Chapter 1

Introduction

1.1 Introduction

This study is an exploratory case study, focusing on the quality assurance of web-supported learning in higher education. Although the domains of quality assurance and web-supported learning are extremely topical, they seldom overlap (Reid, 2003). This study attempts to bring the two discourses closer together by applying quality assurance theory to the field of web-supported learning, in the context of the e-learning design and production unit at the University of Pretoria, South Africa.

Quality assurance practice has become ubiquitous, extending to the public domain of operators, managers, entrepreneurs and educators. In higher education, as in business, globalisation is an ever-present phenomenon and traditional communication and knowledge barriers are disappearing. In the global workplace, an understanding of quality has become an essential life skill that is as fundamental to the success of companies and institutions as literacy and numeracy (SAQI, 2000).

The concepts *quality, quality assurance* and *quality management* mean different things to different people. The terms are vague, ambiguous and difficult to define (Gosling & D'Andrea, 2001; Harvey & Green, 1993). Their meanings are explored in section 1.6.2, as well as in the literature review (chapter 2, sections 2.3 and 2.4). In this study, *quality* means continuous improvement in the search for excellence, *quality assurance* and *quality management* refer to initiatives (either internal or external to an organisation), which are undertaken in the quest to assure and manage quality.

In higher education, where government agencies generally initiate and implement external quality assurance mechanisms, there is seldom mutual agreement about the intentions and definitions (Hope, 2001; Vroeijenstijn, 1995). "There is a shared belief that the academics and the state 'just know' what they are talking about" (Jeliazkova & Westerheijden, 2002, p. 438).

Although there is a growing literature on quality assurance in higher education, the field is still in its formative stages of development (Baijnath, Maimela & Singh, 2001). Kistan (1999) and Van der Westhuizen (2001) concur and suggest that further initiatives are required, especially with a focus on niche areas such as distance education.

No study of the quality of learning interventions should ignore the vital and often neglected (Reeves & Hedberg, 2003) practice of *evaluation.* The purpose of *evaluating* learning materials is directly linked to ascertaining and improving their quality. This study does not evaluate learning materials directly, but incorporates user evaluation of web-supported learning, in the sense of client reaction and client satisfaction. The link between quality and evaluation is explored in the conceptual framework at the end of chapter 2, together with the theories of quality assurance, instructional systems design and systems thinking.

1.2   Problem statement and purpose of this study

In South Africa, prior to 1994, the higher education sector was fragmented, uncoordinated and unwieldy. There were 21 universities, 15 technikons and 140 teacher training colleges, within separate areas of governance (Smout, 2002). There were historically white Afrikaans institutions, historically white English institutions; historically black institutions and specialised distance education institutions. These various types of institutions demonstrated vast quality differentials in terms of resourcing, academic provision, research outputs and student access (Webbstock & Ngara, 1997).

After the nation's emergence from the apartheid era in the mid 1990's, significant attention was given to re-engineering and revitalising the education system in general and higher education in particular. Part of these transformation initiatives was a greater need for and attention to quality assurance in the higher education sector. Other transformation initiatives involve the rationalisation of degree programmes and mergers among higher education institutions.

Although the attention of national and international quality agencies has focused on quality assurance in higher education (see chapter 2, section 2.4), the *quality discourse* and the *online discourse* have had little to do with each other, for the following reasons (Reid, 2003):

- staff involved in fostering quality assurance and online delivery are usually in different organisational parts of a university (for example, a Quality Promotion Unit and a Teaching and Learning Centre, or similar);
- the *quality discourse* operates mostly at the national level (for example, national quality agencies), while the *online discourse* operates principally at the institutional or operational level;
- each discourse is a fairly recent development in higher education.

These reasons highlight the intellectual target which drives this thesis, namely the need to diminish the divide between quality assurance and web-supported learning in higher education.

The purpose of this study, therefore, is to investigate the application of quality assurance practice to web-supported learning in higher education, by searching for factors[1] and practices which contribute to improving the quality of web-supported learning opportunities provided to students.

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[1] The word *factor* is used throughout in the ordinary everyday sense of the word, such as *characteristic* or *aspect*. No statistical factor analysis is implied or intended.

The research questions that were investigated during this study are given in section 1.3. The rationale (section 1.4) amplifies the need for research into the quality of web-supported learning. The beneficiaries of this study are described in section 1.5, illustrating the significance of this research.

1.3   Research questions

The emic meanings held by the participants in this case study gave rise to the issues to be investigated in the course of excavating and reflecting on the 'story' of the case (Stake, 2000). The researcher's exploratory journey is reflected on in the final chapter of this thesis.

The research problem in this case study is operationalised by the following three research questions:

1. What factors promote quality web-supported learning?
2. What factors contribute to client satisfaction (or frustration) with web-supported learning?
3. What lessons were learnt in applying standard quality assurance theory to the instructional design process for web-supported learning?

The first research question focuses on the quality of web-supported learning experiences (*products* – see section 1.7.1). It searches for factors such as pedagogical, institutional, technical and others, and synthesizes a taxonomy of factors that promote the quality of web-supported learning products.

The second research question probes the issue of *client satisfaction*, which is a fundamental tenet of quality assurance and customer relationship management (Harvey & Green, 1993; Prinsloo, 2002). This question pursues, from a client perspective, what aspects of web-supported learning provide satisfaction and what aspects need to be refined or improved. The clients in this case study are described in section 1.7.1.

The third research question applies quality assurance practice in the form of a formal, *process-based* quality management system (QMS), to web-supported learning. There is a debate in the literature (see section 2.4.1) as to whether quality assurance theory can be meaningfully applied in the field of education. The findings for this research question show that such application is possible.

The findings for the three research questions are presented in chapters 4, 5 and 6 respectively.

1.4 Rationale

While working in the field of instructional systems design, I became interested in the evaluation of e-learning interventions from the perspective of standard quality assurance theory. I discovered that much has been written on quality assurance of higher education in general (see section 2.4), but I found little application of quality assurance theory to e-learning or web-supported learning.

I was driven to explore the debate on the meaningful application of quality assurance practice to education in general (see section 2.4.1) and to e-learning in particular. I needed to work towards an understanding of what quality means in e-learning and how e-learning practitioners may approach the task holistically, considering the needs and input of all role players.

My investigation revealed six motivating calls for research into the quality of web-supported learning. The calls are presented below, beginning with international pleas and then focusing on the local scenario. This study is a direct response to these calls[2].

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[2] In the paragraphs that follow, the terms *e-learning* and *online learning* are used depending on the given context and the terminology used by the respective authors.

First call: Quality in online courses

Bitter (2001) concluded a keynote address with a call to action "to articulate frameworks for quality online courses" (Bitter, 2001, keynote address). McGorry (2003) pleads for more attention to be dedicated to the nature and quality of online higher education. Zhao (2003) recommends that universities should implement a quality assurance plan aimed specifically at online teaching and learning.

Second call: Systematic use of good practices

In a study of the quality assurance audit manuals of 12 different countries, only two references were found to quality criteria for distance education and no references to such criteria for e-learning (personal communication, L.J. van der Westhuizen, 14 November, 2002). There is a need for a study on how to systematically improve the quality of e-learning opportunities. "Learning on the go and accidental use of good practices may no longer be sufficient" (Jeliazkova & Westerheijden, 2002, p. 437).

Third call: Quality assurance frameworks appropriate for Africa

In a special edition of the *South African Journal of Higher Education*, a call for more research in quality assurance in higher education was expressed, in particular for the development and establishment of quality assurance frameworks and models uniquely relevant to developing countries, particularly in Africa (Strydom, 2000).

Fourth call: Research appropriate for South Africa

The research proposal for this particular study was peer reviewed by the National Research Foundation. Their report acknowledged that the research proposals are groundbreaking, especially in the South African context (National Research Foundation, personal communication, 21 January 2003).

Fifth call: Quality assurance systems appropriate at institutional level

A report commissioned by the South African Universities Vice Chancellors' Association (SAUVCA) highlights the need for South African higher education

institutions to build quality assurance systems appropriate to their own institutions (Smout, 2002).

Sixth call: Quality assurance system for web-supported learning at the University of Pretoria

One of the strategic thrusts of the University of Pretoria is *quality* as emphasized by the Vice Chancellor:

> In order for the University of Pretoria to become the university of choice for academics, students, parents and employers, we need to identify a powerful differentiating factor. *Quality* must become such a differentiating factor for the University of Pretoria - quality of academic work, quality of client service, quality of student life, quality of the people who emerge as graduates. Quality is not easy to achieve, nor easy to sustain (C.W. Pistorius, public communication, 5 February 2002, quoted with permission).

The six calls above reflect the need for institutional self-evaluation with respect to the quality of the learning opportunities offered to students, with particular emphasis on how to enhance the quality of web-supported learning. This international need has prompted the establishment of the European Quality Observatory (EQO)[3], an online database of metadata relating to quality approaches in e-learning (Hildebrandt & Teschler, 2004).

This study directly addresses the pleas described above in that it researches the self-evaluation of a support unit at a higher education institution, with regard to continuous improvement of web-supported learning.

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[3] Publications about the EQO emerged in September 2004 after the completion of my study. They are reflected on briefly in chapter 7, section 7.3.2. The recommendations from this study are registered in the EQO, thus promoting its generalisability.

1.5   Beneficiaries of this study

The following parties are beneficiaries of this study:

- the University of Pretoria, which will be able to offer a case study on the application of quality assurance theory to web-supported learning;

- other higher education institutions, in which support units will be able to apply the factors identified to enhance the quality of web-supported learning;

- the Higher Education Quality Committee (HEQC) in South Africa, which will be able to draw on the factors identified to use as criteria for the quality assurance of web-supported learning;

- the academic community in the field of quality assurance of web-supported learning in higher education.

The significance of this study is that it aims to provide the academic community with an understanding of various factors, practices and mechanisms to enhance the quality of web-supported learning in higher education. The study hopes to clarify misconceptions and close gaps in our understanding about what quality means in this context, how quality assurance theory may be applied to web-supported learning and how evaluation and client feedback may be used to promote continuous improvement.

1.6   Terminology

This section clarifies the main terminology used in this thesis. See the List of Terminology in the front matter of this thesis for detailed definitions of these and other terms.

1.6.1 *Learning* **terminology**

The term *e-learning* embraces a variety of electronic delivery media, for example web-supported, multimedia, interactive television, virtual classrooms, video conferencing, etc. This study focuses on *web-supported learning,* as a subset of *e-learning* (see Figure 1.1).
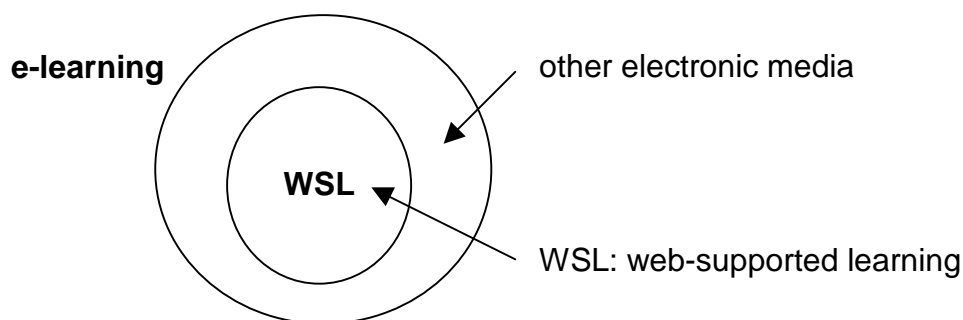

Figure 1.1: Web-supported learning is a subset of e-learning

In this study, the term *e-learning* is used to indicate the broader field. The term *web-supported learning* is used to indicate the use of the Internet to enhance and support learning. The term *web-supported learning* is preferred over *web-based learning (WBL)* since the learning model under consideration is a blended one, which includes varying components of contact time and other delivery media. The learning model under consideration is *not* traditional distance education using online technology. According to Laurillard (1993), a range or blend of teaching and learning media is likely to provide the most effective learning environment. Harris and Yanosky (2004) report that internationally, the use of *supplemental* e-learning is notably higher than pure distance e-learning, amongst both faculty members and students.

Other terms are often used to refer to the use of the Internet to enhance and support learning, for example, *online learning, technology-enhanced learning* or *internet-based distance learning* (American Federation of Teachers, 2000); other variations are *technology-mediated instruction* or *computer-mediated communicatio*n. Some authors use terminology such as *asynchronous*

learning networks (Bourne & Moore, 2003) or *interactive learning systems* (Reeves & Hedberg, 2003).

1.6.2 *Quality* terminology

This section clarifies various terms associated with the quality movement. The background of the quality movement and the theory of quality assurance are reviewed in detail in chapter 2.

Quality control is generally described as a procedure for checking work after it is done and then correcting it if faulty, as in checking the functionality of a product at the end of the production line (Boyd, 2001b). In web-supported learning this could be interpreted as ensuring technical adequacy and robustness of the web-supported course - does it function as it should, without technical hitches?

Quality assurance on the other hand, attempts to prevent faults and inadequacies from occurring in the first place. Quality assurance can be defined as *"*a planned and systematic set of procedures which are designed to build quality into a product or service, that is, to carry it out correctly the first time" (Boyd, 2001b, workshop).

A *quality management system*[4] (QMS) is a way of "formally ensuring that an organisation is consistently in control of the quality of product or service which it provides to its customers. It is formal because it consists of a system of controlled, documented processes and procedures which can be audited" (Boyd, 2001a, p. 2). For the purposes of this study, I adopted the South African Qualifications Authority (SAQA) definition of a quality management system: "A QMS is the sum of the activities and information an organisation uses to enable it to better and more consistently deliver products and services that meet and exceed the needs and expectations of its customers and

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[4] Note that the word *system* is used in its broad sense, not necessarily implying a *computer* system (see *systems theory*, Appendix B3).

beneficiaries" (SAQA, 2001b, p. 9). This definition clearly implies the use of the word *system* in its broadest sense. The theory of systems thinking is presented in the theoretical framework in chapter 2.

The concept of *Total Quality Management* (TQM) is a holistic management philosophy, which harnesses the efforts of everyone in the organisation to achieve continuous improvement and ongoing innovation. Quality is a people business and without the commitment and involvement of every manager and every worker, it is unattainable. Total Quality Management is the ultimate organisational goal for which to strive. It is doing the right things, right first time, on time, every time (commonly used phrases, quoted by Boyd, 2001b).

Elton (1992) provides a succinct synthesis of quality terms by formulating the following rule of thumb:

- Quality assurance (QA) is the quality 'A's: accountability, audit, assessment (external locus of control);
- Quality enhancement (QE) is the quality 'E's: evaluation, enhancement, empowerment, enthusiasm, expertise and excellence (internal locus of control).

The reference above to either an external or internal locus of control highlights the balance between external accountability and internal self-evaluation respectively.   This tension is known in the quality debate as the *Scylla and Charybdis* dilemma (Vroeijenstijn, 1995) (see section 2.4.1).

The current section presented definitions of standard quality assurance terminology. Chapter 2 investigates various philosophical interpretations of the concept *quality*. Following that investigation, my interpretation of quality as applied to web-supported learning is given in my conceptual framework (section 2.8).

1.7   Context

The context of the research problem is described in this section. The unit of analysis for this case study is the Department of Telematic Learning and Education Innovation (TLEI) at the University of Pretoria (UP), South Africa (see section 3.3: *Research Design*). The institutional context is presented here, followed by the national and international context in terms of three knowledge domains: quality assurance, higher education and web-supported learning.

1.7.1 Institutional context

The University of Pretoria is the largest higher education contact institution in South Africa, with approximately 33 000 students and 3 000 academic staff members (South Africa, 2001). The University's core considerations in determining priorities are internationalisation, diversity, relevance and *quality* (University of Pretoria, 2002).

The research culture at the UP contributes to the ongoing quest for quality improvement, particularly in e-learning. Since the introduction of e-learning at UP in 1998, the following studies[5] have considered different aspects thereof in the context of the University:

- Lazenby (2002) researched the establishment of a virtual campus which offers students and lecturers electronic access to support services and online academic courses;
- Greyling (2003) evaluated the use of WebCT[®] to support e-learning in the Engineering faculty, including a SWOT (strengths-weaknesses-opportunities-threats) analysis on the use of WebCT[6];

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[5] In the list that follows, the terms *e-learning*, *web-based* and *online* learning are used depending on the given context and the terminology used by the researchers.

[6] WebCT®: Web Course Tools is a registered trademark. The symbol ® is assumed from now on and is only used with respect to WebCT® in the List of References.

- De Bruyn (2003) used the seven pedagogical principles of Chickering & Gamson (1987) as criteria to evaluate student perceptions of their web-based courses;
- Delport (2003) examined the use of web-supported learning in mathematics teaching and learning.

TLEI is a service department which was established at the UP in 1997. The semantic definition of the word 'telematic' (tele - over a distance, matic - by means of) is interpreted as flexible learning delivered through a variety of media and enhanced by technology. TLEI is the *case* on which this study is based.

TLEI provides support to academic staff members who wish to embrace education innovation, including computer-assisted assessment, multimedia, web-supported learning, interactive television and various other delivery alternatives and combinations. Educational consultation services are offered, as well as a team approach to the instructional design of learning materials. Lecturer training in web-supported learning is provided, as well as student training in the use of the learning management system, WebCT. Technical support is available to lecturers and students.

Standard quality assurance theory refers to *processes, products* and *customers* (clients) (SABS, 2000). Processes, products and clients in the context of this study are shown in Figure 1.2. The interpretation of the diagram is given after the figure.
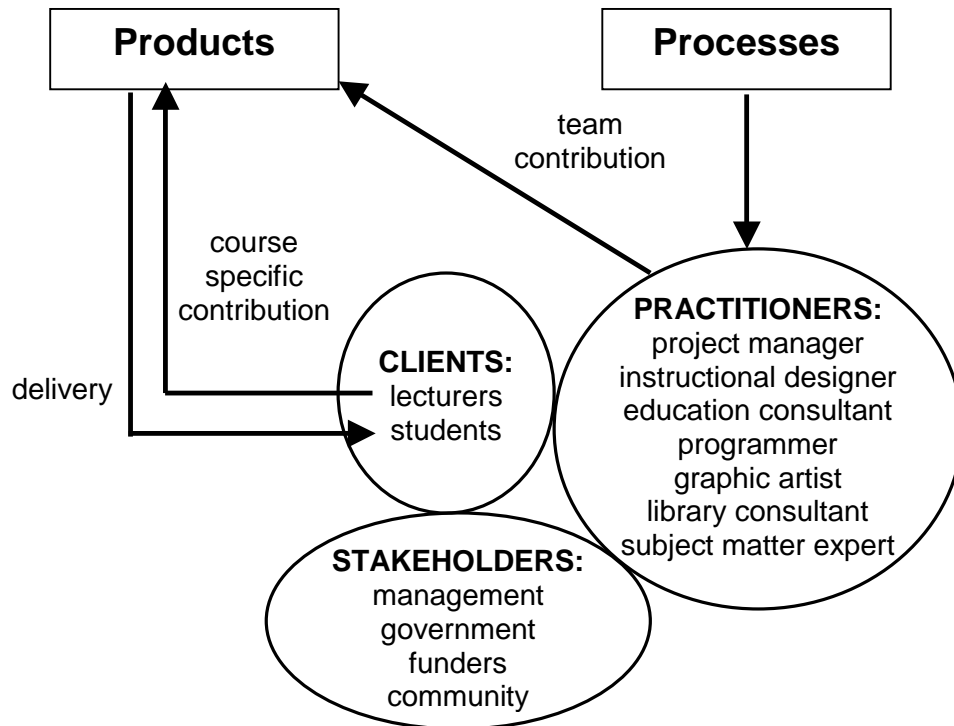
Figure 1.2: Role players in web-supported learning,

in terms of products and processes

The direct *clients* of web-supported learning are the academic staff (lecturers) who wish to adopt education innovations in the form of technology-enhanced delivery and facilitation of learning materials. The ultimate clients are the students taking web-supported courses that have been designed, developed and implemented by TLEI. Stakeholders with an interest in the quality of web-supported learning are management of the University, government quality agencies such as the HEQC and SAQA, funders who may contribute to development costs and the broader community, such as parents and employers.

The *product* with respect to web-supported learning is defined to be the *learning opportunity*. The learning opportunity incorporates all processes, materials, skills and professional expertise required to develop, deliver and facilitate a web-supported course, in order to provide added value for students (Fresen & Boyd, 2002).

The *process* of instructional design is generally based on the team approach (Gustafson & Branch, 2002; Smith & Ragan, 1993). Teams within the e-learning production unit in this case study typically consist of the practitioners indicated in Figure 1.2.   Complicated inter-dependencies arise between various team members, whose contributions to the instructional design process may be of varying quality.

1.7.2 National and global context

Three broad knowledge domains describe the context of this study, as shown in Figure 1.3:

1. quality assurance;
2. higher education;
3. web-supported learning.

Each domain is discussed briefly below the figure, in terms of national or global issues, as applicable.
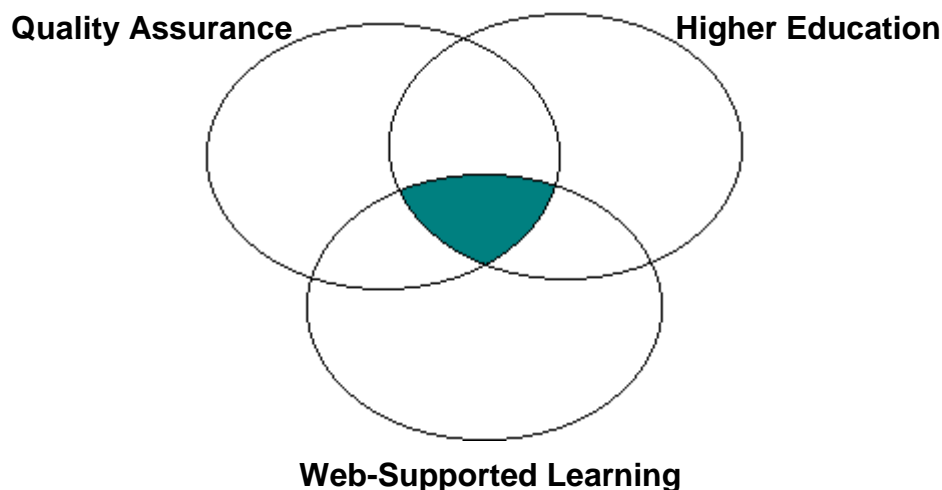

Figure 1.3: Knowledge domains forming the context of this study

The shaded area in Figure 1.3 represents the research problem for this study, namely quality assurance of web-supported learning in higher education.

1.7.2.1   Quality Assurance in general

The quality movement has its origins in industry and commerce in Britain and the United States in the early part of the twentieth century. Industrial organisations committed to national standardisation began in Britain and by 1932 had spread to twenty-five countries (Lewis & Smith, 1994). The factory system and the first assembly lines were attempts to increase productivity and reduce costs.

The founding fathers of the quality movement (for example Taylor, Shewhart and Deming) set out to find ways to eliminate wastage and increase production (Lewis & Smith, 1994). Taylor was particularly interested in applying scientific management techniques to improve productivity in factories. However, his emphasis on the assembly line and the division of labour meant that management held the monopoly on knowledge and skilled workers were not appreciated for their craft (Whaymand, 2004). Taylor's defenders claim that his work was twisted and misapplied, yet today the term "Taylorism" has the connotation of machine over man and productivity at all costs (Gabor, 1990).

Perhaps the most well known expert in Quality is W. Edwards Deming, an American statistician whose career began by trying to understand the effects of variation in managing change in large corporations. Deming's 'fourteen principles' are still quoted in the field today and some educators have attempted to apply them in the field of education (Brennan & Shah, 2000; Lewis & Smith, 1994), with varying degrees of success and acceptance.

In Japan, the Union of Japanese Scientists and Engineers (JUSE) was dedicated to working with American and Allied experts, such as Deming and Juran, to help rebuild Japan after World War II. The Japanese advocate a collaborative, active approach to total quality control that embraces a dynamic, ever-changing definition of quality (Gabor, 1990).

The term *quality control* was coined by Armand Feigenbaum, who wrote a now famous 850-page book on the subject in 1951 (Feigenbaum, 2002). Feigenbaum advocated a special cohort of quality engineers, as opposed to the collaborative approach of the Japanese. Another American quality expert, Philip Crosby, maintained that "quality is free" (Macdonald, 1998, p. 8). In other words, if you do not allow any bad components on your production line, you do not need to spend money on expensive inspections, rejections and rework. This has become known as the concept of *zero defects*.

A recent development in the field of quality promotion is the Six Sigma methodology (Hoerl, 2002), which is a statistically based improvement methodology to pursue quality as a mechanism for benefiting companies and their customers. It appears set to become the *new corporate religion* (Faltin, 2002). Six Sigma has been applied in the fields of manufacturing, engineering, services, health and financial industries.

The above historical overview illustrates that the quality movement has a long history in commerce and industry. Various thinkers in the field have postulated principles, elements, steps and critical success factors in achieving quality and boosting productivity.

In the field of higher education, we can benefit from incorporating this theory, where applicable, into our own practice of quality management. TLEI has used such principles to synthesize a customised quality pledge, which incorporates the notions of fitness for purpose, client satisfaction, cost effectiveness, defined standards, negotiated time frames and continuous improvement of our processes and functions (see Appendix F10).

1.7.2.2   Higher Education

Educational institutions tend to be conservative and resistant to change, both internationally as well as in South Africa (Fullan, 2002; Papert, 1992). However, over the past decade, the field of higher education has experienced

a period of dynamic change, growth, reflection and self-evaluation, both nationally and internationally (Hope, 2001; Newton, 2002; Smout, 2002).

Some of the factors currently influencing the higher education landscape are globalisation[7], massification, client needs and expectations, scarce resources, rapid technological change and increased calls for quality assurance. Each of these thrusts is described briefly below.

Globalisation

Today it is possible for prospective students to be particular in selecting from amongst high profile educational institutions around the globe (Baijnath & Singh, 2001; Randall, 2002). The increased competitiveness of this environment is forcing academics and institutions to demonstrate the quality and effectiveness of their academic programmes and research initiatives (Barrow, 1999; Hay & Herselman, 2001; Van der Westhuizen, 2001).

Massification

Higher education is no longer the preserve of small numbers of privileged students, as it was in past centuries. Society today demonstrates an increased interest in and demand for higher education qualifications, which leads to ever-increasing student numbers. This is commonly referred to as the 'massification' of higher education (Hope, 2001; Jonathan, 2000). The phenomenon of lifelong learning is attracting a wider variety of potential and continuing students into higher education (Collis & Moonen, 2001).

Client needs and expectations

The burgeoning student clientele brings increased expectations on behalf of students as well as other stakeholders such as parents, employers, funders and governments (Randall, 2002; Van Aswegen, 2001). In South Africa, these expectations include issues of access and of redressing the inequalities and disadvantage of the past (Muller, 1997; Smout, 2002).

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[7] Critical theorists would question the moral issues behind some of the thrusts described, for example, an anti-globalisation movement exists. However, that debate is beyond the scope of this thesis.

Scarce financial and human resources

Although there has been an explosion of enrolment figures at higher education institutions in both developed and developing countries, the capacity to finance such expansion has not kept pace (Barrow, 1999; Newton, 2002; White, 2000). Not only are financial resources insufficient, but academics are suffering under the burden of additional loads, and often resent the 'quality burden' thrust on them (Gosling & D'Andrea, 2001; Kourie, 2001).

Rapid technological change

Today distance learning is enabled through technological advances, thus changing the higher education landscape and resulting in increased mobility of students (Herrington, Herrington, Oliver, Stoney & Willis, 2001). More than simply the availability of technology in higher education, people in general are becoming more comfortable with the use of the Internet in everyday life and its logical extension to the learning environment (Collis & Moonen, 2001). Even in developing countries, if electricity or access to computers appear to be barriers, satellite access and mobile learning (m-learning) are offering solutions (Wilkinson, Wilkinson & Nel, 2001).

Calls for quality assurance

Calls for quality assurance in higher education institutions are prevalent as governments evaluate both the efficiency and effectiveness of university programmes (Vroeijenstijn, 2001a). These include the need for self-evaluation as well as evidence of improvement and accountability for the use of public funds (Leckey & Neill, 2001; Sursock, 2001). (See section 2.4.1: *Perspectives on the debate*). Quality assurance agencies in South Africa and their recent initiatives are summarised in chapter 2, section 2.4.4.

The pressures described above illustrate the need for higher education institutions to pursue active involvement in quality assurance practices, in order to belie their image of 'ivory tower' exclusivity (Vroeijenstijn, 2001a). Traditional evaluation methods, such as the external moderation of examinations, are no longer sufficient to guarantee the quality of university programmes.

The trends described above are topical and burgeoning in higher education today. This research responds to calls for quality assurance and self-improvement in the provision of e-learning and seeks factors to promote effective (quality) web-supported learning.

1.7.2.3   Web-supported learning

Computer-based education (CBE) is not a new phenomenon. Alessi and Trollip (1991) give a short history of educational computing and describe mainframe systems, such as PLATO, which began in 1960. Reeves and Hedberg (2003) give an overview of older and newer electronic systems to deliver interactive learning.

In South Africa in the late 1980s, various universities, such as the University of the Western Cape, Unisa and Rhodes University, made the move from proprietary mainframe systems for CBE to local area networks (personal experience; Lippert, 1993). In the last decade, rapid technological advances in information and communication technologies (ICTs), such as the ubiquitous presence of the Internet, have made education a global commodity, available in student homes and places of work (Randall, 2002).

Today most universities internationally and in South Africa, are implementing e-learning and attempting to exploit the potential of web-based learning (Mayes, 2001). South African universities currently involved in e-learning include at least the following: Pretoria, Cape Town, Stellenbosch, Natal, Potchefstroom, Free State (e-Degree) and Rand Afrikaans University. This can be seen from papers presented at national conferences, such as the annual World Wide Web (WWW) conference, the biennial Conference on Information Technology in Tertiary Education (CITTE) and the WebCT users' forum.

However, e-learning is generally pursued for economic, political or strategic reasons, such as broadening access to higher education (Czerniewicsz,

2004), or supporting students with historical or physical special needs. Seldom is the driver the quest for quality, as can be seen from calls made for research on the quality of e-learning (see section 1.3: *Rationale*). This study attempts to apply standard quality assurance theory to the field of web-supported learning in higher education, in the context of the University of Pretoria, which claims *quality* as one of its strategic drivers.

1.8 Basic assumptions of this study

In order to clarify the circumstances and practices in the e-learning support unit at the University of Pretoria, certain assumptions are described below, together with their implications for this study.

1. The TLEI team believes strongly in 'pedagogy before technology', i.e. technology is used as a supportive tool to enhance the learning experience. The technology should be transparent to the learner in order to facilitate learning (McGorry, 2003). The justification for embedding technology in a learning programme depends on the nature of the subject, the intended learning outcomes and the skills, needs and abilities of the learners. The importance of the underlying pedagogy prompted research question 1 in this study.

2. Against the background of the quality debate (see chapter 2), we cannot expect to resolve issues of academic excellence and quality by a single 'perfect' quality assurance design effort or quality management system (Jeliazkova & Westerheijden, 2002). The questions researched in this study are part of the journey of increasing awareness of the importance of establishing a quality culture and genuine self-evaluation, whether at institutional, departmental or programme level.

3. In the light of the flexible, blended learning model advocated by TLEI, web-supported courses at the University of Pretoria generally do not contain extensive subject-specific content. This is provided by face-to-face sessions and other media, for example, text books, learning guides,

CD-Roms or content-rich resources on the Internet. By implication, this study is concerned with the quality of web-supported components of a learning programme and not with that of supporting learning materials.

4. Lecturers are responsible for the quality of the content and the language in web-supported learning materials (see *Service Level Agreement* – chapter 6 and Appendix F9).

1.9   Limitations of this study

In every study, certain decisions need to be taken that may limit it from a methodological or theoretical point of view. Such decisions usually enhance the validity of the study and ensure that it is realistic from a practical point of view (Vithal & Jansen, 1997). This study has limitations in the form of constraints, items outside its scope, as well as limitations to the generalisability of the findings. These types of limitations are discussed in turn below.

1.9.1 Constraints

This study is subject to two constraints:

1. The technical infrastructure for streaming media and other emerging technologies, such as Internet access via satellite and mobile learning, is still in the early stages of investigation at the University of Pretoria. By implication, this study is not concerned with the quality of content-rich multimedia materials.

2. Although WebCT is a well-researched and well-established software platform for online learning (WebCT[®], 2002), instructional designers are limited in some respects by the functionality provided by the system. As a result, the pedagogical quality of web-supported courses may be constrained by the dependence on a structured learning platform.

1.9.2 Items outside the scope of this study

This study does *not* do the following:

- defend the value of, nor promote, web-supported learning as a delivery option in higher education;
- consider other e-learning delivery media besides web-supported learning, for example multimedia, interactive television, video conferencing, etc.;
- compare the effectiveness of web-supported learning with traditional face-to-face learning (Russell's (1997) meta-analysis showed that from the 1960s until the date of his study, such comparative studies found *no significant differences* in treatment);
- investigate the quality assurance of the University of Pretoria degree programmes, as required by the HEQC;
- investigate institutional auditing, accountability and self evaluation, although the interventions in this study make a strong contribution to departmental self evaluation;
- investigate quality assurance models of governance in South Africa (Mosia, 2002, has completed a doctoral study on this topic);
- discuss political or economic aspects of quality assurance in South Africa.

1.9.3 Generalisability

This study is based on the practice of web-supported learning at one institution: the University of Pretoria (UP), South Africa. Therefore, although international literature has been consulted in depth, this study may have limited generalisability to other e-learning situations, due to their particular contexts. Limited generalisability is a characteristic of exploratory case study research, which seeks to deepen understanding of the specific case (Stake, 2000).

The UP is not a typically 'developing' or 'disadvantaged' university. It was one of the first users of WebCT in Africa and is currently piloting the use of new technologies (such as synchronous audio platforms and video streaming via satellite) to better support and facilitate web-supported learning. UP is second in Southern Africa in terms of the campus-wide application of WebCT (number of web-supported courses offered) (A. van der Merwe, personal communication, 5 May 2003).
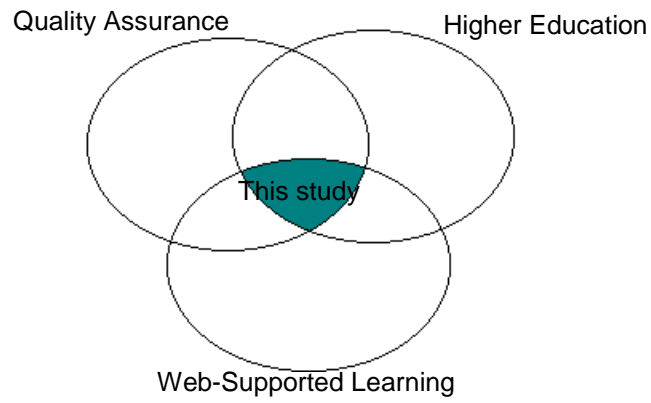
Therefore the findings of this study may be more generalisable to equivalent higher education institutions, nationally and internationally, rather than to typical universities in developing countries. Although some aspects of the findings of this study may be generalisable to different e-learning scenarios, it is not known if or how they may need to be adapted for pure distance education.

1.10 Overview of this thesis

The structure and content of this thesis is described below. A graphic overview of the structure of the thesis is given in Figure 1.4.

- Chapter 2 reviews and critically analyses the literature in terms of the three research questions, culminating in the conceptual framework for the study.
- Chapter 3 presents the research design and methodology of this study.
- Chapters 4, 5 and 6 present the data from the primary research and describe the findings of the study in terms of research questions 1, 2 and 3 respectively.
- Chapter 7 'closes the feedback loop' by making recommendations for providers of web-supported learning at higher education institutions, based on the findings from this study. It suggests topics for further research and provides reflection on the exploratory journey and lessons that were learnt.

Chapter 1

Introduction

Quality Assurance   Higher Education

This study

Web-Supported Learning

Chapter 2

Literature review and

conceptual framework

Quality Assurance

Evaluation

Instructional Systems Design

Systems thinking

Quality Management System for WSL

Chapter 3

Research Design

and Methodology

Research question 1:
What factors promote
quality WSL?

Research question 2:
What factors promote
client satisfaction?

Research question 3:
What lessons were learnt
in applying QA theory to
the ID process?

Chapter 4

Findings: RQ 1

Chapter 5

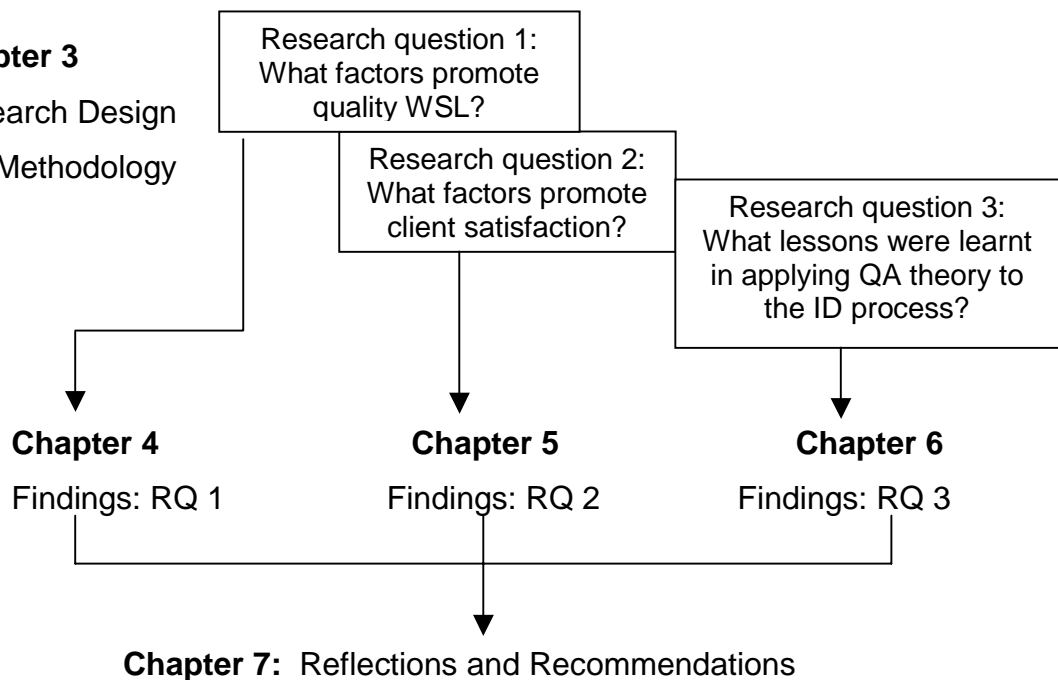Findings: RQ 2

Chapter 6

Findings: RQ 3

Chapter 7: Reflections and Recommendations

Figure 1.4: Overview of this thesis