A Theoretical Framework of Total Quality Assurance in a University of Technology

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Abstract

In every organisation, the importance of quality whether in goods or service delivery, can never be over-emphasised. Hence there is always need for quality assurance in service delivery or goods. An organisation can be involved in either the production of goods or the rendering of services to society. In the higher education system (a service delivery organisation), quality assurance is of great importance to institutions and there are different methods of ensuring that quality services are rendered to society. Some of these methods of quality assurance include accreditation, audits and assessment. In this paper, quality assurance is studied with respect to the quality, standards and relevance of the services in higher institutions and particularly in the context of the Vaal University of Technology. This paper also examines the benefits of the three elements to institutions of higher education.

Keywords: Standard, relevance, Service Delivery and Curriculum

1. Introduction

Universities in South Africa, like in all other countries globally are the strongest and most stable component of post-school system (Higher Education and Training, 2012: xi). As indicated in this document (2012: ix), some of the institutions of higher education in South Africa are beset by serious problems and are unable to fulfil people's expectations and therefore require special interventions. These interventions are required to address issues of access (massification of higher education by providing access to those who were previously denied), staffing in terms of increasing numbers and improved qualifications, gender equity, curriculum reform towards more flexibility, management student funding and other forms of support (Council on Higher Education, 2013:23). Critical among these interventions is quality assurance because provision of post-school education presently is said to be inadequate in quantity, diversity and in many cases quality (Higher Education and Training, 2012: x). The researchers agree that quality assurance is a very important factor that leads to the improvement of the quality of education in South Africa. This paper will focus particularly on three elements of quality assurance to ensure quality in the provision of post-school education and training. The researchers will draw amongst others on the content of the Higher Education Quality Committee (HEQC), which governs quality in higher education and is a permanent committee of the Council on Higher Education (CHE), established by the Higher Education Act, 1997 (Act No. 101 of 1997) to focus the discussion. We note that the responsibilities of the CHE are to advice the Minister at his/her request or proactively on all matters related to higher education, assume executive responsibility for quality assurance within higher education and training, monitor and evaluate whether the policy goals and objectives for higher education are being realised, contribute to developing higher education through publications and conferences, report to parliament on higher education, and also consult with stakeholders on higher education matters.

Furthermore, the specific functions of the HEQC are to promote quality assurance in higher education, audit the quality assurance mechanisms of institutions of higher education and to accredit programmes of higher education. The Board of the HEQC has added quality-related capacity development to the above functions. The nature, purpose and scope of the work of the HEQC relate to a range of policy documents and legislation that shape and regulate the provision of higher education in South Africa, in particular the requirements of the Higher Education Act as amended, and White Paper 3: A Programme for the Transformation of Higher Education (DoE: 1997: 1.14). The HEQC further operates

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within the framework of the relevant policies and regulations of the Department of Education (DoE), including the National Plan for Higher Education (NPHE) and the Regulations governing the registration of private providers.

According to Vroeijenstijn, (1995:30) the term quality assurance can be referred to as a systematic, structured and continuous attention to quality in terms of quality maintenance and improvement. Quality assurance is the responsibility of everyone in higher education, from top management which sets the policies and priorities to the junior staff members. Brennan & Shah (2000:157) contend that the meaning of quality assurance as equivalent to academic standards is consistent with the emerging focus in higher education policies on student learning outcomes – the specific levels of knowledge, skills, and abilities that students achieve as a consequence of their engagement in a particular education programme.

Moreover, quality assurance can be categorised into three main elements: quality, standards and relevance. Quality is defined, according to the British Standards Institution (BSI, 1991), as a totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. The South African Qualifications Authority Act (Act No. 58 of 1995) defines unit standards as the registered statements of desired education and training outcomes and their associated assessment criteria, describing the quality of the expected performance, together with administrative and other information specified in the NSB regulations. Relevance, on the other hand, indicates that what is taught must be relevant to the requirements and needs of all users and qualifications and standards.

2. Problem Statement

There is a growing body of research, in particular in the form of local and international retention studies, which indicates that success and failure in higher education is the result of a complex interplay of factors. These factors are both internal, that is, intrinsic to the higher education system, and external, relating to social, cultural and material circumstances. It is beyond dispute that individuals who are socially and economically disadvantaged are less likely to gain access to and successfully complete any form of higher education (Higher Education and Training, 2012: x). This is compounded in developing countries where poverty is widespread and opportunities to enter higher education are scarce.

The impact of socio-economic factors is evident in South Africa where inequalities are stark and take on a racial form linked to the apartheid past. These inequalities are persistent in education, as indicated by the continuing low participation and completion rates of African and coloured students in comparison with their white and Indian counterparts. The major challenge for South Africa is that the obstacles to entering and succeeding in higher education affect the great majority of the population. In the long term, then, increasing the access and completion rates of African and coloured students depends to a great extent on addressing the social and economic factors, the persistent and far-reaching effects of poverty and associated inequalities, that influence performance in higher education.

Moreover, there has been limited success post-1994 in addressing the challenges facing education; the quality of schooling continues to be undermined by the legacy and persistence of educational inequalities and dysfunction. According to Scott, Yeld & Hendry (2007:2), the problem of poor student outcomes is a complex and multilayered one which is shaped by issues such as the lack of preparedness of students and staff; the nature and organisation of teaching and learning at higher education institutions; the conceptualisation of the education process, particularly in terms of the appropriateness of content and assessment methods and its relationship with different institutional cultures; the extent or lack of professionalisation of academic staff; the nature and extent of funding; and the role that system differentiation might have in addressing under-preparedness. Given this background, this study will be aimed at the three elements of quality in higher education and the advantages and the disadvantages of the elements. The literature pertaining to the subject of quality will also be discussed.

The following research questions were formulated:

- What is quality assurance in higher education?
- What are the three main elements of quality assurance in higher education?
- How does the element of quality assurance have an effect on the performance of the students at higher education?
- What are the advantages of the quality assurance elements in higher education?

The aim of this study is to determine the effect of the elements of quality assurance of higher education on the outcomes or performance of students or learners.

3. Aims of the Study

3.1 Quality assurance in Higher Education

According to the International Education Association of South Africa (IEASA), (2008:19, a quality assurance system was introduced in South Africa in 2004. Quality assurance is the responsibility of the statutory advisory body, the CHE. Its Higher Education Quality Committee (HEQC) conducts audits of universities – there have been 28 audits of public and private institutions so far – based on self-evaluation by institutions of their performance against a range of criteria, and external peer assessment. The HEQC also accredits courses and does national reviews, quality promotion and capacity development. A new higher education qualifications framework has come into effect in 2009 and is aimed at strengthening the quality assurance system and laying the foundation for credit accumulation and transfer, which was hindered by separate qualifications structures for universities and universities of technology.

The policy also defines how higher education qualifications fit into the National Qualifications Framework (NQF), which covers all levels of education and registers all qualifications. The framework sets minimum admissions requirements for all programmes, but leaves it up to universities to set their own admissions policies beyond those minimums. It allows recognition of prior learning and work-integrated learning.

Qualifications are structured in credits. For instance, there are 120 credits for the first year of a Bachelor degree, with each credit representing 10 notional study hours. Credits can straddle different levels of the NQF – levels five to seven cover undergraduate qualifications, and levels eight to ten, postgraduate qualifications, depending on what is appropriate for the qualification. From 2009 all new higher education programmes were required to comply with the framework, be registered on it and accredited by the Department of Education. There was going to be a transitional period for existing programmes then to be restructured to achieve full compliance (IEASA 2008:20).

A key performance indicator of any education institution is education quality, especially in the teaching and learning environment. As the destiny of South Africa is currently being shaped in the lecture room, education has a number of important aims including educating students for the changing local and global knowledge economy as well to ability to function effective in a cosmopolitan environment. In terms of the social constructivist paradigm, learning is a social process which is neither limited to an individual, nor passive. Meaningful learning takes place only once an individual is engaged in social activities (Jackson, Karp, Patrick & Thrower, 2006). These include developing the capability of students to use ideas and information, testing of ideas and evidence, generation of new ideas and evidence, facilitation of personal development and development of the capacity of students to plan and manage their learning experience. Critical faculties are thus developed so that students begin to ask important questions rather than simply answer questions.

Quality assurance in higher education is critical because it is a systematic, structured and continuous process that directs attention to quality in order to guarantee the improvement of quality in higher education. It also aims at making higher education meet the diverse and growing needs of the new generation students, employers in both local and global markets and financiers (Deutscher Akademischer Austausch Dienst (DAAD) 2010:7).

4. Elements of Quality Assurance of Higher Education

In the sections that follow the researchers discuss the three main elements of quality assurance in higher education, namely, quality, standards and relevance. Indeed, as has been discussed above, quality assurance is the process of checking that the standards and quality of higher education provision meet agreed expectations.

4.1 Quality

Quality is an elusive concept (Green 1994:10). There are many books and articles written to try to define the nature of quality; however, there is no general agreement on the concept (DAAD 2010:8). An objective definition of quality does not exist (DAAD 2010:8) even though we all may instinctively understand what it means. This is because quality is often subjectively associated with certain concepts and certain expectations held by individuals with regard to the perception of what is good. As a result, quality seems to have many facets. According to Reeves and Bednar (1994), cited by Stensaker (2007), quality in general can be defined as value, conformance to specifications, and conformance to requirements, fitness for use, loss avoidance, or meeting customer expectations.

Because quality is multi-faceted, over the last 15 years in higher education there have been a number of contributions by researchers focusing on the difficulties of defining quality (Harvey & William 2010:81). The most

influential empirical study, often quoted in the discussion on quality in higher education, was conducted by Harvey and Green (1993). In this study, Harvey and Green explained the different concepts of quality as perceived by different stakeholders in higher education. According to them, stakeholders' views on quality could be categorised based on five definitions: quality as exceptional, quality as perfection, quality as fitness for purpose, quality as value for money, and quality as transformation.

Furthermore, in addition to the assumption of its having many facets, quality is also assumed to be multi-dimensional. Quality has many dimensions, and on some dimensions the quality of a thing may be good while on other dimensions it is not (Kalkwijk 1998). Accordingly, discussing the quality of a programme from a one-dimensional viewpoint will be meaningless. All the dimensions of quality should be taken into account when quality is discussed and judged. Given the different views and the multi-dimensional notion of quality, quality in higher education often remains undefined in operational terms (Westerheijden & Empel 2010). Therefore, according to Green (1994), the best that can be achieved is to define as clearly as possible the criteria that each stakeholder in higher education uses to judge quality.

According to Barnett (1992:61), as quoted in Barrow (1991), quality in higher education is a high evaluation accorded to an educative process, where it has been demonstrated that, through the process, the students' educational development has been enhanced; not only have they achieved the particular objectives set for the course but, in doing so, they have also fulfilled the general educational aims of autonomy, of the ability to participate in reasoned discourse, of critical self-evaluation, and of coming to a proper awareness of the ultimate contingency of all thought and action. The vision of Vaal University of Technology (VUT) and the realisation of this vision sets the trajectory for the reputation of the University and its differentiation in terms of the quantity and quality of teaching and learning, epistemological access, knowledge production, commercialisation, application and innovation. The conceptualisation and implementation of the Teaching and Learning Model at Vaal University of Technology has far-reaching implications for graduateness at VUT in terms of the quality of competencies and capabilities as well as the generic skills that VUT students would have attained on completion of their studies to enhance their potential for future employment, contribution to economic growth, poverty eradication, social justice, change agentry and lifelong learning (Louw, Moloi & Smit 2012:3).

The VUT Quality Assurance policy indicates that the institution follows a Total Quality Management (TQM) approach, which focuses on customer satisfaction and continuous improvement. The QA system provides for a continuing cycle of internal self-evaluation and external peer validation delivered mainly through programme self-evaluation at three-yearly intervals and institutional self-evaluation at intervals determined by the HEQC. The framework requires staff to describe the performance of different aspects of programme delivery, and to make a judgment of success on a five-point rating scale. The audit panel is of the opinion that staff self-evaluation based on a five-point scale might not require enough reflection on teaching practices to help academics identify areas in which they need to improve their teaching.

In this day and age, quality assurance and its vocabulary are very popular in higher education policy in most countries all over the world. Universities and colleges now pay more and more attention to adopting quality assurance mechanisms and systems in order to ensure that their students are provided with education of high quality and that their degrees and diplomas are widely recognised (Harman 2000:147). Nowadays, such recognition is seen as important not only by the government but also by the Universities and even by employers. There are many reasons given for the adoption of quality assurance. Most importantly, all academics want to train graduates with adequate knowledge and skills so that they can fulfil the requirements of employers and meet the needs of society (AUN 2010). Apart from that, quality assurance is also an important element for public accountability, particularly for government, which expects to see education activities with appropriate standards (Harman 2000:147). Also, quality assurance can provide students with useful information for their choice of universities or educational courses among many other offers. And, more importantly, at institutional level, quality assurance can contribute to the improvement of both teaching and administrative processes, which can lead to the improvement of overall systems (Harman 2000:147).

4.2 Advantages of quality in higher education

Some of the benefits of quality assurance include a student-centred teaching and learning processes which gives all students equal opportunities to acquire productive learning. The researchers argue that quality assurance provides good information and process about continuous improvement in education and training as well as the ability to benchmark programmes with other institutions including those that are international. Furthermore, quality assurance provides an intellectual context in which academics can take responsibility regarding own academic and professional evolution. It provides learning programmes that meet students' expectations, mainly as a result of their active involvement in the self-

assessment process and thereby increasing the satisfaction of beneficiaries like students, employers and parents. Through provision of quality education, the chances of employment for graduates are possible. There is believed that quality in higher education encourages responsibility and greater autonomy by emphasising the importance of the self-assessment process.

4.3 Disadvantages of implementation of quality in higher education

One of the most prominent effects of the implementation of quality is that the institution has to take the risk of changing the entire system, abandoning its traditional procedures and spending unlimited amounts of time and resources on the new system (Murgatroyd 1993; Weller & Hartley 1994:30; Antony & Preece 2002:103). The faculty members may be alienated as their level of authority and their methods of instruction must change, leading to low morale and also lack of focus on the new system could lead to worse outcomes (Raelin 2003; Antony & Preece 2002:103).

4.4 Standards

Standards can be defined in terms of a minimum threshold by which performance is judged (Ashcroft & Foreman-Peck 1996:21). The authors define standards as formally documented requirements and specifications against which performance can be assessed. It can be used in quality assessment in the sense of a measure of processes, performance and outcomes that can be quantified or assessed on a continuum. Setting of standards is a primary tool for ensuring that people are recognised for learning achievements on an objective and transparent basis. By reaching agreement as to the standards required, and by communicating these standards to learners, trainers, educators and assessors, we then have a basis for making assessment judgments in a way that is fair, open, reliable and consistent.

5. Literature Review/Theoretical Framework

Moreover, one of the purposes of VUT assessment is to maintain standards, upholding standards of excellence in learning and maintenance of the institution's reputation in the global marketplace. According to NQF, standards can be categorised as follows:

National standards can be described as specific descriptions of learning achievements agreed on by all major stakeholders in a particular area of learning. (NSB Regulation 2 provides for the registration of national qualifications and standards.) As the NSB Regulations indicate, 'unit standard' means 'registered statements of desired education and training outcomes and their associated assessment criteria together with administrative and other information as specified'. 'National' means that the standards have gone through the SAQA registration process. One might take this further and say that national standards are the agreed repositories of knowledge about 'quality practice' or competence, as well as about legitimate criteria for assessing such competence.

Competence: This might be defined as the application of knowledge, skills and values (Regulation 5(1) (a)) in a specific context to a defined standard of performance.

Practice: This could be located in any arena, and involve practitioners ranging from the shop floor lathe operator to a professional nurse to an academic historian. In all of these arenas of practice the implicit knowledge of what makes for 'good practice' or competence needs to be made explicit in the form of national standards.

Work-based standards: When standards first began to gain international prominence, they were largely work-based standards, mostly attached to performance appraisal. Often they were task-based and behaviourist in content, giving priority to observable behaviour at the expense of any underlying characteristics of competence such as knowledge or judgment.

Curriculum standards: Later, in the 1980s, a new form of standard began to appear, a curriculum standard. Most notably, at the end of the decade, New Zealand implemented a qualification framework based upon curriculum standards.

According to SAQA 2000:17, in South Africa at least three worlds of practice will want to use national standards:

The world of work will want to use standards for a multitude of purposes. These might range from performance appraisal to recruitment criteria to career 'laddering' to industrial bargaining.

The world of curricula will have other agendas altogether. Although education and training takes place in many places including the world of work, the agenda of the world of work is not an industrial relations agenda, but an educational one. Practitioners in this world require standards against which they can write their curricula.

The professional world, in turn, has different needs from the other two worlds. Professional bodies require

standards in order to define what competent practice is, so that they can license professionals to practice in South Africa.

VUT is no exception to the need for quality assurance and maintenance of high standards and, according to the Teaching and Learning Model of the Vaal University of Technology (Louw, Moloi, Smit, Nicolaides, Padayachee, Dicks, Pooe & Brits 2012:63), VUT students will be assessed in three broad areas, namely:

Applied Competence: This demonstrates the ability to use organisational design and change management concepts and frameworks to identify and analyse variables that can influence an organisation's overall effectiveness.

Critical Thinking, Problem-Solving and Communicative Competence: These enable problems and/or opportunities in organisational contexts to be identified and specific recommendations, supported by theory, to be made to improve the situation. Theoretical frameworks from organisation design and change literature are accurately and competently used to interpret and solve societal or business problems, and such analyses are effectively communicated to others in a variety of professional contexts. Problem-solving activities are implemented with a commitment to quality.

Collaborative and Leadership Competence: The student collaborates as a member of a project team, taking the initiative in identifying and solving problems or pursuing opportunities for learning and improvement within the group.

6. Findings from the Literature

6.1 The advantages of standards in higher education

The researcher highlights the advantages of standards in higher education as documenting quality standards forces learners to review all aspects of their learning process, and provide a way to assure that an item complies with contract specifications. The standards in higher education attract students, including the government, because of its repeatable quality and save money by providing the necessary indicators and tools to identify problem areas and ways to correct those areas.

6.2 The disadvantages of standards in higher education

One of the shortcomings adherence to standards might encourage or enforce 'norms', so suppressing innovation and once minimum standards are met, there is little to encourage improvement in performance. Another constraint to standards is that there is no common understanding of what should be a standard. The suggestion is to set a minimum standard for a field of study, but one can imagine how hard it is to set a measurable standard in the academic or learning environment.

6.3 Relevance

Everybody agrees that policy reforms should seek in the first place to improve the quality and the pertinence of higher education systems. Relevance concerns, for example, the role of higher education within societies, and deals with matters linked to democratisation, to the world of work and to the responsibilities of higher education in relation to the entire system of education. These are questions arising from within and outside of the system of higher education. Quality mainly concerns matters aimed at improving the efficiency of higher education in order to reach its objectives: innovation and reforms, the planning and management of resources, organisation of programmes, qualification of teachers, etc.

Quality has been a primary concern in African higher education since its inception. Initially the approach to this was simply that of achieving equivalence with European qualifications. However, as the focus shifts to the relevance of higher education to changing African needs, universities and higher education policy makers in Africa will need to evolve methods of quality assurance that are based on fundamental principles of quality in relation to African needs rather than on comparisons with programmes which are intended to serve other needs elsewhere.

Furthermore, for a higher institution to be relevant in the academic world or in society, it must have quality standards and must be well assessed and accredited. Accreditation is an instrument used to guarantee the quality threshold (Westerheijden & Empel 2010). It is a special form of quality assessment process, in which higher education institutions, degree types and programmes are systematically evaluated according to previously formulated standards by an authorised agency. The institutions or programmes will then get formal approval to exist within the higher education system after the accreditation process is successfully completed.

Accreditation is a widely used method in quality assurance in OECD countries. In the United States, accreditation of both programmes and institutions is the main quality assurance method (Eaton, 2004). Accreditation of programmes is

used on a regular basis by about half of the European quality assurance agencies. This method is frequently used in German-speaking countries, by the Dutch and also the Nordic and southern agencies. Accreditation of institutions is done on a regular basis by 22% of the agencies in Europe, e.g. by German and Austrian agencies and some in related countries. Accreditation procedures can also focus on QAAs; for instance, one of the tasks of the German Akkreditierungsrat is to accredit other agencies (ENQA 2003). US accrediting organisations also undergo a periodic external review based on specific standards; this process is known as recognition (Eaton 2004).

For instance, at the Vaal University of Technology, some degree programmes were accredited as meeting the educational requirements for registration as a Professional Engineering Technician as a result of an accreditation visit.

Table 1: Accredited Qualification By Engineering Council Of South Africa

Degree and Branch	Site of Delivery	During Year	Accredited from	Accredited to	Next Regular Visit
ND: Engineering: Chemical	Vanderbijlpark	3	1991	2013	2016
ND: Engineering: Chemical	Secunda	3	2010	2013	2016
ND: Engineering: Civil	Vanderbijlpark	3	1991	2013**	2016
ND: Engineering: Electrical	Vanderbijlpark	3	1991	2013**	2016
ND: Engineering: Electrical	Secunda	3	2010*	2013**	2016
ND: Engineering: Computer Systems	Vanderbijlpark	3	2003	2013**	2016
ND: Engineering: Industrial	Vanderbijlpark	3	1996	2013**	2016
ND: Engineering: Mechanical	Vanderbijlpark	3	1991	2013**	2016
ND: Engineering: Metallurgical	Vanderbijlpark	3	1991	2013**	2016

From August 2010 - end March 2013

Source: Engineering Council of South Africa (ECSA) 2012

6.4 Advantages of relevance in higher education

Some of the benefits of relevance is to encourages confidence that the educational activities of an accredited institution or programme have been found to be satisfactory, signals to prospective employers that a student's educational programme has met widely accepted standards, with graduation from an accredited programme, in some cases, being a prerequisite for entering a profession. Course approval, reviews and accreditation processes are used to increase professional knowledge of teaching (Andrea and Gosling 2005:195). This also motivates students to become more active and reflective learners, makes the learners or the students marketable in the world market because of their qualification, promote the institutional autonomy, quality assurance and accountability. Also, one of the advantages of relevance is to improve the quality and relevance of higher education institutions and systems to allow them to fulfil their commitments towards society.

6.5 Disadvantages of relevance in higher education

There is little match between what is taught in schools (both in secondary and higher education) and what is required for the world of work, which is why training needs to be conducted for most if not all fresh graduates before they can be fully employed.

7. Conclusion

The literature review has revealed that a quality assurance system was introduced in South Africa in 2004 and that there has been limited success post-1994 in addressing the challenges facing education; the quality of schooling continues to be undermined by the legacy and persistence of educational inequalities and dysfunction. Quality assurance is popular and has received much attention in most higher education policy; it gives all students equal opportunities regardless of colour or status. It is also obvious that setting of standards is a primary tool for ensuring that people are recognised for learning achievements on an objective and transparent basis. There has been focus on the relevance of higher education in Africa, to ensure that African higher education institutions are of good quality, have standards of high quality and are well assessed so that they are relevant in the academic world and in society. At VUT, as in other South African institutions, the purpose of assessment is to maintain standards, upholding standards of excellence in learning and

maintenance of the institution's reputation in the global marketplace.

In this study, the three elements of quality assurance were explored, namely quality, standards and relevance. From the literature it is observed that quality refers, in higher education, to a high evaluation accorded to an educative process, where it has been demonstrated that, through the process, the students' educational development has been enhanced; not only have they achieved the particular objectives set for the course but, in doing so, they have also fulfilled the general educational aims of autonomy, of the ability to participate in reasoned discourse, of critical self-evaluation, and of coming to a proper awareness of the ultimate contingency of all thought and action. However, in practice the researchers have found that higher education is at a crossroads and that the quality of education is being questioned. With reference to standards, the literature revealed that these are formally documented requirements and specifications against which performance can be assessed. In our experience, assessment has been taking place in higher institutions in order to evaluate the outcome or the performance of the students or learners. Finally, when interrogating relevance, we observed that the literature emphasises relevance in the academic world or in society through assessment and accreditation.

References

Antony, J. and Preece, D. (2002). Understanding, managing, and implementing quality*: Frameworks, techniques and cases.* London: Routledge.
Ashcroft, Foreman-peck. (1996). Quality Standard and the reflective tutor: *Quality Assurance in Education.* 4(4):17-25.
Barnett, R. (1992). Improving Higher Education: *Total Quality Care,* Buckingham: SRHE & OU.
Barrow, R. (1991). The education intelligence.
Brennan, J. and Shah, T. (2000). Managing quality in higher education: *An international perspective on institutional assessment and change.* Buckingham, UK: OECD, SRHE & Open University Press.
British Standard Institution. (1991). Quality Vocabulary Part 2: *Quality Concepts and Related Definitions London*: BSI.
Crebbin, W. (1997). Defining quality teaching in Higher Education: an Australian perspective. *Teaching in Higher Education.* 2(1):21-32.
D'Andrea, V. and Gosling, D. (2005). Improving teaching and learning in Higher Education. *A whole institution approach.* Berkshire: The Society for Research into Higher education & Open University Press.
DAAD T I U C F E A. (2010). *Implementation of a Quality Assurance System* 4:1-16.
Department of Education. (1997). Education White Paper 3: *A Program for the Transformation of Higher Education*. Pretoria: Department of Education.
Eaton, J.S. (2004). Accreditation and Recognition of Qualifications in Higher Education: *the United States, in Quality and Recognition in Higher Education,* OECD.
ENQA. (2003). *Quality procedures in European Higher Education*, ENQA Occasional Papers 5, Helsinki.
Green, D. (1994). *What is quality in higher education*? England.
Harman, G.H.M. and Pham, T.N. (2010). *Reforming higher education in Vietnam*: Springer Science Business Media.
Harvey L, Green D 1993. Defining Quality: *Assessment & Evaluation in Higher Education.*
Harvey L, William J 2010. Fifteen Years of Quality in Higher Education (Part Two). *Quality in Higher Education 16*(2): 81-113.
Higher Education and Training. (2012). Green paper for post-school education and training. Department: Higher Education and Training, South Africa.
International Education Association of South Africa. (2008). South African Higher Education: *Facts and Figures.* Available at www.ieasa.studysa.org. Accessed on 6/09/2013.
Jackson, R., Karp, J., Patrick, E. and Thrower, A. (2006). Social Constructivism Vignette. Available at http://www.projects.coe.uga.edu /epltt/index.php?title=Social_Constructivism.
Kalkwijk, P.T.J. (1998). Dancing on the Slack Rope. In P. A. M. M. a. D. F. W. Jacob P. Scheele (Ed.), *to be continued....Follow-up of Quality Assurance in Higher Education.*
Louw, A., Moloi, K.C., Smit, J.J.A.C., Nicolaides, A., Padayachee, T., Dicks, D., Pooe, R.I.D and Brits, H.J. (2012). Vaal University of Technology: *Teaching and learning Model.*
Morgan, C. and Murgatroyd, S. (1993). Definitions of Quality and their implications for TQM in schools: *in Total Quality Management and the School.* Open University Press, Buckingham, Great Britain.
Raelin, J.A. (2003). Creating leaderful organizations: *How to bring out leadership in everyone*. San Francisco: Berrett-Koehler Publishers, Inc.
Scott, I., Yeld, N. and Hendry, J. (2007). *A case for improving teaching and learning in South African higher education*. Higher Education Monitor No. 6, Pretoria: Council on Higher Education.
South African Qualifications Authority. (2000). The National Qualifications Framework and the Standards Setting, Pretoria: SAQA.
Stensaker, B. (2007). Quality as Fashion: Exploring the Translation of Management Idea into Higher Education: In B. S. Don F. Westerheijden, and Maria Joao Rosa (Ed.), *Quality Assurance in Higher Education* Springer.
Vaal University of Technology. (2002). Co-operative education policy. Vanderbijpark.
Vroeijenstijn, A.I. (1995a). Improvement and accountability: navigating between Scylla and Charybdis, *Higher Education Policy Series* 30.
Westerheijden, .D.F.C.L. and Empel, V.R. (2010). Accreditation in Vietnam's Higher Education System. In M. H. Grant Harman, Pham Thanh Nghi (Ed.), *Reforming Higher Education in Vietnam*: Springer Sciences + Business Media.
Weller, L.D. and Hartley, S.H. (1994). Teamwork and Cooperative Learning: An Educational Perspective for Businesses. Quality Management Journal 1 (4):30-41.
Wood, M. (2002). Statistical process monitoring in the 21st century. In J. Antony & D. Preece (eds), *Understanding, managing and implementing quality: frameworks, techniques and cases* 103-119. London: Routledge.