TOPIC

THE ASSESSMENT OF WORK-INTEGRATED LEARNING (WIL) AT A UNIVERSITY OF TECHNOLOGY

by

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ABSTRACT

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This case study is based on the Assessment of Work-integrated Learning at the Vaal University of Technology, Vanderbijl Park, South Africa. It explores the possible conditions that affect the final assessment of work-integrated learning. Work-integrated learning in the South African context of Higher Education is considered to be an integral part of a programme. It not only allows students to incorporate theory into practice but it also prepares students for the world of work. It is for this reason that work-integrated learning becomes the focus of all Universities of Technology in South Africa. The Universities of Technology's success or failure to integrate quality work-integrated learning effectively will either promote or retard the South African economy.

CONTENTS

THE ASSESSMENT OF WORK-INTEGRATED LEARNING AT A UNIVERSITY OF TECHNOLOGY

1. CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The aim of this study is to explore and understand the conditions under which the assessment of work-integrated learning within a University of Technology takes place and its impact on the final assessment of work-integrated learning. The presumption is (based on anecdotal evidence in my capacity as Quality Assurance Manager at the Vaal University of Technology, Vanderbijl Park, South Africa) that work-integrated learning is not appropriately assessed as should be the case in the cycle of a continuing learning process.

In my experience as the Quality Assurance Manager of the Vaal University of Technology and through the use of Focus Group Interviews and user surveys with students of the Vaal University of Technology, it is quite apparent that students are placed at workplace sites and left under the supervision of the mentors[1] who are not necessarily trained assessors, and therefore the assessment by the mentor does not necessarily meet the minimum requirements for a valid and reliable assessment.

The lack of training as assessors, especially in the case of mentors, has a direct bearing on the quality of assessments made of learners placed at sites for work-integrated learning. The assumption is that part of the problem may be attributed to the institution not having the necessary resources (finance, time and human) to train the mentors as assessors.

[1] *Mentors are there to facilitate the learning of learners at the workplace site so that the desired outcomes of the module are achieved.*

The second issue is that the placement of students is merely negotiated between the academic supervisor and industry and thereafter the student is directly under the supervision of the mentor.

According to a Focus Group Interview report by Brits[2] (2004:2),

> *"A mentor mentioned that he was not informed of his role, as a mentor, by the university. He offered the student the opportunity to gain experience on his farm as part of the student's learning but has no idea as to what his role as an assessor should be. He recommends that the university should inform him as a mentor by means of a visit or a formal meeting at the campus to clarify the roles of the student, mentor and academic supervisor".*

Thirdly, the irregular visits (for legitimate reasons such as workloads, transport costs, etc.) by academics to the workplace sites compromise the validity and reliability of the assessment. These factors (reflected above) need to be taken into account with regard to the validity and reliability of assessments of work-integrated learning.

Finally, students are not aware of their rights and responsibilities in the assessment process of work-integrated learning. From the focus group interviews, it is apparent that students generally have little or no recourse to challenge the final assessment of their work-integrated learning component/module.

It is imperative for the institution to devise effective systems to ensure that the placement and assessment of students are of very high quality since the

[2] *Dr H.J. Brits is the Director of Quality Promotion at the Vaal University of Technology and was responsible for programme reviews at the time of the compilation of the report.*

university is responsible for the student and the quality of student it sends out into the world of work.

It is for this reason that I would particularly like to investigate the problem that exists (i.e. to understand how the conditions for the assessment of work-integrated learning contributes to a valid and reliable assessment) and to see to what extent an alternate strategy of assessing work-integrated learning could assist in overcoming the problem.

Stakeholders (i.e. the Department of Education, Industry, the Universities of Technology) in the South African University of Technology Sector realise that the assessment process of work-integrated learning is becoming a more crucial issue for the funding of work-integrated learning (by the Department of Education) as well as being able to adequately prepare students for the world of work. The Department of Education provides funding for work-integrated learning (as per formula of the Department of Education) and therefore needs to see a substantial output in terms of the investment made into each student.

The employer needs to be guaranteed that the quality of student they receive as a new employee is one that will contribute to their respective industries as well as contribute to the economic sector as a whole.

The need for a more valid and reliable assessment constantly comes to the fore and it therefore becomes imperative for all the participants in the assessment of work-integrated learning to understand their roles in the assessment process. If the pre-conditions for assessment are not adequate, then the issue of validity and reliability come to the fore. Quite often students become alienated from the process of assessment and are not adequately informed of their role. The assumption is that the systems that are in place are

not strictly adhered to and therefore it contributes to concerns being raised about the validity and reliability of work-integrated learning assessments.

1.2 PROBLEM STATEMENT

The Vaal University of Technology as a provider of Higher Education in South Africa should prioritise the assessment of the work-integrated learning since the demands of the twenty first century for academics and the institution make assessment of work-integrated learning more complex.

According to the Technikon Act, 1993 (No. 125 of 1993)[3] which is clearly outlined in the SAPSE Reports 150 and 151, the work-integrated learning component (previously referred to as experiential learning) is an integral component of most University of Technology-type programmes and requires that a learner successfully completes it in order to be eligible for the awarding of a qualification.

The work- integrated learning component could range from three months to twelve months but is often seen as a twelve-month component of a programme. According to Report 151 which is part of the Technikon Act, 1993 (No. 125 of 1993:7) it clearly states:

> *"Technikons must prepare people for a particular occupation or industry and are oriented towards practice, promotion and transfer of technology"*

Work-integrated learning, in essence, could therefore constitute credits ranging from as little as 25 credits to 120 credits (a single credit is equivalent

[3] *According to the Technikon Act of 1993, the two SAPSE Reports contain what type of qualifications (SAPSE 150) they may offer and the other (SAPSE 151) clearly indicates the names of specific programmes approved by the Dept of Education that Technikons may offer.*

to 10 hours of notional learning) as defined by the South African Qualifications Authority[4] in the National Qualifications Framework.
The need for work-integrated learning placements will probably increase in future. Likewise, the increase in the awareness and purpose of work-integrated learning should become more prominent.

Work-integrated learning is one form of Co-operative Education, while other forms of cooperative education are service learning, drama, field trips, role playing, simulation, laboratory practices and work study projects.

This study focuses on the assessment of work-integrated learning and it is hoped that the findings will not only be of benefit to students, academics, employers and the community but also to other stakeholders, for example, the Department of Education and the Higher Education Quality Committee. It could provide an alternative to the current practices of assessing work-integrated learning within Universities of Technology. The outcome of this research could be enhanced by further research if the proposed model for the assessment of work-integrated learning (which is illustrated on page 45 of this document) is pilot-tested and then evaluated in order to gauge the benefits of the model. This research could positively influence the credibility of work-integrated learning since there is generally a negative perception about the assessment of work-integrated learning held by various external stakeholders of the sector.

Further if Universities of Technology are to maintain their niche area, that is, having work-integrated learning as part of most their programmes, mainly diplomas which makes University of Technology students more employable because of their 'hands-on' training, then improving the quality of work-integrated learning is an issue that should be high on the agenda.

[4] *The South African Qualifications Authority (SAQA) was established in terms of Act No. 58 of 1995 to oversee the implementation of the National Qualifications Framework and to monitor the quality assurance of qualifications offered by educational institutions in South Africa*

According to Brits[5] (2004:3), the following are some areas where improvement is imperative:

> *"Some of the identifiable gaps in the assessment of work integrated learning:*
>
> - *Inappropriate placement of students and lack of placement opportunities*
> - *Lack of group consensus to arrive at a valid and reliable assessment*
> - *Lack of appropriate training in the assessment of work-integrated learning"*

According to Pityana (2006: 4-13) he highlights some of the problems that Universities of Technology and Comprehensive Universities (with specific reference to distance-education institutions) are faced with regarding work-integrated learning. He argues the following:

- *"That the partnership between organised industry and higher education needs to be strengthened*
- *That learnerships[6] pose a threat to work-integrated learning in that employers would rather opt for a tax incentive by taking on more learnerships and ignoring students for work-integrated learning.*
- *That the lack of subsidy, no tax incentives and institutions having to pay insurances to cover students in the event of injury*
- *That students do not have the resources to complete the compulsory work-integrated learning, especially in cases where students have to look for their own work placements."*

[5] *Brits, H.J (2004) is used as a reference because as a Director of Quality Assurance at the Vaal University of Technology, he can honestly reflect on his experiences of interviews with students and employers/mentors alike. This reference is an unpublished report solely for the consumption of the institution.*

[6] Learnerships: A skills development initiative by government to address the skills shortage in the country which affords employers tax incentives for registering students for learnerships

According to Weisz & Smith (2005:607), they acknowledge that there are some major challenges facing work-integrated learning that need to be overcome before these practices become more acceptable to all the stakeholders involved in work-integrated learning.

Academic staff involved in cooperative education programmes (more especially work-integrated learning), have reported that they feel that their workload is high and is undervalued, and that their programmes are not adequately funded (Atchison, M., Pollock, S., Reeders, E. & Rizzetti, J. (1999)

Given the many challenges that face work-integrated learning, it is therefore anticipated that, in the interest of the University of Technology sector, attempts are made to vigorously pursue research in the field of assessment of work-integrated learning in order to the credibility of work-integrated learning within the sector.

1.2.2 RATIONALE FOR STUDY:

This study will investigate the current assessment conditions that impact on the assessment of work-integrated learning since it is assumed that there is a low level of validity and reliability in work-integrated learning assessments. The main findings of the research will be used to make comparisons with international and national contemporary best practices in the assessment of work-integrated learning as well as emphasise the need for a critical review of current practices in the light of the findings of this study.

Crebert (1995: 4) drives home the message as to how important work-integrated learning is in this quotation below:

"Without the conscious reflection on how procedures are being carried out, how concepts are being formulated and understood, how organisational values impact upon decision-making, and how individual practice is affected by social "rules", the learner will remain a novice, lacking the ability to transfer what is known and understood within one discipline or field into others."

In light of the above challenges, we find that there is a greater emphasis on the quality of teaching and learning by the Higher Education Quality Committee (HEQC)[7] which monitors the quality of teaching and learning across all higher education providers in South Africa.

The South African Society for Cooperative Education (SASCE) was formed as an initiative of the Committee of Technikon Principals[8] to develop and enhance the capacity of assessing of work-integrated learning across the sector. Later it became an independent statutory body having international links with the World Association for Cooperative Education (WACE).

Given the necessary support structures for cooperative education that exist nationally and internationally, the researcher would like to understand the reasons for the concerns raised about the assessment practices for work-integrated learning. A possible outcome of this study would be to propose an alternate system that could address the needs of the students, mentors (employers) and the academic supervisors (lecturers) in the assessment of work-integrated learning.

[7] *The Higher Education Quality Committee is a sub-directorate of the Council on Higher Education established in terms of the Higher Education Act of 1997, Government Gazette, No. 18207, 15 August 1997. The CHE acts as an advisory body to the National Minister of Education in South Africa.*

[8] *The Committee of Technikon Principals was a statutory body which came into effect from January 1995 taking care of all technikon related matters at a national level.*

The model proposed for this study takes into account the vital role that students, academic supervisors and mentors play provided they have the necessary supporting conditions that will assist them in developing skills for performing the task of assessment with accountability and responsibility.

The site of investigation chosen for this study is the Vaal University of Technology and the reason for the choice is that it has not been affected by any mergers with any other higher education institutions as was proposed by the Minister of Education (2002) and an added benefit would be that the institution had recently (in 2003) been through an official institutional pilot audit and a dull institutional audit in 2006 undertaken by the Higher Education Quality Committee.

1.2.3 THE RESEARCH QUESTIONS

The research questions which are sub-questions of the main question are summarised in this section but will be further elaborated on in the conceptual framework section where specific reference is made to the way in which the conceptual framework will address the research questions.

The Main Question is:

To what extent are the conditions for the assessment of work-integrated learning at a University of Technology appropriate and what is its impact on the final assessment of the student?

The following specific research questions will assist in focusing the research:

a) How does the assessment process, with specific emphasis on validity and reliability, affect the final assessment of work-integrated learning?

b) How is the assessment policy utilised interpreted by the assessors to arrive at a valid and reliable assessment process for work-integrated learning?

c) What training or expertise do the mentors and students bring into the assessment process of work-integrated learning?

d) What role do students play in the process of being assessed and how does this affect their final assessment (i.e. of the work-integrated learning component)?

e) What recommendations can the proposed assessment model generate for the benefit of ensuring valid and reliable assessments of work-integrated learning?

1.2.1 AIMS AND OBJECTIVES:

The main objective of this study is to determine the conditions under which work-integrated learning is assessed at a University of Technology and to establish its impact on the final assessment of the work- integrated learning component.

The objectives of the study will focus on the validity and reliability of the *assessment* of work-integrated learning. They could be defined as follows:

- To explore the conditions under which the assessment process takes place with specific emphasis on validity and reliability.
- To understand the assessment policy and its application by the mentor or academic supervisor to arrive at a valid and reliable assessment for work-integrated learning.
- To assess the level of relevant training and expertise in assessment strategies that each of the assessors (both academic and mentor) bring to the assessment process.

- To investigate what role students play in the process of being assessed and its impact on the final assessment of the work-integrated learning component.
- To propose recommendations based on the proposed assessment model which could be used in future assessment strategies to promote the validity and reliability of the assessment of work-integrated learning.

The literature related to the assessment practices of work-integrated learning will be analysed to ascertain how any contemporary literature addresses the issue of assessing work-integrated learning effectively (i.e. looking at the issues of validity and reliability).

Using the Vaal University of Technology as a primary source of gathering relevant data (via students, staff and industry) by means of appropriate quantitative gathering instruments, an evaluation will be done by the researcher and communicated to all the important stakeholders involved in the assessment of work-integrated learning so that validity and reliability are not compromised in future.

1.2.4 KEY WORDS

The following terms may appear repeatedly in the research and in some cases the definitions of terms may have been specifically modified to suit the purpose of this study.

1.2.4.1 Assessment

Assessment refers to a process which measures the competencies of the learner against expected learning outcomes in a valid and reliable manner and thus enhances the learning experience of the learner. This definition is specifically developed for the purposes of this research and may not concur

with other definitions of assessment by theorists and researchers in the field of assessment.

It also includes the reflection on a diversity of processes in arriving at a valid and reliable assessment of the student's performance. I chose to coin the above definition for the purposes of this research and it is supported by the quotation below:

> *"If students are to succeed in constructing knowledge, assessment activities should require students to organize information and consider alternatives. Three qualities central to authentic intellectual work are the construction of knowledge, disciplined enquiry and value beyond the institution of learning." (Newmann, 1996:29)*

A valid and reliable assessment should be dynamic and constantly changing to meet the needs of contemporary society. Consequently, changes in assessment need to continually tie in with new purposes and outcomes for assessment as they are conceived.

1.2.4.2 Final Assessment:

Final assessment refers to the final assessment of the work-integrated learning component only which in the end constitutes at least a third of the total credit value of the qualification.

1.2.4.3 Work-Integrated Learning:

Work-integrated learning refers to learning that is achieved via practice in a simulated environment or in an authentic workplace environment to enable the learner to fully achieve the outcomes of the learning programme. Although there may be a large number of definitions for work-integrated learning nationally and internationally, I have chosen to establish a definition

that is synonymous with the South African context. In the current context there has been a shift towards the use of the term 'work-integrated learning' which was previously referred to as 'experiential learning' but in other texts it may also be referred to as in Jones and Costello (1998:3) as 'career-oriented learning' or 'in – service training' or 'experienced-based learning'.

1.2.4.4 Standards

Standards refer to the performance indicators outlined in the assessment process against which students are measured in order to arrive at a summative assessment/ assessment score. These performance indicators become the benchmark if they are consistently applied across the higher education sector and therefore become valid and reliable indicators for the institution.

1.2.4.6 Universities of Technology:

Universities of Technology are clearly defined in terms of a government gazette released by the Minister of Education (Republic of South Africa) in 2003 declaring that the previous Technikons (which in terms of the Higher Education Act 101 of 1993 promulgated such Technikons as institutions of Higher Learning offering qualifications from the certificate level up to the doctorate level), will in future be referred to as Universities of Technology while some Technikons merging with Universities will in future be referred to as Comprehensive Universities[9].

1.3. SUMMARY

The current study has to be viewed within a changing landscape for South African Higher Education. The main thrust for this change in Higher

[9] *Comprehensive Universities in South Africa are defined by the fact that a traditional university will merge with a traditional technikon as defined by respective higher education acts prior to being referred to as comprehensive universities.*

Education is political and serves to eradicate the injustices of the past apartheid government which was the dominant rule up until 1994 when South Africa experienced its first democratic elections.

1.4 OUTLINE OF THE DISSERTATION

1.4.1 Chapter One: Introduction

This chapter deals with the introduction and background for the intended research and provides a rationale for the study. The rationale focuses on the need for such a study and the possible benefits it could generate for the University of Technology sector of South Africa, in particular, but may also appeal to international audiences.

1.4.2 Chapter Two: Work-Integrated Learning in the South African Context

This chapter looks at the context within which South African Higher Education is located and the fundamental paradigm shifts regarding quality in higher education.

1.4.3 Chapter Three: Previous research on the Assessment of Work-Integrated Learning

This chapter interrogates the literature pertaining to work-integrated learning, and in particular, to the validity and reliability of the assessment of work-integrated learning. The conceptual framework is informed by the models of Rainsbury *et al.* (1998) and Harlen (2003) which for the purposes of this research will be referred to as *'An effective framework for the assessment of work-integrated learning'*.

1.4.4 Chapter Four: Research Design & Methodology

This chapter will focus on the research methodology to be used for this study and the rationale for the use of such methodology. It will include the research design and methods that were applied.

1.4.5 Chapter Five: Main Findings: Conditions for assessment of Work-Integrated Learning in a University of Technology

This chapter will concentrate on the main findings of the study and explain how they contribute to the advancement or the 'de-valuing' of work-integrated learning assessment. It will also highlight the impact of poor assessment practices in higher education in South Africa but more especially for the Universities of Technology.

1.4.6 Chapter Six: Conclusions and Recommendations

This chapter will focus on the concluding remarks of the study and will suggest recommendations to enhance the assessment practices of the institution as well as suggest possible further research opportunities to be taken up by fellow researchers.

1.5 CONCLUSION

Much of the next chapter focuses on the impetus of the political imperatives, in the form of legislation that is currently shaping the higher education landscape in South Africa.

2. CHAPTER TWO: WORK-INTEGRATED LEARNING IN A SOUTH AFRICAN CONTEXT

2.1 INTRODUCTION

This chapter focuses on the fundamental paradigm shift in higher education in South Africa driven by issues of transformation and quality in the higher education sector with greater emphasis on employability of graduates.

Since the coming to power of a new democratic government in 1994 in South Africa, education has undergone radical transformation, more especially in higher education. Much of the challenges in higher education are of a transformatory nature empowered by the change in legislation[10] to legitimize the political, social and economic transformations which are necessary for the growth and development of the nation and the country as a whole.

According to the CHE: *"South African Higher Education in the first decade of democracy"*, (2004:18)

> *"Higher education is equipped to play a major role in generating the high- and medium-level capacities and skills required in the public sector"*

This emphasises the importance of work-integrated learning as a means of adequately preparing students to meet the challenges and demands of the country. The critical value of higher education institutions in South Africa is to ensure that quality graduates are produced to increase knowledge production as well as to provide higher level skilled graduates to enter industry.

[10] *Legislation refers to The White Paper on Higher Education (1997), the National Plan for Higher Education-2001, The Higher Education Act (1997) and The Size and Shape document (which led to the merging of Public Higher Educations Institutions in RSA)*

The changing legislation for higher education in South Africa supports quality higher education and perhaps it is this aspect that will yield more benefit for students who qualify and want to enter the world of work.

2.2 WORK-INTEGRATED LEARNING IN A UNIVERSITY OF TECHNOLOGY CONTEXT

Work-integrated learning in Universities of Technology is the distinguishing characteristic from the traditional Universities, in that its primary focus is to prepare students for the world of work.

Work-integrated learning is facilitated by the academic supervisor (whose responsibility it is to secure placement of students). Once the students have been notified of their placements, they go through an orientation programme to ensure that they are aware of what is expected of them. They are then placed at a workplace site for work-integrated learning and it is from this point on that the mentor (employer supervisor) takes on the responsibility as supervisor.

Students are expected to complete projects assigned to them by the mentor which contribute to the summative assessments. Students keep a 'log book' of their daily activities and the mentor has to sign them on a daily basis to authorise that the entries made are correctly entered and also reflect on the competencies displayed by the student. The mentor's final report and the students' logbooks serve as the only guide/source for the academic supervisor to make his/her final assessment on the performance of the student during his/her work-integrated learning placement.

According to Brits (2004:5), the following are some of the comments that students made regarding the academic supervisors:

- *The student is not directly involved in the processing of his/her final assessment.*
- *The student does not have any recourse to challenge the outcome of his /her assessment.*
- *Academic supervisors do not give students an opportunity to explain their personal circumstances which might be a contributory factor/s to the student performing poorly*
- *Students have to find their own placements at specific industries. Very often they have to rely on an official letter issued by the lecturer. Employers are reluctant to take on learners due to the fact that injury to any student might have serious repercussions for the employer. Unsuccessful placements of students results in students repeating a whole year.*

The issues mentioned above raise concerns about the validity and reliability of work-integrated learning assessments.
Forbes (2004:65) says:

> *"The challenge for work-integrated learning is to ensure that quality and adequate resourcing underpins service delivery and implementation that can guarantee the student a value-added knowledge learning progression through the work-based learning programme"*

The above quotation supports my argument that the quality of assessment is paramount to the learning experience of the student in the process of assessment.

2.3 THE ROLE OF WORK-INTEGRATED LEARNING

In order to understand work-integrated learning, one needs to understand the characteristics of it and its relevance within the University of Technology sector.

The characteristics of work-integrated learning (as reflected in the Cooperative Education Policy of the Vaal University of Technology, 2002) are as follows:

- *"It is differently experienced by each student*
- *Its nature is defined by the type of work placement*
- *It responds to specific outcomes assigned to it in terms of the programme outcomes for work-integrated learning*
- *It is dependent on the way in which each mentor supervises it*
- *The nature of activity for each student is defined by the learning outcomes*
- *The learning needs of the student determine the success or failure of the achievement of the outcomes*
- *The oversight and direction arrangements by the institution are crucial for work-integrated learning*
- *Mastery of the discipline-based expertise is important to achieve the outcomes for work-integrated learning*
- *It must be assessable, in other words there should be specific criteria/minimum standards against which the student is assessed*
- *There is a focused interaction between discipline-based and work-integrated learning."*

Work-integrated learning is seen as critical component of qualifications offered by a University of Technology which distinguishes it from the traditional universities. Graduates of Universities of Technology gain easy entry into the world of work as compared to their traditional university

counterparts. It is a credit-bearing module and as such it has explicit leaming outcomes which contribute to the exit-level outcomes of the qualification.

There is currently a huge shortage of artisan and technician skills within the country and to alleviate this problem, skills are imported on a large scale from other countries. By maintaining a quality work-integrated module within the greater part of University of Technology programmes, it is possible to alleviate the current dilemma that the country is faced with, i.e. with the shortage of skilled labour.

Providers of higher education and industry need to focus their energies toward improving the quality of work-integrated learning that students are exposed to or else this could have a negative impact on the economy of the country.

Work-integrated learning is a component which adds to the value of the qualification making the student not only nationally competitive but also internationally competitive. This is supported by Washbourn (1996:5) when he says:

> *"Learning in work placements needs to be deliberate and intentional, supported by induction of students and supervisors and the imaginative development of appropriate assessment to ensure the maintenance of high standards and adequate duty of care."*

There has to be some kind of reflection on the current practice by all parties involved in the process of assessment in order to improve and restore the confidence of participants in the process of assessment. There are the dangers of programme failure that are associated with reducing the academic engagement with cooperative education programmes (Weisz & Smith, 2005:611).

The reality of the current situation is that Universities of Technology have to address the deficiencies that might exist in the assessment of work-integrated learning and develop some kind of coordinated response across the sector to ensure that the assessment work-integrated learning is of formidable quality.

With the changing landscape of higher education in South Africa, Universities of Technology have been reduced in number from about fifteen to six. This therefore places added pressure on the remaining Universities of Technology to ensure that something drastic is done to ensure that the assessment of work-integrated learning is improved. There are undoubtedly several challenges that face Universities of Technology and the assessment of work-integrated learning is one of them.

2.4 WORK-INTEGRATED LEARNING IN THE CONTEXT OF DELIVERY

The demand for placement of students at workplace sites for work-integrated learning is increasing at an alarming rate each day. The result is that higher education institutions are finding it increasingly difficult to place students for work-integrated learning.

The workplace site is the ideal location for the attainment of the outcomes as set out in the programme. However, in some cases where it is financially viable, institutions could achieve the same outcomes as that of industry by simulation. It is a difficult decision for institutions to resort to simulations but if it is the only alternative to finding appropriate placements for students of work-integrated learning, and then institutions will have to cope with this as an alternative.

Inappropriate workplace sites should not be negotiated for the mere sake of having the student there when little or no learning takes place. In such cases

the institution should decide on whether it is wise to retain the work-integrated learning or rather to recurriculate the outcomes of the programme to include more theory.

The above are just some of the factors that compromise the quality of delivery of work-integrated learning. There are several other factors which the researcher of this study would like to identify and determine their impact on the assessment of work-integrated learning.

Ideally work-integrated learning should be well structured for the period of time that the student spends at the workplace site. The student should be able to achieve most of the outcomes of the module at the site. There should be adequate support to enable the student to achieve the outcomes as well as encouragement to engage in self reflection of the student's individual performance.

If work-integrated learning is implemented, monitored and evaluated in an appropriate manner (refer to the conceptual framework/model-page 45), then it could certainly add value to the total learning experience of the student.

2.4 PROMOTING QUALITY HIGHER EDUCATION IN SOUTH AFRICA

In order to facilitate the changing landscape of higher education in South Africa, several statutory bodies were put in place to give effect to the desired changes for the country's higher education agenda, some of them being, The Higher Education Quality Committee (a sub-directorate of the Council on Higher Education) and the South African Qualifications Authority were set up to establish a culture of quality assurance across all institutions of higher learning (both private and public).

Prior to the establishment of the above national bodies since 1997 onwards, the Universities of Technology (previously known as Technikons) were quality assured by SERTEC (the Certification Council for Technikons). Quality assurance focused mainly at programme level and did not give sufficient attention to the assessment of work-integrated learning which had a major impact on the quality of assessments of WIL (previously referred to as experiential learning).

Higher education in South Africa is basically made up of a number of public and private providers offering qualifications from NQF Level 5 and above. The National Qualifications Framework (structured along a ten-level qualifications framework) allows for easy articulation of students from the career-focused learning (Universities of Technology) to the formative education path (Universities).

The responsiveness of higher education providers in South Africa is aptly summed up in the CHE's publication, "*South African Higher Education in the first decade of Democracy"* (2004:19) as follows:

> *"The critical value of higher education to society lies in its unique ability to provide graduates with intellectual capacities and skills that can both enrich society, and enhance economic growth."*

The transformation agenda has two imperatives for the country, firstly to ensure that our graduates are given the best training in order to contribute to the social and economic prosperity of the country (a human resource development issue) and the second is to ensure that the quality of our graduates are the best nationally and internationally (being competitive and critical thinkers). Therefore validity and reliability become crucial elements in the assessment of work-integrated learning which could ultimately contribute to the desired transformation agenda of the government.

Improving the quality of higher education in South Africa is undoubtedly a priority but quality goes hand-in-hand with adequate funding for the achievement of the intended goals of the country. Therefore in trying to ensure the quality of learning at institutions of higher learning, the burden of financing should not become the sole responsibility of the institutions but should be a collective responsibility of the state, institutions and industry. Without this kind of commitment the desire to improve the quality of work-integrated learning may just become an inaccessible dream.

Work-integrated learning (previously referred to as experiential learning) has been offered and is still being offered by the Universities of Technology (previously Technikons) as part of its qualifications.

Assessment and learning were assumed to be of an acceptable standard but little was done to ensure that the students' learning experience and the parallel assessments were of quality. While several policies were put in place to ensure that work-integrated learning was well structured and curriculated in terms of the needs of industry, it lacked the depth of ensuring that adequate quality assurance mechanisms were in place to assure the quality of work-integrated learning.

Further 'quality' has become a buzz word in higher education very recently and hence has become a renewed focus for work-integrated learning. Many institutions of higher learning in South Africa are still grappling with developing robust quality management systems. Therefore more emphasis needs to be placed on the quality of assessments made of work-integrated learning.

Apart from developing quality assurance systems to enhance the quality of the learning experiences of students, there should be the establishment of a

sustained quality culture institutionally and within the stakeholders who become integral to the assessment of work-integrated learning.

2.5 CONCLUSION

In summary the Department of Education, through the relevant legislation and statutory bodies, are ensuring that all providers of higher education become accountable and provide quality education so that students who eventually enter the world of work are able to positively contribute to the economy of the country and more especially to contribute to their immediate communities.

The next chapter deals with the literature review and the varying views expressed by researchers, authors and theorists. An analysis of the relevant pieces of research will assist in addressing the main research question of this study.

3. CHAPTER THREE: PREVIOUS RESEARCH ON THE ASSESSMENT OF WORK-INTEGRATED LEARNING

3.1 INTRODUCTION

This chapter examines some of the literature on the assessment of work-integrated learning. It also examines what paradigms influence the various forms of assessment and it assesses to what extent these forms of assessment are valid and reliable. The purpose of the chapter is to assist the researcher in developing a conceptual framework that extracts relevant ideas from the literature to enhance the assessment of work-integrated learning.

This chapter also explores the fundamental theories associated with work-integrated learning (commonly referred to by many researchers and authors as 'experiential learning'). In particular, there is a critical analysis of the models used for the assessment of work-integrated learning and how they contribute to valid and reliable assessments. The focus is also on the involvement and training of all participants in the process of assessment, i.e. the students, the mentors and the academic supervisors.

The conceptual framework for the assessment of work-integrated learning is influenced by the theoretical framework of this study.

3.2 A GLOBAL PERSPECTIVE ON WORK-INTEGRATED LEARNING:

Work-integrated learning is a relatively new concept coined within the South African Higher Education sector (more especially among the Universities of Technology) but has been a common practice within the higher education sector in various forms, more commonly known as 'experiential learning' within the Universities of Technology. Hence much of the supporting literature makes consistent reference to 'experiential learning' and is a term

that was initially developed by earlier researchers such as David Kolb (1984). The interpretation of the concept of work-integrated learning is more explicitly outlined in the conceptual framework designed for this specific study

The purpose of this review is to contextualize what is already known about the assessment of work-integrated learning and to integrate some of the ideas and concepts into the conceptual framework of this study by engaging in a critical reflection of the literature that has been reviewed. The literature review should also assist in developing an understanding of how different researchers/authors (locally and internationally) define work-integrated learning and how the methodologies that are proposed enhance the quality of assessment of work-integrated learning. This understanding will also give us the opportunity to support or repudiate perceptions or suggestions based on the reality of current practice.

In reviewing the literature with regards to the assessment of work-integrated learning, it is hoped that researchers will reflect on more valid and reliable ways of assessing work-integrated learning and that I would utilise this knowledge to support my interpretation of how the assessment of work-integrated learning should be done. With the proposition of a new model for the assessment of work-integrated learning, more valid and reliable ways of assessing would be possible.

The literature surveyed proposes various possible ways of assessing work-integrated learning but only a limited number of researchers provide some critical evaluation of the validity and reliability of the assessment of work-integrated learning. The assessment practices often, used by academics and other assessors, tend to have a powerful effect on the quality of the assessment as well as on the learner himself / herself.

The generic assessment of learners is very often in the form of a graded assessment and one might argue that all students should be able to experience success in some form or the other and should not be compared to each other on the basis of how much more intelligent one learner is than the other. At the end of a learner's educational career, irrespective of the differences in intelligence, learners should still be able to assume their rightful roles in society which in the end still contributes to the upliftment of society and the country as a whole.

Rainsbury, Hodges, Sutherland and Barrow (1998) used the participatory model to explain the role of the student in the assessment process. I prefer to call it the *"inclusive model"* simply because it includes all the relevant people in the assessment process. Issues of inclusivity, processing of information, accountability and transparency become central to the argument of producing valid and reliable assessments for work-integrated learning.

According to Rainsbury, *et al (1998)* all role players in the assessment process are involved, i.e. the student; the mentor and the academic supervisor (and it could even include the Cooperative Education Officer of the institution), which makes the process more legitimate and accountable and should the student want to challenge the final assessment, he or she has access to an appeals process.

Although in the literature the terms: service learning; experiential learning; work-based learning and co-operative education are used quite extensively, this study primarily focuses on the term work-integrated learning unless otherwise where the researcher has specifically used a term with the intention of bringing forth a specific viewpoint/argument.

The findings of this chapter will be incorporated into the data analysis to strengthen the arguments that the researcher might have and in so doing try to answer the research questions of this study.

3.3 THE THEORETICAL ASSUMPTIONS OF WORK-INTEGRATED LEARNING

Work-integrated learning is but one example of formative assessment in the field of cooperative education (others include simulations, projects, seminars, internships, etc) and forms a significant part of the requirements for the successful completion of a qualification. Some prefer to refer to it as work-based learning. Yet another concept *'service learning'* has emerged within the South African Higher Education landscape. The difference between work-integrated learning and service learning is that while work-integrated learning merely involves placement of students to acquire the relevant practical knowledge and to apply their theoretical knowledge, service learning is where the student goes into the community to render a service that will benefit the community while he/she acquires the relevant practical knowledge that will add value to his/her qualification. With service learning there is a mutual benefit for both the community and the institution.

Even as we compare these different types of cooperative education, we must remember that the assessment aspect is largely influenced by Outcomes-based Education principles. It may not be taken for granted that the assessors, be they from industry or other governmental or non-governmental organisations, are trained assessors. If they are not trained as assessors to achieve the relevant assessment outcomes, it will most certainly compromise the validity and reliability of the assessments of students.

The generic outcomes for work-integrated learning are aligned to the Critical Cross-Field Outcomes as reflected in the National Qualifications Framework

and Curriculum Development, SAQA, (2000:18) below. According to the critical cross-field outcomes (which are reflected in the Engineering programme submission to the Department of Education on the standardized format prescribed by the South African Qualifications Authority) the student should be able to:

- Identify and solve problems in which responses display responsible decisions using critical and creative thinking
- Work effectively with others as a member of a team, group, organisation or community
- Organise and manage their activities responsibly and effectively
- Collect, analyse and critically evaluate information
- Use science and technology effectively and critically showing responsibility towards the environment and the health of others

Prior to analyzing the validity and reliability of the assessment of work-integrated learning, it is essential to outline what work-integrated learning should provide to learners of the institution. The outline of work-integrated learning below is reflected in the Cooperative Education Policy of the Vaal University of Technology: (2002: 6)

- *"Co-operative Education learners receive superior well-rounded relevant education that is enriched by practical applications of academic knowledge while they accumulate valuable and varied work experience.*
- *It enables learners to realistically evaluate their interest and aptitude and to make adjustments in their career directions.*
- *Learners develop confidence and skills in working with people and directly improve their employment opportunities upon graduation.*
- *They receive honorariums at a competitive rate of pay that may help to defray educational expenses.*
- *They learn in the world of work.*

- *They get exposed to and learn about the professional and work ethics connected to a specific career and/or a group of careers."*

3.4 THE ASSESSMENT OF WORK-INTEGRATED LEARNING

The review of the literature spans from 1984 to 2005, reflecting a wide range of contemporary definitions, theories and perceptions of work-integrated learning as researchers would understand them. In this regard, Kolb's model outlining the need for work-integrated learning (or as he referred to it as experiential learning) is used as a reference point for the arguments that mitigate a need for changing our perspective on assessment practices.

In Kolb's model, work-integrated learning provides the student with the opportunity of integrating the theoretical aspect with the practice. The value of the work-integrated learning component undoubtedly enhances the learning process. There are a variety of ways of assessing work-integrated learning but it is the authenticity of the assessment that contributes to the validity and reliability of the assessment. If the work-integrated learning is properly assessed, it ensures that the student, to a certain degree, has developed the basic competencies necessary upon entry into industry and will therefore be able to contribute to the economic sector in a realistic and meaningful way.

The literature on work-integrated learning indicates that most of the researchers and authors in this field express support, in some form or other, for work-integrated learning to be incorporated into curriculum design at higher education institutions as Weil & McGill (1989:3) suggest that experiential learning can be used as a basis for bringing about various changes to structures, purposes and curricula of higher education institutions.

Some of the literature focuses on work-integrated learning being used for the purposes of access whilst other literature focuses on work-integrated learning being an integral component of a qualification and in particular some higher education institutions may not confer a qualification unless the student has successfully completed the work-integrated learning component. In view of the varied foci, there are differing views on the use of work-integrated learning as proposed by the researchers/authors.

David Kolb (1984) proposed the experiential learning model (work-integrated learning) and it had an important thrust in changing the perceptions and practice of academics within the higher education fraternity regarding the value and importance of work-integrated learning.

Having acquired an understanding of the value of work-integrated learning in an educational context, the crucial role players (i.e. the mentors, students and academic supervisors) seem not to have sufficiently conceptualised the possible different ways in which the assessment of work-integrated learning could be made more valid and reliable. People seem to become set in their ways of traditional practice and very little influences their perceptions even though the world around them continues to change at a drastic pace.

Contemporary literature, like that of Carlsson and Engel (2002), emphasises that development agencies need to improve performance by strengthening learning capabilities and enriching evaluation practices. It is these evaluation practices that need to change the perceptions of work-integrated learning being of inferior value compared to discipline-based learning, so that future evaluation practices (mainly assessment practices) for students might become more meaningful and relevant within the higher education context.

Cantor (1997) explicates his understanding of experiential learning by using the *'inputs-process-outputs'* approach. He focuses on the inputs since he feels

that the input made will determine the kind of output although his model still relies heavily on Kolb's model of understanding experiential learning. It is this kind of model that would contribute significantly to the study since my conceptual framework focuses on an *'inputs-process-outputs' framework.*

The South African Society for Co-operative Education (2000) seems to be largely influenced by exponents of the various work-integrated learning models, having taken ideas from international resources and making it relevant to the South African context. However, the status of work-integrated learning within the South African context is given less value and priority. The South African Society for Co-Operative Education should propose more robust ways of assessing work-integrated learning. However, they have contributed significantly to policy development and developing a framework for the implementation of work-integrated learning as well as more recently giving some attention to quality in work-integrated learning.

It is quite evident that for work-integrated learning to be given the credit it deserves, there needs to be more valid and reliable ways to assess the outcomes of work-integrated learning.

The assessment of work-integrated learning is done for specific reasons (as it is reflected in the Cooperative Education Policy of the Vaal University: (2002:4)

a) *"to assess prior work-integrated learning experience/knowledge of a student to gain access/entry into higher education programmes; and*
b) *to qualify students for an award/qualification where work-integrated learning is a compulsory component of the programme /qualification."*

For me there is value in the research done by previous researchers in the field of work-integrated learning but the constructivists seem to be more critical

and address the demands and realities of the world of work in the 21st century.

Schulthesis (2005:381) says:

> *"Consistent with the calls for a constructivist approach to career counselling and assessment, a systematic review of qualitative approaches to the assessment of work and relationships is necessary. Situated within a constructivist paradigm, a conceptual rationale for the qualitative assessment relational influences within the career domain is presented, together with a comprehensive review of the state of the art of current qualitative career assessment practices*"

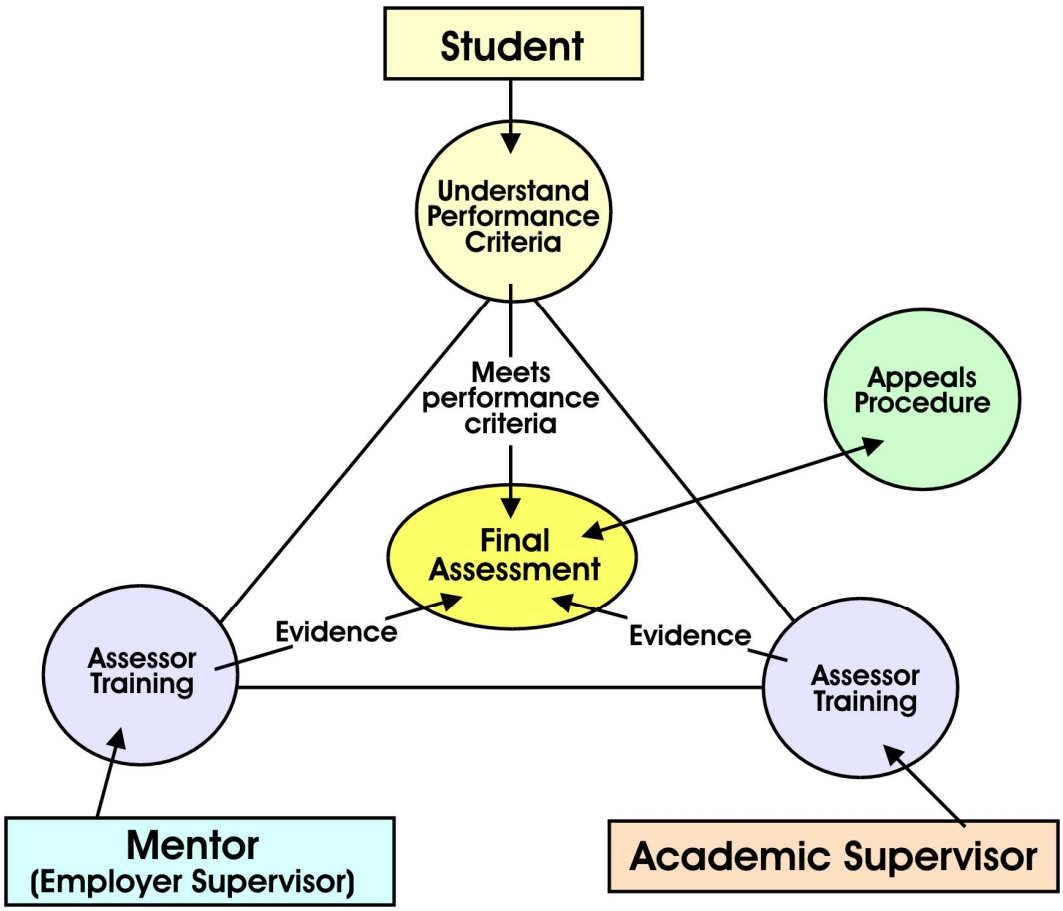
It is clear from Schulthesis' rationale that for a change to occur in assessment practices, the traditional methods of assessment need to be reviewed with the intention of securing more valid and reliable ways of assessing work-integrated learning. The constructivist paradigm reviews assessment practices as the opportunity to evaluate all the contextual factors that are current and to arrive at devising better or more efficient assessment strategies.

Some of the researchers, mentioned above expound on the fundamental ideas of David Kolb (1984) and although they suggest new ways of assessing work-integrated learning, they try to maintain the traditional methods of assessment. Schulthesis (2005:381) very aptly captures the need for a change in the way we assess by saying that the world of work and needs of people from diverse backgrounds requires that we search for new means to assist clients in making meaning of the relationships they engage in on a day to day basis.

In constructivist assessment, both the client and the counsellor are actively involved in the assessment process and are in absolute control of contextualising meaning and change necessary for valid and reliable assessments.

Whiston and Keller (2004) also support a constructivist approach that signifies the movement towards practice that more closely recognizes the realities of people's lives in an ever-changing world. Hence, constructivist assessment of work-integrated learning is inherently a change-generating process which is dynamic, active and reconstructive. But the traditional methods of assessment of work integrated learning lack the breadth and depth to adequately account for the interface between career and non-career life domains.

Assessment practices vary from theorist to researcher to author but commonly include the academic tutor/supervisor, the mentor (workplace supervisor) and the student. Very often assessments of both the academic tutor/supervisor and the mentor seem to dictate the final assessment of the student. The student is required to accomplish tasks assigned by both the mentor and academic supervisor. The student is not given the opportunity to add intrinsic value to the assessment process as such but is required to submit a portfolio or present an essay of his/her experience while being at the worksite.



(Rainsbury et al (1998:14)

Fig. 3.1: The shared responsibility of student, mentor and supervisor should function with the pre-training of assessors as a compulsory prerequisite for the process of assessment

According to Rainsbury, Hodges, Sutherland and Barrow (1998:13-15) focus is based on an *inclusive model* (Figure 3.1), where academic tutors, mentors and students have an equally important role in the assessment process. Rainsbury *et al.* (1998), supports this notion of collaboration between academics, mentors and students. This fundamental shift challenges the norm of academics that see themselves as being the only ones to formally assess students since they have the expertise to do so. The assessment is triangulated to ensure that validity and reliability become prominent features of the assessment process. Students will find this mode of assessment as being more

acceptable since there is a greater degree of transparency, fairness and appropriateness.

Although Rainsbury *et al* (1998), have developed a reasonable model; it lacks the depth of demonstrating the cyclical nature of an assessment process. The positive feature is that it incorporates an appeals procedure which in the traditional method of assessment is virtually non-existent. There is evidence of some degree of divergent thinking, while at the same time; some dialogue at least is taking place to arrive at a 'consensus' assessment grading. The assessors for the first time in a model come to the assessment process with some form of professional assessment expertise (in the form of assessor training), something which the current system being used at the Vaal University of Technology really lacks and if it is incorporated it could add value to benefiting not only the students but also the institution as a whole.

In developing a new model one should take cognisance of the concerns that the researcher has with the model reflected in Fig. 3.1 above:

- The absence of goal setting for the assessment of work-integrated learning
- The impact of the assessment process on the final assessment
- Have all the programme outcomes been reached through the assessment process?
- There is no indication of how the performance criteria for the students fit into the system
- The model was developed for a developed country where the level of literacy and access to resources is greatly enhanced by the national education system, a feature which should not be taken for granted in a developing country like South Africa

The dimension of personal development is a valid one and should feature more prominently in a framework for the assessment of work-integrated learning

Toohey (2002:351) supports personal development within a social context and sees the student as the most important person in the work-integrated learning journey. He believes that personal attributes such as self-appraisal, willingness to take responsibility for continued learning, self-management and the ability to work with others are significant factors in effective professional practice. Therefore Toohey (2002:357) is of the opinion that work-integrated learning activities should be directed at ultimately assessing personal development. Assessment of ethical behaviour in work-integrated learning can be rather intricate and may require professional assessment expertise that many of our current practitioners would have to develop.

Many contemporary researchers and authors support a radical change in assessment practices to meet the needs of technological advancement and social transformation. Usher, Bryant and Johnston, (1997), for example, are adamant that the assessment of work-integrated learning should be located within an emancipatory context giving students the freedom to submit what they see as important in their workplace experience. In this way the strengths of the students are highlighted and it provides a clear direction for the career-pathing of that particular student.

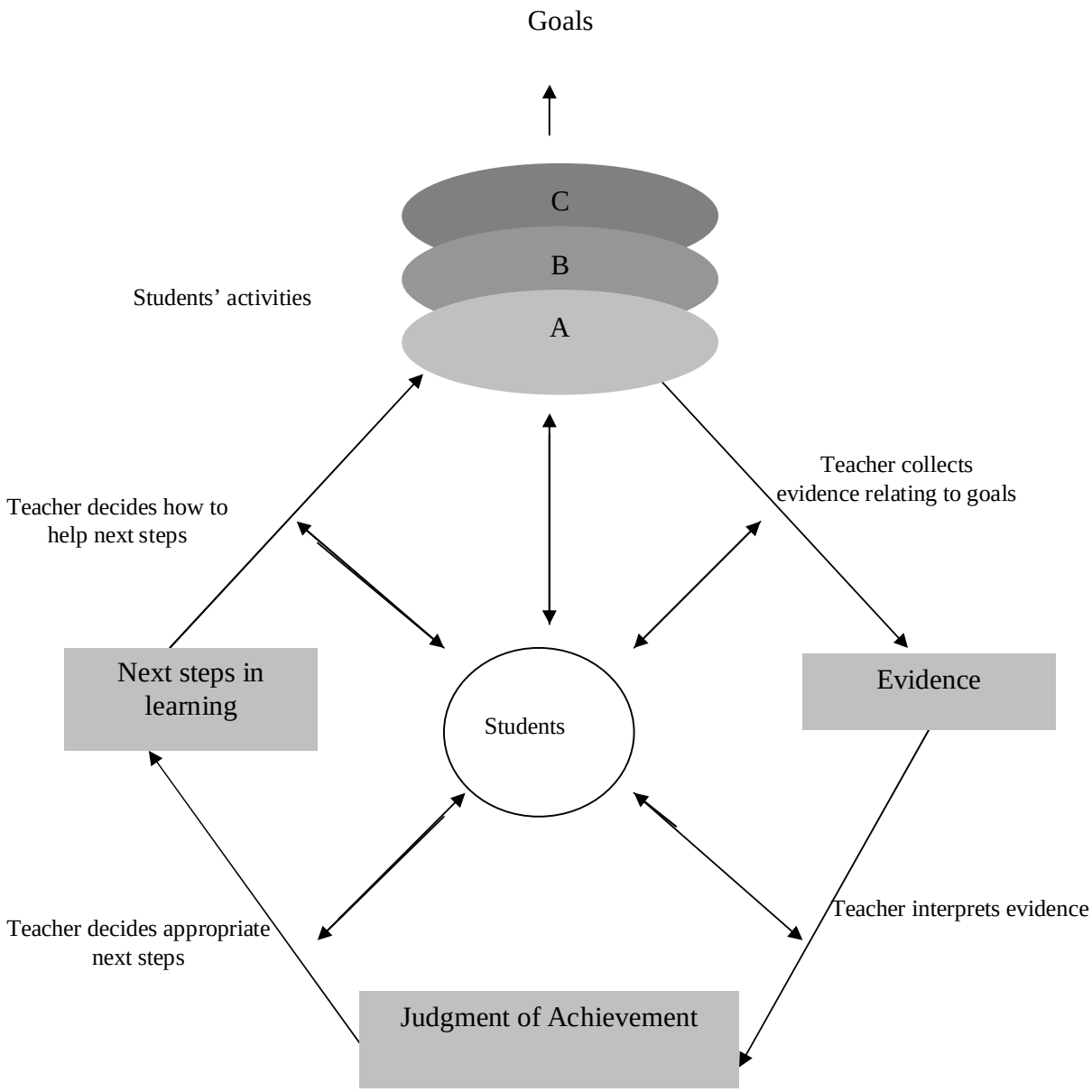


Fig. 3.2: Harlen's Formative Assessment Cycle (Harlen, 2003:20)

According to Harlen (2003), formative assessment is just as important as summative assessment and that it should prepare the student for the mastery of skills, concepts and attitudes relevant to the goals of the learning process. Work-integrated learning is part of a formative assessment process and she goes on to emphasise that if students understand the process of formative

assessment, they become more confident and are able to relate to the assessor more easily than in other instances. The students are in control and are able to make sense of their new experiences in the workplace environment.

Harlen's model above (Figure 3.2) provides the ideal cycle for making assessments more valid and reliable. However, there seems to be teacher-directed initiatives for the process to be sustained and there is very little contribution of the learners towards the assessment process. It is this aspect that my research is concerned with, that is, developing a model which meaningfully includes the students and the contributions they make towards the final assessment that should be considered as central to the process of assessment. Therefore, for me, the main steps, i.e. the goals, the collection of evidence, making the judgment and moving towards the next steps in learning would be relevant for my model of assessment.

The purpose of an assessment is very often hazy and assessors have just one intention and that is to assign a final assessment grading to the student concerned. How this assessment is gained and the impact it has on the particular learner is of little importance. An assessment event should not be an event in itself but should rather culminate with feedback, being a two-way process for both students and assessors alike. After all it is the assessment that drives student learning and eventually the ability to be critical of their own performance and to identify their strengths and weaknesses.

Many of the views expressed in the literature are relevant and fundamental to the implementation of successful assessment practices for work-integrated learning. However, more emphasis needs to be placed on preparing or training academic supervisors, mentors and students on the purpose of assessment, the different types of assessment and the role that each of them have to play in arriving at a consensus assessment.

Assessments can only be considered to be valid and reliable if the assessors understand the assessment policy and know how to implement the assessment policy. They should be able to apply the assessment criteria and make objective assessments of the student's performance. Students must also understand the assessment criteria and the assessment process. They should know their rights and responsibilities in the process of assessment.

Therefore the reflective practice of assessment evident in the models of both Rainsbury *et al* (1998) and Harlen (2003) provide a knowledge base for researchers to interrogate assessment strategies for future purposes.

An assessment of work-integrated learning or any other practice-based learning should provide an opportunity for the assessor and the student to sincerely reflect on the competencies developed in order to enter the world of work. After all that is the primary objective for any form of practice-based or work-based learning. If this approach is incorporated into the assessment strategy of an institution, it will surely be aligned to educationally sound principles.

The review above provides a wealth of knowledge on the rationale for assessment as a holistic approach that underpins the value and process of work-integrated learning. This is a valuable resource to test my concern of whether Universities of Technology are employing the most educationally sound principles and practices to ensure valid and reliable assessments of students completing the work-integrated learning component. It also provides an opportunity to test whether institutions have taken into consideration the issues raised by contemporary researchers, authors or theorists, that is, are we assessing the impact and value of work-integrated learning in a University of Technology qualification?

Assessment can only be considered as *'fit for purpose'* if it is valid and reliable. This implies that all the pre-conditions (prerequisites) for the assessment of work-integrated learning should be in place before assessors engage in the assessment process. Every participant in the process should understand the contents of the assessment policy as starting point to the process. The assessment criteria should be made explicit to all the participants of the process. Mentors should receive professional training as assessors to ensure that the outcomes for the work-integrated module are achieved. The student must know his/her rights and responsibilities in the process of assessment. An appeals process is an essential part of the process to ensure that the assessment at the end can be considered as valid and reliable. There must be intrinsic as well extrinsic value for the academic supervisors, the mentors and the students when work-integrated learning takes place.

However, all of the above literature does not consider placement as a crucial element for assessment to take place. Although this aspect is not part of the research focus of this study, it is important to take cognisance of its impact on the assessment process because the entire process might not yield the desired results. The literature is isolated in pockets when it comes to placements thereby lacking the synergy required to create some form of national/international best practice regarding placement issues for work-integrated learning.

The value of the theory of work-integrated learning; the emphasis of personal development and the challenges raised in the literature above provides an adequate resource base to analyse the assessment practices of work-integrated learning within the South African context. Work-Integrated Learning needs to be rethought and given the recognition it deserves in the higher education sector. In the United Kingdom, legislation ensures that

some form of practice-based learning is incorporated into every university programme to ensure employability of graduates.

In South Africa, there is a need to create structures, legislated by government, within which employability skills are reinforced at Universities and Universities of Technology. This "informal culture" of expectations of work-integrated learning should be eradicated and replaced by more powerful work-integrated learning that
will in time overcome the complexities of traditional regulations and bureaucratic requirements.

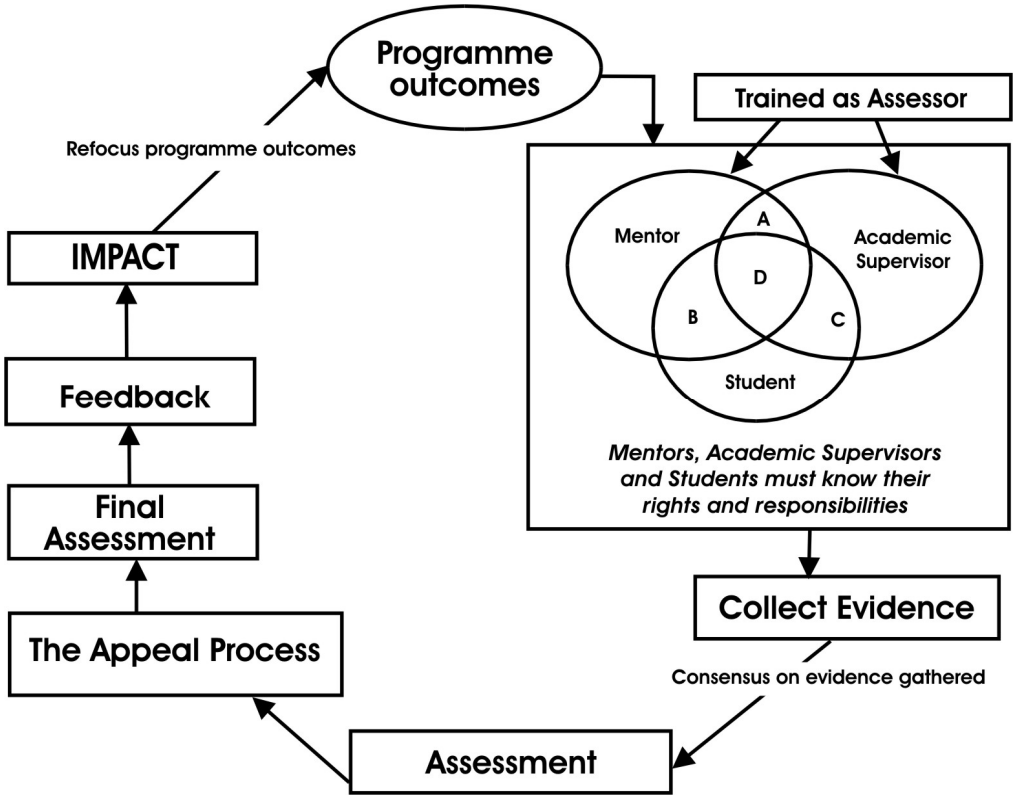
3.5 CONCEPTUAL FRAMEWORK FOR THIS STUDY

Nationally and internationally, there is an ever-increasing demand for curriculum developers to take cognisance of the competencies and technologies that students have to be equipped with in order to survive in the world of work in the 21st century. The rapid changes taking place in industry, the labour market, the workplace and work organizations, in many ways, prescribe the skills, knowledge and attitudes relevant for a change in curriculum development. Therefore work-integrated learning becomes an important component in prescribing some of the fundamental changes that have to take place.

The importance of work-integrated learning has necessitated several changes in the educational sector, forcing educationists to change their perceptions and role as educators in education.

A conceptual framework for the purposes of this study is illustrated in the figure below:

Figure 3.3: An effective framework for the assessment of work-integrated learning



The literature review of Harlen (2003) and that of Rainsbury et al (1998) provides a basis for the above model to ensure that work-integrated learning is assessed along the fundamental principles of validity and reliability.

Harlen's proposed *'Formative Assessment Cycle'* (2003) focuses on effective assessment for learning strategies, i.e. knowing the goals of the intended assessment, collecting the evidence, making judgment of the achievement and deciding on the next steps towards developing appropriate activities so that the appropriate learning goals could be designed to suit the assessment strategy.

The model is direction-orientated and provides more opportunities for valid and reliable assessments to take place. It embraces some of the basic

requirements for assessment, that is, transparency, continuous improvement, fairness, relevance and responsiveness. There is constant reference to reflecting on the goals of the assessment process which keeps the assessment pretty much on track at all times.

Rainsbury *et al.* (1998), focus on the *'inclusive model'* which makes it possible for the mentor, the student and the academic supervisor to understand and interact with each other. The model allows for each one of them to fully understand how the assessment process works and that the expectations for each of them, within the process, are realistic and achievable.

The framework developed for this study will constantly align itself to the following research questions:

- How can evidence be produced so that assessments meet validity and reliability requirements?
- How is the assessment policy interpreted and implemented to ensure the quality of assessment?
- What training or assessor expertise does each of the assessors come to the assessment process with?
- What role do students play in the process?
- How the process of assessment affects the final assessment of work - integrated learning?
- What positive recommendations can this assessment model generate to improve the quality of assessment of work-integrated learning?

The framework is fundamentally conceptualised along the premise that students, mentors and academic supervisors must be open with each other about the process for assessment; the strategies that will be employed and the expected outcomes of the process of assessment. The process, in Fig. 3.3,

begins with the three ovals which show the interrelationship between students, mentors and academic supervisors.

Components **A, B and C** are the circles of activity where the students interact with either the mentors or the academic supervisors. The close interaction of students with the assessors should encourage more understanding of the process as well as improve the transparency of the process of assessment. Based on this approach, I believe, the final assessment grade that is decided upon will be more valid and reliable. The issue of subjectivity (as there is clash of personality types in the interaction process) is still an issue that needs to be carefully dealt with so that the intended purpose of the assessment exercise is not distorted. It is assumed that each of the groups, especially the mentors and academic come with the necessary **training as assessors** so that they are aware of their duties and responsibilities within the process. It is also expected that students are well briefed about the performance criteria against which they will be judged and that they understand the process fully. It is also essential that all participants in the assessment process are aware of their **rights and responsibilities**. It is the combined effect of the three groups that will contribute to the success of the implementation of such a framework. Apart from all the basic essentials for the process to be a success, it is important that the work placement site is appropriate for the student, that there are sufficient resources available to the student to engage in productive learning, and that there are competent support systems in place for students.

The student does not possess the same level of expertise as that of the mentor (industrial expertise) and the academic supervisor (theoretical and industrial expertise in the field of study). However, the student's role in the process of assessment is absolutely crucial and is therefore a great part of the suggested framework.

This coincides with what Gronlund (1993) says about effective assessment and that is,

> *"The procedures applied must be fair to all who participate in the process. The criteria for evaluating the students must be very explicit and unambiguous."*

The framework suggests that **D** is where the interaction between all three groups of participants takes place in order to arrive at a consensus on the **assessment** grading. Effective approaches for assessment can only be accomplished by ensuring that all three groups have the requisite knowledge to engage in such an activity. The student is, to a large extent, empowered to make a valid contribution to the process. If for any reason a student is still not satisfied with the grading and has other substantial evidence or reasons why the final assessment is not appropriate, he/she may lodge an appeal through the **appeals procedure** to an appeal committee which might reside within the institution (perhaps in the Cooperative Education Department or Examinations and Assessment Department) where the appeal is dealt with in a professional manner. The outcome is communicated as soon as possible to the student/s concerned.

A **feedback session** for all participants in the assessment process is necessary to highlight the strengths, weaknesses and opportunities. The feedback session is of a generic nature and allows students, mentors and academic supervisors to introspect on their roles in the process and to make possible suggestions for the way forward.

The **impact** of the process is measured and compared to other strategies previously used for the same purpose. The impact also measures the kind of student that emerges from such a process, in terms of better confidence, a better relationship with assessors, the willingness to accept their weaknesses

and to improve. The impact could also be measured by survey questionnaires given to students who have either successfully/unsuccessfully completed/not completed their work-integrated learning component/module.

The impact should also measure whether the intended **outcomes** of the programme have been met and whether they have to be reformulated to suit the needs of the work-integrated learning and the kind of students that engage in it.

The concept of lifelong learning challenges the current practices of educational institutions to restructure their curricula so that it facilitates learning beyond the confines of the institution. The emphasis on work-integrated learning is that it optimises the total higher education experience and produces a student/ graduate who is more confident and positive to enter the world of work.

In order to assure quality within a higher education institution, there has to be an understanding of the purpose of the higher education institution in delivering a range of programmes with a work-integrated learning component to students nationally and internationally.

The Vaal University of Technology's main purpose (according to the mission of the institution) for offering work-integrated learning is:

> *"To achieve excellence in teaching and learning and endeavours by developing entrepreneurial, technological and cognitive skills*[11]*"*.

The purpose of the institution is quite explicit but in order to assure the internal and external stakeholders of the institution, the Vaal University of

[11] *The purpose appears in the mission and vision statements of the Cooperative Education policy of the Vaal University of Technology, p3.*

Technology need not only track the quality of delivery but also its impact. Some of the pointers to the institution in achieving its purpose are the graduation rates, the employability of graduates and whether its assessment practices are yielding the desired results. Are the assessment practices currently being applied 'fit for purpose'?

While the literature scan provides a basis for developing new thinking around assessment and specifically for more effective assessment strategies, contemporary researchers have made significant and relevant contributions to suit the current context within which students find themselves.

Gary Minda (1995) concisely captures in a quotation that traditional methods of assessment cannot necessarily fulfil the current needs of assessment practices without looking at the meaning attached to the student's life experiences.

> *"The notion of discourse plays a central role in postmodernism. Language generates our 'universe of discourse: the kinds of things we can talk about and the particular things we can say; what we construe as problems, how we attempt to solve them, and how we evaluate our success." (Gary Minda, (1995:239).*

In this research I would use the proposed framework as a point of departure to test whether the presumed problem/s is/are adequately addressed through the use of the framework. This model was generated as a result of a critical reflection on the current practices of the assessment of work-integrated learning.

The conceptual framework is largely influenced by a participant approach to understanding assessment. One cannot expect to make judgments towards an

assessment grading on the basis of preconceived ideas of standards for assessment.

In the South African context one must take the following into account before making judgments on higher education institutions in respect of work-integrated learning:

- The multicultural nature of the South African society
- The pronounced inequality in the distribution of social, economic, cultural and political resources and the power between social groups which restricts the opportunities of the disadvantaged.
- The role of the economy, the dominant culture of the country and the dominant education system which perpetuated this inequality.

The conceptual framework will look at the role of work-integrated learning in higher education in South Africa as determined by the institutional and national imperatives of the country. By utilising the proposed framework, I envisage critically analysing how the current inputs of the main role players, that is, the mentors, the academic supervisors, institutions, the work-integrated learning placement sites and the outcomes, specifically developed for the qualifications offered to students, have a direct effect on the assessment of work-integrated learning.

The analysis of the data for this study will be analysed in Chapter Five using the conceptual framework as a reference point and to be able to address the research questions of this study.

The literature suggests that students have not been fully integrated into the process of assessment. One may argue that even in traditional assessment methods, the student is a part of the process but that does not necessarily

imply that the student understands the rightful role that he/she should play in the process of assessment of work-integrated learning.

The '*inclusive model'* developed by Rainsbury, E., Hodges, D., Sutherland, J. & Barrow, M. (1998), is one that would contribute to the 'inputs-process-output' framework which I think will significantly add value to changing the current assessment practices for work-integrated learning. It also supports Minda's approach where all role-players in the process are given an opportunity to reflect on their knowledge and experiences in order to arrive at a valid and reliable assessment.

The current assessment of work-integrated learning (which raises questions about validity and reliability) needs to be analysed through an inputs-process-outputs framework with particular emphasis on the development of performance indicators for students, taking into account the needs (social, historical, economic, etc.) in order to address the current expectations of students in the 21st century. The inputs-process-outputs framework will add value in understanding how the conditions for assessment affect or impact on the assessment of work-integrated learning.

The outcome of the assessment process should be analysed as a shared responsibility, an idea that is supported by Rainsbury, Hodges, Sutherland and Barrow (1998). The conceptualisation of the proposed framework is underpinned by the fundamental logic of understanding the process of assessment. There will be a shared responsibility of assessing in a more valid and reliable way.

3.6 CONCLUSION

The conceptual framework developed for this study is just the beginning into revisiting the current assessment practices and replacing it with a

fundamental paradigm shift to a more integrated framework for work-integrated learning assessment (i.e. work-integrated learning being seen as part of a whole and not as an independent unit).

Conclusions (in the form of recommendations) will be drawn by analysing the data against the conceptual framework and the literature review of this study.

Work-integrated learning as an educational strategy, pedagogy, model, methodology or curriculum should go beyond just being conceptualised as an alternative but to become an integral component of programmes or qualifications. The assessment of work-integrated learning should become a meaningful exercise rather than an activity merely to fulfill the requirements for the purpose of graduation. The question that arises is: Does the assessment of work-integrated learning become an assessment of learning or does it become an assessment for learning?

Further, educationists should define and develop a body of knowledge for work-integrated learning and invest in its own unique phenomena and contribute to research in its domain especially in the field of 'validity and reliability of assessing work-integrated learning'.

From the literature that I have reviewed I have found the following:

- That there are strong shared conceptual links among researchers about work-integrated learning
- The independence and interdependence of theory and praxis comes to the fore
- That new assessment practices are continually being conceived for contemporary purposes

- Wherever the issue of assessment is dealt with, it lacks rigorous systems to ensure that assessments are indeed valid and reliable
- The intention to act on feedback (regarding the assessment) does not include the student for the purposes of improvement or appeal or for informing curriculum design

The proposed framework for assessment forms the background against which the current practices will be assessed and the impact of such practices will be recorded in the research design outlined for this purposes.

The next chapter focuses on the research methodology which conveys how the methodology will ensure that the research questions can be adequately answered and in so doing either accept or refute the initial assumption of the research.

The chapter will describe the methods or techniques through which data will be gathered. It will reflect on the choice of questions for the questionnaires and interviews for the study. It will explain how the data was gathered and also substantiate the choice of participants in the assessment process and it will explain how the data will be analysed.

CHAPTER FOUR: RESEARCH STRATEGIES AND METHODS APPLIED DURING THE INVESTIGATION

4.1 INTRODUCTION

This chapter attempts to explain the research methodology in terms of design, methods, sampling, instruments and procedures utilised for data collection as well as the procedures used during that data analysis for this study.

The researcher aims to provide a step-by-step explanation for the procedures that the researcher chose (and the reasons for such choice) in order to gather the relevant data.

The literature review suggests that current assessment practices are quite rigorous but there is very little evidence that the student plays a significant role in contributing to the final assessment process of the work-integrated learning component, i.e. being able to argue in his/her own defense by presenting logical and critical viewpoints of the assessment process itself and being in a position to challenge the final assessment of his/her work-integrated learning, through an appeals process. In order to support my argument above, Forbes (2004) elaborates on the assessment of work-integrated learning and the processes that are necessary to ensure that assessment becomes an integral part of the process but he does not mention how the validity and reliability of work-integrated learning assessments could be enhanced during the actual workplace assessments. He refers to quality assurance mechanisms being responsible for ensuring that the quality of work-integrated learning. I fully agree with his idea of quality assuring, however, I feel that it is absolutely necessary that we build into the system of assessment a valid and reliable process that takes into account the meaningful participation of the students, mentors and academic supervisors. My

conceptual framework provides the opportunity for such integrated activity to take place during assessment.

Pityana (2006) on the other hand places more emphasis on the difficulties that distance education institutions are faced with in managing work-integrated learning. He sees the assessment of work-integrated learning as a challenge for distance education institutions as the resources for ensuring quality work-integrated learning are limited.

Rainsbury *et al.* (1998) have to some extent explored this possibility by including the student in the assessment process as an important voice but not necessarily having the same status as the academic and mentor supervisors. The research will therefore focus more on the technical aspects of the assessment process and the contextual realities that impact on the process.

4.2 RESEARCH DESIGN

This being a Case Study, a descriptive quantitative survey, was used to investigate the assessment of work-integrated learning.. The case study is based on the conditions for assessment practices that ultimately influence the final assessment of work-integrated learning.

Polit and Hungler (1991:189) defined the survey as designating any research activity in which data is obtained from a specific population for the purpose of examining characteristics, opinions or intentions in that population.

The scope of the research design is largely influenced by the fact that this effort is submitted as a partial fulfillment of a postgraduate degree at master's level. The research could have generated more relevant findings if the proposed model for assessment was pilot tested and based on the findings, it could have either been recommended or rejected for use as an alternate

assessment strategy/model within the Universities of Technology across South Africa.

However, as limited as the research may be, the outcomes of this research could still be significant enough to influence future practices in the assessment of work-integrated learning.
The framework designed for this study will allow the academics and mentors to develop assessment performance indicators and assessment strategies that will allow for maximum participation of all stakeholders in the assessment process.

According to Yin (2003) and Merriam (1988) it is quite apparent that they focused quite extensively on qualitative case studies and found that it was easier to make generalizations regarding a case study. Case studies confine themselves to a smaller sample and activate more basic mechanisms and actors in the specific situation studied.

This study is focused on quantitative data gathering techniques. However, this being a case study, one could make generalisations across the University of Technology sector since the Engineering programmes offered by Universities of Technology are similar in nature. Programmes were curriculated by a 'convenor' system where all Technikons nominated representatives for particular fields of Engineering. The Committee of Technikon Principals (a statutory body as explained in a footnote previously) was responsible for registering the programme with the South African Qualifications Authority and the Higher Education Quality Committee.
According to Yin (2003) and Merriam (1988), it is possible to make generalizations using quantitative data given the fact that the programmes (in the South African University of Technology context) are very similar in nature but the learning programmes may vary from institution to institution.

This was a result of the previous technikons (now referred to as Universities of Technology) used a 'convenor' system.

Currently the Universities of Technology enjoy more autonomy and need not abide by the convenor system that was proposed by Committee of Technikon Principals and are at liberty to develop their own programmes. However, the engineering programmes have not been changed since, the HEQF document which prescribes new nomenclature and NQF levels for all qualifications across the higher education sector in South Africa. The recurriculation process will only begin when the Higher Education Qualification Framework (a new proposal by the National Department of Education to streamline higher education qualifications along a ten-level National Qualifications Framework). The HEQF is expected to be promulgated by the end of 2007. Therefore this implies that much of the 'old' qualifications are still being implemented and perhaps by 2009 there will be some uniqueness about individual institution's qualifications.

The case study focuses on investigating the assessment of work-integrated learning at the Vaal University of Technology in Vanderbijlpark in Gauteng.

The research design will focus on the following to enable the researcher to understand the way in which the assessment of work-integrated learning takes place at the Vaal University of Technology:

- **Policy Analysis**

Analysing the assessment policy of the institution. In order to achieve this, document analysis will be done as the first step in the study.

- **Analysis of policy implementation**

Analysing the implementation of the institution's assessment policy throughout the assessment process.

- **Evaluate the inputs that enhance the process of assessment**

Analysing the inputs such assessor training of students, mentors; the role of the academic supervisors; placement of students; resources to achieve outcomes for work-integrated learning

- **Evaluate the role that students play in the process of assessment**

Analysing the role that students play in the process of assessment and its impact on the final assessment

The analysis of the data will predominantly rely on quantitative data (i.e. questionnaires). The case study will use both primary and secondary data as sources, such as questionnaires given to the students, mentors and academic supervisors and document analysis (assessment policies of the institution / assessment criteria against which students are assessed).

The following specific research questions will assist in focusing the research design:

a) How do the conditions for the assessment process, with specific emphasis on validity and reliability, affect the final assessment of work-integrated learning?
b) How is the assessment policy interpreted and implemented by the assessors to arrive at a valid and reliable assessment instrument for work-integrated learning?
c) What training or expertise do the mentors bring into the assessment process of work-integrated learning?
d) What role do students play in the process of being assessed and how does this affect their final assessment (i.e. of the work-integrated learning component)?

In order to clarify the research methodology for this particular research, it is imperative to outline how each of the research questions will be addressed so that the main research question is adequately answered.

In answering the first question of the research which focuses on reliability and validity and its effect on the final assessment, information was extracted from the questionnaires given to students, mentors and academic supervisors (surveys) to get a clearer picture of how valid and reliable the process of assessment is.

In trying to understand the development of the assessment criteria/ the performance indicators against which students were assessed, the assessment policy of the institution was carefully scrutinized. This was done by means of document analysis.

The third question of the research was addressed by looking at what training or expertise the mentors and students brought to assessment process of work-integrated learning. The information gathered was gathered entirely from the questionnaires given to students, mentors and academic supervisors.

In answering the final research question, the researcher relied on retrieving as much information as possible from the questionnaires. The role that students play in the process of being assessed and how this affected their final assessment was gathered from the data received.

Finally, the recommendations on the use of the proposed model depended on whether the model/strategy was capable of yielding the desired outcomes for the assessment of work-integrated learning. This was achieved through verbal feedback received from mentors, students, academic supervisors and cooperative education officers after the model/strategy had been explained.

4.3 RESEARCH METHODOLOGY

This section describes the data collection strategies that were used in the gathering of data for the study. The purpose was to collect the quantitative evidence, using the instruments and strategies designed for this study, to assist the researcher in answering the research questions of the study.

	General Question How are the performance criteria developed?		**General Question** What the level of assessment expertise do the mentors and academic supervisors possess?	
	Sub Question	**Sub Question**	**Sub Question**	**Sub Question**
	What policies influenced the development of the assessment criteria	How did the mentor and academic supervisors develop the criteria?	How does industry / academic experience contribute to assessment expertise?	What capacity development initiatives are in place to improve assessment expertise?
Instrument And Data Collection Strategies	Document and text analysis	Open-ended questionnaires	Open-ended questionnaires	Open-ended questionnaires
Respondent	Documents	Mentor/Academic Supervisor	Mentor/Academic Supervisor	Mentor/Academic Supervisor
Time	1 week	1 week	1 week	1 week
	General Question What roles do students play in the assessment process?		**General Question** How do the assessors utilize the assessment results to arrive at a final assessment/grading?	
	Sub question How are students involved in the assessment process?	**Sub question** What are the effects of involvement / non-involvement?	**Sub question** How does each of the assessors assess the students?	**Sub question** How do the assessments aggregate towards the final assessment?
Instrument	Open-ended questionnaires	Open-ended questionnaires	Open-ended questionnaires	Open-ended questionnaires
Respondent	Students	Students	Mentors/academic staff/students	Mentors/academic staff/students
Time	3 weeks	3 weeks	2 weeks for staff and mentors 3 weeks for students	2 weeks for staff and mentors 3 weeks for students

The research methodology primarily consisted of the following:

- The sample description
- Instruments and data collection strategies
- Data Collection

- Research Procedures
- Data Analysis

4.3.1 Sample Description and sampling methods

The population from which the participants in the study were chosen comprised of 276 final-year Engineering students (who are studying towards a diploma in engineering) from the Vaal University of Technology[12]. The reason for having chosen this area of study is that it has it has a well-structured work-integrated learning component, which is quality assured by the Engineering Council of South Africa (ECSA)[13]. The sample was drawn from the main campus of the Vaal University of Technology since the researcher was not able to travel to the other satellite campuses located in the Northern Cape (Upington), Mpumalanga, North West (Klerksdorp) and another in Gauteng (Kempton Park). In some of the satellite campuses Engineering programmes have been completely phased out as this was a recommendation proposed by Engineering Council of South Africa to ensure quality delivery and quality students at the end of the learning process.

The main types of engineering offered at the Vaal University of Technology are civil engineering, chemical engineering, industrial engineering, mechanical engineering, metallurgical engineering and electrical engineering. While most of these fields lie within the Faculty of Engineering, there are a few which are located within the Faculty of Applied and Computer Sciences.

[12] *The Vaal University of Technology comprises of five campuses, the main campus located in Vanderbijl Park, Gauteng; Satellite Campuses in Kempton Park (Gauteng); Secunda (Mpumalanga); Klerksdorp (North West) and Upington (Northern Cape)*

[13] *ECSA is a SAQA accredited Education and Training Quality Assurance Authority responsible for all Engineering and related programmes in South Africa*

4.3.2 Sampling Approach

Random sampling was applied for this study. A sampling approach should enable the researcher to select a portion of the population that is representative of the entire population.
The sample of students was drawn from a population of final year diploma engineering students (i.e. from civil engineering, electrical engineering, mechanical engineering, chemical engineering and industrial engineering).

The sample was first stratified by gender where all the female students (i.e. 76) were included in the study while 70 of the remaining 210 male students were chosen by random sampling. The reason for choosing all the female students was to have sufficient numbers of female students to undertake statistical testing and compare them with male students.

The final sample consisted of final year students with a sample size of 146 students from all the Engineering Departments (i.e. Electrical Engineering, Civil Engineering, Mechanical Engineering, Metallurgical Engineering, Chemical Engineering and Industrial Engineering) of the Vaal University of Technology enrolled for the National Diploma in Engineering (this qualification being a three year qualification with a compulsory work-integrated learning component as a requirement for the completion of the qualification).

It was also understood that the work-integrated learning for engineering students was divided into PI (Practical One) and PII (Practical Two). Students were expected to complete the PI part of the work-integrated learning in their first year of study (i.e. the first six months of the academic year) and subsequently complete the PII part in the final year (i.e. the first six months of the academic year). In total the work-integrated learning amounted to one year of the study period with a credit value of 120. Work-integrated

learning becomes the statutory requirement for the completion of the qualification (i.e. the National Diploma in Engineering: with the field of specialisation).

Given this arrangement at the Vaal University of Technology, the researcher decided to undertake the survey with the chosen sample of final year Diploma Engineering students who had completed the PI[14] module (of work-integrated learning) and who were currently on campus at the time of the study being conducted. In some cases students who had completed both PI and PII [15] were also included in the study. These were the students who had completed their work-integrated learning but had one or two outstanding modules to graduate.

The names of male students were arranged alphabetically and every third student was chosen. A random number was generated for the start of the sampling. The students were assigned identification numbers to link them to their academic supervisors and mentors for further analysis.

Further the sample also included mentors where 17 of the total number of 17 were chosen. The recommended list of mentors included people from as far the Free State Province, North West Province, Northern Province and Mpumalanga. On recommendation of the work-integrated learning coordinator for engineering, it was decided to concentrate on the local mentors as I could interact with them on a one-to-one basis. Using a list that was provided with all the necessary contact details, appointments were secured with the mentors on the list.
This meant traveling to the different areas firstly to explain the purpose of the research to the mentors and then to get their consent to participate in the

[14] *PI refers to the first 6 months of work-integrated learning which is completed in the first year of study.*
[15] *PII refers to the second 6 months of work-integrated learning which is completed in the first semester of the final year of study*

study. Thirdly the researcher had to also interview the 16 academics responsible for the assessment of work-integrated learning.

The high response rate can be attributed to the fact that the researcher ensured that he was in charge of the dissemination and collection of all the questionnaires.

The Cooperative Education Administrator assisted in compiling the lists of students (i.e. those who had completed either PI or both PI and PII) who were on campus at the time of the study being undertaken.

Table 4.2: Administration and collection of Questionnaires

RESPONDENTS	ADMINISTERED		RETURNED
	Male	Female	
Students	70	76	146
Mentors	16	1	17
Academic Supervisors	16	0	16

4.3.3 The Data Collection Instruments

4.3.3.1 Development of the data collection instrument

In order to develop the questionnaires, the researcher analysed the assessment policy, the module outcomes of work-integrated learning and the assessment criteria for the faculty of engineering. In addition, several internal and external review reports of the Quality Promotion Unit on engineering programmes were perused. Several key points and themes were identified so that they could be rephrased as questions to elicit the desired responses which respond to the researcher's research questions for the study.

The researcher met with a group of academic supervisors and a two mentors (who serves on the Advisory Board for Mechanical Engineering at the Vaal

University of Technology) and a group of students (from the Power Engineering department) to listen to some of the concerns that they had with the assessment of work–integrated learning. The researcher used these reflections as well as some of the experiences (gained by the researcher from Focus Group Interviews held with students and staff at the various campuses of Vaal University of Technology during the normal cycle of internal and external reviews of faculties carried out by the Quality Promotion Unit) to develop the three separate questionnaires, i.e. for students, academic supervisors and mentors.

After several iterations of the original version, I was given permission (by my supervisors) to utilise the questionnaires as my data collection instruments.

4.3.3.2 Format of the questionnaire

There were three questionnaires each specifically designed for students, mentors and academic supervisors. The questions, however, had many similar questions and the purpose was to understand the responses of the three groups on the same type of question items.

All three questionnaires were divided into four sections, namely, Section A, Section B, Section C and Section D.

Section A dealt with mainly biographical data of the three different groups. Questions in academic supervisors covered areas such as gender, area of specialisation, highest qualification, Years of experience in the field of expertise, etc. In the student questionnaire questions asked about gender, year of study, programme towards which they were studying, local or foreign student, field of study. For the mentors and academic supervisors, this section was similar.

Section B dealt with questions which required a 'yes', 'no' or 'do not know' response. The items covered many of the issues that relate directly to the assessment of work-integrated learning. The questions were varied in questionnaire to extract the desired information from the respondents.

Section C dealt with a range of questions which required responses on a Likert scale. The responses ranged from strongly disagree to strongly agree. The reason for having a four-point Likert scale was to coerce respondents into giving a definite answer rather than answering unsure.

Section D dealt with two open-ended questions. This strategy allowed respondents to elaborate on the responses given in sections B and C.

4.3.3.3 Advantages of the questionnaire

The questionnaire for this study was the ideal approach since the researcher could gather the data as quick as possible. Secondly there was less bias as respondents had the freedom to express themselves and respond in the way they felt was most appropriate. Thirdly they are a more cost effective technique for gathering data. Fourthly there is a standardized format for all respondents. Finally it ensures the anonymity of the respondent.

4.3.3.4 The validity and reliability of the research instrument (i.e. the questionnaires)

The validity of an instrument is to assess the extent to which the instrument actually reflects the abstract concept that was being measured.

Content or face validity is the assessment of whether the questionnaire makes sense to those being measured and to experts in the area of assessment of work-integrated learning. In order to test for the content validity of the

questionnaires experts and specialists in the field of assessing work-integrated learning were given the questionnaires to reflect on them. These included at least two academic supervisors from the engineering faculty, two mentors (who are members of Advisory Board[16] for Engineering), a statistician and the two supervisors for this research. It is advisable to use experts in the questionnaire development as they have the capacity to analyse the adequacy of each item in the questionnaires.

When the questionnaire had been developed and administered, the levels of missing data were used as an indicator of inappropriate or badly worded questions.

Construct validity is about the relationships between the questionnaire and underlying theories. As a basis for identifying the competencies that respondents ought to be able to possess, the researcher used the assessment policy of the institution and the programme outcomes and assessment criteria for the work-integrated learning module of engineering. The construct validity takes into account the literature review which reflects on the way in which assessment of work-integrated learning is understood and interpreted.

4.3.4 Data Collection

4.3.4.1 Administration of the questionnaire

The researcher went to individual lecturers in charge of work-integrated learning and negotiated time for the completion of questionnaires by students. The questionnaires were administered to students over a period of five days. All completed questionnaires were collected by the researcher after each session.

[16] *The Advisory Board is a committee where all stakeholders are represented to discuss academic issues related to engineering*

Telephonic conversations were held between mentors and the researcher to explain the purpose of the research and negotiate times to visit individual mentors in order to complete the questionnaires. The questionnaires were completed over a period of about two weeks and then collected by the researcher.

The researcher handed the questionnaires individually and collected them as soon as they were completed.

The researcher proceeded by collecting the data as per plan (indicated in Table 4.1). The questionnaires were distributed, supervised and collected by the researcher.
Once all the data had been gathered, it was checked and prepared for analysis.

4.3.5 Research Procedures

The first sets of data were gathered from the mentors as they were difficult to get being in industry. The second set of data was gathered by visiting classes of engineering students (a pre-arrangement with lecturers was made to use up some of their teaching time) and getting them to complete them in the researcher's presence. Finally the researcher gathered the data from the academic supervisors, i.e. those lecturers supervising work-integrated learning)

For the purpose of this study, the cooperative education officer, responsible for work-integrated learning, was included as part of the academic supervisors because in some cases where it was not possible for the academic supervisor to supervise, the cooperative education officer assumed this responsibility. The data was collected over a period of one month allowing adequate time for rescheduling visits when the need arose.

The data was analysed for correctness and spoilt questionnaires were set aside. The data was captured by using the Statistical Package for Social Sciences (SPSS) software.
Sections A, B, C, and D were captured on computer with the aid of the SPSS software. Having captured the data, the researcher was assisted by a statistician (an employee of the Vaal University of Technology in the Department of Research).

In addition to the data analysis of the questionnaires, the researcher completed a document analysis of the institution's assessment policy which includes (in part) work-integrated learning under the heading 'formative assessment'.

4.3.6 Document Analysis

The documents were carefully analysed and interpreted in terms of a document analysis guide. (For example, the purpose of the document; the audience it is intended for, vagueness as opposed to precision; whose interests does it serve, etc.) The documents were analysed keeping in mind the research questions of this study and how the interpretation of the policy impacts on the assessment of work-integrated learning.

4.3.7 Statistical techniques applied

Firstly, Descriptive statistics were applied on the three groups of data (i.e. for the students, mentors and academic supervisors) in order to understand each of the groups. Measures of central tendencies were used to analyse nominal data in Section A (which contained biographical data that was categorical in nature for all groups) and the same process was repeated for section B (nominal data) for all three groups in the respective questionnaires, i.e. mean,

standard deviation and frequencies were different for different categories of data.

The responses given by each student were analysed and coded for the SPSS format. To assist in the interpretations of the data, the research analysis tool (SPSS) was used to explain relationships or to draw statistical comparisons.

Having decided on the above, a specific form of controlling for sources of errors was determined, for example, the process of random sampling of subjects. The standard deviation was used as measure of determining the extent of the errors in the research methodology applied.

For the nominal data in sections A and B the following were analysed, i.e. the mean, the average, the standard deviation and the count for each question in this section. Bar graphs, pie charts and cross tabulations were generated for the nominal data in all three groups.

Inferential statistical methods were applied to perform a reliability analysis for each of the group of questions and to see if they really did test the concept that was being measured in the questionnaire.

ANOVA was used to determine the differences between the groups i.e. groups 1, 2 and 3 (i.e. the students, mentors and the academic supervisors).

Time was a crucial factor in this study because as a postgraduate student, specific timelines were built into the completion of the research activity and as such certain aspects of true scientific 'rigour' may have been compromised. In the light of the constraints, a cross-sectional study was chosen as the units of analyses. However, a longitudinal study would have been more appropriate where the current findings could have been used as a

baseline study and the follow-up study would have been able to prove or disprove some of the conclusions that were made.

4.3.8 Ethical Research issues

The research proposal was submitted to the Research Ethics Committee of the Vaal University of Technology in order to get clearance on the ethical issues related to the research. The approval to proceed with the research was given by the Vaal University of Technology (See Appendix H and I)

Further, an ethical clearance was sought from the University of Pretoria's Ethics Committee (see Appendix D) as this is a requirement stipulated in the postgraduate regulations of the university.

4.3.9. Limitations of the study

This study is limited by the fact that it is a dissertation of limited scope. This would have provided valuable feedback as to whether the model could be used as it was designed or whether it required further adaptation before being implemented by Universities of Technology.

The study relies on generalisations being made on the basis of a case study of one University of Technology. According to Yin (2003) and Merriam (1988) they focused on qualitative case studies and found that it was easier to make generalizations regarding a research problem. Case studies confine themselves to a smaller sample and activate more basic mechanisms and actors in the specific situation studied. This study, however, consisted of one University of Technology (as a case study) of a total of six Universities of Technology in South Africa.

The Universities of Technology in South Africa developed their programmes by establishing a '*convenor system*' where engineering at each of these institutions was represented in this system. Common programmes were developed and the Committee of Technikon Principals was responsible for registering the programme as a technikon programme with the South African Qualifications Authority on the National Qualifications Framework.

All Universities of Technology share the same engineering programmes, but may differ in the learning programmes which are adapted to suit their individual contexts. This provides reasonable ground to assume that all engineering programmes at the Universities of Technology are similar in nature.

However, the opportunities for the placement of students for work-integrated learning may differ from province to province. The province of Gauteng seems to be in a better position to place engineering students given the fact that Gauteng is considered to be the industrial hub of South Africa.

Based on this information, one could use the findings as scientifically reliable to make generalisations regarding the quality of the assessment of work-integrated learning across Universities of Technology in South Africa.

The study would have been more valid and reliable had it been researched across all Universities of Technology in the country. This option is restricted by the fact that time and costs become the major factors in making this kind of study a reality.

The sample size that was utilised for the study is fairly small although it was extracted from the total number of final students in the Engineering faculty at the Vaal University of Technology.

The difficulties associated with identifying mentors from industry and securing appointments to discuss the purpose of the study or even to complete the questionnaires.

The proposed model was not pilot tested in order make conclusions about whether the model does provide useful solutions to the research questions of the study

The mini-dissertation is of limited scope and hence there is a restriction on the length of the dissertation (i.e. 180 pages)

5. CHAPTER FIVE: MAIN FINDINGS: CONDITIONS FOR THE ASSESSMENT OF WORK-INTEGRATED LEARNING AT A UNIVERSITY OF TECHNOLOGY

5.1 INTRODUCTION

This chapter deals with the main findings of the study and that will be analysed using the research questions as reference points. The analysis will also assist in determining what recommendations will be appropriate to enhance the assessment practices of the institution as well as suggest possible further research opportunities to be taken up by fellow researchers. These will feature more prominently in chapter six.

5.2 FINDINGS FROM THE DOCUMENT ANALYSIS

The Vaal University of Technology's assessment policy was revised by the Director: Teaching Development (Currently the Senior Director: Institutional Planning), the Director: Curriculum Development and Senior Director: Directorate for Institutional Development. The policy was accepted as a final policy document at a Senate meeting in November 2004.

The purpose of the review was to ensure that all assessment practices and assessment training were comparable to national standards (a delegated function by the HEQC allowing higher education institutions to take responsibility for all assessor training and to monitor all assessment practices)

The assessment policy document focuses on '*continuous assessment'* which is in line with the national approach of Outcomes-based Education. The positive feature of continuous assessment is that it allows for a flexible and diversified system of assessment.

The purposes (as outlined in the assessment policy) indicates that sound educational outcomes could be achieved if the assessment process is legitimate and adheres to the guidelines stipulated in the assessment policy of the institution.

The types of assessment focus on three main types, i.e. criteria referencing, formative and summative. Although continuous assessment is the preferred strategy, integrated assessments are also accommodated in order to ensure that learning is maximised.

According to the Assessment Policy of the Vaal University of Technology (2004), the assessment strategies include the following:

- *"Coordination and management of assessment*
- *Fair, valid and reliable assessments*
- *The process should be mutually beneficial*
- *Fitness for purpose*
- *Transparency*
- *Sufficiency*
- *Authenticity*
- *Integrated assessment*
- *Formative assessment*
- *Feedback*
- *Re-assessment (especially remark for examinations)*
- *Recognition of prior learning"*

The latter part of the policy deals with implementing specific types of assessments and guidelines for the development of learners' portfolios.

The policy is very comprehensive and seems to respond to many of the research questions of this study. Participants in the assessment process are

expected to understand the process before engaging in the assessment task. Apart from the assessment there is greater emphasis on learning during the work-integrated learning placement which is a crucial aspect if we are to ensure that the student who goes into the world of work is better prepared to contribute to the economic and social development of the country.

The policy also outlines in great detail the roles and responsibilities of the participants in the assessment process. It focuses on feedback which is an important part of the assessment process (as indicated in the conceptual framework: Figure 3.3: page 46).

The first setback of the policy is that it does not clarify the roles of assessors, such as the mentors or students in the assessment process. The policy does not explicitly indicate how the mentors will or should be trained as assessors. Is it the role of the institution itself or is it the responsibility of the ETQAs / SETAs or does industry have to use its own initiative in preparing its mentors for such responsibilities?

The second setback is that the policy does not any point include the involvement of students as being an integral part of the assessment process, i.e. the students are not involved in the assessment process where all participants are able to arrive at a consensus on the final assessment.

In analysing the document and testing how it responds to research question two of this study, I find that the assessment policy is quite comprehensive and if it is implemented as suggested, it should yield the desired results for valid and reliable assessments of work-integrated learning. However, this can only happen if all the assessors (i.e. mentors and academic supervisors) understand the contents of the policy and know how to apply them. One of the difficulties that seems to surface is that the policy implementation process is not undertaken as the institution had intended it to happen.

Finally, what seems to be lacking is a cohesive framework which outlines how the processes come together to ensure effective and efficient assessments of students within the system.

5.3 FINDINGS FROM THE QUANTITATIVE DATA AND ANALYSES

The data was captured using the Statistical Package for Social Sciences (SPSS), from which the descriptive and inferential statistics were generated. Although there were a range of questions in the student, mentor and academic supervisor questionnaires, I chose to interpret the data using a range of statistical techniques.

Table 5.1 Central Tendencies for the biographical data of students (Section A of the questionnaire)

n = 146	**% Frequency**		**Mean**		**Std Deviation**	
Questions	**M**	**F**	**M**	**F**	**M**	**F**
Gender	100.0	100.0	1.0	2.0	0.0	0.0
Type of study Undergraduate	100.0	100.0	2.0	2.0	0.0	0.0
What year of study are you in? 3rd year	100.0	100.0	3.0	3,0	0.0	0.0
Citizenship RSA Foreign	95.7 4.3	96.1 3.9	1.043	0.1960	0.204	0.196
Indicate the qualification you are studying Towards Diploma	100.0	100.0	3.0	3.0	0.0	0.0
What is your area of specialisation? Civil Electrical Mechanical Industrial Chemical	17.1 47.1 15.7 4.3 15.7	5.3 46.1 10.5 9.2 28.9	2.742	3.487	1.858	1.648

From Table 5.1 the central tendencies indicate that there are very little differences from the male and female students. There are, however, a significant number of females in the electrical and chemical engineering fields. There is also a good spread of female students across the engineering

programmes being offered by the institution. For some of the questions the standard deviation is zero because the response was either a ‘one’ or ‘two’ or ‘three’. The sample is made up of third year students (146 students) with the bulk of them being South African citizens and a small percentage being foreign students.

Table 5.2 Central Tendencies for the biographical data of mentors- SectionA

n = 16 males/1 female	**% Frequency**		**Mean**	**Std. Deviation**	**Std. Error Mean**
Questions	**Males**	**Females**			
Gender	94.1	5.9	1.0588	.24254	.05882
What is the nature of your employment Permanent	100	100	1.0000	.00000	.00000
How many years have you been supervising WIL 6-10 >10	5.9 94.1	100	3.9412	.24254	.05882
Indicate your years of experience >10	100	100	4.0000	.00000	.00000
Field of expertise Civil Mechanical Metallurgical Industrial Electrical Chemical	17.6 23.5 17.6 5.9 23.5 11.8		3.8824	2.20461	.53470
Indicate your highest qualification Artisan Certificate Diploma B Tech/Degree Honours Masters Doctorate	0.0 0.0 23.5 47.1 11.8 17.6 0.0		5.8824	1.90008	.46084
Number of years in industry 1-5 6-10 >10	5.9 0.0 94.1		3.8824	.48507	.11765
Number of years in University of Technology 1-5 6-10 >10	5.9 0.0 0.0		4.0000	.	.
Number of years in Traditional University <1 1-5 6-10 >10	0.0 0.0 0.0 0.0		.	.	.
No of yrs in Comprehensive University <1 1-5 6-10 >10	0.0 0.0 0.0 0.0		.	.	.

Table 5.2 gives us a fairly explicit picture of the type of mentors that we are dealing with in this study. There are sixteen males and one female in the sample. The majority of them have at least more than ten years of experience in the field of their respective engineering specialisations. They have also supervised work-integrated learning for more than ten years. The bulk of the

mentors have a Bachelor of Technology degree as their highest qualifications although there is at least 17.6 % of them who hold a masters degree. In terms of higher education experience, there seems be a very small percent who have indicated that they taught in a University of Technology.

Table 5.3 Central Tendencies for the biographical data of academic supervisors (Section A of questionnaire)

n= 16 males **Questions**	**% Frequency**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Gender	100	1.0000	.00000	.00000
What is the nature of your employment Permanent	100	1.0000	.00000	.00000
How many years have you been supervising WIL 1-5 6-10 >10	18.8 12.5 68.8	3.5000	.81650	.20412
Indicate your years of experience 6-10 >10	25.0 75.0	3.7500	.44721	.11180
Field of expertise Civil Mechanical Power Metallurgical Industrial Electrical Chemical	12.5 12.5 12.5 6.3 12.5 25.0 18.8	4.4375	2.15928	.53982
How many yrs have you been teaching or lecturing in this area of specialisation 6-10 >10	25.0 75.0	3.7500	.44721	.11180
Indicate your highest qualification Honours Masters Doctorate	12.5 68.8 18.8	5.0625	.57373	.14343
Number of years in industry 1-5 6-10 >10	75.0 6.3 18.8	2.4375	.81394	.20349
Number of years in University of Technology 1-5 6-10 >10	12.5 25.0 62.5	3.5000	.73030	.18257
Number of years in Traditional University 6-10	12.5	3.0000	.00000	.00000
No of yrs in Comprehensive University <1 1-5 6-10 >10	0.0 0.0 0.0 0.0	.	.	.

In the above table, which deals with the biographical details of the academic supervisors who are involved in the assessment of work-integrated learning, we find that all of them are permanent staff of the Vaal University of Technology. The bulk of the academic supervisors have a masters degree while 18.8% of them possess a doctor's degree in their relevant fields of engineering. Most of the academic supervisors have been teaching and supervising work-integrated learning for more than ten years. Many of them have predominantly been in a University of Technology while others have come with experiences from industry and traditional universities.

Table 5.4 Central Tendencies for the conditions for the assessment of work-integrated learning (students' responses to research question 1)

n = 146 **Questions**	**% Frequency Yes/Agree**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Have you been to a WIL orientation programme for students	97.3	1.0274	.16380	.01356
Does the orientation programme prepare you adequately for WIL	86.3	1.1438	.37120	.03072
Do you receive guidelines for WIL (in printed format)	4.8	1.9521	.21439	.01774
Does your lecturer assist you in finding a placement for WIL	98.6	1.0137	.11664	.00965
Do you have to find your own placement	0.7	1.9932	.08276	.00685
Is there a preliminary meeting on the first day of the WIL placement to explain the roles	99.3	1.0068	.08276	.00685
Students receive adequate support from the mentor	50.7	2.4863	.54122	.04479
The workplace site is ideal for the WIL of your specialisation area	92.5	2.9178	.29958	.02479
You are misused as a student of WIL	46.6	2.4658	.50054	.04143
If you do not cooperate with the mentor you are penalised in your final assessment	9.6	2.0959	.29545	.02445
Your general experience of WIL was excellent	58.6	2.5793	.50921	.04229
Your lecturer visited you frequently during the WIL placement	2.8	1.7862	.47414	.03938
Travelling to and from the workplace is not a problem	48.6	2.4863	.52832	.04372

In analysing the above table (Table 5.4) it seems that students do not receive printed guidelines for work-integrated learning during their orientation programme. Although there is an orientation programme, it is essential for students to have reference material so that should they be uncertain about

issues/procedures relating to work-integrated learning, it is immediately accessible.

Secondly we see that academic supervisors (lecturers) do not necessarily visit the students frequently and this may become a problem for students to report difficulties or to ask for assistance.

Table 5.5 Central Tendencies for the conditions affecting the assessment of work-integrated learning (mentors' responses for Research Question 1)

n = 17 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
Do students contact you with problems related to their assessment when they need to	100.0	1.0000	.00000	.00000
Do students have access to workplace resources to complete their projects	100.0	1.0000	.00000	.00000
Do students have access to institutional resources to complete their projects	100.0	1.0000	.00000	.00000
You are very professional in the way you handle students	100.0	3.0000	.00000	.00000
You use students to run errands for you during WIL	17.6	2.1765	.39295	.09531
If students are not cooperative you penalise them in their assessment	0.0	2.0000	.00000	.00000
You provide adequate support to students	100.0	3.0000	.00000	.00000
You are easily accessible to students at all times	100.0	3.0000	.00000	.00000
The projects are fair in terms of time and the additional daily tasks they have	100.0	3.0000	.00000	.00000
There is adequate time given to complete projects	100.0	3.0000	.00000	.00000
There is an excellent line of communication between yourself and the students	94.1	2.9412	.24254	.05882
The lecturer had frequent contact with you throughout the placement period	76.5	2.7647	.43724	.10605
You are able to cope with the large numbers of WIL students	88.2	2.8824	.33211	.08055
Student numbers are negotiated with you by the academic supervisor/WIL coordinator	100.0	3.0000	.00000	.00000

From the above analysis of the data, it seems that mentors are quite positive about the conditions for the assessment of work-integrated learning. They seem to be very confident in responding positively to the questions posed to

them in the questionnaire. This would then imply that they have very little difficulty in executing the roles as mentors at the workplace site.

Table 5.6 Central Tendencies for the conditions for the assessment of work-integrated learning (academics' responses to research question 1)

n = 16 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
Do you assist students in finding placement for WIL	100.0	1.0000	.00000	.00000
Is there a preliminary meeting on the first day of WIL placement to explain roles of students, mentors and academic supervisors	100.0	1.0000	.00000(a)	.00000
Can students contact you with problems related to their assessment whenever they need to	93.8	1.0625	.25000	.06250
On registration, did you explain to students that if they did not pass the WIL module, they will not graduate	93.8	1.0625	.25000	.06250
You visited most or almost all of the students at least more than three times	87.5	2.8750	.34157	.08539
The mentor has a professional relationship with the student	100.0	3.0000	.00000	.00000
The lecturer visits the mentors more than twice during the WIL period	93.8	2.9375	.25000	.06250
The mentor is easily accessible to you at all times	100.0	3.0000	.00000	.00000
The time allocated for projects is fair in terms of daily tasks allocated to students	100.0	3.0000	.00000	.00000
You provide adequate support to students during the WIL placements	100.0	3.0000	.00000	.00000
Students have access to institutional resources	100.0	3.0000	.00000	.00000
Students have access to workplace resources	100.0	3.0000	.00000	.00000
Students are actively engaged throughout the WIL period	87.5	3.0000	.00000	.00000
There is feedback on the entire WIL period to students, mentors and lecturers	100.0	2.8750	.34157	.08539
The WIL placement has prepared the students adequately for the world of work	100.0	3.0000	.00000	.00000
The assessment of WIL is of a very high standard	100.0	3.0000	.00000	.00000
WIL placements are of a very high standard	100.0	3.0000	.00000	.00000

In Table 5.6, academic supervisors respond positively to all of the questions presented in the questionnaires. It would seem that the ideal conditions for the assessment of work-integrated learning exist at the workplace site for the assessment of work-integrated learning.

Table 5.7 Central Tendencies for participants understanding the assessment policy (students' responses to research question 2)

n = 146 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
You know the assessment criteria applied for assessment	2.15	1.9868	.11471	.01316
You understand the programme outcomes	3.45	2.0132	.19956	.02289
The mentor is the ideal person to supervise this area of specialisation	88.75	2.7895	.41039	.04708
The mentor is very professional in his interaction with students of WIL	59.15	2.6974	.46245	.05305
The mentor is able to provide feedback at regular intervals to you	35.55	2.3553	.50870	.05835

The analysis of the above table (Table 5.7) shows that students are not necessarily familiar with the assessment criteria. They also do not understand the programme outcomes. Mentors are not able to provide feedback to the students after an assessment or during the assessment process. These are crucial elements of the assessment policy of the institution.

Table 5.8 Central Tendencies for the implementation of the assessment policy (mentors' responses to research question 2)

n = 17 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
Does the academic supervisor explain to you how the credits are calculated	76.5	1.2353	.43724	.10605
Do you know what the assessment criteria are and how they should be applied	94.1	1.0588	.24254	.05882
You are able to assess whether the student has met a particular assessment criterion	100.0	3.0000	.00000	.00000
You make use of the assessment criteria/performance indicators to assess students	94.1	2.9412	.24254	.05882
Feedback from the WIL process is communicated to Cooperative Education Officer & the Curriculum Developer	5.9	2.0588	.24254	.05882

From the data analysis above, mentors seem to understand the assessment process as it is outlined in the assessment policy of the institution. The mentors feel that the feedback process, which is integral to the process of assessment,

does not seem to feature very prominently during the assessment of work-integrated learning.

Table 5.9 Central Tendencies for the implementation of the assessment policy (academics' responses to research question 2)

n = 16 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
Do you explain to students how the assessment process for WIL works	100.0	1.0000	.00000	.00000
Have you explained to students how the credit value of WIL is calculated	93.8	1.0625	.25000	.06250
Do you explain to mentors how the credit value is made up	100.0	1.0000	.00000	.00000
You usually explain the assessment criteria to students and how they will be applied	100.0	3.0000	.00000	.00000
You usually explain the assessment criteria to mentors and explain how they will be applied	100.0	3.0000	.00000	.00000
Students understand the programme outcomes	100.0	3.0000	.00000	.00000
Feedback from the assessment process is forwarded to the Cooperative Education Unit/Curriculum developer	81.3	2.8125	.40311	.10078

In Table 5.9 academic supervisors also seem to be very confident that everything is being done to ensure that assessment policy is implemented as it was intended to.

Table 5.10 Central Tendencies for mentor assessment expertise (students' responses to research question 3)

n = 146 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
Were you told on registration that if you fail WIL you will not graduate	97.35	1.0395	.19601	.02248
You know what the assessment criteria/performance indicators are and how they are applied	1.3	2.0132	.19956	.02289
The mentor is consistent in assessing me	34.05	2.3947	.49204	.05644
The mentor applies a variety of assessment strategies which contribute to holistic assessment	2.1	2.0132	.11471	.01316
The mentor is able to provide feedback at regular intervals to you	35.8	2.3553	.50870	.05835
The mentor is able to feedback at regular intervals to the lecturer	5.65	1.9605	.25512	.02926
The mentor is easily accessible at all times	40.35	2.4211	.49701	.05701
The WIL placement has prepared you for the world of work	86.6	2.7763	.45015	.05164
Dissatisfactions regarding your WIL was attended to by your lecturer	22.6	2.0263	.22942	.02632
Dissatisfactions regarding your WIL was attended to by your mentor	27.3	2.1316	.34028	.03903

In Table 5.10, students tend to express their experiences of the work-integrated learning specifically concerning the assessment expertise of the mentor. Students seem to be disgruntled about many issues relating to their assessment, one of the most important being that the mentor does not apply a variety of assessment strategies. Dissatisfactions of students do not seem to be attended to by academic supervisor or the mentor.

Table 5.11 Central Tendencies of the assessment expertise of mentors (mentors' responses to research question 3)

n = 17 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
Have you been part of a WIL orientation programme for mentors	17.6	1.8235	.39295	.09531
Have you been to a skills development programme to improvement your assessment skills	5.9	1.9412	.24254	.05882
Do you explain to students how you will assess them	88.2	1.1176	.33211	.08055
Have you been trained by the university as an assessor	5.9	1.9412	.24254	.05882
Are you trained as an assessor by the relevant ETQA/SETA	0.0	2.0000	.00000	.00000
Are you informed about the role of the academic supervisor during WIL	94.1	1.0588	.24254	.05882
Do you know rights and responsibilities as a mentor of WIL	100.0	1.0000	.00000	.00000
You are familiar with the assessment process for WIL	100.0	3.0000	.00000	.00000
You understand the OBE concept that is currently being used by the institution	5.9	2.0588	.24254	.05882
You have induction programme for students at the workplace	100.0	3.0000	.00000	.00000
You apply a variety of assessment strategies when assessing	35.3	2.3529	.49259	.11947
You provide regular feedback to students	100.0	3.0000	.00000	.00000
You provide regular feedback to the lecturer	88.2	2.8824	.33211	.08055
You able to identify the strengths and weaknesses of students	100.0	3.0000	.00000	.00000
The WIL placement has adequately prepared the student for the world of work	100.0	3.0000	.00000	.00000

From the above data Table 5.11, mentors indicate that they have not been to an orientation programme. A very small percentage (5.9%) has been to some form of skills development. However, they have not been to any formal assessor training programmes initiated by either the institution or the ETQA/SETA. Further mentors do not seem to understand the outcome-based education concept. This is crucial to the validity and reliability of the assessment of work-integrated learning.

Table 5.12 Central Tendencies for the assessment expertise of the mentors (academics' responses to research question 3)

n = 16 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
Have you been part of WIL orientation programme for students	100.0	1.0000	.00000	.00000
Have you been part of an orientation programme for mentors	93.8	1.0625	.25000	.06250
Have you been to teaching development programmes to improve your skills in assessment	100.0	1.0000	.00000	.00000
Have you trained mentors as assessors	93.8	1.9375	.25000	.06250
Are mentors trained by the relevant ETQAs/SETAs	0.0	2.0000	.00000	.00000
Assessor training has only begun recently	68.8	2.6875	.47871	.11968
The mentors know their rights and responsibilities as assessors of WIL	100.0	3.0000	.00000	.00000
The mentor is proficient in assessing your student/s	100.0	3.0000	.00000	.00000
The mentor provides regular feedback to the student	100.0	3.0000	.00000	.00000
The mentor provides regular feedback to you	100.0	3.0000	.00000	.00000

According to Table 5.12, academics seem to be well trained as assessors and therefore indicate positive responses to most of the questions presented to them in the questionnaires. However, they do acknowledge that mentors have not been trained by the ETQAs/SETAs. The academics indicate that they trained the mentors to assess work-integrated learning. This would probably be an informal approach since the mentors have indicated in Table 5.11 that they have not received formal training from either the institution or the ETQA.

Table 5.13 Central Tendencies for the role of students in the assessment process (students' responses to research question 4)

n = 146 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
Can you contact the lecturer with problems related to your assessment	0.0	1.7763	.41948	.04812
You understand all the company rules and regulations	25.5	1.8684	.78896	.09050
You understand the assessment process for WIL prior to being assessed	75.3	2.7237	.53163	.06098
You know rights and responsibilities as a student of WIL	49.9	2.4868	.55362	.06350
Students are always actively engaged throughout the entire WIL placement period	78.15	2.7632	.42797	.04909
Is there an appeals process for students to lodge their dissatisfaction regarding their assessment	0.0	2.0000	.00000	.00000
The student, mentor and lecturer discuss the final assessment to arrive at a consensus	1.35	1.8816	.36395	.04175
There is feedback on the entire WIL process to students, mentors and lecturers	0.0	1.4737	.50262	.05766
The weaknesses and strengths of the students are communicated at the end of the WIL period	0.0	1.6447	.48177	.05526
The lecturer asks you to reflect on your experience of the entire WIL placement	60.3	2.9211	.64834	.07437
Your suggestions are indeed used to develop better WIL programmes	16.2	1.9079	.29110	.03339

In Table 5.13 students express the difficulty they have in contacting the academic supervisor/lecturer. Secondly, the process does not allow for any discussion among students, mentors and academic supervisors on the assessments of students. In other words there is no consensus on the final assessment. There is no feedback on the entire process to students, mentors and academic supervisors. This is essential if this process is to contribute to the learning process. The weaknesses and strengths of students do not seem to be discussed. If there are any suggestions by the students, they do not seem to be taken seriously. There is no appeals process in place to afford students the opportunity to challenge their final assessment.

Table 5.14: Central Tendencies for the role of students in the assessment process (mentors' responses to research question 4)

n = 17 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
Is there a preliminary meeting on the first day of WIL	100.0	1.0000	.00000	.00000
Are you informed about the role of students at your workplace	76.5	1.2353	.43724	.10605
Do the student, mentor and lecturer discuss the final assessment	5.9	1.9412	.24254	.05882
Is the assessment grading communicated to the student at the end of WIL	100.0	1.0000	.00000	.00000
Is there an appeals process for students to lodge their dissatisfaction regarding their assessment	0.0	2.0000	.00000	.00000
Students are familiar with company rules and regulations	100.0	3.0000	.00000	.00000
Students are always actively engaged throughout the entire WIL period	100.0	3.0000	.00000	.00000
There is feedback on the entire WIL period to the student, mentor and lecturer	35.3	2.3529	.49259	.11947
The weaknesses and strengths of the student are communicated at the end of WIL	23.5	2.2353	.43724	.10605

Once again in Table 5.14, mentors indicate they do not engage in a process where they discuss the final assessment of students in the presence of students, mentors and academic supervisors. There is no appeals process in place for students to challenge their final assessment. There is very little feedback on the entire process to all participants in the process. The weaknesses and strengths of students are very minimally discussed and this has an impact for especially those students who have not performed very well in the assessment.

Table 5.15 Central Tendencies for the role of students in the assessment of work-integrated learning (academics' responses to research question 4)

n = 16 Questions	% Frequency Yes/Agree	Mean	Std. Deviation	Std. Error Mean
There is an appeals process for students to lodge their dissatisfaction with assessment grading/assessment process	6.3	1.9375	.25000	.06250
The students know their rights and responsibilities as students of WIL	100.0	3.0000	.00000	.00000
The assessment grading is communicated to the student at the end of WIL	100.0	3.0000	.00000	.00000
The student, mentor and lecturer discuss the final assessment to arrive at a consensus on the final assessment	25.0	2.2500	.44721	.11180
The weaknesses and strengths are communicated at the end of the WIL period	81.3	2.8125	.40311	.10078

In Table 5.15, academics also agree that there is no appeals process in place from students to lodge dissatisfactions regarding the assessment of their work-integrated learning component.

Table 5.16 Reliability Analysis for all three groups of respondents per research question

	Cronbach Alpha			
n = 179 Groups	Research Question 1	Research Question 2	Research Question 3	Research Question 4
Students	0.329	0.459	0.426	0.321
Mentors	0.275	0.380	0.325	0.462
Academics	0.523	0.108	0.426	0.453

The values for reliability, per group of questions (refer to appendices A, B & C), were low due to the fact that the researcher might not have necessarily worded the questions according the leading question in the scale of items. Secondly the choice for the coding of the various questions might have been a problem. As a novice researcher, one now realises the importance of wording questions correctly so that they match up with the items in a particular scale. In

so doing they reliability of the questions could easily be tested. The low values also suggest that the internal consistency is not very strong. Although the reliability values are low, I feel that questions that were posed in the three different questionnaires were still relevant to the study that was undertaken but did not fit into the respective scales to yield the desired reliability and internal consistency.

There might have also been a problem with the way in which the respondents interpreted the questions, hence a low value for reliability. The researcher could have deleted certain items in order to increase the reliability value but with the deletion, the value seem to get even lower and therefore the researcher decided to retain these values (as indicated above) although they were well below the desired value of greater than 0.7.

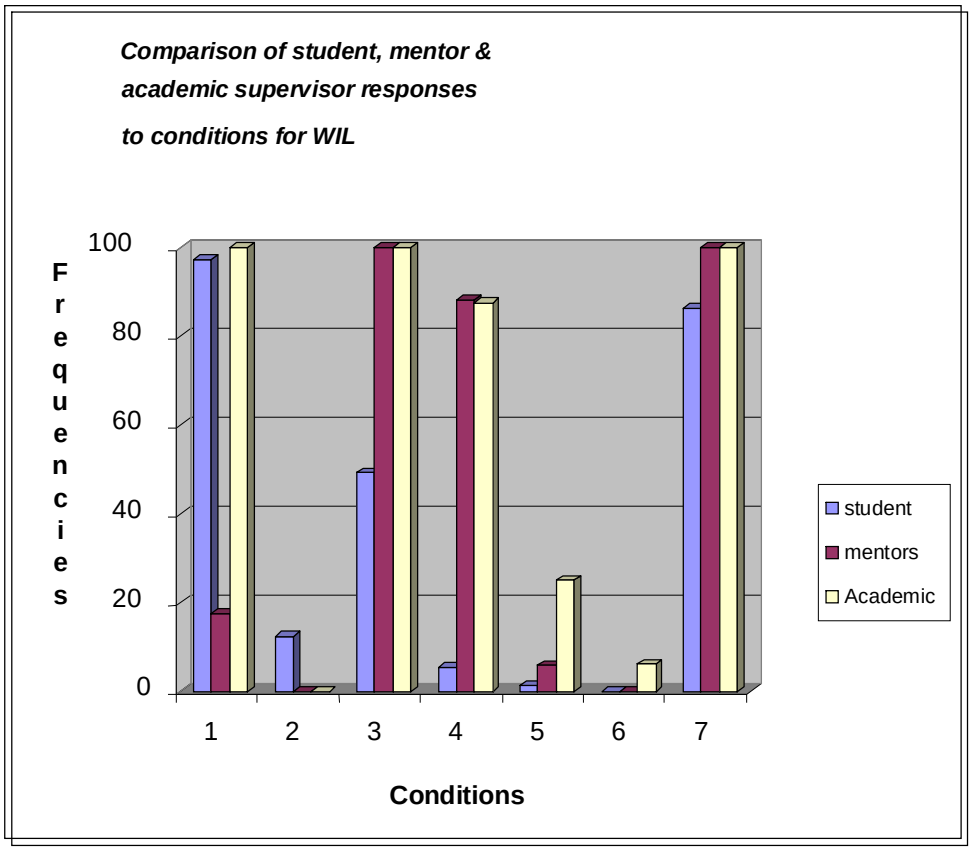
Table 5.17 Using ANOVA to show the differences between the groups in the study based on common questions from all three questionnaires

Questions	Groups	Sum of Squares	df	Mean Square	Sig.
Have you been to a WIL orientation programme for students	Between Groups	63.778	2	31.889	.000
	Within Groups	3.890	160	.024	
	Total	67.669	162		
Is there an appeals process for students to lodge their dissatisfaction with their assessment mark	Between Groups	14.898	1	14.898	.000
	Within Groups	7.606	161	.047	
	Total	22.503	162		
You understand the assessment process for WIL prior to being assessed	Between Groups	45.364	1	45.364	.000
	Within Groups	37.041	161	.230	
	Total	82.405	162		
You know what the assessment criteria/performance indicators are and how they are applied	Between Groups	15.436	1	15.436	.000
	Within Groups	2.993	161	.019	
	Total	18.429	162		
The mentor applies a variety of assessment strategies which contribute to holistic assessment	Between Groups	16.288	1	16.288	.000
	Within Groups	10.829	161	.067	
	Total	27.117	162		
The mentor is able to feedback at regular intervals to the lecturer	Between Groups	16.504	1	16.504	.000
	Within Groups	21.753	161	.135	
	Total	38.258	162		
Students receive adequate support from the mentor	Between Groups	.271	1	.271	.334
	Within Groups	46.355	161	.288	
Questions	**Groups**	**Sum of Squares**	**df**	**Mean Square**	**Sig.**
	Total	46.626	162		
Students receive adequate support from the lecturers	Between Groups	21.380	1	21.380	.000
	Within Groups	36.007	161	.224	
	Total	57.387	162		
The student, mentor and lecturer discuss the final assessment to arrive at a consensus	Between Groups	1.260	1	1.260	.016
	Within Groups	33.918	161	.211	
	Total	35.178	162		
There is feedback on the entire WIL process to students, mentors and lecturers	Between Groups	36.486	1	36.486	.000
	Within Groups	36.164	161	.225	
	Total	72.650	162		

In Table 5.17, using Analysis of Variance (ANOVA) we find that there is significance between the groups. The significance is assumed at a five percent level. In one question, however, the significance is way beyond the five percent level and the post-hoc test (Bonferoni) was used to establish at the five percent level. The researcher was interested in determining whether there was a significant difference between the groups (i.e. the mentor, students and the academic supervisors).

The researcher found it difficult to avoid arbitrariness in the final decision as to what level of significance was to be considered as really "significant." If the predicted outcome was not achieved in the ANOVA then an alternate was sought using a post hoc test. Typically a level of significance could be achieved using either $p \leq .01$ or $p \leq .05$ but in this study the researcher chose to use the $p \leq .05$. For most of the common questions the researcher found that there was a reasonable level of significance between the groups.

Figure 5.1: Conditions that impact on the assessment of work-integrated learning



KEY(to graphical representation):

1 = orientation; 2 = Are mentors trained as assessors;
3 = students know their rights and responsibilities; 4 = feedback to students;
5 = Is the final assessment discussed with students,
mentors and assessors;
6 = Is there an appeals process; 7 = Has the placement prepared the

The above table is based on Section D of the questionnaire which had open-ended questionnaires. The researcher concentrated on the frequencies of these conditions being indicated by the respondents (i.e. students, mentors and academic supervisors). These perceived conditions contribute to the current perceptions of assessment of work-integrated learning at the Vaal University of Technology.

In responding to the main research question of this study, I find that there are a significant number of conditions that impact negatively on the process of work-integrated learning. If the model proposed for this study (in the conceptual framework) could be utilised more effectively and efficiently, much of the above problems could be addressed and this will perhaps elevate the level of validity and reliability of work-integrated learning assessments.

From the graphical representation, mentors indicate that they do not receive adequate training or are not exposed to orientation workshops. Students feel that they still do not know their rights and responsibilities in the process of being assessed. The most common concern across the three groups of respondents is that there is no process which allows the student to be part of the decision in arriving at a final assessment and the fact that there is no appeals process to challenge the final assessment.

5.3.1 Interpretation of the findings from the Document Analysis

5.3.1.1 The Assessment Policy and implementation

In addressing my second research question, I find that the assessment policy of the Vaal University of Technology is well structured and adheres to the national and institutional requirements of being fair, unbiased and having legitimate processes in place. If all persons, responsible for assessing, abide by the institutional policy there will be little room for concerns and issues being raised about the assessment processes for work-integrated learning. However, it seems that whilst there is an excellent general assessment policy in place, the implementation process of the policy does not follow the guidelines indicated in the policy. Table 5.7 reflects that students are not adequately prepared for the assessment process. If the precondition\s for assessment are not there, it will certainly make valid and reliable assessment difficult. The failure to implement policy seems to be one of the problems. The other problem is that

the policy deals with general assessment issues and processes but does not specifically give more detail on work-integrated learning. The policy places greater emphasis on summative assessments than on formative assessments. Work-integrated learning seems to be implied in the policy but is explicitly defined. The conceptual framework of the study ensures that there is a continuous process of updating policy to meet the needs of the assessment process. It is senseless if academics who are not directly involved in the process of assessing work-integrated learning are the sole drivers of policy development which affect the final result of assessment strategies for work-integrated learning. Constant feedback from the process of assessing work-integrated learning is vital for policy development.

The institution only provides a framework for policy rather than it being a regulatory device directly influencing the actions of stakeholders on the ground. Therefore work-integrated learning practitioners need to take ownership of a model that promotes the assessment of work-integrated learning and use the institutional framework as a reference point. Hill (2003) acknowledges that this understanding of policy implementation is over simplistic and fails to capture the potential complexity of interpretation by implementers

The feedback from the process of assessment should have an impact on the assessment policy of the institution thereby resulting in foci for the assessment of work-integrated learning.

Lipsky (1980) says that policy making does not simply end once a policy is set out, but is importantly influenced by the interpretation and discretion of individuals in day-to-day contact with the public and with responsibility for policy implementation and delivery on the ground.

5.3.2 Interpretation of the findings from the Quantitative Data and Analyses:

Emerging from the tables and the graphical representations illustrated and the document analysis, I find the following:

5.3.2.1 Conditions for the assessment of work-integrated learning

In responding to research question one of this study, it does confirm my initial concern that there are flaws in the assessment process that affect the assessment of work-integrated learning. The mentors themselves acknowledge that they are in desperate need of being trained as assessors but simply take on the task as assessors because they also have an economic responsibility to ensure the increase of skilled workers in the country.

The institution is perhaps trying to ensure that students are placed and that there is a proper system in place to monitor and assess students during their placement at workplace sites. In the process of assessment all participants should play a prominent role. In making this statement I refer to Harlen (2003) who says that if we are serious about preparing our young people for lifelong learning, we must find a way of ensuring that assessment is given the necessary attention and resources in order to make it successful. From Tables 5.4; 5.5 and 5.6 there are two conditions that seem to surface, one of the more important ones being that lecturers do not visit the students frequently. The conceptual framework for this study shows that the process is so rigorous that without the continuous interaction between the students, mentors or academic supervisors, the validity and reliability of assessment will be compromised. According to Astin *et al* (2003) assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time.

The institution cannot abdicate its responsibility for the students who have enrolled at the institution for a particular programme which includes work-integrated learning. The institution should take note of its capacity to deliver given the available resources and not over commit and in the process fail to deliver. The conceptual framework for this study ensures that valid and reliable assessments of work-integrated learning could become a reality if the interaction between students, mentors and academic supervisors is a more rigorous process.

5.3.2.2 Training of Mentors as Assessors

With regard to the research question three of the study, which focuses on the assessment expertise of the mentors, I conclude from the data find that mentors are not trained as assessors and that they do not fully understand the Outcomes-based Education concept which does affect the final assessment of work-integrated learning. Emerging from this analysis is that students become the victims of a process which the institution should ensure does not happen. It raises concerns because the mentor is perhaps an expert in his/her field of engineering but that does not necessarily imply that he/she also has the assessment expertise to fulfil the outcomes of an outcomes-based approach to assessment.

5.3.2.3 The Role of Students in the Assessment Process

In trying to answer question four of the research, one finds that the role of students as indicated in the conceptual framework is a crucial one. Although the students may not possess the assessment or field expertise as that of the mentors or academic supervisors, it is essential that role of students is given the necessary recognition in order to ensure that the process becomes more valid and reliable. In the table 5.18 one will see that students indicate that they are not included in discussions regarding the final assessment. Secondly there

is no appeals process for the student to challenge his/her assessment/mark should he/she feel dissatisfied with the assessment. Thirdly there is no real feedback to students regarding their strengths and weaknesses. After all the process of assessment of work-integrated learning is a learning process for students, mentors and academic supervisors but more importantly for the students. The result is that if the student is not fully integrated into the process of assessment, the student becomes alienated from the process and therefore very little learning takes place. The student needs to undertake critical reflections of both his own contribution and others involved in the assessment process. There is not even a space for students to voice their suggestions of the process so that it can inform future assessment strategies of the institution. For me, these become the critical issues for the assessment of work-integrated learning in a University of Technology context.

If these issues are not addressed with a view to improving the assessment of work-integrated learning, it will certainly have a negative impact the assessment of work-integrated learning.

The conceptual framework and the literature reviewed in this study both support all participants in the process of assessment being fully involved. As Evans, McKenna and Oliver (2002) acknowledge that traditional assessment is sometimes regarded as an exercise of power by the assessor over the assessee. Assessment should not be something done to students but rather an activity with students. This supports my emphasis on the role of students in the process of assessment.

5.4 MAIN FINDINGS OF THE RESEARCH

In drawing conclusions the most significant point to bear in mind is that the researcher had undertaken this study to confirm his initial concerns about

work-integrated learning in a University of Technology context within South Africa.

The study reveals, as reflected in the data generated for this study in Chapter Five that the assessment of work-integrated learning should be more critically interrogated ,guided by the assessment policy and improving the capacity of all the participants to play a more meaningful role in the process of assessment. The assessment policy should be thoroughly interrogated in order for all participants to acquire the relevant expertise to contribute to a valid and reliable assessment. Implementation seems to be the issue of concern, therefore in order to support implementation the necessary resources should be in place.

The available resources, training of all participants, the appropriate placement and a legitimate system of assessment seem to be the basic conditions that impede the process for a valid and reliable assessment. The conditions were very prominently expressed as concerns by respondents (i.e. the students and mentors).

The mentors were very honest in stating that they lacked the knowledge of an Outcomes-Based Education system and the appropriate principles that support it. The mentors, nevertheless, do have extensive experience and understanding of work-integrated learning as they have assisted the institution in producing many graduates through the years. There seems to be a sincere request for the institution and professional bodies to meet the training needs of assessors (mentors).

From the research, it is evident that although the students are actively involved during their placements for work-integrated learning, they are not fully integrated into the assessment process. The role of students in the current system of assessment of work-integrated learning, is that they are to

demonstrate their competencies as measured by the assessment criteria and to present a 'logbook' and an oral presentation at the end of their placement. There is no room for an appeals process, students are afraid to challenge their assessments due to fear of being victimized. Students do not seem to understand their rights and responsibilities in the process of assessment. This is crucial if the process is to yield valid and reliable assessments of students.

5.5 CONCLUSION

The conclusions in the next chapter focus on the main findings of the research and looks at the realities of the assessment of work-integrated learning within the University of Technology context. Perhaps the recommendations emerging from this study suggest other innovative strategies that could be tried and tested to see what works for an individual institution.

6. CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The study looked at the conditions that affect the process of assessment within work-integrated learning with particular emphasis on the validity and reliability of the assessment. The main assumption was that the assessment of work-integrated learning was not effectively and efficiently assessed at the Vaal University of Technology.

The main purpose of this research was to explore the conditions under which the assessment of work-integrated learning was done and to determine the impact of this on the validity and reliability of the assessment. In other words, does the assessment measure what it is intended to measure (validity) and will the same results be yielded by applying it in a similar setting else where (reliability).

The research was conducted as a case study at the Vaal University of Technology and a quantitative approach (i.e. surveys) was used to gather the relevant data for the study. There may be several criticisms leveled against the use of a quantitative approach for a case study as opposed to a qualitative approach. I felt that given the constraints, i.e. that this being a mini-thesis and the limited time to conduct interviews with all the participants of the study individually, it would have been easier to generate the data via a qualitative approach. There may be even further criticisms that a qualitative approach could have generated more rich data and that would have contributed to more realistic conclusions regarding the assessment of work-integrated learning.

A random sample of Engineering students were selected as participants, while a target selection of mentors of local companies (who voluntarily take on the institution's students for work-integrated learning) was used. All the

6.2 THEORETICAL IMPLICATIONS

As far as the conceptual framework for this study which was influenced by Rainsbury *et al* (1998) and Harlen (2003) and earlier researchers in the field of work-integrated learning, it provides a new perspective into the assessment of work-integrated learning. Although the model is not tried and tested, it certainly has the potential to yield the desired results for the assessment of work-integrated learning. It could also add value to the University of Technology sector since work-integrated learning is a major part of most programmes offered within the sector.

6.3 PRACTICAL IMPLICATIONS

The proposed model for this study has several practical implications for work-integrated learning. The model will focus on policy formulation which inevitably means a series of replanning the assessment strategies for work-integrated learning. The integration of students into the work-integrated learning assessment process will contribute to a more valid and reliable assessment.

It will enhance a focused purpose for work-integrated learning. The feedback mechanisms for the assessment process at all levels will improve policy review and implementation.

6.3.1 The contextual reality of work-integrated learning for Universities of Technology in South Africa

Currently work-integrated learning is seen as competing with the learnerships which are being offered through the Department of Labour (i.e. Sector Education and Training Authorities). Learnerships have huge tax –incentive

benefits attached to them which makes them more attractive to industry than work-integrated learning.

The National Department of Education, the University of Technology sector and other relevant stakeholders need to collectively take ownership of work-integrated learning in order to make a deliberate attempt to overcome the skills shortage in the country.

6.4 RECOMMENDATIONS EMERGING FROM THE STUDY

The recommendations are wide and varied in line with the findings of this study.

6.4.1 One of the crucial issues is the implementation of policy. Academic supervisors of work-integrated learning should ensure that they have representations on policy writing forums where issues relating to the assessment of work-integrated learning become high on the agenda. Cohen, Moffitt and Goldin (2007) support the quality of policy implementation by saying:

> *"The realization of policy in practice thus depends on the fit between capabilities that support implementation and aims. The more aims outstrip capabilities; the less likely is effective implementation."*

There is a clear indication that policy implementation cannot be successful if the people who are dealing with the policy are unable to implement it. It is evident in the data generated where students and mentors are fully conversant with the contents of the assessment policy. There are varying degrees of the interpretation of the assessment if assessors are not guided by the assessment policy. There is no consistency in the application of assessment criteria

because different individuals apply more weight to a criterion at their discretion. Hence this affects the validity of the assessment and the reliability because if another assessor applied the same criteria in different manner the assessment would be different. The fact that students are not able to appeal their assessments does have an impact on the final assessment. If students do not fully understand the assessment policy, then how is it possible for them to understand the assessment criteria or for that matter even challenge their assessments?

There is no evidence of an effective system that provides for training and implementation of the policy. In order for policy implementation to be successful, the following should be given careful thought:

- Proper training for students and assessors (i.e. mentors and academic supervisors)
- Maintaining consistent assessment strategies to maximize the attainment of assessment outcomes
- Keeping abreast of national and international assessment trends regarding work-integrated learning
- Government's and the institution's role in improving policy implementation
- More meaningful participation of students and assessors
- Reporting mechanisms (i.e. feedback of the assessment process; feedback on policy implementation which should be utilised to improve the assessment system). It could also be used

6.4.2 Training in continuous assessment (which promotes the Outcomes-based Education principle) is an absolute imperative and without such training the process of assessment becomes more problematic in ensuring that validity and reliability remain intact. This becomes the responsibility of the institution and the related sectors of industry that have a direct interest in the quality of graduates that leave the institution.

6.4.3 It becomes the responsibility of not only the institution but also the Department of Education, The Department of Labour and other related national agencies to ensure that the basic requirements for work-integrated learning are met and in so doing ensure that quality graduates enter the world of work.

6.4.4 The institution must ensure that through its policy and other institutional structures, student participation is maximized and quality support is provided to ensure that students make a meaningful contribution to the process of assessment.

6.4.5 The proposed conceptual framework for this study should be given some consideration in redesigning the work-integrated learning component and also ensuring that all participants in the process play a meaningful role in achieving the objectives / outcomes set for the module. Due to the cyclical nature of the proposed model, the process should be constantly reviewed and this will ensure some of the important guidelines indicated above that will support successful policy implementation

6.5 COMMENDATIONS

Given the fact that there are several crucial issues that need to be attended to, there are some commendable features of the work-integrated learning programme.

Firstly, although there are a number of constraints (such as workloads, non-subsidisation of travel costs for academics, large numbers of work-integrated learning students assigned to a single lecturer, shortage of placement opportunities, etc) academics still try to give off their best during this period. The Cooperative Education Office tries its utmost in forging partnerships with companies/ industry in order to secure placements of our students.

Secondly, although the process of assessment does not concur with the proposed conceptual framework for assessment, it is able to produce graduates with the relevant work experience (skills) necessary for entry into the world of work. There is an elaborate system of evaluation of the process of assessment of work-integrated learning apart from the fact that the student does not have a 'say' in that evaluation.

Thirdly, the academic supervisors acknowledge that the mentors are not trained assessors; however, they still serve to provide an invaluable service to the institution and the country as a whole. Without the mentors volunteering their service (irrespective of their minimal expertise in Outcomes-based assessment concepts), work-integrated learning will become non-existent.

Finally students are trying their utmost to perform and achieve the programmes outcomes given the fact that they are not fully integrated into the process as the study has revealed.

6.6 LIMITATIONS OF THE STUDY

Firstly, the limitations of the study are implicit in the fact that this research is of limited scope. Secondly the fact that the researcher is a novice, there are some discrepancies with the data more especially with the scale of the items for each of the research questions.

Thirdly, the choice of uneven samples made it difficult for the researcher to make justifiable comparisons and to make valid and reliable conclusions. The choice of samples were also limited, especially in the case of mentors who are located not only in the Gauteng province but in other provinces as well.

6.7 CONCLUSION

The research has certainly supported some of the initial concerns that the researcher has raised in his research questions for this research. However, the researcher could have used a bigger sample nationally (from all Universities of Technology) and perhaps across a wider range of programme offerings so that the outcome of the research could have a greater impact on the Universities of Technology sector.

In conclusion and in fairness to the Vaal University of Technology, it must be pointed out that academic supervisors and mentors are trying their utmost to produce quality graduates. The conclusive findings generated from this study are not to negate the efforts of the institution but rather an opportunity to enhance the systems of assessment at the Vaal University of Technology. Perhaps this research might also act as a stimulus to other researchers in the field of work-integrated learning to expand on this initial investigation of the assessment of work-integrated learning in the University of Technology sector. This therefore provides an opportunity to improve the assessment of work-integrated learning across the University of Technology sector.

The study certainly provides an interesting research focus for other interested researchers in the field of assessment of work-integrated learning, for example:

a) The intervention of the National Department of Education in enhancing work-integrated learning (if they are serious about addressing skills shortage in the country)?

b) The role of professional bodies/industry in enhancing the assessment/placement of students/ graduation rates of work-integrated learning.

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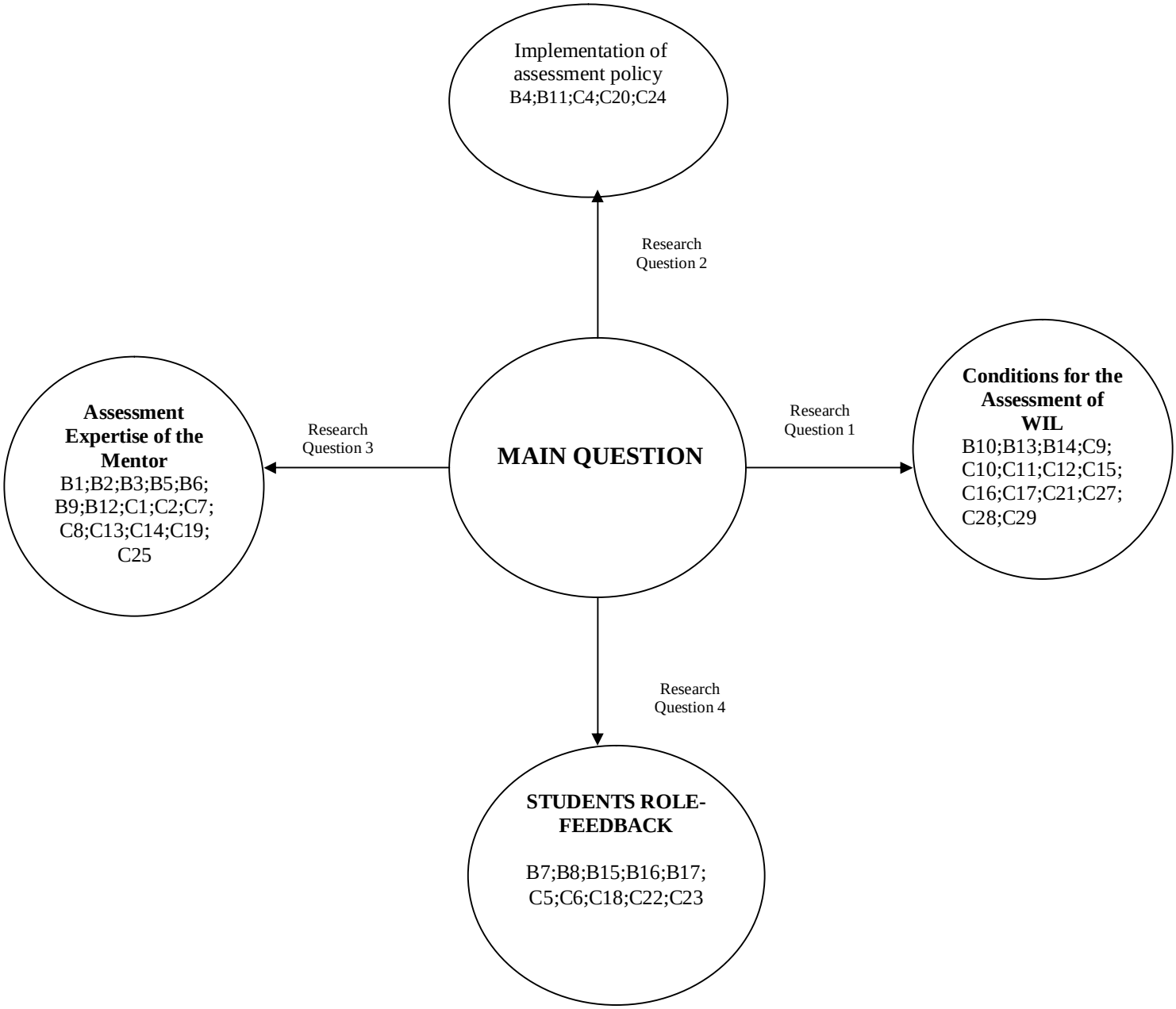
APPENDICES

A - Concept Map for Mentors
B - Concept Map for Students
C - Concept Map for Academic Supervisors
D – Ethical Clearance Form –University of Pretoria
E - Academic Supervisors' Questionnaire
F – Students' Questionnaire
G – Mentors' Questionnaire
H - Consent for Research by Vaal University of Technology
I - Oath of Secrecy

APPENDIX A

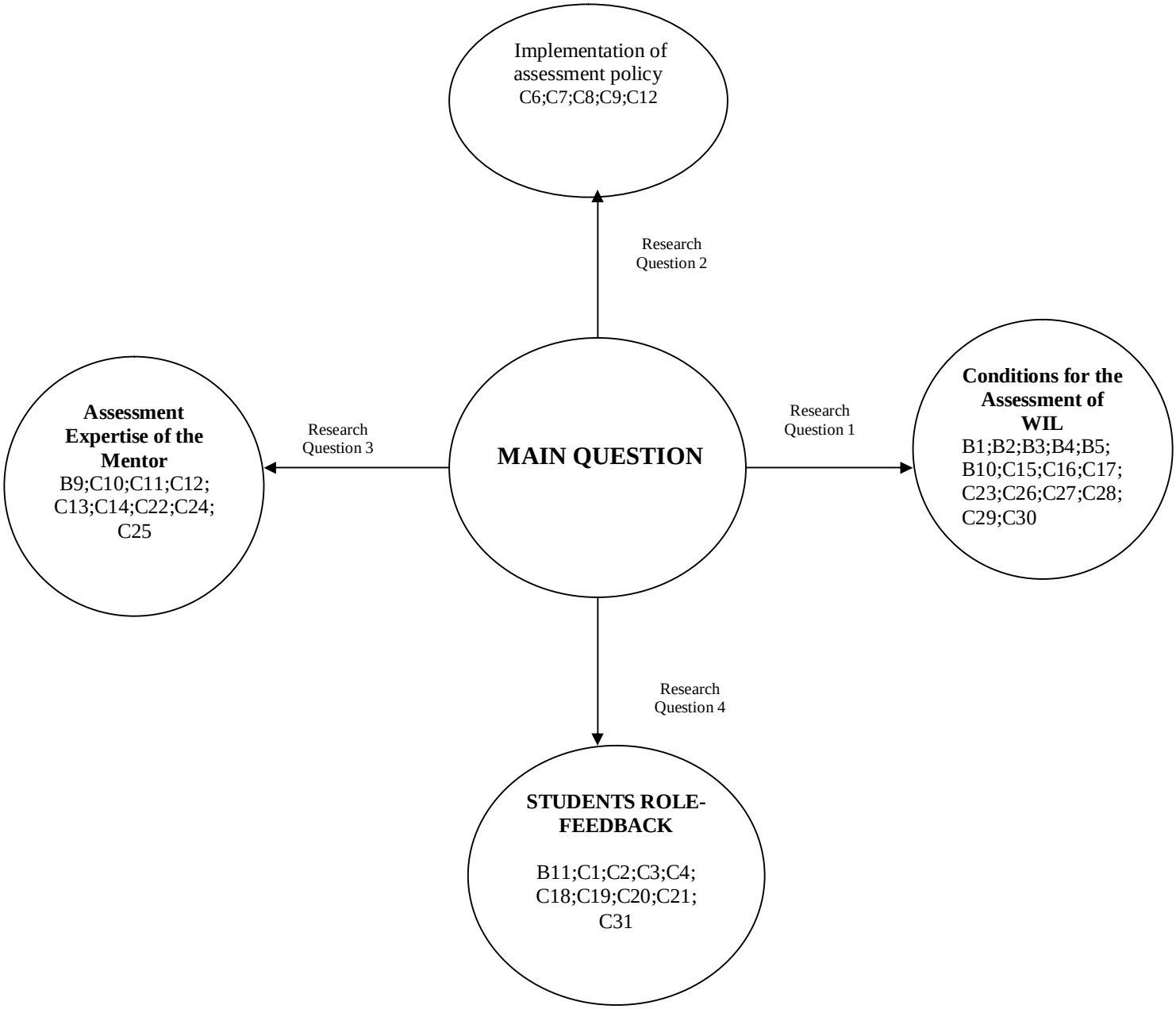
A CONCEPT MAP FOR THE QUESTION ITEMS USED IN THE STUDY FOR MENTORS



MUST BE READ IN CONJUNCTION WITH THE RELEVANT QUESTIONNAIRE

APPENDIX B

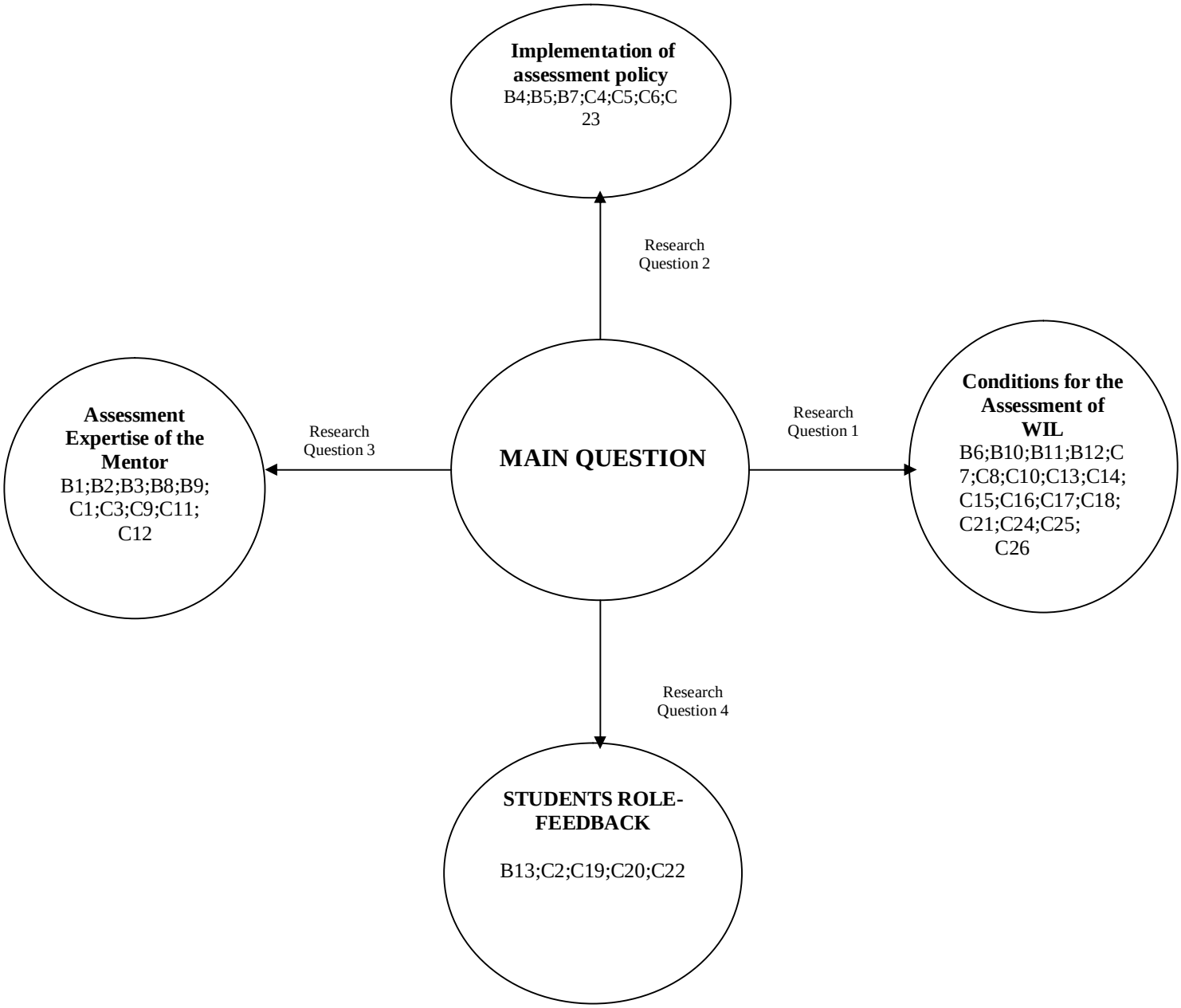
A CONCEPT MAP FOR THE QUESTION ITEMS USED IN THE STUDY FOR STUDENTS



MUST BE READ IN CONJUNCTION WITH THE RELEVANT QUESTIONNAIRE

APPENDIX C

A CONCEPT MAP FOR THE QUESTION ITEMS USED IN THE STUDY FOR ACADEMIC SUPERVISORS



MUST BE READ IN CONJUNCTION WITH THE RELEVANT QUESTIONNAIRE

ANNEXURE D

UNIVERSITY OF PRETORIA

FACULTY OF EDUCATION

RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	**CLEARANCE NUMBER :** CS06/09/01
DEGREE AND PROJECT	M.Ed Assessment and Quality Assurance The assessment of work-Integrated learning at a University of Technology
INVESTIGATOR(S)	Vinayagum Kundasami
DEPARTMENT	Curriculum Studies
DATE CONSIDERED	17 August 2007
DECISION OF THE COMMITTEE	APPROVED

This ethical clearance is valid for 2 *years from the date of consideration and may be renewed upon application*

CHAIRPERSON OF ETHICS COMMITTEE Dr S Human-Vogel

DATE 17 August 2007

CC Prof S Howie
Prof WJ Fraser
Mrs Jeannie Beukes

This ethical clearance certificate is issued subject to the following conditions:

1. A signed personal declaration of responsibility
2. If the research question changes significantly so as to alter the nature of the study, a new application for ethical clearance must be submitted
3. It remains the applicant's responsibility to ensure that all the necessary forms for informed consent are kept for future queries.

Please quote the clearance number in all enquiries.

ID NO:

APPENDIX E

QUESTIONNAIRE
FOR ACADEMIC SUPERVISORS (LECTURERS) OF WORK-INTEGRATED LEARNING
Perceptions on the assessment of work integrated learning (WIL) at a University of Technology

Dear Respondent

You have received this questionnaire as part of a study (towards a Masters degree in Education) investigating assessment of work-integrated learning (which is a compulsory module for the successful completion of a qualification) at a University of Technology.

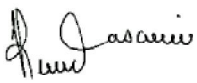
I would be very grateful if you could assist me in my research by taking the time to complete this questionnaire. Your responses will help me identify the gaps that currently exist in the assessment of work-integrated learning and to propose more valid and reliable ways of assessing WIL. It is hoped that the outcome of this research will not only be of benefit to the students and academics of the Engineering Faculty of the Vaal University of Technology but rather to the University of Technology sector as a whole and to the employers and the broader economic community of the Vaal Region.

The responses you provide will remain anonymous and will be treated with the strictest confidentiality. Your responses will be utilised for this particular research only. If you have any questions about completing the questionnaire, please clarify with the researcher, Ronnie Kundasami (a student at the University of Pretoria). Please contact me on 016 950 9292/ 9454 or e-mail: ronnie@vut.ac.za.

My supervisor is Prof Sarah Howie (Director: Centre for Evaluation & Assessment, University of Pretoria- Tel. 012 420 4175) and Prof William Fraser, my co-supervisor, (HoD: Curriculum Studies, Tel: 012 420 2966)

Thank you for your co-operation.

Yours sincerely



Ronnie Kundasami

HOW TO COMPLETE THE QUESTIONNAIRE

1. *Please answer ALL questions as best as you can and try not leave any questions unanswered.*

2. *Should a question not be clear to you, please ask the researcher to have the issue clarified.*

3. *In SECTION C, a four point Likert Scale is being used which means that your responses will range from STRONGLY DISAGREE to STRONGLY AGREE.*
You may only mark one of the appropriate boxes with a X.

ONCE YOU HAVE COMPLETED THE QUESTIONNAIRE, PLEASE RETURN IT TO THE RESEARCHER IMMEDIATELY AFTER HAVE COMPLETED IT

SECTION A: BIOGRAPHICAL DATA

Indicate your answer in the appropriate box (mark with X) for each question in this section

1. Male ☐ Female ☐

2. What is the nature of your employment?

Permanent ☐ Part-Time/Contract ☐

4. How many years have you been supervising Work-integrated learning?

Less than 1 year ☐	1 to 5 years ☐	6 to 10 years ☐	More than 10 years ☐

5. How many years have you been a lecturer/ academic?

Less than 1 year ☐	1 to 5 years ☐	6 to 10 years ☐	More than 10 years ☐

6. What is your area of specialisation?
Place a cross (X) in the appropriate box.

Area of specialisation	
Civil Engineering	
Mechanical Engineering	
Power Engineering	
Metallurgical Engineering	
Industrial Engineering	
Electrical Engineering	
Other (Specify...)	

7. *How many years have you been teaching / lecturing in the particular area of specialization indicated above?*

Less than 1 year ☐	1 to 5 years ☐	6 to 10 years ☐	More than 10 years ☐

8. *Indicate the highest qualification you have achieved*

Artisan Cert	☐	Honours	☐
University of Technology Diploma	☐	Masters	☐
Teaching Qualification	☐	Doctor's degree	☐

9. *Indicate the number of years you have been in one or more of the following:*

9.1 **Industry**

Less than 1 year ☐	1 to 5 years ☐	6 to 10 years ☐	More than 10 years ☐

9.2 **University of Technology/Technikon**

Less than 1 year ☐	1 to 5 years ☐	6 to 10 years ☐	More than 10 years ☐

9.3 **iver**

Less than 1 year ☐	1 to 5 years ☐	6 to 10 years ☐	More than 10 years ☐

9.4 **Comprehensive University (which includes a previous Technikon)**

Less than 1 year ☐	1 to 5 years ☐	6 to 10 years ☐	More than 10 years ☐

SECTION B

NOTE: In this section WIL is used as an abbreviation for Work-integrated learning

In this section you are required to mark the appropriate box, after each question with a cross (X):

QUESTION ITEMS	Yes	No	Do not know
1. Have you been part of a WIL orientation programme for students?			
2. Have you been part of a WIL orientation programme for mentors?			
3. Have you been to a teaching development programme/s to improve your skills in assessment?			
4. Do you explain to students how the assessment process for WIL works?			
5. Have you explained to students how the credit value of WIL is calculated?			
6. Do you assist students in finding a placement for WIL?			
7. Do you explain to mentors how the credit value is made up?			
8. Have you trained mentors as assessors?			
9. Are mentors trained by the relevant ETQAs/SETAs as assessors?			
10. Is there a preliminary meeting on the first day of the WIL placement to explain the roles of students, mentors and academic supervisors?			
11. Can students contact you with problems related to their assessment whenever they need to, during their WIL?			
12. On registration, did you explain to students that if they do not pass the WIL module they will not graduate?			
13. There is an appeals process for students to lodge their dissatisfaction with assessment grading/mark or the assessment process			

SECTION C

In this section indicate the degree to which you may agree/ disagree with the following statements by placing a (X) in the appropriate box/space:

QUESTION ITEMS	Strongly Disagree	Disagree	Agree	Strongly Agree
1. Assessor training for mentors has begun only recently (from 2006 onwards)				
2. The students know their rights and responsibilities as students of WIL				
3. The mentors know their rights and responsibilities as assessors of WIL				
4. You usually explain the assessment criteria to students and how they will be applied				
5. You usually explain the assessment criteria to mentors and how they will be applied				
6. Students understand the programme outcomes (i.e. the learning and exit-level outcomes)				
7. You visited most or almost all of the students at least three times or more during their WIL placements				
8. The mentor has a professional relationship with the student (i.e. treat students with respect, etc.)				
9. The mentor is proficient in assessing your student/s (i.e. he/she understands the OBE principles and the assessment criteria)				
10. The lecturer visits the mentors more than twice during the WIL period				
11. The mentor provides feedback at regular intervals to the student				
12. The mentor provides feedback at regular intervals to you				
13. The mentor is easily accessible to you at all times				
14. The time allocated for projects is fair in terms of the daily tasks allocated to students				
15. You provide adequate support to students during their WIL placement				
16. Students have access to institutional resources in order to complete projects on time at the workplace site (internet, computers, etc.)				
17. Students have access to work site resources in order to complete projects on time at the workplace site (internet, computers, etc.)				
18. Students are actively engaged throughout the entire WIL placement period				
19. The assessment grading is communicated to the student at the end of WIL				

QUESTION ITEMS	Strongly Disagree	Disagree	Agree	Strongly Agree
20. The student, mentor and lecturer discuss the final assessment to arrive at a consensus on the final assessment				
21. There is feedback on the entire WIL period to the student, mentor and yourself				
22. The weaknesses and strengths of the student are communicated at the end of the WIL period				
23. Feedback from the assessment process of WIL is communicated to the Cooperative Education Unit / the Curriculum Developers of the institution				
24. The WIL placement has prepared the students adequately for the world of work				
25. The assessment of WIL is of a very high standard				
26. WIL placements are of a very high standard				

SECTION D

In this section, please elaborate on the questions below:

1. What do you think about the conditions for the assessment of WIL?

_____
_____
_____
_____

2. To what extent do you think that these conditions impact on the student's final assessment of WIL? Please elaborate.

_____
_____
_____
_____
_____

ONCE YOU HAVE COMPLETED THE QUESTIONNAIRE, PLEASE RETURN IT TO THE RESEARCHER IMMEDIATELY AFTER THE SESSION.

THANK YOU FOR PARTICIPATING IN THIS PROJECT

ID NO:

APPENDIX F

QUESTIONNAIRE
FOR STUDENTS OF WORK-INTEGRATED LEARNING
Perceptions on the assessment of work integrated learning (WIL) at a University of Technology

Dear Respondent

You have received this questionnaire as part of a study (towards a Masters degree in Education) investigating the assessment of work-integrated learning (which is a compulsory module for the successful completion of a qualification) at a University of Technology.

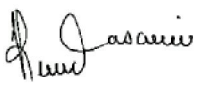
I would be very grateful if you could assist me in my research by taking the time to complete this questionnaire. Your responses will help me identify the gaps that currently exist in the assessment of work-integrated learning and to propose more valid and reliable way of assessing WIL. It is hoped that the outcome of this research will not only be of benefit to the students and academics of the Engineering Faculty of the Vaal University of Technology but rather to the University of Technology sector as a whole and to the employers and the broader economic community of the Vaal Region.

The responses you provide will remain anonymous and will be treated with the strictest confidentiality. Your responses will be utilised for this particular research only. If you have any questions about completing the questionnaire, please clarify with the researcher, Ronnie Kundasami (a student at the University of Pretoria). Please contact me on 016 950 9292/ 9454 or e-mail: ronnie@vut.ac.za.

My supervisor is Prof Sarah Howie (Director: Centre for Evaluation & Assessment, University of Pretoria- Tel. 012 420 4175) and my co-supervisor is Prof William Fraser: Head of Department: Curriculum Studies, University of Pretoria, Tel: 012 420 2966.

Thank you for your co-operation.

Yours sincerely



Ronnie Kundasami

HOW TO COMPLETE THE QUESTIONNAIRE

1. **Please answer ALL questions as best as you can and try not leave any questions unanswered.**

2. **Should a question not be clear to you, please ask the researcher to have the issue clarified.**

3. **A four point Likert Scale is being used in SECTION C which means that your responses will range from STRONGLY DISAGREE to STRONGLY AGREE.**
   You may only mark one of the appropriate boxes with a (X).

ONCE YOU HAVE COMPLETED THE QUESTIONNAIRE, PLEASE RETURN IT TO THE RESEARCHER IMMEDIATELY AFETR THE SESSION.

SECTION A: BIOGRAPHICAL DATA

Indicate your answer in the appropriate box mark with X) for each question in this section

1. Male ☐ Female ☐

2. *What year of study you are in:*

   Graduate ☐ Undergraduate ☐

4. *State the year of study you are in:*

   1 ☐ 2 ☐ 3 ☐ 4 ☐ More than 4 years ☐

5. RSA citizen ☐ Foreign Student ☐

6. *Indicate the Qualification you are studying towards:*

   Certificate ☐

   Diploma ☐

   BTech ☐

7. What is your area of Specialisation?

Place a cross (X) in the appropriate box

Civil Engineering	
Electrical Engineering	
Mechanical Engineering	
Metallurgical Engineering	
Industrial Engineering	
Chemical Engineering	
Power Engineering	
Other (Specify…)	

SECTION B:

NOTE: In this section WIL is used as an abbreviation for Work-integrated learning and Academic supervisor refers to the lecturer.

In this section you are required to mark the appropriate box, after each question with a cross (X):

QUESTION ITEMS	Yes	No	Do not know
1. Have you been to a WIL orientation programme for students?			
2 Does the orientation programme prepare you adequately for the WIL?			
3. Do you receive guidelines for WIL (in printed format) during or after the orientation session?			
4. Does your lecturer/the cooperative education unit assist you in finding a placement for WIL?			
5. Do you have to find your own WIL placement?			
6. Does the lecturer explain to you how the assessment process for WIL works?			
7. Does the lecturer/academic supervisor explain to you how the credit value of WIL is calculated?			
8. Did the lecturer / academic supervisor discuss with you the minimum requirements to pass the WIL module?			
9. Were you were told on registration that if you do not pass the WIL module you will not graduate?			
10. Is there a preliminary meeting on the first day of the WIL placement to explain the roles of students, mentors and academic supervisors?			
11. Can you contact the lecturer with problems related to your assessment whenever you need to, during their WIL?			
12. There is an appeals process for students to lodge their dissatisfaction with the assessment grading/mark			

SECTION C

In this section indicate the degree to which you agree/disagree with the statement by placing a (X) in the appropriate box/space:

QUESTION ITEMS	Strongly Disagree	Disagree	Agree	Strongly Agree
1. You understand all the company rules and regulations during WIL				
2. You are familiar with the legislation regarding the Occupational, Health and Safety Act				
3. You understand the assessment process for WIL prior to being assessed				
4. You know your rights and responsibilities as a student of WIL				
5. You know what the assessment criteria/ performance indicators are? and how they will be applied				
6. You know what the assessment criteria are applied during assessment?				
7. You understand the programme outcomes (the specific and exit level outcomes)				
8. The mentor is an ideal person to supervise the students of WIL for this area of specialisation				
9. The mentor is very professional in his interaction with us (i.e. shows respect and values opinions)				
10. The mentor is consistent in assessing me as a student				
11. The mentor applies a variety of assessment strategies which contribute to the holistic assessment of the student				
12. The mentor is able to provide feedback at regular intervals to you				
13. The mentor is able to provide feedback at regular intervals to the lecturer/academic supervisor				
14. The mentor is easily accessible at all times				
15. The time allocated for projects are fair in terms of the additional tasks allocated to students on a daily basis				
16. Students receive adequate support from the mentor				
17. Students receive adequate support from the academic supervisor/lecturer				
18. Students are always actively engaged throughout the entire WIL placement period				
19. The student, mentor and lecturer discuss the final assessment to arrive at a consensus on the final assessment				
20. There is feedback on the entire WIL process to the student, mentor and lecturer				
21. The weaknesses and strengths of the students are communicated at the end of the WIL period				
22. The WIL placement has prepared you for the world of work				
23. The workplace site is ideal for the WIL of your specialisation area.				
24. Dissatisfactions regarding your WIL was attended to by your academic supervisor/lecturer				

QUESTION ITEMS	Yes	No	Do not know	
25. Dissatisfactions regarding your WIL was attended to by your mentor				
26. You are misused as a student of WIL (i.e. you have to run errands rather than concentrate on WIL)				
27. If you do not cooperate with the mentor (as indicated in 26 above) you are penalised in your final assessment				
28. Your general experience of WIL at the workplace site was excellent				
29. Your lecturer visited you very frequently during the WIL placement				
30. Traveling to and from the workplace site is not a problem				
31. The academic supervisor asks you to reflect on your experience of the entire WIL placement				
32. Your suggestions are indeed used to develop a better WIL programme				
33. Students who do not pass the WIL are given all the reasons for their failure				
34. Unsuccessful students are given additional support to ensure that they pass in the next WIL placement				

SECTION D

In this section, please elaborate on the questions below:

1. What do you think about the conditions for the assessment of WIL?

_____
_____
_____
_____

2. To what extent do you think that these conditions impact on your final assessment of WIL? Please explain your answer (regardless of whether you say, YES/NO).

_____
_____
_____
_____

ONCE YOU HAVE COMPLETED THE QUESTIONNAIRE, PLEASE RETURN IT TO THE RESEARCHER IMMEDIATELY AFTER THE SESSION.

THANK YOU FOR PARTICIPATING

APPENDIX G

ID NO:

QUESTIONNAIRE
FOR MENTORS OF WORK-INTEGRATED LEARNING
Perceptions on the assessment of work integrated learning (WIL) at a University of Technology

Dear Respondent

You have received this questionnaire as part of a study (towards a Masters degree in Education) investigating the assessment of work-integrated learning (which is a compulsory module for the successful completion of a qualification) at a University of Technology.

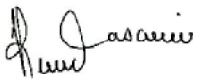
I would be very grateful if you could assist me in my research by taking the time to complete this questionnaire. Your responses will help me identify the gaps that currently exist in the assessment of work-integrated learning and to propose more valid and reliable way of assessing WIL. It is hoped that the outcome of this research will not only be of benefit to the students and academics of the Engineering Faculty of the Vaal University of Technology but rather to the University of Technology sector as a whole and to the employers and the broader economic community of the Vaal Region.

The responses you provide will remain anonymous and will be treated with the strictest confidentiality. Your responses will be utilised for this particular research only. If you have any questions about completing the questionnaire, please clarify with the researcher, Ronnie Kundasami (a student at the University of Pretoria). Please contact me on 016 950 9292/ 9454 or e-mail: ronnie@vut.ac.za.

My supervisor is Prof Sarah Howie (Director: Centre for Evaluation & Assessment, University of Pretoria- Tel. 012 420 4175) and Prof William Fraser, my co-supervisor, (HoD: Curriculum Studies, Tel: 012 420 2966

Thank you for your co-operation.

Yours sincerely



Ronnie Kundasami

HOW TO COMPLETE THE QUESTIONNAIRE

1. Please answer ALL questions as best as you can and try not leave any questions unanswered.
2. Should a question not be clear to you, please ask the researcher to have the issue clarified.
3. A four point Likert Scale is being used which means that your responses will range from STRONGLY DISAGREE to STRONGLY AGREE.
   You may only mark one of the appropriate boxes with a X.
4. Please use a PENCIL to complete the questionnaire

ONCE YOU HAVE COMPLETED THE QUESTIONNAIRE, PLEASE RETURN IT TO THE RESEARCHER IMMEDIATELY AFTER THE SESSION.

SECTION A: BIOGRAPHICAL DATA

Indicate your answer in the appropriate box (with X) for each question in this section:

1. Male ☐ Female ☐

2. *What is the nature of your employment?*

   Permanent ☐ Contract/Part-time ☐

3. *How many years have you been supervising Work-integrated learning?*

   Less than 1 year ☐ | 1 to 5 years ☐ | 6 to 10 years ☐ | More than 10 years ☐

4. *Indicate your years of experience in Industry*

   Less than 1 year ☐ | 1 to 5 years ☐ | 6 to 10 years ☐ | More than 10 years ☐

5. *What is your area of specialisation?*

   Place a cross (x) in the appropriate box.

Area of specialisation	
Civil Engineering	
Mechanical Engineering	
Power Engineering	
Metallurgical Engineering	
Industrial Engineering	
Electrical Engineering	
Other (Specify...)	

7. *How many years have you been working in the particular area of specialization indicated above?*

Less than 1 year	1 to 5 years	6 to 10 years	More than 10 years
☐	☐	☐	☐

8. *Indicate the highest qualification you have achieved*

Matric	☐	Honours Degree	☐
Artisan Cert	☐	Masters Degree	☐
Certificate	☐	Doctors Degree	☐
Diploma	☐		
BTech	☐		
Bachelors Degree	☐		
Teaching Qualification	☐		

---

9. *Indicate the approximate number of years you have been in one or more of the following:*

9.1 **Industry**

Less than 1 year	1 to 5 years	6 to 10 years	More than 10 years
☐	☐	☐	☐

9.2 **University of Technology/Technikon**

Less than 1 year ☐	1 to 5 years ☐	6 to 10 years ☐	More than 10 years ☐

9.3 **Traditional University**

Less than 1 yr ☐	1 to 5 yrs ☐	6 to 10 yrs ☐	More than 10 years ☐

9.4 **Comprehensive University (which includes a previous Technikon)**

Less than 1 year ☐	1 to 5 years ☐	6 to 10 years ☐	More than 10 years ☐

SECTION B

***NOTE: In this section WIL is used as an** abbreviation for Work-Integrated Learning*

In this section you are required to mark the appropriate box, after each question with a cross (X):

QUESTION ITEMS	Yes	No	Do not know
1. Have you been part of a WIL orientation programme for mentors?			
2. Have you been to a skills development programme/s to improve your skills in assessment?			
3. Do you explain to students how you will assess them?			
4. Does the academic supervisor explain to you how the credit value is calculated?			
5. Have you been trained by the University as an assessor?			
6. Are you trained as an assessor by the relevant ETQAs/SETAs?			
7. Is there a preliminary meeting on the first day of the WIL placement to explain your role as the mentor?			
8. Are you informed about the role of the students at your workplace?			
9. Are you informed about the role of the academic supervisor during the WIL period?			
10. Do students contact you with problems related to their assessment whenever they need to, during their WIL?			
11. Do you know what the assessment criteria are and how they should be applied?			
12. Do you know your rights and responsibilities as a mentor of WIL?			

QUESTION ITEMS	Yes	No	Do not know
13. Do students have access to worksite resources to complete their projects (internet, computers, machinery, operator supervisors, etc)?			
14. Do students have access to institutional resources to complete their projects (internet, computers, machinery, operator supervisors, etc)?			
15. Do the student, mentor and lecturer discuss the final assessment to arrive at a consensus on the final assessment?			
16. Is the assessment grading communicated to the student at the end of WIL?			
17. There is an appeals process for students to lodge their dissatisfaction regarding their assessment grading/mark			

SECTION C:

In this section indicate the degree to which you may agree/disagree with the following statements by placing a (X) in the appropriate box/space:

QUESTION ITEMS	Strongly Disagree	Disagree	Agree	Strongly Agree
1. You are familiar with the assessment process for WIL				
2. You understand the OBE concept that is currently being used by the institution				
3. You understand the programme outcomes for WIL				
4. You are able to assess whether the student has met a particular assessment criterion or not				
5. Students are familiar with company rules and regulations				
6. Students understand the legislation as it appears in the Occupational, Health and Safety Act				
7. You have an induction programme for students at the workplace site.				
8. You apply a variety of assessment strategies when assessing students of WIL				
9. You are very professional in the way you handle students placed at your workplace				
10. You use students to run errands for you during their WIL placements				
11. If students are not cooperative as in 34 above, you penalise them in their final assessment.				
12. You provide adequate support to students at your workplace				
13. You provide feedback at regular intervals to the student				
14. You provide feedback at regular intervals to the lecturer				
15. You are easily accessible to students at all times				
16. The projects are fair in terms of the additional daily tasks that students are expected to complete				
17. There is adequate time given to complete projects				

QUESTION ITEMS	Yes	No	Do not know	
18. Students are always actively engaged throughout the entire WIL placement period				
19. You are able to assess/identify the strengths and weaknesses of the students				
20. You make use of the assessment criteria/performance indicators to assess students				
21. There is an excellent line of communication between yourself and the students regarding the strengths and weaknesses of students				
22. There is feedback on the entire WIL period to the student, mentor and lecturer collectively				
23. The weaknesses and strengths of the student are communicated at the end of the WIL period				
24. Feedback from the assessment process of WIL is communicated to the Cooperative Education Unit and the Curriculum Developers of the institution				
25. The WIL placement has adequately prepared the student for the world of work				
26. Your general experience of WIL students at your workplace site was excellent				
27. The lecturer had frequent contact with you throughout the WIL placements				
28. You are able to cope with the large numbers of WIL students				
29. Student numbers are negotiated with you by the academic supervisor/ the WIL facilitator				

SECTION D:
In this section, please elaborate on the questions below:

1. What do you think about the conditions for the assessment of WIL?

_____
_____
_____
_____

2. To what extent do you think that these conditions impact on the student's final assessment of WIL? Please explain your answer (regardless of whether you say YES/NO)

_____
_____
_____
_____
_____

ONCE YOU HAVE COMPLETED THE QUESTIONNAIRE, PLEASE RETURN IT TO THE RESEARCHER IMMEDIATELY AFETR THE SESSION.

APPENDIX H

Private Bag X021, Vanderbijlpark, 1900, South Africa, Tel: 27 16 950 9000, Fax: 27 16 950 9999, E-mail: www.vut.ac.za

29 June 2006

TO WHOM IT MAY CONCERN

As Dean of Research I report that the proposal 'A case study of the Vaal University of Technology: A study of the final assessment of the Work-Integrated Learning component within a programme at a University of Technology in South Africa' of Mr V Kundasami has complied with the ethics policy of the Vaal University of Technology.

He has the consent of the Vaal University of Technology to proceed with the research.

Sincerely

Prof. JD Pretorius
Dean: Research

APPENDIX I

VAAL UNIVERSITY OF TECHNOLOGY

OATH OF SECRECY OF STAFF

I, the undersigned, VINAYAGUM KUNDASAMI

of (Residential address): 34 KOORSBOOM STREET
MAYBERRY PARK
ALBERTON
1448

working at (Section): QUALITY PROMOTION UNIT -

hereby declare that I shall keep strictly secret all classified information in connection with my employment, studies and research with which I am acquainted or which is entrusted to me in my capacity as employee of the Vaal University of Technology and that I shall not disclose or make public any such information to any unauthorized person, body of persons, the Press, or any other public media, or in any way shall be party to the disclosure or publication of such information, except with the prior written authorization of a person authorized to grant such authorization. I promise that I will not use the name of the Vaal University of Technology or refer to the Vaal University of Technology in my thesis, publications or conference/workshop presentations.

SO HELP ME GOD

Date: 2007-08-08

SIGNATURE OF EMPLOYEE