a significant increase in customer satisfaction (Cisco, 2002a; KPMG Consulting, 2001; Nucleus, 2001; Swanson, 2001a; Wick & Pollock, 2004).

From the **case studies** it can be seen that the most successful eLearning initiatives had the following attributes:

- focused on solving a specific business problem;
- measures for the specific problem were defined upfront and reported on afterwards. Both direct and indirect measures were used;
- specific content was matched to a targeted audience;
- eLearning alternated training to be an ongoing process instead of a once-off process; and
- care taken to ensure that the results are there (Cisco, 2002a; KPMG Consulting, 2001; Nucleus, 2001; Swanson, 2001a; Wick & Pollock, 2004).

While the case studies documented in the literature illustrated the possibility of measuring contribution to business performance, the case studies seemed like **once off silo** projects, as there was limited evidence that similar measures were used and tracked on all other learning programs in the relevant organisations. The measures seemed to **support the pattern** of business in terms of only reporting **financial items** and not necessarily addressing the value of human capital growth. (Hall & LeCavalier, 2000).

Berk (2004) reports a move in the learning industry towards **reasonable quantitative and qualitative measures**, as opposed to highly statistical measures. Given the time, money and effort it takes to design and implement precise measures, it seems as **if executives prefer less accurate but timeous measures to make decisions** (Berk, 2004).

The implication for this study:
eLearning has proved to contribute to business performance in several case studies. When comparing the case studies to the rest of the organisation, it seemed as if the measurement of the business performance contribution was isolated and that the discipline was not part of the holistic system of the case study companies. The measures were also mostly financially focused rather than balanced with non-financial measures.

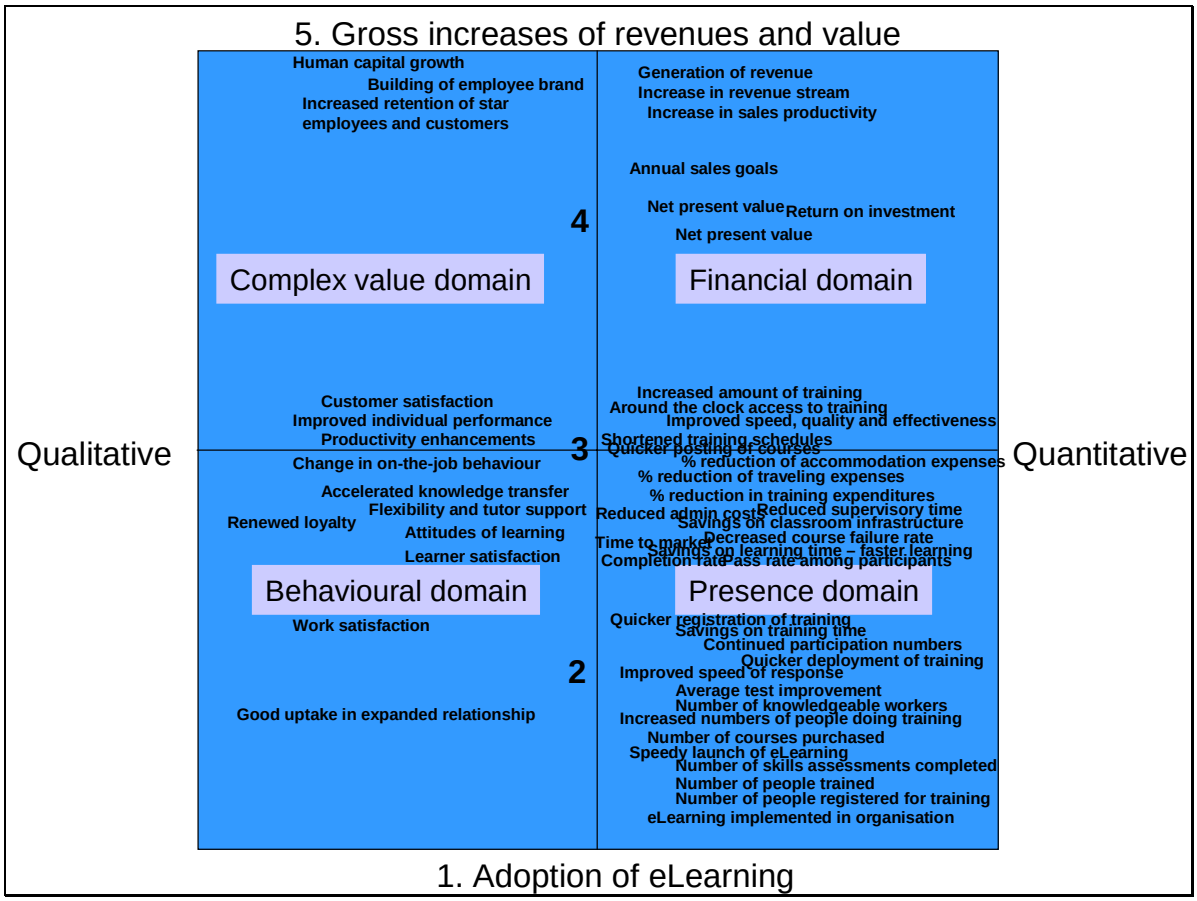
Various debates exist around business performance, how it articulates value and how eLearning potentially could deliver on this expected value. However, **there still seems to be an undefined gap that accurately articulates and directs the value creation of eLearning in business performance.** The question is how does the literature contribute to the intellectual puzzle of the point of value creation?

2.8. Point of value creation

The information in the literature mostly indicates that measuring the value that eLearning adds to business performance is a complex process that is not generally applied. However, investors in eLearning make a **definite request** that this **value should be unlocked and articulated**. Most of the solutions focus on quantitative solutions in the **less complex areas** (Barron, 2002; Berk, 2004; Hall & LeCavalier, 2000; Hartley, 2004; Kirkpatrick, 1994; Mathews, 2003; Sribar & Van Decker, 2003; Werner, 2003).

Figure 2.3 is a diagram representing a **collective view** of measurements that authors suggest to be implemented in order to prove the contribution of eLearning to business performance. The **x-axis** of the diagram represents the scale '**qualitative vs. quantitative**'. The **y-axis** of the diagram represents the **complexity of the measurement** implementation. This complexity categorisation is based on the framework designed by Chen (2001).

Figure 2.3: A representation of the collective view of eLearning measures



The '**Presence**' domain focuses on **quantitative** measures about the availability of eLearning, whether the learners are happy with it, and whether they have learnt something from it (Kirkpatrick, 1994). These types of measures could be implemented via 'smile sheets' or multiple choice questionnaires. From the 'Presence domain' on Figure 2.3, it can be seen that most measures implemented by companies in the literature fall in this domain.

The '**Financial**' domain represents **quantitative** measures about the bottom line of the company, i.e. whether there was a **quantifiable business impact**, on the increase in sales figures, or an ROI figure. While these measures are complex to measure, it represents the financial side of the scale not taking into account the non-financial measures. From Figure 2.3 it can be seen that this domain has fewer measures than the 'Presence' domain, and about the same number of measures as the 'Behavioural' domain.

The '**Behavioural**' domain represents **qualitative** measures on the acceptance of eLearning in the organisation, the attitude of learners towards eLearning and the displayed behavioural change on-the-job. From Figure 2.3 it can be seen that this domain has less measures than the 'Presence' domain, but more than the 'Complex Value' domain.

The '**Complex Value domain**' represents **qualitative** measures regarding the value that eLearning adds in the organisation, for example increase in human capital, employee brand or employee retention. These measures are complicated to describe and are **mostly part of a bigger systemic chain** of reactions. The difficulties in isolating measures contribute to the complexity of measurement in this domain. From Figure 2.3 it can be seen that this domain has the least measures. This is in line with literature where people feel secure when eLearning value is articulated in terms of financial results, but become less secure when non-financial values are added to the picture.

In order to **reduce the complexity of the 'complex value-add' domain** and to further the value-add of eLearning to business, the researcher proposes that a **leverage point**, is found. This **leverage point can be used to articulate and influence the contribution of eLearning to business performance**.

Therefore this research study will focus on the …

Identification of a leverage point that will enhance business performance through eLearning.

Due to increased investment in eLearning, business stakeholders require eLearning role-players to provide evidence of eLearning contribution to business performance (Berk, 2004; Cisco, 2002a; KPMG Consulting, 2001; Saba, 2001; Snyder, 2004; Thinq, n.d.; Wick & Pollock, 2004). The determination of eLearning contribution to business performance is **one of the top three issues affecting the learning industry** – "… the need for employees to produce demonstrable, strategic business results and show ROI in learning" (Saba, 2001:3). A similar sentiment is expressed by Daniel Peterson from GlaxcoSmithKline (cited in Wick & Pollock, 2004):

> *Electronic learning tools are changing and will continue to change the way we communicate and learn. Electronics technologies have already remoulded most businesses and human service activities into more productive, customer service oriented enterprises, and they are starting to become more critical to schools* (Salisbury, 1996:6).

These citations contribute to the argument that a leverage point is needed.

However, these electronic learning tools have **only showed the promised benefits when they were implemented as part of a bigger system** (Salisbury, 1996). "Automating the old processes produces little, if any, positive effect" (Salisbury, 1996:6). This is why instructional technology (or, in this study, eLearning) must be viewed as part of a larger strategy that includes a total system (Salisbury, 1996), i.e. eLearning improving business performance.

Based on the fact that there is an absence of eLearning links to business performance in the qualitative-complex domain (as shown in Figure 2.3), the researcher suggests that the problem should be **approached from an alternative perspective**, i.e. the problem should be studied in context of the holistic system or systemic point of view. McLagan (2004) states that even though there are isolated case studies showing links between business performance and eLearning, there is **no information on cause and effect**.

Systems Thinking allows the researcher and participants access to individual and collective behaviour **embedded in a natural world** where they live and interact – and therefore in the context where the measurement will be implemented. The ability to access **realistic scenarios** makes the Systems Thinking approach ideal to access the behaviour embedded in the **Absa world of business and eLearning**. Systems Thinking as a research approach will be motivated as a research philosophy in Chapter 3. However, the Systems Thinking approach also contains specific activities that **influenced the design of the research objectives**. The concepts, theory

and application of Systems Thinking will therefore be discussed briefly in order to **create context** for the **research objectives** and **subsidiary questions**.

2.9. Systems Thinking

Problems can be solved from many perspectives. Problems can be seen as **bounded** – specific contained and isolated variables – and **unbounded** – variables seen as part of a bigger system and cannot be isolated or contained (Strumpher, 2001). Traditionally most problems were viewed from a **mechanistic** or bounded point of view, discounting the systemic relationships of variables (Anstett & Swenson, n.d.; Banathy, n.d.; Strumpher, 2001; Tanji & Kielen, 2003).

The **mechanistic approach** to problem solving is specifically relevant in situations such as science or mechanical engineering. A set of clearly defined variables can be manipulated as part of an experiment and the behaviour of the variables can be tracked (Anstett & Swenson, n.d.; Strumpher, 2001; Wells, 2003).

However, the traditional way of problem solving is in some cases limited when dealing with **recurrent, complex or novel** problems. The turbulent 1990's required problem solvers to think differently about how they solved problems, and to find new ways of understanding problems, while avoiding the pitfalls of traditional thinking (Anstett & Swenson, n.d.; Aronson, 1996; Banathy, n.d.; Frey, 2003; Tanji & Kielen, 2003).

Thus, in all research projects there are complexities regarding **how the research is conducted** and, in particular "… how the framing of the research reconciles the conflicting priorities of the production of research findings that transcend the immediate context of the research while also being conducted in ways that are consonant …" with the principles and guidelines of the phenomenon at hand (Wiliam,2000:1).

Churchman (1971) distinguishes between five types of inquiry systems. These are the Leibnizian, Lockean, Kantian, Hegelian and Singerian Inquiry Systems. The **Leibnizian Inquiry** System focuses on the logical relations between the elements (Churchman, 1971). This inquiry system is closed with

a "set of built-in axioms that are used along with formal logic to generate more general fact nets of tautologies" (Courtney, Croasdale & Paradice, 1998:1). The primary source of evidence is **rationality and reason** (Wiliam, 2000).

Lockean Inquiry Systems are experimental and consensual. The empirical information is gathered from external observations. This information is then used to build a representation of the world. The primary source of evidence for the Lockean Inquiry System is **empirical observation** (Churchman, 1971; Courtney *et al.* 1998; Wiliam, 2000).

The **Kantian Inquiry** System is a mixture of the Leibnizian and Lockean inquiries combining theoretical and empirical components (Courtney *et al.* 1998). Wiliam (2000) states that this inquiry system is specifically relevant as those with "… different theories will observe different things in the same setting, but are the result of the interaction between the brute physical world and the theories held by observers".

The **Hegelian Inquiry** System attempts to do theory building by reconciling two or more rival theories through the development of mutually inconsistent theories (Wiliam, 2000). Churchman (1971:177) summarises the differences between the Lockean, Kantian and Hegelian inquiry systems as:

> *The Lockean inquirer displays the 'fundamental' data that all experts agree are accurate and relevant, and then builds a consistent story out of these. The Kantian inquirer displays the same story from different points of view, emphasising thereby that what is put into the story by the internal mode of representation is not given from the outside. But the Hegelian inquirer, using the same data, tells two stories, one supporting the most prominent policy on one side, the other supporting the most promising story on the other side*.

The fifth inquiry system – **Syngerian Inquiry** – focuses on inquiry from a systemic point of view, questioning assumptions and beliefs that a system embodies. There is no solid foundation. Instead of focusing on what '**is**', the inquiry moves towards '**what ought to be'** (Churchman, 1971; Wiliam, 2000).

In this study the focus is on what **'ought to be', based on the assumptions and beliefs of the participant in the 'system' (study)**. Due to the required sensitivity to 'meaning' from the stakeholders' point of view, it seemed as if there was a greater overlap between the requirements of the study and the Singerian Inquiry rather that the more factual 'is' inquiry systems. Systems thinking is based on the Syngerian Inquiry (Landman, 2000; Strumpher, 2001).

Senge *et al.* (1994) state that in order for organisations to gain and maintain a competitive edge, they need to go though a **continuous process of renewal,** and therefore have a **learning capability**. One of the ways for organisations to continuously learn is to view the organisation as an inquiry system, i.e. "**systems whose actions result in the creation of knowledge**" (Courtney *et al.* 1998; Landman, 2000; Strumpher, 2001). According to Courtney *et al.* (1998),

> *Learning occurs by improving actions through better knowledge and understanding, encoding inferences from history into routines that guide behaviour, and develop insights, knowledge, and associations between part actions, the effectiveness of those actions and the future actions*.

In order to learn more about the research question (and problem) a systemic inquiry was designed (Courtney *et al.* 1998; Kurti, n.d.). In the **systemic inquiry**, a wide range of approaches, methods, and tools are available from which to select, based on the type of system, the purpose and nature of the inquiry and the specific phenomenon at hand (Banathy, n.d.; Senge *et al.* 1994).

2.9.1. Concepts, terminology and definitions of Systems Thinking

Systems Thinking can be seen as a powerful **universal language** changing the ordinary way we think and converse about **complex issues**. In this section, the focus is on creating **shared meaning**

regarding the concepts, terminology and definitions of Systems Thinking. The shared understanding will allow readers to have a **greater participation** in feelings and thought throughout this study (Innovation Associates, Inc., 1996; Maloi, 2002; Salisbury, 1996; Senge *et al.* 1994; System Dynamics Society, 2002).

Salisbury (1996:23) defines **Systems Thinking** as:

> *… the **way we think** about a **problem**; the way we understand the world; the way we characterise and describe a problem. To apply Systems Thinking to a problem means that we think about the problem as a **system**.*

Senge *et al.* (1994) add that Systems Thinking consists of a set of tools, methods and principles that can all be used to **discover and articulate** the interrelatedness of forces within a system. Innovation Associates, Inc. (1996:2-6) provides the following perspective about Systems Thinking:

> *… developing the capacity for **putting pieces together** and seeing the **wholes**.*

A **system** can be defined as a perceived 'whole' consisting of a group of parts or components working together and influencing each other as a functional unit over time. The parts work together according to a specific plan and towards a common goal (Innovation Associates, Inc., 1996; Salisbury, 1996; Senge *et al.* 1994).

The **structure** of the system is dependent on how the researcher and the participants in the research 'construct' the system from their point of view. **Systemic structures** are often seen as **invisible until people point them out**. The structure represents a **pattern of interrelated relations** among the elements of a system. It includes various perspectives such as hierarchy process flows, attributes and

perception, and the quality of products (Innovation Associates, Inc., 1996; Salisbury, 1996; Senge *et al.* 1994).

Systemic describes the way that the elements of a system interact with each other and with the larger system within which it exits. It describes the **interconnectedness** and complexity of the system and implies that if something is done to one part of the system it will initiate change in the **whole** system. No one part of a system can ever be **isolated** from the bigger whole (Salisbury, 1996; Senge *et al.* 1994).

All systems have **boundaries** that describe a **unique collectiveness** of the elements functioning in a systemic relationship. These boundaries become important when understanding how different systems influence each other (Salisbury, 1996; Senge *et al.* 1994; Tanji & Kielen, 2003).

Leverage in a systemic context can be seen as the concept where specific element/s of a system have a **large influence** on the holistic system by even the smallest action. This implies that change in the right place can lead to lasting and **significant improvement** (Salisbury, 1996). Senge *et al.* (1994) labels this type of inflection point as **a leverage point**.

Mental models can be described as the beliefs, assumptions and models that people have about themselves, others or their organisation in relation to the world (Innovation Associates, Inc., 1996). Mental models play an important role during a Systems Thinking process as they influence **how the individual sees** the underlying structure of a system. The mental models of individuals are enacted through the behaviour that the individuals display (Salisbury, 1996; Senge *et al.* 1994). Senge *et al.* (1994) also describe mental models as the **internal pictures** that we carry about the world that influence our actions and the decisions we make.

A **Systems Thinking Diagram** is a tool that supports us to see the underlying structures of events and patterns (Salisbury, 1996). The diagrams consist of the following:

- variables; and
- arrows (Strumpher, 2002; Salisbury, 1996; Senge *et al.* 1995).

The **arrows** are used to show **cause and effect relationships** among the variables. The Systems Thinking Diagram can also be called a "feedback loop diagram" or "causal loop diagram" (Innovation Associates, Inc., 1996; Senge *et al.* 1994). Gharajedaghi (2004:2) states that a "set of interdependent variables forms a circular relationship". The variables co-produce each other. The co-producers cannot be studied in isolation, but need to be approached holistically in order to understand how each variable is related to the others. These circular relations require an **iterative inquiry** (Gharajedaghi, 2004).

Strumpher (2001) utilises the causal relationships in the problem analysis to determine the driver problem. The resulting systems diagram is described as a **digraph**. The driver problem is therefore the leverage point in a system of problems. Removing this driver problem will influence the system the most.

The first premise of the Singerian Inquiry is the establishment of a **system of measures**. The measures can be transformed and compared, where appropriate. The **measure of performance** is the degree to which differences between the opinions of members in a group can be resolved by the designed measuring system. The Singerian Inquiry therefore provides the "capability to choose among a system of measures to create insight and build knowledge" (Courtney *et al.* 1998). The **system in focus (SIF)** describes the purpose of the system that 'ought to be' (Strumpher, 2001).

The implication for this study:
In order to define a **leverage point**, the **Systems Thinking Diagram** needs to be drawn. In order to define the Systems Thinking Diagram,

the **stakeholders**, **measures of performance** and the **co-producers** of the measures of performance need to be defined. The stakeholders are defined in terms of the **system in focus** and the system in focus is defined based on the **problem that needs to be solved**.

The field of Systems Thinking was founded in the theory of systems dynamics.

2.9.2. Theoretical foundations of Systems Thinking

J.W. Forrester initially articulated the field Systems Dynamics. He included three main interests based on System Dynamic Society:

- The Systems Dynamics National Model;
- Management Education; and
- System Dynamics as a methodology for giving cohesion, meaning and motivation (System Dynamics Society 2002).

In this study, the System Dynamics Methodology forsters the emergence of **cohesion, meaning and motivation for the value of eLearning to business**. This understanding of the value of eLearning to business will lead to the identification of a leverage point that will support the Absa Learning and Development Department to optimise the inter-dynamics of business and eLearning. This leverage point becomes very relevant in the new economy where, according to Gates (1999), business happens at the speed of thought.

Systems Thinking has gone through **three generations** of change from **operations research** to **cybernetics** to **interactive design**. This evolution was due to a response to challenges in the socio-cultural systems (Banathy, n.d.; Gharajedaghi, 2004). The **purposes** of Systems Thinking are to:

- discover the **systemic structure behind problems**, i.e. to understand the deeper structure of the problem in order to provide business the opportunity to influence events and patterns in their favour;
- tell compelling stories that describe how the system works;

- foster **team learning**; and
- identify higher leverage interventions (Innovation Associates, Inc., 1996; Salisbury, 1996; Senge *et al.* 1994).

Salisbury (1996) proposes that the following **characteristics** of a system be described in order to give meaning to the system:

- the **purpose of the system;**
- **performance measures** of the whole system;
- the system's environment –t the constraints within which the system operates;
- the resources of the system (time, money and people);
- the components of the system – their **activities, purposes** and measures of performance;
- the management of the system;
- the clients of the system; and
- the **stakeholders** of the system.

The implication for this study:

In this study the **systemic structure** behind a problem is **expressed** through the systemic thinking **diagram**. The diagram is created through understanding and capturing the stories told by learners and designers exposed to Absa eLearning. The purpose of the system is expressed in the '**system in focus**' statement. The performance measures are defined for specific stakeholders, clients and management of the system. Thus, the concepts and definitions, purposes, and characteristics of a system inform the **research objectives and subsidiary questions** to be asked.

Senge *et al.* (1994:91-92) lists **six aspects** that can be expected when practising Systems Thinking. These aspects guided the design of the Systems Thinking approach in this study. The aspects are listed below.

1. "There are no right answers". System dynamics illustrate the **interdependencies within a current system** from a specific point of view. Thus, if the point of view is changed, the resulting interdependencies will differ.
2. "An elephant cannot be divided in half". A system cannot be divided into loose standing parts. The **power lies in the collective** – in how the whole 'hangs' together.
3. "Cause and effect will not be closely related in time and space." **Leverage does not lie near to the symptoms of the problem**. The root cause must be identified, taking the unexpected into account.
4. "You will have your cake and eat it too – but not all at once." When looking at the whole system, the time delays between the cause and the effect should be taken into account. This will only become apparent when the system is continually examined over time.
5. "The easiest way out will lead back in." People want to work with the more obvious events and trends that are visible above the water line. Observing the events and trends however, do not change the deeper underling structure of beliefs and assumptions where the biggest amount of change and value lie. **Leveraging off these beliefs and assumptions will increase effective change.**
6. "Behaviour will grow worse before it grows better." Understanding the deeper structure of the system can lead to **members of the participating group to despair as it points out vulnerabilities, limited understanding and failures of the past**. It does, however, on the positive side, provide a platform for discussion between previously explosive parties. The awareness that there are possible solutions and that the different stakeholders can all participate in reaching this

positive status can lead to a sense of hope for effective change.

The implication for this study:
The behaviour of people directly influences the outcome of Systems Thinking. The behaviour of individuals indicates assumptions and beliefs of those specific individuals. In order to effectively change a process, these assumptions and beliefs must be understood. Furthermore, the viable conversations, created through applying Systems Thinking, create an environment where individuals can become aware that they do not have all the answers or that there are other possible solutions. This common understanding can then lead to energy and focus for more effective change.

Systems thinking is widely applied in the world for problem solving, dealing with complexity and re-creating the educational system.

2.9.3. Current practice with regards to Systems Thinking

Systems thinking is used in various **diverse disciplines**, from engineering and water drainage to education (Moloi, 2002; Salisbury, 1996; Senge *et al.* 1994; Tanji & Kielen). Senge *et al.* (1994) further state that Systems Thinking tools have put 'systems dynamic language' into the **hands of teams and on the walls of meeting rooms**, where they can energise organisational learning at all levels.

Moloi (2002) applied Systems Thinking in a **school environment** to show how a school can be seen as a learning organisation. Feedback loops supported the design of a story regarding how becoming a learning organisation would enhance the achievement of a school's goal. Moloi (2002) further states that Systems Thinking **allows people to learn about themselves** as individuals and in context of the organisation, helping them to see the **bigger picture**. Moloi (2002) sees Systems Thinking as a holistic tool that can enable learning processes, allowing a workforce to become more informed, knowledgeable, and critically thinking.

Finally, Moloi (2002:63) states that Systems Thinking allow us to become "**architects or builders of new systems that connect us spiritually to serve our learners better**."

The implication for this study:
In the context of the research focus – **identification of a leverage point that will enhance business performance through eLearning** – the framework of Systems Thinking leads the research towards a **process-based approach** (Roode, n.d.). The process-based approach directs the researcher to ask questions regarding **the driver problem** that prevents eLearning from improving business performance, the **systemic model** that represents the system in focus and the **leverage point/s** within the systems. Due to the susceptibility of the Systems Thinking approach to meaning and interpretation (Senge *et al.* 1994), focus should also be placed on the **behaviour of the individuals influencing the outcome** of the study.

Based on the explained concepts, research and practice of Systems Thinking, the **research objectives** and consequent **subsidiary questions** are:

- to identify the **driver problem** that prevents eLearning from improving business performance:
  - What are the problems related to improving business performance through eLearning?
  - How can the problems be grouped together as themes?
  - How do each of the themes influence one another?
  - What is the driver problem?
- to design the **systems dynamic model** that represents the driver problem:
  - What is the system in focus?
  - Who are the main stakeholders of the system in focus?
  - What are the measures of performance?
  - What are the co-producers for each of the measures of performance?
  - How can the elements of the system in focus be represented systemically?

- to identify the **leverage point** within the systems dynamic model.
  - Which of the co-producers influence the systems dynamic model the most?
- to reflect the **effect** of the **behaviour** of the individuals participating in the research process on the research inquiry.
  - How does the behaviour of the individuals participating in the research process influence the research inquiry?
  - What effect does the process have on the individuals participating in the research inquiry?

2.10. Summary

This chapter addresses the literature relevant to the study. It firstly focuses on the external environment and the changing world of work, highlighting the rate of change and the integration of technology into our daily lives. In the next section, business performance and eLearning are explored in order to scope and define the research problem. Both topics are explored from various angles, including the concepts and terminology, theoretical foundations and research, policies and current practice. From this, the research focus is narrowed to:

The identification of a leverage point that will enhance business performance through eLearning.

Systems Thinking is briefly debated as a problem solving methodology. The research objectives and subsidiary questions are then defined, based on the inherent process requirements of Systems Thinking.