

Developing an Integrated Systems Thinking approach to Assessment of Work Integrated Learning at Universities of Technology

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“AUM GANESHA”

“AUM SHAKTI PARASHAKTI”

DEDICATION

For my Mum and Dad

This study is dedicated to two very special people in my life, my loving parents.

Mum and my late Dad, you have always been my inspiration and support.

“Thank you for always believing in me, your unconditional love and many, many sacrifices you have made to help get me to this place I now stand at. If it was not for your initial investment in my education, and support throughout my academic journey, I would not have reached this place now”.

DECLARATION

I, Radha Reddy, declare that

1. The research reported in this thesis, except where otherwise indicated, is my original research;
2. The thesis has not been submitted for any degree or examination at any other university;
3. The thesis does not include other's data, analysis, graphs, pictures, tables or any other information unless it is acknowledged as being sourced from other persons;
4. The thesis does not include the writings of other authors without acknowledgement. Where writings have been reworded, but relates to the thoughts by other authors, this has been referenced in-text. Where the exact words have been used, this is signalled with quotation marks and referenced.

Radha Reddy

18 July 2023

Date

ABSTRACT

Work integrated Learning (WIL) is understood as a component in the successful attainment of a qualification within an appropriate field, assisting significantly in accomplishing the graduate attributes as demanded by employers. WIL calls for the practical exposure and engagement of students in the workplace that is seen as the first point of transition from higher education into the world of work (WoW). WIL is reliant on the attainment of various skills all of which need assessment in order to authenticate their achievement. It has been documented that challenges exist with the management of WIL as it involves engagement between three parties, the higher education institution, the student and industry (the external partner). One of these challenges is the assessment of WIL, which currently presents a disjointed, complex situation within a qualification, presenting the need for a more planned, systematic approach for successful implementation. Another challenge inherent in this assessment is the engagement of two learning sites and the inclusion of the activities of three partners within the assessment of each student. The active role of students in their own assessment activities is required if attainment of graduate attributes is to be achieved within a student-centred approach, while the involvement of various assessors with varied abilities being responsible for assessing WIL trainees within varied industry environments all presents a situation full of inconsistencies in practice. The focus of this study is therefore on establishing an optimum system of assessment of WIL within a complex situation involving an integrated approach which will also allow for flexibility of practice within the numerous sectors of industry.

The study adopted a Systems Thinking theoretical framework, with specific reference to Soft Systems Methodology (SSM), which focussed on identifying interconnectivity within the practices of assessment of WIL. The study is anchored in the interpretivist paradigm and implemented a mixed methods design, allowing for a triangulation of the findings for a clearer understanding of the practice of assessment within WIL.

Five of the six Universities of Technology (UoTs) in South Africa, were included as the study population. Two departments from the Management Sciences Faculty of each UoT were selected based on their offering of the WIL programme. The study population included the Academic WIL co-ordinators, industry mentors and students who had undergone WIL training. Quantitative data (questionnaires) complemented and supplemented qualitative data (interviews) in strengthening the analysis and the interpretation of the findings. Quantitative data was analysed by a statistician adopting the SPSS software package, while the qualitative data was coded into themes and categories by the researcher.

From the data analysis it emerged that for a successful practice of assessment of WIL to be attained, it is important that WIL becomes an integrated practice within a qualification, with scaffolded assessment activities throughout the qualification, designed to promote and develop student Learning, Teaching and Assessment (LTA) activities, allowing for a holistic assessment of WIL and WIL related activities. It is clearly in the interest of all WIL stakeholders to ensure the success of this process. It emerged that assessment of WIL needs to be incorporated as a mix of authentic co-created activities that are not reliant on one assessor, but the product of integrated activities of the key partners (academic WIL co-ordinator, industry mentor and the student). The study presents a model for the attainment of this integrated assessment of WIL, in the context of the identified theoretical framework, the literature reviewed and the analysis of findings of this study. The study recommends that WIL practitioners adopt the integrated model of assessment of WIL with inclusion of scaffolded WIL activities within the curriculum and foster a relationship of inclusivity between students, WIL practitioners and Industry mentors in engaging in assessment of WIL. It is also recommended that a community of practice is established holistically within an institution, amongst other institutions of education as well as the industry partners.

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LIST OF ABBREVIATIONS

CHE	Council on Higher Education
COPs	Communities of Practice
DHET	Department of Higher Education and Training
DUT	Durban University of Technology
HEI	Higher Education Institution
HESA	Higher Education South Africa
ICMLG	International Conference on Management Leadership and Governance
KZN	KwaZulu-Natal
NQF	National Qualifications Framework
PLA	Prior Learning Assessment
PPI	Pre-Professional Identity
PwC	Price Waterhouse Coopers
SAQA	South African Qualifications Authority
UoT	University of Technology
WIL	Work Integrated Learning

1 CHAPTER ONE

Introduction and Background to the study

1.1 Introduction

This is an introductory chapter which contextualizes the research project. It gives the background to the study, explains the problem situation, the aim and objectives of the study, outlines the principal literature reviewed, briefly explains the research design and the methodology adopted for the study, provides a clarification of significant concepts, and explains the contribution of the study to the research field. The chapter ends with a brief outline of the chapters contained in the thesis.

1.2 Contextual background

The concept of Work Integrated Learning (WIL) goes back to the nineteenth century with the restructuring of the education system and the perceived need for the inclusion of practical training into the higher education environment. The origins of WIL in South Africa (SA) lie in the establishment of Technical Colleges that included experiential learning within qualifications as a means of exposing students to the world of work (WOW) and through practical engagement with industry (Reinhard, *et.al.*, 2016). The implementation of the cooperative education system in the 1970s and 1980s by Technikons (now known as UoTs) introduced six months training periods, which was a model adopted from the German universities of applied sciences (Reinhard, *et.al.*, 2016 cite Du Pré, 2015). The post-apartheid transformation of the education system within SA led to the merging of the then 36 institutions into the present 23 institutions, comprising of 11 Universities, six comprehensive Universities and six Universities of Technology (Griesel and Parker, 2009:02).

With the emergence of Universities of Technology (UoTs) in the 2000s, the focus of WIL remained prevalent within these institutions. WIL is considered an important inclusion in a qualification within any practical field such as medicine, engineering or business studies. The current research is however focussed exclusively on its application within business.

WIL's value was supported by the Council on Higher Education (CHE, 2007) as it called for more robust engagement between higher education and industry. WIL is seen as an opportunity for improved collaborations in line with the technological advancements of society and the business environment. The Higher Education South Africa (HESA) and South African Qualifications Authority (SAQA) Report on graduate attributes (Griesel and Parker, 2009) emphasised the importance of industry and the higher education sector in "bridging the gap" for graduates as they transition between these two environments. The report introduced the concept of 'graduate attributes' and encouraged their inclusion throughout a qualification. The HESA report was further supported by the CHE's 'WIL Good Practice Guide' (Winberg *et.al.*, 2011), which places WIL as key in achieving these graduate attributes with further encouragement for greater engagement between Universities and the WOW.

While WIL has thus gained in official importance and relevance in higher education, in practice it is still often seen as an 'add-on' to a qualification within Higher Education Institutions (HEIs) despite industry's call for greater engagement between itself and the Universities (Kay *et.al.*, 2019: 402). There is also a concern amongst academic WIL co-ordinators that the assessment of WIL is not practiced as a coherent and integrated approach within the management of WIL, while WIL itself tends to be disconnected from other modules within a qualification (Young, *et.al.*, 2019). Academics, who are currently seldom directly involved in the assessment and monitoring of WIL, are also distanced from the practice of WIL within their qualifications. The responsibility for WIL thus tends to be left exclusively in the hands of the WIL co-ordinators.

At the same time the WIL environment is both changing and challenging, with constantly increasing stakeholder demands, involving, amongst other things, the development of 'soft skills' such as adaptability, being innovative, having good communication skills, and developing the ability to work as a team (Rowe, *et.al.*, 2020). A lack of sufficient focus on these also ensures a lack of opportunities for their assessment, and thus on the validation of these attributes.

Today's fast paced demanding world seeks holistic, work-ready employees, who possess the necessary skills and knowledge base together with some minimum experience to enter the relevant fields successfully (Berndtsson, Dahlborg and Pennbrant (2020: 2). For undergraduates just completing a three- or four-year qualification in a practical field, this becomes even more relevant. Lack of experience places various challenges on graduates' employability while those with work experience are given preference (Helyer and Lee, 2014: 351). An organisation's management will normally provide specific training for a particular position, but will also require graduates with generic, as well as industry-specific, skills. WIL is seen as the key tool that aids in this transition to the workplace. At undergraduate level WIL thus becomes a catalyst for students progressing towards graduate status (Kay *et.al*, 2019: 402). However, if WIL is seen only as a "vehicle to gain information about the workplace and to link technical knowledge with workplace application, then its effectiveness is not fully developed" (Winberg, *et.al*. 2011: 07). WIL needs to be seen as an integral component within a qualification with planned authentic assessment activities. It is important to ensure that WIL outcomes are achieved and demonstrated by the associated assessment activities.

1.3 Rationale for the study

Assessment is considered to be an integral part of teaching and learning (Pienaar (2014: 413), while Boud (2000: 151) sees it as "an indispensable accompaniment to lifelong learning".

All learning and teaching activities require assessment to demonstrate levels of understanding and the achievement of the skills taught. It is also known that 'assessment drives learning'. The validation of higher education assessment activities in South African HEIs falls under the control of CHE, and this necessarily includes WIL assessment. Collis (2010: 15) emphasises the importance of the inclusion of assessment in any dialogue involving the revising or developing of WIL. Merely including traditional university evaluation techniques like exams and essays will be insufficient for WIL settings that present richer and more complicated learning environments (Ajjawi, *et.al.*, 2020: 305). This presents a complex situation that is unlike others existing within the HE sector.

An understanding of how students acquire, construct and develop knowledge (Boud 2000: 155) through experience is increasingly being seen as important in developing critical thinkers and life-long learners in a student-centred environment. Boud sees the ability to successfully align teaching and learning activities with assessment activities as key to the attainment of an effective learning experience in any educational setting.

1.4 Literature review

A detailed review is covered in Chapter 2 of this study. The literature reviewed presents a discussion of previous research in the field. The themes discussed are relevant to a broad understanding of the context of WIL as practiced in HEIs in SA, employability and graduate attributes, pre-professional identity, industry players' role, government's role, university's role, the evaluation and assessment of WIL, and reflection on WIL. Some of the key recent sources discussed are summarised below.

Bilgin, Powell and Richards (2022:01) emphasise the need to prioritise employability skills within HE qualifications as employers continue to find a mismatch between their expectations and the skills graduates demonstrate. This resonates with Barbieri and Fitzgibbon's finding (2008) who advocated lifelong learning skills as necessary for economic survival in the light of 21st century technological advancements.

McManus and Rook (2021: 272); Oswald-Egg and Renold (2021: 3) and Smith (2012: 247) support the continuing need for universities to understand the importance of WIL in addressing the needs of industry (and of students) to provide graduates with work experience to respond to emerging situations in the WOW. The effectiveness of such relationships can only be fully realised with engagement in effective partnerships, seen as the secret to borderless education and training, resulting in the reinvention of the educational environment according to Ferns, Dawson and Howitt (2019: 100).

Assessment of the WIL programme is identified as complex and challenging (Ajjawi, *et.al.*, 2020: 304) requiring balanced interactions between all key partners' involvement in the assessment activity, while Pienaar (2014: 22); Kilgour *et.al.* (2014: 22) and McNamara and Brown (2009: 413) all suggested that assessment of WIL needs clear guidelines within a comprehensive framework, as with any learning process. This is supported more recently by students' call for more 'authentic tasks' and 'meaningful assessments' as revealed in a study conducted by Ferns, Dawson and Howitt (2019: 105).

Self and Peer-assessment are student-centred methods that involve 'deep learning' requiring the active participation of students in their own assessment activities (Fathi, Afzali, Parsa, 2021: 212) as required by the current focus on student centred methods of LTA. Thus, overall the literature supports attempts to improve LTA activities of WIL assessment developed as a holistic, integrated practice within a qualification that fosters deep learning.

1.5 Theoretical framework

The theory that underpins this study is Systems Thinking, with specific reference to Soft Systems Methodology (SSM) which 'softens' the borders between systems avoiding hard divisions.

SSM was developed by Checkland in the 1990s (Checkland and Poulter, 2006), and has its roots in the teachings of Jan Smuts in the 1920s in his idea of 'holism' (Jaros, 2002). SSM is designed to be applied to 'messy' situations that need to be considered from a holistic, integrated approach in order to understand their relationship with each other, thus enabling the impact of multiple relevant factors on the whole to be assessed beyond looking at aspects individually in 'silos'. This is pertinent to the practice of WIL as it is liable to be seen as an 'add-on' to an educational qualification, rather than an integrated aspect within the qualification as a whole, while its assessment requires understanding as an integrated system in which multiple role players are involved – academic assessors, industry players and the students themselves.

As a result, the research adopts SSM to evaluate the situation of assessment of WIL, taking into consideration the factors that influence its practical implementation within a qualification. Based on the literature reviewed, the researcher is of the opinion that adopting systems thinking approach to the assessment of WIL can bring about guidance and consistency in the design of an assessment framework. The interlocking systems include various components such as a mix of assessors, methods of assessment, and contributing factors affecting assessment which will be identified through the study.

1.6 Statement of the problem

The assessment of WIL has long been seen as a challenging activity (McNamara 2013: 183-184; McNamara and Brown 2009: 413). These challenges vary between institutions but exhibit common themes such as unguided practice, varied practices amongst UoTs, lack of permanent appointment of WIL experts to guide the process, lack of guidelines for assessment, inclusion of too many or too few assessment activities, and lack of a common understanding of the significance of WIL. This presents a 'messy' situation. Literature in this context supports the need for WIL, while also advocating the need for clear guidelines and a good framework for WIL and the assessment of WIL, as needed in any learning process (Pienaar 2014: 22; Kilgour *et.al.* 2014: 22; McNamara and Brown 2009: 413).

The researcher, a lecturer at a leading SA UoT, is experienced in the management and assessment of WIL, having been engaged in WIL activities for over 10 years and as a WIL Co-ordinator for a period of 6 years. Having worked with WIL and engaged extensively with both the students and the industry mentors, she has observed various issues and challenges which face the different stakeholders to WIL. She has also identified apparent inconsistencies within the practices of assessment of WIL amongst its practitioners.

This experience led to an interest in investigating the possibility of formalising practices of assessment of WIL, leading to the development of a guideline for practitioners (academic WIL Co-ordinators and curriculum planners) to follow that allows for flexibility within the practical operation of the assessment of WIL. In the researcher's experience, WIL has been practiced for many years, yet still lacks a level of formalisation and clear guidelines to its practical implementation and assessment, especially for newly appointed and inexperienced WIL co-ordinators/practitioners.

Various studies have been conducted around the academic relevance and importance of WIL (Babacan and Babacan 2015: 170-171; Eljido-Ten and Kloot 2015: 204; Franz 2007: 1-2; Kolb 1984: 26-27; Abeysekera 2006: 15-16), but there is no research into an integrated framework for the assessment of WIL from the perspective of a soft systems thinking (SST) approach, for implementation within Universities of Technology (UoTs) in SA.

1.7 Research Aim

The aim of this study was therefore to develop an integrated system of assessment for WIL that would be all encompassing yet flexible enough to be adopted within varied industries and contexts.

1.8 Research Objectives

- Objective one: To investigate the current methods of assessment of Work Integrated Learning within Programmes at UoTs.
- Objective two: To address identified challenges associated with the assessing of Work Integrated Learning.
- Objective three: To develop an improved integrated method of assessment within a coherent yet flexible system.

1.8.1 Research questions

- Research question one: What are the current methods of assessment of Work Integrated Learning within Programmes at UoTs?
- Research question two: How can identified challenges associated with the assessment of WIL be addressed?
- Research question three: Can improved assessment method be integrated within a coherent flexible system?

1.9 Research Design

1.9.1 Methodology

This study followed a mixed methods approach which included both quantitative and qualitative research methods.

The population for the study included WIL co-ordinators from the Management Sciences Faculties of five UoTs within SA, the students registered for the qualifications within these departments in the Faculty, and the industry mentors who supervised the students while on workplace-based training.

Sampling procedure: The study adopted a purposive sampling method as consenting WIL co-ordinators from the Management Sciences Faculty of the five UoTs, were contacted for inclusion. These were selected based on the inclusion of workplace-based training as a WIL component within their qualifications. A final number of two qualifications within each UoT, within the Management Sciences Faculty was selected to participate in the study.

For inclusion into the study, a list was received from the WIL co-ordinators of all students that had completed their training. A census approach was followed for the students from the lists provided. This was followed to increase the response rate as student numbers varied between departments and institutions. Industry representatives/mentors were also included as per the census method as WIL co-ordinator provided contact details of their industry partners for inclusion into the study. Despite numerous approaches to these stakeholders, it only proved possible to achieve six interviewees from this group.

Instruments / data collection tools: the data collection tools included for the students were questionnaires which followed the quantitative method. The WIL co-ordinators and industry mentors were involved in interviews as per the qualitative approach to data collection. Themes were identified by the researcher from the raw data collected from the interviews.

1.9.2 Data analysis

The Statistical Package for the Social Sciences (SPSS) version 27 was used to analyse the quantitative data following a descriptive statistical method and a thematic content analysis including SSM, was adopted for the analysis of the qualitative data.

1.10 Delimitations of the study

Conceptual: The focus of this study is specifically on assessment of workplace-based learning and not directly on the other modalities of WIL. While the CHE Good Practice Guide has identified four modalities of WIL, this study's focus is only on one of the modalities, which is workplace-based practices.

Contextual: The study was intended to include all six UoTs within SA, while five eventually participated. The study is also restricted to the Management Sciences Faculty within UoTs.

Methodological: The study adopts a mixed methods approach. Interviews were conducted with WIL co-ordinators and the industry mentors, while questionnaires were distributed to all students available for inclusion in the study.

1.11 Limitations of the study

Six UoTs were contacted for inclusion in this study and ethical clearance was received from all. However, as explained above, only five UoTs were included in the study data collection, as one UoT failed to participate despite initial agreement. Only six industry mentors eventually made themselves available for the interview.

1.12 Ethical considerations

The researcher complied with the university's institutional requirements for ethical standards and guidelines for the conducting of this study. Ethical clearance and permission to conduct this study was granted by the Ethics Committee (Appendix F) before the study was conducted.

All instruments were accompanied by a letter of information (Appendix C) and a consent letter (Appendix D). Participants were required to sign the consent form prior to conducting the interviews (Appendix A and B) or completing the questionnaire (Appendix E). This study also required ethical clearance from all UoTs that participated in the study (see Appendix F). The disposal of all data will follow the DUT guidelines.

1.13 Contribution of the study

The results of the study contribute to the development of a more streamlined practice of assessment of WIL, contributing to an overall improved practice, which will have implications for all UoTs within SA. While focusing on assessment, this study also contributes to a deepened understanding and knowledge of WIL more widely and provides additional insights into its practice amongst UoTs in SA.

The study findings will thus benefit HEIs, students, industry and possible financial institutions in presenting a holistic vision of WIL, thus contributing to the development of more employable graduates. The contribution also presents opportunities for UoTs to achieve alignment of assessment practices of WIL in relation to stakeholder relevant outcomes. The research also indicates that this exploration into the study of evaluation instruments is valuable in capturing wider pedagogically relevant characteristics of the WIL curricula. The study findings will thus contribute to student-centred learning, teaching and assessment strategies that demand ongoing development in order for UoTs to ensure relevance and alignment of their assessment practices to global trends.

1.14 Clarification of key terms

Key terms relevant to this study are clarified below (Fox and Bayat, 2010: 140).

1.14.1 Work integrated Learning (WIL)

There are a variety of modalities of WIL involving differing approaches to the integration of work experience within formal education, including but not limited to project-based learning, problem-based learning, work-directed theoretical learning and workplace-based learning. The definition relevant to this study is workplace-based learning, which is the placement of students into a relevant work environment prior to the attainment of a qualification. This involves the interactions of three key stakeholders being the student, the academic WIL co-ordinator (University) and the industry mentor (organisations) (Tezcan, *et.al.*, 2020). The physical placement of the student into the work environment is the key differentiating element of workplace-based learning in relation to the other modalities of WIL.

1.14.2 Co-operative Education

A concept of enriched learning based on co-operation amongst the educational institutions and industry, commerce and the public sector that is seen as a philosophy of learning (CHE, 2007:75).

1.14.3 Co-operative Education Department/Unit

This is a central office within an educational institution that oversees any co-operative education activities within that institution, including WIL.

1.14.4 Advisory Board Committee

The advisory board committee includes representatives from industry and the academic staff from the relevant department offering the WIL programme. The industry representatives are generally the individuals from organisations that accept students for training.

The purpose of the committee is to have robust discussions on the programme offering, the WIL programme and the expectations of industry relating to the students and the outcomes of the qualification. These committees are instrumental in the success of the WIL programme and the academic qualification that includes the WIL programme at UoTs.

1.14.5 Council on Higher Education (CHE) – Good Practice Guide (2011)

The guide was produced in response to the need for curriculum review that was instituted by the Higher Education Qualifications Framework (HEQF). The guide (which has been in existence for 12 years now) intends to provide guidance and assistance to academic staff who are involved in developing appropriate forms of WIL for different qualification levels falling within the HEQF (Winberg, *et.al.*, 2011: 3).

This research, while drawing on this Guide, aims to provide updated recommendations, which will be of relevance to future editions of the Guide.

1.15 Overview of chapters

An overview of each of the chapters in the thesis is presented below.

Chapter One: Introduction and background to the study

This chapter outlines the background and rationale for the study, justifying the overall aim and objectives of the study which are given. The problem statement and critical questions required to address the objectives of this study are also included. The aim of this chapter was to provide the context and rationale for this study, to introduce key concepts, provide the aims and objectives, and to justify the research through an overview of the contribution the study aims to make to the research field.

Chapter Two: Context of assessment of Work Integrated Learning at Universities of Technology

This chapter presents a review of the existing literature in the area of WIL, assessment in general, and assessment of WIL within the higher education ambit. It includes a discussion of the role of the various partners to the WIL programme, and the contributions expected of WIL towards employability of graduates. Current practices in assessment are identified together with a consideration of the complexity of assessment of WIL. Reference is made to the CHE Good Practice Guide for WIL with reference to the assessment guidelines provided.

Chapter three: Theoretical orientation and conceptual framework

This chapter presents the theoretical framework of the study. It considers the practice of Systems Thinking with specific reference to SSM. Checkland's seven stage model of SSM is presented and this forms the specific theoretical framework underpinning this study.

Chapter four: Research Methodology

This chapter discusses and justifies the research design and methodology selected for the study, provides a detailed explanation and justification of the selection process of respondents, the process used in administering the data collection instruments, and the methods used to collect and analyse the data, as well as explaining how ethical considerations were taken into consideration.

Chapter five: Presentation of research findings: Qualitative analysis

Findings from the qualitative data collected are presented in this chapter. This includes the semi-structured interviews conducted with two of the key partners to WIL, being the WIL academic supervisors (WIL co-ordinators) and the WIL industry mentors (industry supervisors).

It also includes discussion of the open-ended (and thus qualitative) responses from the questionnaire. Key findings and trends are identified and presented.

Chapter six: Presentation of research findings: Quantitative analysis

This chapter presents the results and discusses the findings obtained from the quantitative data collection instrument adopted for this study, being the student questionnaire. The questionnaire included three open-ended questions, the discussion of these was included in the previous chapter, as noted above. A total of 137 completed questionnaires were collected from five UoTs, representing a 70% response rate. These were analysed with SPSS version 27.0. The results present the descriptive statistics in the form of graphs, cross tabulations and other figures for the quantitative data that was collected. They were analysed with the assistance of a qualified statistician.

Chapter seven: Discussion of findings

This chapter includes an integrated discussion of the findings from both the quantitative and qualitative data collected. It provides a comprehensive overview of the core issues that contributed to the achievement of the aims and objectives of the study. The chapter also provides an integrated model for developing the assessment of WIL in response to the literature reviewed, the theoretical framework and the primary data findings as presented in Chapter Five and Six. The overall discussions presented in this chapter form the basis of the final recommendations and conclusions provided in Chapter Eight.

Chapter eight: Conclusions and Recommendations

This chapter presents the final conclusions and recommendations aligned to the aims and objectives of the study. It indicates the achievement of the objectives, notes the limitations of the study and makes suggestions for further research.

1.16 Chapter summary

In this introductory chapter, the research context and rationale are provided. The chapter discusses the background to the problem, provides an awareness of the problem situation, together with the aim and objectives of the study. An overview of the literature, the theoretical and conceptual framework, the research methods and research design, ethical considerations and the contribution of the study to the research field are provided. The chapter ends with a brief reference to the content of each of the chapters contained in the thesis.

2 CHAPTER TWO

Context of Assessment of Work Integrated Learning at Universities of Technology

2.1 Introduction

Booth, Sutton and Papaioannou (2016) make reference to Fink (2005), who defines a literature review as a “systematic, explicit and reproducible method for identifying, evaluating and synthesising the existing body of completed and recorded work, produced by researchers, scholars and practitioners”. Lenberg, Feldt and Wallgren (2015:17) further explain systematic review as a process to analyse and interpret work in a specific area of interest. Literature reviews can be used to identify and highlight what is known about a particular subject as well as what is still to be learnt. Madlala (2019: 8) adds that literature reviews allow for a comprehensive understanding of past theories employed by previous researchers. Hart (2018: 13) reiterates the importance of literature review to academic research success, as it encourages thorough thought and inspires a research frame of mind. A carefully developed argument supported by evidence from previous research can help to convince the reader that a study has merit, the results are substantive, and the results contribute to a broader knowledge of human communication processes (Allen, 2017).

This chapter provides a review of literature that serves to locate this study in the wider field of educational research that has investigated the practices of WIL, with the objective of exploring the pedagogical issues relevant to assessment and assessment of WIL. This review examines the nature and scope of WIL, assessment and assessment of WIL to establish what research has been done, identify and discuss various methods and approaches by other researchers to assessment in WIL and to identify gaps to the assessment of WIL from a systems thinking perspective within higher education.

The chapter starts with a discussion of the role of Higher Education Institutions (HEIs) in SA, leading on to the concept of 'graduate employability'. The role of industry players in WIL is examined followed by the mentorship of WIL which leads one to understanding the importance of assessment and the critical aspects of assessment of WIL. This review provides for an understanding of the current situation of the assessment of WIL and the need for further investigation into the integration of the entire process.

2.2 Education for Professional Competency

2.2.1 The context

The western concept of Higher Education (HE) as we know it dates back to 1088, with the establishment of the first European University in Bologna, Italy (Salmon, 2019:97). Qualifications designed specifically around practical and professional competences only emerged later and the twentieth century saw a proliferation of technical colleges which were distinct institutions, not aligned to traditional 'research' Universities. The post-apartheid transformation of HEIs in SA led to the present structure of traditional Universities and Universities of Technology (UOTs). The merging of the 36 institutions existing at the turn of the twenty-first century led to the present 23 institutions, comprising of 11 Universities, six comprehensive Universities and six Universities of Technology (Griesel and Parker, 2009:02).

Traditional Universities and Universities of Technology now offer similar qualifications ranging from Higher Certificates to Doctoral degrees. However, what distinguishes UoTs from the others is their focus on technology innovation and transfer as they offer technological career-directed education programmes. UoTs have strong engagements with business, industry and government, resulting in the relationships formed and maintained with the inclusion of WIL within their qualifications. This exposure to the WOW prior to completion of a qualification is designed to enable students to develop additional competencies that cannot be gained through exposure to purely academic programmes.

HEIs have been tasked to develop the graduate employability of students registered at their institutions in order to produce employable graduates for the WOW (Griesel and Parker, 2009: 03), thus placing UoTs at the forefront of this research study, as they have typically been focussed on offering WIL as a compulsory component within their qualifications. However, evidence of an integrated approach to WIL in relation to assessment activities within curriculum delivery is not evident in literature.

International institutions have also adopted WIL as an important component to their education programmes. The Australian higher education and business bodies, in 2015, announced a National WIL Strategy for all undergraduate degrees in engineering, to address concerns regarding graduate skills for employability. This was initiated to encourage continuous improvement in the implementation of WIL in all fields and not only in engineering. The focus group findings and survey results indicated that students generally learn much of additional value from a qualification involving industry placements and other workplace-based activities, as the educational institutions increase the interconnection between education and employment (Australia, 2019: 4). This could be true for students within UoTs as indicated by the findings of this study whereby the academics, together with the students that engaged in workplace training, appreciated the benefits gained from the experience beyond those gained in a classroom. The industry mentors also appreciated the exposure students gained during the training prior to gaining employment, which resulted in a much-improved connectivity between education and employment. In 2017, one third of Australian higher education students had a WIL experience, with competencies gained including aspects of motivation, confidence, recognition of the relevance of their programs, and professional competency development (Male and King, 2019: 111).

2.2.2 Employability and ‘Graduate Attributes’

Bilgin, Powell and Richards (2022:01) indicate that universities around the world are prioritising employability skills within their qualifications, this being necessary because of employers indicating that mere learning of facts and skills for a professional qualification is insufficient for graduates.

The authors refer to the 23rd Annual Global CEO Survey of Price Waterhouse Coopers (PwC) involving 1581 chief executives who reported that “The skills organisations need today – creativity, problem solving, and understanding of how digital technology can be used now and, in the future, - are a moving target” (PwC, 2020: 16).

Barbieri and Fitzgibbon (2008) several years ago had already drawn attention to lifelong learning as a contributor to career development of graduates as well as a need for economic survival, considering the accelerated speed of technological advances. These authors found that educational institutions need to respond to this knowledge explosion if they want to remain economically competitive. The educational sector is going through significant changes, requiring the adoption of visionary thinking that is consistent with 4IR, globalisation, and environmental awareness. The graduates that leave their institutions need to demonstrate their ability to engage with these developments in order to bring new knowledge to the workforce. The authors also believed that experiential learning needs to be the backbone of education as the transition from theory to practice presents many challenges for academics and graduates, thus implying that exposure to workplace experience is just as important as the teaching of the discipline. WIL is therefore not only seen as an important component of a qualification locally, but internationally as well.

The CHE, which is an independent statutory body that functions as the Quality Council for Higher Education in SA, published the ‘Work Integrated Learning Good Practice Guide’ in 2011, with the purpose of guiding programme developers, curriculum developers and educators, to consider the educational purpose as well as the role of WIL in Teaching and Learning. This publication, being the most recent from the CHE, states that programmes should engage in promoting the successful integration of students into the WOW, allowing graduates to make meaningful contributions in the context of development needs, creative training, teaching, learning and assessment activities (Winberg, *et.al*, 2011: 3).

Wessels (2014) adds further that since 2009, with the establishment of the separate Department of Higher Education and Training (DHET), there had been renewed interest in cooperative education as a teaching and learning strategy that will enable young people to gain authentic workplace experience. Universities are cognisant of the increasing importance of WIL in addressing the needs of industry and students (McManus and Rook, 2021: 272; Smith, 2012: 247) which is being considered as a topic for both “public and professional debates” (Smith, 2012: 247). The CHE emphasises that academics need to ensure that graduates of their programmes are adequately prepared for the world in which they will live and work (Winberg *et.al*, 2011: 65). However, this does not necessarily translate into a willingness on the part of universities to include WIL in new program offerings.

Increasing a student’s ‘career literacy’ during their years at the institution is now seen as important, including life skills and ‘soft skills’, as well as instilling a work ethic and an ability to take personal initiative (Griesel and Parker, 2009: 20). Ideally, these skills need to be reinforced throughout a qualification (and this occurs very seldom) so that students are able to develop them and demonstrate these competencies when they graduate and enter the working world (Ferns, Dawson and Howitt, 2019: 100) thus taking students from understanding the theory to demonstrating this in practice. All of this implies the value of the WIL experience.

In addition, for graduates to be successful in the highly competitive world of the present, they should not only develop and possess the necessary skills to enter the WOW, but should also engage with, and develop, abilities of contributing to the world of work by means of entrepreneurship, practical research and innovative problem-solving skills – all of which can be appropriately linked to WIL (Ferns, Dawson and Howitt, 2019). Employability therefore needs to be seen as an array of experiences and attributes developed through higher-level learning. It is not a product but rather a process of learning which emphasises more than the ability of the individual to merely be employed (Harvey 2001: 98). It relates to the student being able to grow as an individual and learn to know him/herself within the WOW (Wheeler, 2015: 106). The goal is to grow as a critically motivated learner.

These generic skills that undergraduates should obtain are what Clements and Cord (2013: 115) refer to as 'graduate attributes'. They are understood as transferable skills necessary for employability within a range of industries (Kearns, 2001: 02; Crebert *et.al.* 2004: 148; Gilbert *et.al.* 2004: 375). National Government, professional bodies and industry representatives have prompted higher education institutions to address issues of graduate employability (Kennedy, *et.al.*, 2015), taking note of the move to employability as compared to the notion of preparing students for employment (Griesel and Parker, 2009: 10). A key goal of UoT education is to develop students' professional and practical skills (von Treuer *et.al.* 2011: 195) highlighting the importance of graduate attributes to be made explicit for any SA qualification as explained in the CHE, Good Practice Guide (Winberg, *et.al.*, 2011: 3). This development of employability skills leads to developing a wider profile for graduates (McManus and Rook, 2021: 272; Clements and Cord, 2013: 114; Griesel and Parker, 2009: 8; Orrell, 2004: 1).

Clark, Zukas and Lent (2011: 148) argue that it is not possible to simply think of and reduce graduate attributes to a "formula based upon graduate credentials and employability skills". They explain that an understanding of the work to be done (profession), together with the organisational context, are important factors in determining the success of the student's transition into the workplace. As a result, there is an indication that more research and analysis of the present WIL process and assessment is needed to provide for a more structured approach that would also be adaptable to other disciplines.

2.2.3 Pre-Professional Identity (PPI)

Pre-Professional Identity (PPI) is concerned with knowing and relating the skills, values, behaviour, community and philosophy of the intended career of a student (Jackson, 2016: 926). This author argues that redefining graduate employability needs to take place to provide pre-professional identity building (PPI) during college years.

Ferns, Dawson and Howitt (2019: 106) highlight that in order to establish a professional identity, opportunities for students to develop “self-efficacy, explore self-identity and build emotional intelligence” are considered essential. They suggest further that the key to reconciling professional identity was social and professional interaction. Professional identity (including the attitudes, values, knowledge, beliefs and skills shared with others within a profession) can be seen as a complex structure with changing requirements for the workforce (Ferns, Dawson and Howitt, 2019: 106). This lends itself to the concept of ‘student-centredness’ relating to empowering the student, that all higher education institutions are transitioning towards.

The idea of establishing professional identity for students is linked to the concept of holistically approaching WIL and the assessment of WIL and can be supported by the adoption of a systems thinking approach required for dealing with complex situations, as discussed in Chapter Three. Taking into consideration the PPIs and embedding these into the curriculum, could subsequently lead to the notion of providing a holistic education that could also develop the student into a life-long learner in the WOW. Embedding would mean integrating the skills required as per the PPIs into the entire curriculum (starting from first year level) for a particular qualification and more especially while out on WIL training.

Heinrich and Rivera’s idea of Prior Learning Assessment (PLA) is consistent with Jackson’s idea of PPI. Heinrich and Rivera state that PLAs can be understood as learning that develops during a student’s academic period at an institution that goes beyond the classroom (Heinrich and Rivera (2016: 1). Both of these studies look at the student’s experience and knowledge development during his/her time at the institution which extends beyond the classroom. Reflection, as discussed later in this chapter, becomes core to the successful achievement of PLAs (Heinrich and Rivera (2016: 1)

Wenger-Trayner, *et.al.*, (2015) in their book, *Learning in Landscapes of Practice*, talk about ‘the landscape of practice’ and refer to ‘communities of practice’. A ‘landscape of practice is the ‘body of knowledge of a profession.

Jackson (2016: 926) further explains that the Higher Education landscape of practice is a complex collection of relevant and interacting communities which can enhance student learning in various ways. It provides a rich setting for students to experiment and engage with different entities (communities of practice) such as professional associations, student societies, community groups, academics, careers services, student support services and employers. Trede, Macklin and Bridges (2012: 365) also support this view by identifying the link between preparing graduates for the WOW and developing professional identities. They state that “such preparation includes learning professional roles, understanding workplace cultures, commencing the professional socialization process, and educating towards citizenship”.

Trede, Macklin and Bridges (2012: 375) refer to Bramming (2007) who explored ‘transformative learning’ identifying this as strong learning by creating a crisis which is confronting and challenging and requires significant support from teachers. She explains that students are forced to stop, think and reflect in this situation, instead of just accepting new information without questioning it. As a result, she positions the learner at the “centre of professional identity development”. Peel (2005: 495) states that professional identity development can be seen as a journey to becoming a ‘critical learner’. The argument Peel makes is that ‘professional growth is a personal odyssey which is grounded in experiential learning’. Trede, Macklin and Bridges (2012: 377) focus on assessment and explain that the role of the university is to re-evaluate its assessment regimen to ensure that students have opportunities to develop the social, critical, cultural, professional and personal aspects relevant to professional identity. They further highlight that key issues in professional identity development can be attributed to the level of interrelationship between students and their lecturers, the effective use of experiences that lead to heightened self-awareness and deeper understanding of practice.

Trede, Macklin and Bridges (2012: 376) mention Paterson *et. al.* (2002) and Peel (2005) who describe the relationship between professional identity development, critical thinking, professional growth, reflective practice, and experiential and self-directed learning.

Jackson (2016: 926) states that identity formation for students is an ongoing process and therefore, with good exposure and guidance from the Higher Education landscape, students can be transformed into novice professionals or as commonly known, become 'employable graduates' ready to enter the WOW. This process suggests the need for a more integrated approach to WIL, within a well-managed WIL mentorship support.

The HESA and SAQA report on Graduate Attributes (Griesel and Parker, 2009), provides insights into the perspectives of employers on the quality of graduates produced by HEIs, which corroborates the discussions of the various authors above. This report highlights the fact that graduate employability needs to be evident in the entire curriculum, and not reserved for one module or unit level, thereby demanding careful attention to curriculum development. It further extends graduate employability beyond the curriculum, pedagogy and assessment, to the collaborative spaces of learning opportunities in the WOW.

This collaboration encompasses the essence of systems thinking as interconnectivity is key to this process of a holistic approach to WIL and the assessment of WIL. One of the key findings of the report indicates that there is a real need to address the gaps that exist (indicators of a failure within a smoothly running system) between the expectations of employers and the outcomes of higher education related to a lack of "proactive task-directed engagement and the application of knowledge" (Griesel and Parker, 2009: 26). An important point that was also highlighted was the fact that there needs to be dialogue between both parties, the employers and the higher education sector, on how far higher education can be expected to 'bridge the gap' and to what extent employers can provide 'on the job learning' and continuing development (Griesel and Parker, 2009), thus forcing universities to rethink their approaches to collaboration and cooperation (Ferns, Dawson and Howitt, 2019: 11). This results in an important discussion around the determinants of an effective curriculum being employers' expectations of graduates, and their ability to support "on the job learning".

It is evident from the literature above that the inclusion of WIL in curricula is understood as essential, as supported by Higher Education and demanded by industry, placing the responsibility of achieving this significant task in the hands of not only the HEIs, but of the industry partners as well.

2.3 Industry Players

2.3.1 Influence on the curriculum

Job advertisements generally require some sort of work experience for entry level positions. Work experience is explained by Oswald-Egg and Renold (2021: 3) as developing “the skill of reacting appropriately to new and complex circumstances”. The expectation would therefore seem to be that these skills need to be gained by students at some stage prior to entering the WOW. If this is not achieved while studying, then students themselves are expected to be able to develop the required practical skills and competencies. Alternatively, WIL programmes included in a curriculum can provide students with the opportunity to experience workplace exposure, thereby better positioning them as prospective candidates for these entry level positions (Andrews and Ramji, 2020: 643).

Stakeholders (including business leaders, parents, policy makers, practitioners, and the public) in higher education have questioned whether graduates have acquired the “necessary skills to ensure economic competitiveness” (Arum and Roksa, 2011: 1). The development of the core skills of critical thinking and complex reasoning are often found to be lacking as indicated by employers. It must be noted that according to the SA National Qualifications Framework, the skills of critical thinking and complex reasoning are placed at NQF levels 6 and 7, which are post Diploma level (SAQA, NQF). These attributes are engaged with at a Diploma level from a theoretical standpoint and need practice of in the WOW.

This then raises the issues of the impact WIL can have in providing students with the opportunity of gaining practice of these activities in industry and demonstrating their ability to think critically and engage in complex reasoning activities, while on WIL training, thus providing graduates with the opportunity of exposure to these skills that are demanded by industry, as they move towards becoming more employable.

A study by Abcouwer and Takacs (2018) presented at the 2018 6th International Conference on Management Leadership and Governance (ICMLG) revealed that top executives found that their new recruits often need considerable assistance in developing the important skills and competences involved in problem-solving and decision making. Engineering employers also identify differences between the abilities of graduates and the expectations of employers, with reference to interpersonal communication and other knowledge and skills (Male and King, 2019: 102; Babacan and Babacan, 2015: 170). Practical experience can provide the opportunity for this exposure where students shift from visualizing and listening in a classroom, to essentially putting into practice what they are taught (Jackson, 2015: 352). WIL therefore provides an opportunity to encourage academics to reflect on how their curriculum can be rearranged to prepare students for the transition into the WOW (Abeysekera, 2006: 16) as increasingly demanded by industry. Ferns, Dawson and Howitt (2019: 99) add that work experience can be more valued as proof of preparedness for work than a degree.

The need for the smooth transition of university students to employment following graduation, necessarily means that there must be a stronger connection between academics, students and employers (Kennedy *et.al*, 2015: 05). It can be implied that there is a need to foster relationships between higher education and industry in order to design a curriculum that is responsive to the needs of the community and industry (Smith 2012: 247) considering that the output of the higher education institutions is the input of the workplace (Abbasi, Ali and Bibi, 2018: 355).

2.3.2 Industry participation

UoTs' structure of the management of WIL differs per institution. Some institutions have a centralised co-operative education unit. This unit's role is to provide support and assistance as they oversee all activities of WIL at the institution (Msukwini, 2017: 63). These include, but are not limited to, engagements with industry, liaison between academics and industry partners, providing financial support to a certain degree, and overall control and monitoring of financial activities of the various academic departments involved in the WIL programme.

One important activity regulated by the Co-operative Department is the hosting of regular meetings between the academic department staff and the various industry partners. These meetings are referred to as Advisory Board meetings. The objective of these meetings is to get industry personnel and academics to engage in issues of curriculum matters. These committees generally comprise 60% external partners (industry partners) and 40% academic staff within the relevant qualification (Msukwini, 2017: 92) as specific to the institution. Industry personnel are offered the opportunity of providing feedback relating to curriculum issues that need to be attended to. This engagement also presents opportunities for the parties to collaborate in related activities of training, conducting of workshops or exchange programmes between academic staff and industry personnel.

Msukwini (2017: 24) cites Ferkins and Fleming (2011:185) who indicates that sometimes industry mentors place unrealistic expectations on students, while on the other hand some students might not be sufficiently challenged in the work placement, thus suggesting that appropriate engagement is needed between all parties of the WIL programme to ensure integration throughout the process of WIL placement activities. Industry mentors need clear guidelines on all expectations of learners while on training, while academic supervisors need an understanding of the expectations of industry.

Thus, students are required to be adequately prepared while at the institution, demonstrating academic supervisors' ability to understand the expectations of industry partners. Regular meetings with relevant industry partners can provide opportunities for these engagements to take place and for clear guidelines to be determined to ensure seamless integration between the institution and the host organisation.

Industry is known to be involved in three aspects of WIL, being curriculum design, training implementation and learning assessment (Ha, 2022: 94). Firstly, involvement in curriculum design ensures that there is alignment throughout the qualification related to the graduate attributes for the qualification. Secondly, concern over balancing the interests of both parties also needs careful attention, considering that students' experiences in WIL are determined by industry mentors. Ha (2022: 94) cites Nevison *et.al.* (2018) who advocates the importance of having work supervisors working closely with university departments to support students in achieving WIL learning objectives. Finally, Ha (2022: 95) indicates that employers should be responsible for the assessing of students as they are physically present when the student engages with the various activities at the workplace and therefore are able to provide immediate feedback to the student, allowing for hands-on learning and development with improvements in performance. Once clear guidelines are established between all parties, the process of mentoring and assessing of students by the industry mentors becomes clearer and more effective.

2.4 The Government's Role

2.4.1 SETAs as support to WIL placements

Section Education and Training Authorities (SETAs) are bodies established under the Skills Development Act (RSA, 1998c) whose main purpose is to contribute to the improvement of skills in SA within a particular industry, through achieving a more favourable balance between demand and supply of required skills (CHIETA toolkit, 2017).

The SETA Training website indicates that SETAs were established for the different industry sectors in terms of the Skills Development Act 97 of 1998. A SETA can also be accredited by the SAQA as an Education and Training Quality Assurance body (ETQA), which allows the SETA to accredit training providers that provide education and training in its sector. In order to achieve its purpose, a SETA will develop and implement a sector specific skills plan and will monitor education and training within its sector (SETA Training, 2013).

SETAs are responsible for:

- Administering the funds that are collected in terms of the Skills Development Levy
- promoting the creation of learnerships within the relevant sector,
- performing quality assurance functions in order to ensure that the applicable standards are being maintained, and also
- aiming to ensure that learners and members of the workforce have the skills that are required by the relevant industry sectors.

Table 2.1 List of South African SETAs

AgriSETA	Agricultural Sector Education Training Authority
BankSETA	Banking Sector Education and Training Authority
CetaSETA	Construction Education and Training Authority
ChietaSETA	Chemical Industries Education and Training Authority
CATHS SETA	Culture, Art, Tourism, Hospitality and Sport Sector Education and Training Authority
EWSETA	Energy and Water Sector Education and Training Authority
ETDP SETA	Education, Training and Development Practices Sector Education and Training Authority
FP&MSETA	Fibre Processing & Manufacturing Sector Education and Training Authority
FASSET SETA	Financial, Accounting, Management, Consulting and other Financial Services Sector Education and Training Authority
HWSETA	Health & Welfare Sector Education and Training Authority
InSETA	Insurance Sector Education and Training Authority
LGSETA	Local Government Sector Education and Training Authority
MerSETA	Manufacturing, Engineering and Related Services Sector Education and Training Authority
MictSETA	Media, Information and Communication Technologies Sector Education and Training Authority
MqaSETA	Mining and Minerals Sector Education and Training Authority
PSETA	Public Service Sector Education and Training Authority
SasSETA	Safety and Security Sector Education and Training Authority
ServiceSETA	Services Sector Education and Training Authority
TetaSETA	Transport Education and Training Authority
W&RSETA	Wholesale and Retail Sector Education and Training Authority

SETA Training: [List of SETAs in South Africa | eMatla Solutions](#) (2020) Accessed: (14 July 2023)

The intended purpose of SETAs' involvement in the various sectors is to allow for good engagement between the WOW and the HE Institutions, providing financial support and quality assurance of the placements of students into the WOW. However, the effectiveness of this practice raises some concerns. It would be interesting to identify the extent of the support that is received for WIL, which goes beyond the aim of this study.

If managed appropriately, this partnership could see organisations securing students for placement as early as from first year level within their qualifications. This process would ensure that organisations are well prepared for the placement of these students, as UoTs prepare the student for the placement. This engagement should be beneficial to all parties involved as organisations will be confident of receiving additional assistance while training students on a yearly basis (additional labour support), students gain the necessary exposure and experience needed, and HE Institutions would develop and deliver a more comprehensive, holistic curriculum to students. These engagements would not only provide opportunities for placements into the organisation, but also carve the pathway for many smaller engagement activities throughout the academic experience.

The importance of this collaboration was articulated by government as early as 2012, where the Green Paper for Post-school Education and Training (DHET, 2012) indicated that there is a need for state owned enterprises and government departments to increase their commitment and engagement with WIL activities in committing to more learnerships and developing stronger engagements amongst government departments and HEIs to ensure that students get the necessary combination of theory and practice. The document also indicates that there is a need to build the National Skills Accord to ensure that all employers are able to provide apprenticeships, learnerships or internships in order to engage students in work experience (DHET, 2012: 68).

This early indication of the partnership opportunity has not been fully interrogated for the significant contribution it can provide to the success of the WIL experience. Taking into consideration the benefits of WIL and the support received from the various partners, an opportunity for management of UoTs does exist that needs further engagement. It provides an opportunity for alleviating the pressures of placement that presently exist.

Therefore, the literature indicates that a well-managed partnership between these key players is needed to present an opportunity for better management of WIL. Engaging students from the early stages of the Diploma (first year) in engagements with the various partners, securing remuneration possibilities and confirmed placements would allow for a much more coordinated, integrated approach to WIL support from SETAs. This mutually beneficial relationship (industry, HE, SITAs and students) becomes important to a holistic student experience that meets stakeholder expectations (Ferns and Zegwaard, 2014), resulting in an increase of learning experiences by students and WIL academic supervisors. A mutual learning experience could be achieved whereby students learn in the workplace as well as take the learning experience from the workplace back to the HEI (Coll *et.al*, 2009: 16).

2.5 The University's Role

2.5.1 The place of WIL in the curriculum

WIL is viewed by students and parents as a “pay off for their investment” in the institution (Abeysekera, 2006: 3). This suggests that there is already a huge burden placed on the success of WIL implementation as various parties place a great degree of value onto the WIL experience, resulting in the need for a well-managed WIL programme leading to the achievement of the intended outcomes and more. If more value is derived, then more interest and support for the process may be supported. WIL is included in many qualifications within the final year of study. This means that students complete most of the theory and then engage in the workplace exposure. Universities are welcoming the possibility of embedding WIL into the curriculum to enhance student work readiness (Kay *et.al*. 2019: 401). However, embedding of WIL into the curriculum requires the support and guidance from the institution as institutional support of WIL is the driver to WIL inclusion within the curriculum and a contributor to its success.

Effective Institutional support of WIL demonstrates a certain level of importance and need for WIL from the institutional leadership perspective. Msukwini (2017: 19) refers to the HEQSF requirement that the responsibility of sourcing placements for the student lies with the institution offering WIL that is workplace-based. This suggests that the success of the WIL placement is dependent on the institution's ability of sourcing relevant placements, which could be a challenge placed in the hands of the relevant Academic mentor/supervisor.

Nicholas (2017: 23) cited von Truer *et.al.* (2012), whose study highlighted the importance of institutions having a WIL expert available either at University or Faculty level. These individuals will be able to provide general guidance and assistance from a holistic perspective, leading to a community of practice amongst WIL supervisors throughout the institution. This level of structure and support from institutional to faculty leading to departmental level, provides for an integrated approach to management of WIL that engages the various partners and provides opportunities for learning from each other, while determining structure for the relevant institution.

2.5.2 The management of WIL (Academic mentorship)

Mentorship is an important factor in the training and development of individuals. This proves increasingly true for the students involved in the WIL programme. As discussed in this chapter, WIL includes various partners and is an experience that takes the student out of the classroom and places them in the WOW. This complexity in the process itself requires good mentorship for these students. As a result, key to the process of collaboration of WIL, is the role of the WIL academic supervisor.

Bates (2011: 112) state that management, unions and staff have struggled over years to implement practices that lead to an equitable and transparent workload allocation for individuals working with WIL as well as ways of acknowledging and rewarding their work.

The academic WIL supervisor needs to ensure a successful and effective delivery of WIL programmes, which is dependent to an extent on the professional development for WIL academic supervisors (Orrell, 2004 and Patrick and Kay, 2011). Bates (2011: 117) adds that the duties of a WIL co-ordinator goes beyond the responsibilities of a traditional lecturer as these co-ordinators need to manage various challenges including sourcing appropriate WIL opportunities, supervising and supporting students, working through high workloads with limited resources, integrating theory with workplace learning, and managing the role of an expert advisor for both the student and industry mentor.

A major part of the challenge lies with the fact that the WIL supervisors have to be multi-skilled even though they have not been exposed to any training for these tasks (Msukwini, 2017:17). Higgs (2014: 254) also highlights that practice is not uniform and cannot be generalised as such, considering that it cuts across various people, cultures and workplaces, acknowledging that WIL co-ordinators do and should incorporate their own experiences and frame of reference within their practice of WIL responsibilities. However, it is necessary to caution against vastly varied practices within WIL and assessment of WIL, reflecting a need for a degree of consistency in practice.

The WIL academic supervisor is also seen as the point of reference and contact to whom the student can refer for academic queries or administrative issues related to their placement. They are required to provide support and advice to the various students on WIL placements (Edwards, Martin and Rees, 2012: 29). Thus the WIL academic supervisor is the liaison between the student, the WOW, and the institution, including the central co-operative education departments within the institutions. This would seem to indicate the need for appropriate training of the academic supervisor as they in practice hold the role of public relations officer for the institution.

The current mentorship of WIL suggests much reliance on administrative tasks relating to completion as well as signing of registers and lacks a focus on competency achievement by students on WIL placements according to Mtiki, (2021: 19).

This could be attributed to the many tasks associated with management of WIL that result in academic mentors' diminishing focus on students' performance. Failure of academic mentorship occurs when academic mentors are unable to provide clear goals and direction for the WIL programme, leaving the student and the industry supervisor unsure of what needs to be done (Gunn, Lee and Steed, 2017: 15-26). This suggests that experienced academic mentors are needed to contribute to the success of the WIL programme.

Cooper and Orrell (1999), as cited by von Treuer, Keele, and Sturre (2012: 296) indicate that:

“WIL teachers require high level organisational skills, knowledge of industrial policies, legal and ethical standards, knowledge of conditions for optimal experiential learning, knowledge of work practices and of a specific discipline, strong interpersonal communication and conflict resolution skills, credibility outside the university and advanced communication and negotiation skills” (von Treuer, Keele, and Sturre, 2012: 296).

This places a burden on WIL academic supervisors to gain the necessary skills, while ensuring the success of the WIL programme they are running. As noted above, often the training for these WIL academic supervisors is not formal and therefore on-the-job training is expected (Nicholas, 2017: 15). WIL academic supervisors must therefore manage the WIL programme for their respective Department while undergoing job training, as otherwise they need to learn simply by doing it themselves. There is also the added responsibility of sourcing good quality placements for the continually increasing number of students (Male and King, 2019: 103), including managing and monitoring the WIL process. These seem to place barriers to the inclusion of WIL into various academic qualifications (Ha, 2022: 95). It could be argued that it is not just the throughput rate of the institutions that should ultimately measure its success, but rather the success rate of its graduate's ability to find employment and meet the expectations of its employer.

Communities of Practice. Nicholas's (2017) study proposes that a WIL Community of Practice (COP) be encouraged so that WIL academic co-ordinators can share ideas, strategies, best practices, their work ethic, and many more WIL related activities, enabling the opportunity of learning from each other and providing support for each other's development at the same time. One of the most challenging tasks of the WIL academic supervisor is the planning, managing and monitoring of the assessment practices within WIL. Assessment is considered a key source of evidence when determining the extent of the learning that has taken place. The COP provides opportunities for the design of a well-informed WIL programme, including good assessment practices, drawing from the collected experiences and suggestions of the various academic mentors.

An additional responsibility of academic supervisors would appear to lie with their ability to get students to 'buy into' the process of the WIL experience. Some students do not see the importance or value in gaining work ready skills, resulting in a further responsibility being placed on the WIL co-ordinator in developing this awareness amongst students. A certain degree of responsibility also needs to be placed at the hands of the students as they engage in their own learning experience. This further suggests that the learning and engagement with WIL activities needs to commence early in the curriculum, requiring the effective management and integration of WIL activities within, ideally, the entire curriculum. One of a significant responsibility of the WIL co-ordinator, and the focus of this study, is its assessment. The literature suggests that an integrated approach is necessary here also, including all relevant parties to WIL resulting in the shared responsibilities of ensuring the success of the WIL experience.

2.6 The WIL Partnership

The WIL relationship therefore brings together the world of academia and the WOW. WIL involves a tripartite relationship between industry, academe and students where everyone needs to work together to achieve a common goal, while each party gains different things from the experience (Fleming, 2012: 90).

WIL must be seen as a holistic approach to education with the responsibility for enhancing graduate employability lying with various parties including “students, industry, professional bodies, faculty, placement officers, government, community associations and directors of HEIs” (Abbasi, Ali and Bibi, 2018: 355; McManus and Rook, 2021: 271) – as a result, suggesting that this is a multi-layered system, requiring a holistic analysis, such as can best be developed through systems thinking methodologies.

Partnerships are the secret to borderless education and training and the reinvention of the educational environment according to Ferns, Dawson and Howitt (2019: 100). Dunn *et.al.* (2018: 111) further recognise that institutional vision, educational rigor and a strong partnership between the host company and the university are essential for good WIL practice. Ferns, Dawson and Howitt (2019: 105) in their study explain the development of the WIL Partnerships for Employability Framework (Figure 2.1) which stresses the need for a more inclusive approach to collaborative work including an even wider range of significant partners such as accreditation bodies, institutional authorities, employers, educators, students and graduates. Their study highlights that collaborative efforts can result in “authentic university experiences” being provided to students, resulting in work prepared/ready graduates, thereby encouraging the shift from “instructional paradigm to learning paradigm”. They indicate that the use of the word ‘partnership’ implies an equal relationship as compared to just being a stakeholder. This brings in a new dimension to the concept of WIL and the partners to the process, as it can mean that the responsibility and success of a student to be developed into a “work ready” graduate is a shared one. This could be viewed as a twofold effect situation as the process might offer some relief and support to the already difficult role of developing employable graduates but could also present a somewhat complex situation to manage.

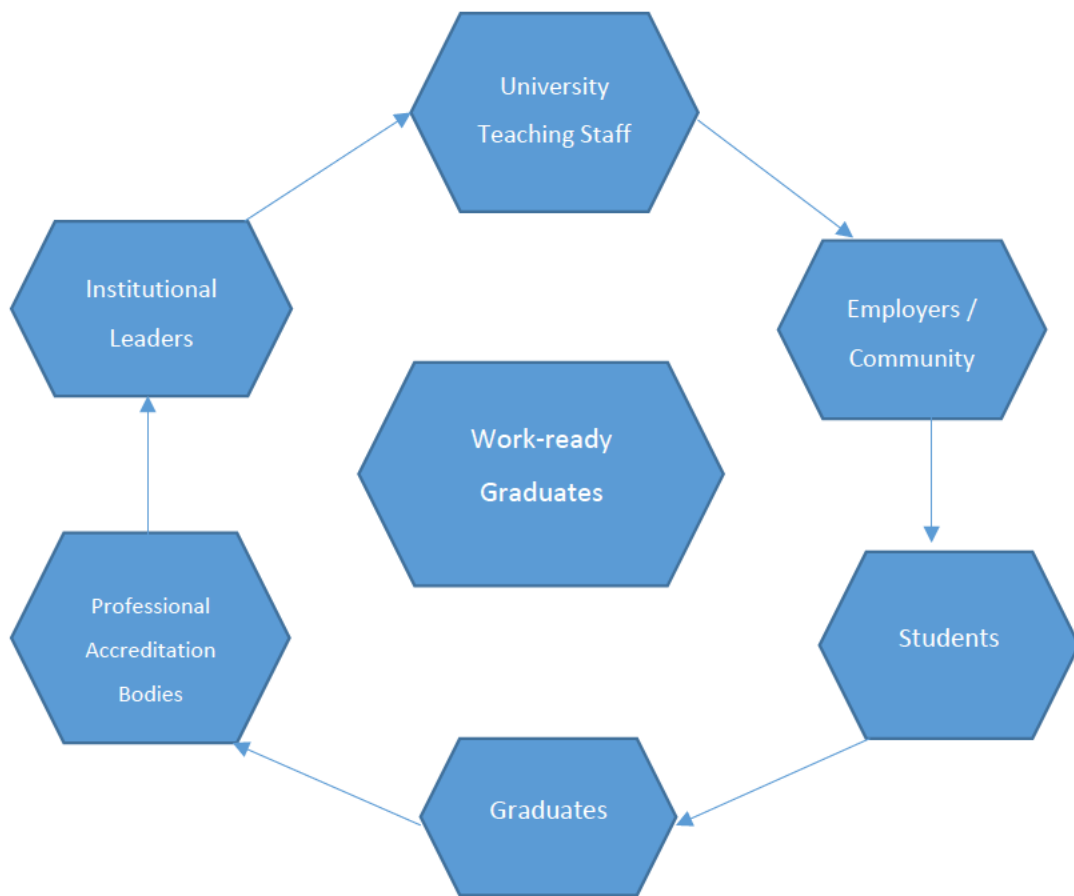


Figure 2.1 Partners in the WIL partnership for employability framework

Ferns, Dawson and Howitt (2019: 108)

While considering this inclusive approach, and initial tripartite relationship to WIL, it is essential to also consider the role that the SA government could play in this relationship. With the high rate of unemployment among youth, it would be considered as an effective approach to counter some of the effects of unemployment. The inclusion of WIL into qualifications can ensure that graduates possess both the theoretical knowledge of their discipline and the relevant experience prior to graduation. This may suggest the more effective use of specific government interventions, such as those provided by the Sector Education and Training Authorities (SETAs) as discussed above.

Interesting to note is that even with CHE highlighting the importance of WIL in academic programmes, many programmes are being designed with no inclusion of WIL, according to the researcher's experience within a leading UoT. This necessitates the need to understand the reasons for the non-inclusion of WIL. Government in its Report of the Ministerial Committee for the Review of the Funding of Universities (2013) indicated that WIL programmes will be funded by government, provided that the following requirements are met:

- (i) *WIL must be an integral and mandatory curricular requirement of the academic programme concerned. That is, it must be undertaken within a purposefully designed curriculum and should be credit bearing. The number of credits should relate to the learning outcomes of WIL, and not to the number of hours spent on WIL.*
- (ii) *Qualifications with a WIL component must be accredited as such by the Higher Education Quality Committee (HEQC) within the new HEQSF. As captured in the Council on Higher Education's (CHE) good practice guide (CHE 2011a), the WIL component should be appropriately structured, properly supervised and assessed. The inputs received by the work stream suggested that these three elements are lacking in many WIL programmes. It is therefore anticipated that, in most cases, re-curriculation will be required in order to conform to HEQSF requirements.*

This can be seen as an added benefit for HEIs to include WIL within their qualifications as the possibility of support is made explicit. The Partnership for Employability framework (Figure 2.1) is adapted and presented below (Figure 2.2) to highlight the equal responsibility of the various partners to WIL and the inclusion of SETAs to foster a move towards a more successful process of WIL partnership engagement.

Work Integrated Learning partnership

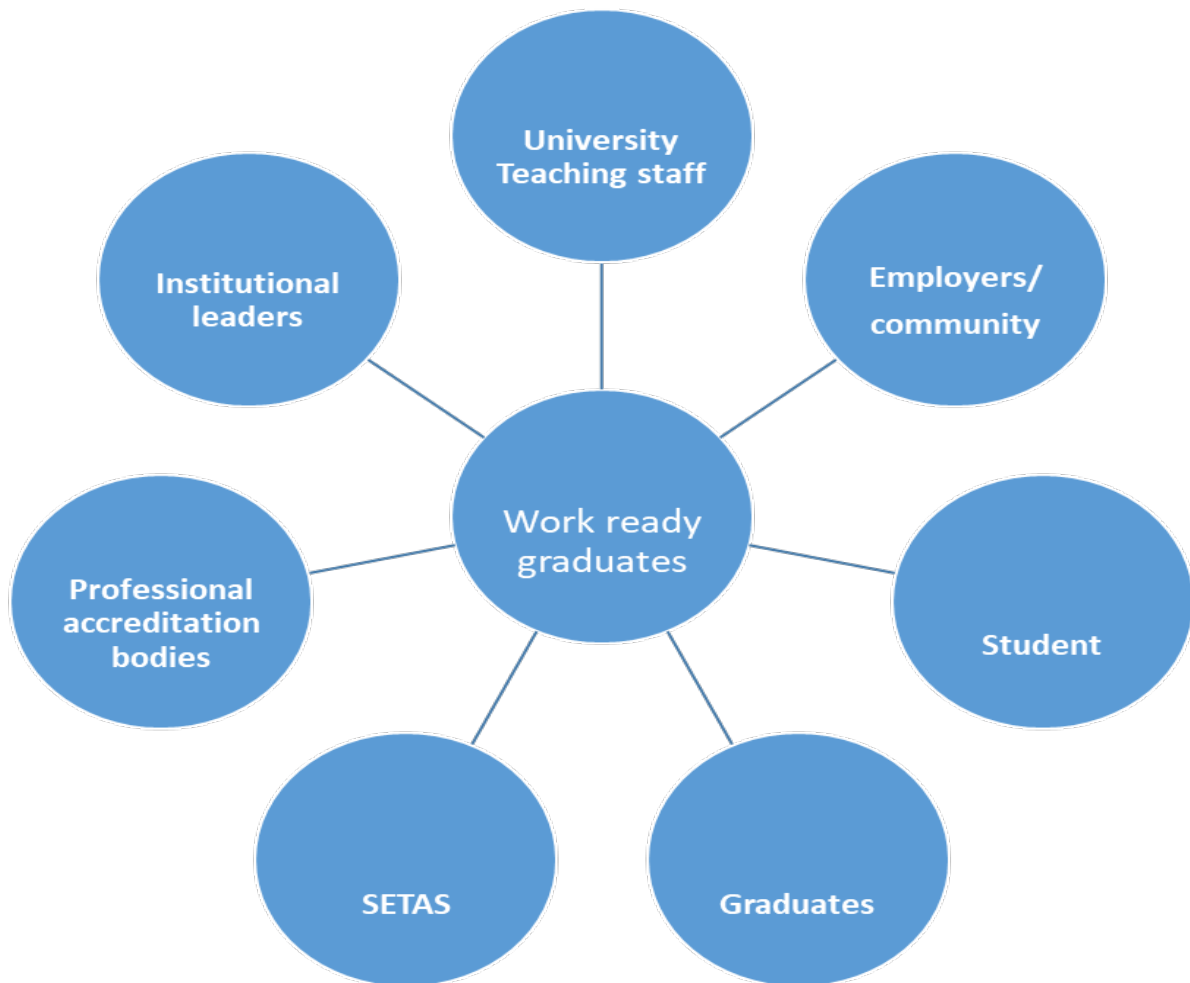


Figure 2.2 Adapted version of Partnership for employability framework

The addition of the SETAS to the partnership is indicated reflecting the shared responsibility of the practice of WIL.

2.7 The Evaluation and Assessment of WIL

2.7.1 Theories of assessment

Assessment is of central importance in learning (Fathi, Afzali and Parsa, 2021: 212; Taras, 2005: 466 and O' Toole, 2007: 52), that results in making judgements of the

quality in students' work (Boud, 2000: 151, Taras, 2005: 466). Assessment would be able to address issues of learning that take place between the workplace and the HEI by students during their WIL placements as indicated in the section above. Since one is able to make judgements based on assessment, then assessment can be used within the WIL programme to provide evidence of the extent of learning taking place. This entails that assessment needs to be designed so that it encourages learning by the student and accurately encompasses the outcomes for the training process. Boud and Falchikov (2006: 400-401) explain the three purposes of assessment as firstly "certification of achievement", secondly to "facilitate learning" and thirdly as fostering learning throughout life. Klenowski (2009: 264) in a position paper emphasised the concept of "assessment for learning" as discussed at the Third International Conference on Assessment for Learning held in Dunedin, New Zealand in 2009. Klenowski defines 'assessment for learning' as something that students, academics and peers practice on a daily basis, whereby they strive to reflect and respond to information received in multiple ways, in an attempt to heighten their ongoing learning.

Klenowski goes on to further explain the definition:

- 1) "everyday practice' – this refers to teaching and learning, pedagogy and instruction (different terms are used in different regions of the world but the emphasis is on the interactive, dialogic, contingent relationships of teaching and learning).
- (2) 'by students, teachers and peers' – students are deliberately listed first because only learners can learn. Assessment for Learning should be student centred. All AFL practices carried out by teachers (such as giving feedback, clarifying criteria, rich questioning) can eventually be 'given away' to students so that they take on these practices to help themselves, and one another, become autonomous learners. This should be a prime objective.
- (3) 'seeks, reflects upon and responds to' – these words emphasise the nature of AFL as an enquiry process involving the active search for evidence of capability and understanding, making sense of such evidence, and exercising judgement for wise decision-making about next steps for students and teachers.
- (4) 'information from dialogue, demonstration and observation' – verbal (oral and written) and non-verbal behaviours during both planned and unplanned events can be sources of evidence.

Observation of these during on-going teaching and learning activity is an important basis for AFL. Special assessment tasks and tests can be used formatively but are not essential; there is a risk of them becoming frequent mini-summative assessments. Everyday learning tasks and activities, as well as routine observation and dialogue are equally, if not more, appropriate for the formative purpose.

- (5) 'in ways that enhance ongoing learning' – sources of evidence learning' – sources of evidence are formative if, and only if, students and teachers use the information they provide to enhance learning. Providing students with the help they need to know what to do next is vital; it is not sufficient to tell them only that they need to do better. However, such help does not need to provide a complete solution. Research suggests that what works best is an indication of how to improve, so that students engage in mindful problem solving. (Third Assessment for Learning Conference 2009)" (Klenowski, 2009: 264-265).

Lee, Mak and Yuan (2019: 73) go a step further and affirm the importance of 'Assessment for learning' (AFL), 'assessment of learning' (AOL) and bring in the concept of 'Assessment as Learning' (AAL), which draws attention to the role students play in their own learning. The authors explain that AOL involves types of assessment that are summative in nature and focussed more on certification, promoting rote learning rather than student learning and engagement activities. AFL also does not allow for students to be empowered to be actively involved in the learning process but rather uses assessment to promote teaching and learning. Whereas AAL places more focus on the learning, allowing for the active role of "monitoring, evaluating and assessing their own learning" (Lee, Mak and Yuan, 2019: 72) leading to more current and innovative practices like peer assessment and self-assessment, which is discussed later in this chapter.

Clements and Cord (2013) add that assessment should be designed so that it supports and encourages the learning process and allows for individual development of students in their varied experiences. Assessment can be seen as indicative of the transference of learning, and of how effective or not it has been, as it indicates the learners' understanding of the subject matter.

This results in the increased importance of the most appropriate method of assessment being adopted for the learning style and subject matter. Boud (2000: 158) further highlights the importance of feedback in assessment, explaining that it would not be effective unless students were given the opportunity to improve their first submission, while still maintaining the integrity and authenticity of an assessment.

Gulikers, Bastiaens and Kirschner (2006: 338) emphasise the concept of 'authenticity' in assessment, implying that it is subjective depending on who is responsible for assessing. They emphasise the point that one person's idea of authenticity is not necessarily the same as another's. In their study they highlighted the point that authenticity depends on the individual's (teacher's) perception of the similarity between the assessment and the working situation that the task aims to reflect. This is an important point to note as assessment is not only a task undertaken to achieve a desired outcome but also that the assessment resembles the perception of the individual designing it. Since perceptions are subjective to (taking into account the assessor's own experiences and understandings) this process would be reduced in value if only the influence of the assessor (teacher) is taken into account and not that of the person undergoing the assessment (students). Taking into account the ideas of the varied authors as explained above, including that of AFL, AOL, AAL, while ensuring and maintaining the authenticity of learning, it becomes even more of a challenging task for institutions offering the WIL programme when designing and planning the assessment of WIL. Added to this challenge is the management of the assessment process, including the understanding of the role of the industry mentor in this process.

Theorist Kolb (1984: 38) claims that "learning is the process whereby knowledge is created through the transformation of experience".as in the situation of WIL. Literature, (Pienaar 2014: 22; Kilgour *et.al.* 2014: 22; McNamara and Brown 2009: 413), suggests that assessment is an essential aspect of WIL that needs clear guidelines and a framework as with any learning process.

Pienaar (2014: 413) states that assessment is considered to be an integral part of teaching and learning, which needs to be seen as a critical resource for lifelong learning (Boud 2000: 151). Lifelong learning (LLL) has many focuses but the one most relevant here would be that LLL has to be a process of learning that is personal to an individual that becomes natural to us as humans as we move through the various stages of our lives (Poquet and de Laat, 2021: 2).

Collis (2010: 15) also argues that a focus on assessment must be included in any dialogue involving the revising or developing of WIL. Richardson *et.al.* (2013:28) further concur by stating that assessment is sometimes completed in a rush, with the tendency to assess that which is easiest, resulting in mostly academic outcomes being assessed with a lack in reflection on the specialised learning that takes place in the subject (WIL) itself. They highlight the lack of understanding of the nature of learning that takes place in the WIL environment as one of the main reasons for the inadequacy of the assessment of WIL. It is therefore considered important for academic institutions to embrace this process of workplace exposure in their undergraduate programmes while addressing the critical aspects of assessment as they instil the concept of lifelong learning in students. The WIL programme creates an opportunity for academics to bridge the gap between higher education and industry while enhancing the development of graduate attributes that need to be achieved within the qualification. Ferns, Dawson and Howitt (2019: 105) acknowledge that students were found to want more “authentic tasks” and “meaningful assessments”. They further explain that feedback on students’ performance from lecturers, workplace and peer mentors was considered essential to self-awareness and continued improvement.

An important point that they emphasised was that the “theoretical nature of assessment development was thought to have an effect on learning behaviour (Ferns, Dawson and Howitt, 2019:105) indicating that these students desired to achieve a grade instead of learning from experiences. They found that assessments that were designed in collaboration with industry partners, proved to achieve results more aligned to industry performance expectations than assessments that did not include any such input.

In discussions of assessment of WIL, it is necessary and important to gain an understanding of how students acquire, construct and develop knowledge (Boud 2000: 155) through experience, and this is increasingly being seen as important in developing critical thinkers and life-long learners in a student-centred environment.

This accentuates the view that WIL is considered to be a teaching and learning strategy, with emphasis on curricula and assessment. Trede and Smith (2014: 154) mention that it is useful to define practice in terms that address concerns that evaluation remains transparent, reliable and consistent. They however draw our attention to the fact that the reduction of practice into elements, does not adequately capture the complexity of professional practice and workplace evaluation.

Jackson (2018: 556) cites Wolf (2015) who advocates the need for benchmarking student industry performance in relation to the expectations of the WOW, in light of the focus of higher education in the development of “work-ready” graduates. Trede and Smith (2014: 155) further emphasise that the focus of evaluation in the workplace is on practice rather than theoretical achievement. They argue that it is too limiting to measure the quality of training in terms of levels of competence. They suggest that a conceptualization of assessment practices as social, relational, material, cultural and discursive practices is more helpful and realistic than limiting the assessment of practice to the identification of the presence or absence of relevant competencies.

Koch (2012: 2) further points out that a variety of assessments (such as assignments, portfolios, logbooks and any other forms) need to be presented to the WIL academic co-ordinator as evidence of the students’ learning taking place in industry. This contributes to the holistic development of graduate attributes in students enabling them to gain competence in their respective fields, thus rendering assessment of WIL problematic in nature (Ajjawi, *et.al.*, 2020: 304).

Assessment as learning (AAL) must be considered and is necessary in the practice of assessment of WIL as the focus is on the “learning” itself. Thereby drawing a direct link to the concept of systems thinking, where embracing interconnectivity leads to a more effective way of gaining overall positive results (Senge, 2016). Learning is seen as an active process undertaken by the learner, where the learner is involved in their own learning process, which is “an active process of mental construction and sense making” (O'Toole 2007: 53).

2.7.2 Role players' involvement in WIL Assessment activities

2.7.2.1 Industry mentors' evaluation of WIL

Employers are the best judges of professional competence according to Milne and Caldicott (2016: 175). The authors focus on the contribution of the industry supervisors to the WIL process, also indicating the need to have these supervisors involved in the WIL process from the early stages of planning the training. Assessment of WIL is predominantly placed in the hands of the industry supervisors, which further adds to the already complex and difficult task inherent in managing WIL. Ferns and Moore (2012: 215) add that the reliability and validity of the WIL assessment experience is reliant on the experience and approach of the individual providing the feedback, thereby suggesting that the inclusion of the industry mentor requires an understanding of the experience of these individuals including the support they receive. A lack in the training of industry supervisors together with limited experience in assessing WIL results in industry supervisors often feeling inadequate in assessing students and providing effective feedback (Eisenberg, Heycox and Hughes, 1996: 33). Even where this is not openly agreed to by all industry supervisors, this becomes evident in the feedback received by students on training.

Subjective bias is an issue of contention regarding the assessment of WIL considering the involvement of various assessors from varied workplace environments in any single WIL programme (Milne and Caldicott, 2016: 176).

Added to this is the lack of support for industry supervisors to gain clear and consistent understandings of the criteria for assessing students. This could be as a result of the disconnect between what academic WIL co-ordinators considered as important work ready skills as compared to that of industry supervisors (McManus and Rook, 2021: 278) thus suggesting the need for clear guidelines for industry mentor engagement within the WIL programme. This could provide clarity on the functionality of the industry mentor together with that of the academic mentor. Since mentors' primary and most important task in the WIL process is mentoring and supervising the student which ideally leads to the task of assessment, careful planning and execution of assessment is necessary for the successful practice of WIL.

2.7.2.2 UoTs' evaluation processes for WIL

UoTs follow their own standardised assessment policy for assessment activities undertaken at the institution. However, there seems to be no clarity of any assessment policy or framework that guides the assessment and evaluation of WIL. Departments offering the WIL component within their qualifications follow the institution's general assessment policy. Even though these policies offer a degree of guidance, it is too vague for the practice of WIL considering the involvement of various assessors for a single WIL component. Departments are therefore left to decide how to structure and monitor the assessment activities within their qualification for the WIL component. A challenge exists in developing a flexible framework that has wide applicability across the range of degrees offered at a UoT (von Treuer *et.al.*, 2011: 197). Such a framework would provide guidance and support to WIL supervisors, suggesting that an institution-wide approach that allows for adaptability amongst the various qualifications offered at a UoT is needed.

This would lead to improved practices of monitoring and evaluation of the assessment practices of WIL while adhering to quality assurance issues. The UoTs' framework for assessment of WIL could enable the various partners of WIL to understand their role in assessment and evaluation and could result in a more integrated approach to assessment of WIL.

Thus, the role that the UoTs play in the assessment of WIL should contribute to a more holistic systematic approach to assessment of WIL.

2.7.3 Students' role in assessment of WIL

It has been widely discussed that teaching and learning need to be designed with and by the student, so as to personalise the learning process for students as they develop the ability to include learning naturally within their life's development. This suggests that assessment activities need the influence and involvement of students in the development stages as well. This would be most appropriate for the assessment activities within WIL as the experience is specific to the individual student's experience.

Lee, Mak and Yuan (2019: 72) indicate that a growing number of authors have argued for a need to embrace assessment as learning (AAL), as discussed in 2.7.1 above. This in effect "emphasises the active role students need to play in monitoring, evaluating and assessing their own learning". It is important to take into consideration that students are primarily responsible for their own learning and for the student's individual learning plan as emphasised by McNamara (2013: 186). Similarly, Boud and Falchikov (2006: 341) argue that less dependence must be placed on the reliance of comments from feedback and more emphasis must be placed on student's ability to identify knowledge and skills relevant to their work experiences if they are to become active lifelong learners. Trede and Smith (2014: 155) add that good assessment guides the student learning experience and contributes to shaping the professional identity of a student. Boud, Lawson and Thompson (2013: 941) agree that if graduates are unable to make their own judgements about quality of work, then they will not be equipped for most professional and non-professional roles, suggesting the importance of self-assessment practices.

In developing their understanding of self, Jackson (2016: 926) explains that students will be able to "acquire disciplinary knowledge, develop non-technical skills, practise applying their learning across different settings, and reflect, visualise and imagine themselves as a graduate and novice professional".

This can be seen as the underlying knowledge and skills required for students during and after their WIL experience. Students need to reflect on their personal goals and align them to the opportunities within placement in organisations, so that they can understand the relevance of their study to industry (Ajjawi, *et.al.*, 2020: 306) and eventually develop skills of identifying appropriate learning opportunities for themselves in industry. These authors add that assessment activities must encourage students to identify these alignment activities as they engage in the training. Jackson (2016: 926) further explains that, as students' progress through their studies in higher education, they will develop PPI through "their membership, engagement, non-engagement and boundary and peripheral interactions with different communities".

This results in the initiation of graduate employability and key employment skills that are seen as essential for successful integration into the WOW. The embedding of these PPIs into the curriculum and their further developing in practice in WIL by the student, would enable a student to align their learning to the experience gained during WIL, as they construct their own learning experiences and contribute to their overall development as a holistic learner prior to the completion of their qualification. To ensure students engage with the assessment practices, it is essential that they are involved in various forms of assessment that require their contribution to the final assessment outcome. Self and peer assessment are recognised as important forms of assessment that involve the student's contribution.

2.7.4 Validity and reliability in assessment of WIL

WIL assessors and WIL environments are necessarily varied, which results in a huge challenge for the assessment of workplace learning (Orrell 2011: 8; McNamara and Brown 2009: 413; Zegwaard, Coll and Hodges, 2003: 10). Workplace supervisors are principally experts in their fields and only academic mentors as a secondary responsibility (Trede and Smith, 2014: 155) not necessarily being trained as academic assessors.

Joan *et.al.*, (2013) suggests that the absence of these academically qualified workplace supervisors is the reason for universities failing to give clearly defined guidelines for the industry supervisors' appraisal of students' performance in industry. Industry supervisors are expected to appraise students on workplace training with little or no academic training or support. McNamara (2013) cites Patrick *et.al.* (2008: 42) who add that the challenges faced by universities in implementing WIL also include the need to develop innovative assessment methods that encourage reflection and integration of theory and practice within the constraints that result from the level of engagement of workplace supervisors. These responsibilities place a huge burden on both the role of the academic supervisor and the industry supervisor/mentor.

The validity and reliability of assessment (Kilgour *et.al.*, 2014: 23) of WIL is questionable, taking into consideration that WIL is a practice taking place in industry and where the industry manager is the supervisor for the student. Smith (2014: 210) explain that "validity in assessment is a matter of whether, and to what degree, a protocol or an element within a protocol measures the thing it purports to measure" and where "reliability is the degree to which the same result will be obtained when the assessment is done either by different assessors or by the same assessor on different occasions". Traditional assessments conducted at academic institutions by academics follow stringent regulations and quality control measures. This allows for ease of control and assurance of validity, as generally one individual assesses a group of students. The challenge then lies with how one standardises the concept of assessment with multiple assessors in industry in order to maintain the validity and reliability of assessment.

Kilgour *et.al.*, (2014: 23) emphasise that further challenges faced with the assessment of WIL include having many assessors whose interpretations of assessment requirements may be different; the variability between WIL placement environments; the fact that many assessors supervise students in addition to a full-time workload, and many other variables, which simply are not present in the on-campus environment.

As mentioned earlier in the chapter, Gulikers, Bastiaens and Kirschner (2006: 338) mention that authenticity is in the eye of the beholder. Assessment of student performance and workplace practice is the most complex of all assessment modes (Cooper, Orrell and Bowden, 2010). This is where the beliefs of Biggs and Tang (2003: 157) and Jan Smuts (1900s) conception of holism can assist in holistic assessment, which is discussed in detail in the theoretical chapter. Smith (2014: 211) further highlights that validity cannot be assured if it is not possible to establish the right kind of mix of the relevant experiences required for the placement of students in industry.

The CHE WIL Good Practice Guide (Winberg, *et.al*, 2011: 42) provides guiding principles for the assessment of WIL, as indicated in Table 2.2 below, highlighting the importance of student learning taking place in an appropriate environment and the need for the assessment to take place where learning occurs.

Table 2.2 The Principles of WIL Assessment

The assessment should be:	Descriptions and examples
Appropriate	Examples of appropriate tasks involve work-oriented report writing and simulation exercises pertaining to workplace specifics
Fair	All assessment tools used should be as free of cultural bias as possible, should be based on explicit criteria regarding what is required of students, and be accessible to all candidates
Transparent	Candidates should receive clear instructions about the venue, time and duration of the assessment. In the case of workplace assessments, these should be conducted during times mutually agreed upon by the workplace and the candidate.
Formative as well as summative	Complex performance often requires systematic understanding which may include elements of more technical practices. In this regard, the candidate should be provided with opportunities for formative feedback to gain additional knowledge and experience prior to final assessment, particularly in 'high stakes' contexts of assessment.
Valid	All evidence gathered from activities and task can demonstrate that performance outcomes have been met, and that the assessment procedures, methods and tools used were appropriate to course outcomes.
Authentic	Assessment should prepare students for the type of knowledge and practices required in modern workplaces and society. Various simulation, role-plays and on-the-job activities can be used to simulate the actual workplace performance.
Consistent	Tools and exercises should be piloted and moderated. While it may not be possible for all assessment tools to be used repeatedly by any other assessor to deliver the same results, the assessor should produce simple clear and well documented procedures, clear and unambiguous assessment criteria. When assessing complex performance, it is preferable to have more than one assessor.

Smith (2014) further adds that for WIL assessment to be successful, integration must be purposefully built into WIL curricula. This could result in students reflectively engaging in the process of WIL assessment and ultimately taking responsibility for their learning process and developing their own student identity (Daniels and Brooker, 2014: 69).

2.7.5 Self and peer assessment

It has been established that assessment is an essential component of any learning experience as it relays information to various stakeholders concerning what students are expected to do and be able to do, while promoting deep learning, especially if such assessment practice encourages reflection, self-evaluation and constructive feedback with opportunities for improvement in performance (Harris, *et.al.*, 2019: 54). Deep learning is the ability to learn for transfer, where reflection is key to learning. It is then important to discuss the practices of self and peer assessment, which are different learner-centred methods, that involve the active participation of students in the assessment practices of their peers and themselves (Fathi, Afzali, Parsa, 2021: 212).

Peer assessment is a form of formative assessment, demanding more time to be spent on thinking, comparing, contrasting, and communicating (Topping: 1998: 254) (deep learning), as students assess and evaluate their peers' learning, while developing their higher order thinking skills (Fathi, Afzali, Parsa, 2021: 212). Topping (1998: 250) defines peer assessment as "an arrangement in which individuals consider the amount, level, value, worth, quality, or success of the products or outcomes of learning of peers of similar status". Peer assessment feedback is provided by peers of the same level (classmates), which can be more conveniently accessible, and which can occur more frequently than feedback received from academics. This method places the student in the key role as assessor.

As expected, students have been found to consider the feedback from academics as more reliable and of higher quality than either peer assessment or self-assessment (Jackson, 2018: 556 and Topping, 1998:250), but this can be attributed to the fact that students are familiar with the practice of teacher/academic as the only assessor, since the start of their learning phase, (preschool phase) and in peer assessment or self-assessment it is difficult to accept fellow students as valid assessors.

Fathi, Afzali, Parsa (2021) carried out a study to investigate the role of the implementation of self-assessment and peer-assessment practices amongst Iranian EFL learners". The findings revealed that:

"Participants' engagement in the assessment practices made them become more aware of the standards and criteria for producing better quality drafts, the awareness which encouraged them to exert more attention and effort to write better. Also, their participation in the assessment is likely to have given them a sense of responsibility and agency which fostered their motivation to improve their own writing. Furthermore, the data analysis demonstrated that the peer-assessment group performed better than the self-assessment group in writing performance, verifying the fact that peer-assessment was more effective than self-assessment in improving writing abilities. This finding is consistent with the findings of other studies as would be expected" (Fathi, Afzal and Parsa, 2021: 223).

Fathi, Afzali, Parsa (2021) point out that their finding (peer assessment is more effective than self-assessment) could be attributed to the fact that learners knew they were to be evaluated and judged by their fellows in peer assessment, so they worked harder with their writing task, to ensure that their effort was as accurate as possible. Also, highlighted was the fact that in self-assessment, it may be that students overlooked their own errors. However, the study by Fathi, Afzali and Parsa, provides an overall finding that both the peer and self-assessment activities were effective in enhancing writing skills of the learners.

This indicates that both methods contribute to effective development of learners' higher order thinking skills and, if used as a combination of assessment methods, could prove very effective as a holistic approach when considering the assessment of WIL. The learner is now placed in the position of assessor, and privy to "the insights of assessment" that take the learning and assessing from the "hands" of the academic to the "hands" of the learner.

It allows for students to give and receive feedback, while developing their teamwork abilities as they develop into active rather than passive learners, which could encourage and support the move from teacher-centred to learner-centred education (Topping, 1998: 256). Topping (1998: 254) also indicates that peer assessment is reflexive, and could justify a change in the expression of “learning by teaching” to “learning by assessing” as peer assessment develops students’ capability of asking “intelligent, adaptive questions”. This holistic approach to assessment, including the student and the academic, could prove effective in assessment of WIL along with the inclusion of the industry supervisor, as one considers the benefits of a systems thinking approach to assessment.

Peer and self-assessment are strongly linked to reflection and reflective practice. The effectiveness and success of this method of assessment relies on the ability of students to effectively reflect on their experiences and use this in further developing their own abilities. Providing evidence of reflective practice is often considered a difficult task. However, the portfolio of evidence allows for this collection of supporting information and documents to the reflective practice.

2.7.6 Reflection and its role in WIL

Rodgers (2002: 848) refers to John Dewey’s explanation of reflection as the “process of reconstruction and reorganization of experience which adds to the meaning of experience” - experience being the essential component of WIL. It is always a challenge to achieve all outcomes of a qualification and also encourage reflection. John Dewey in his book *How We Think* (1910), strongly advocated the idea of reflection. Rodgers (2002) highlights four criteria that Dewey provides as characteristics to his idea of reflection:

- “Reflection is a meaning-making process that moves a learner from one experience into the next with deeper understanding of its relationships with and connections to other experiences and ideas. It is the thread that makes continuity of learning possible, and ensures the progress of the individual and, ultimately, society. It is a means to essentially moral ends.
- Reflection is a systematic, rigorous, disciplined way of thinking, with its roots in scientific inquiry.

- Reflection needs to happen in community, in interaction with others.
- Reflection requires attitudes that value the personal and intellectual growth of oneself and of others” (Rodger, 2002: 845).

Donald Schon is known as one of the most influential authors of reflective thinking with his seminal texts, *The Reflective Practitioner* (1983) and *Educating the Reflective Practitioner* (1987). His views were seen to be greatly influenced by Dewey, Freire and Mezirow, all of whom believed in the transformative process of learning (Donohoe, 2019: 96). Cornish and Jenkins (2012: 161) state that “reflection is more than just thinking; it is a recursive intellectual process involving action (experience), reaction (reflection), more (experimental) action and more reflection”.

Emphasis is placed on the learner who is expected to construct, through reflection (Kolb 1984; O'Toole 2007), a “personal understanding” of their experiences as derived from their “action in the world” (Fenwich 2000 cited in O'Toole 2007: 53). Azimi *et.al.* (2023), refer to Dewey and Schön, two seminal authors, who maintain that any attempt to improve the quality of learning in relation to experience, requires effective engagement in reflective thinking. Thompson and Thompson (2023: 10) are also of the belief that it is not possible for learning to take place, as well as practice to develop, if connections cannot be made between what we think and what we do. White and Guthrie (2016) add that the activity of engaging in reflective practice is a skill that students mostly develop at tertiary educational level.

Reflection (Kolb 1984; O'Toole 2007) leans towards the concept of learner-centred behaviours (Jackson, 2015: 365), where “reflective activity is recognised as an essential characteristic of professional competence” (Donohoe, 2019: 96). Learning journals, e-portfolios and structured reflections are some examples of reflective assessment practices (Jackson 2018: 556). According to the pragmatists’ perspective, reflection serves the purpose of becoming conscious and thoughtful about overt behaviour (Rodgers, 2002). Heinrich and Rivera (2016: 1) add that students can benefit from such assessments that include reflection and content artefacts as they involve looking for “commonalities, differences and interrelations beyond their superficial elements”.

Adeani *et.al.* (2020: 140) argue that reflection offers a writer or reader the opportunity to think about how their personal experiences and observations shape their thinking and acceptance of new ideas. Reflection encourages one to explore ideas presented in a text, and to express an opinion rather than simply to summarize the opinions of others. By involving their personal experiences and observations, a reader can go back to, and reconsider, their thoughts later on. This can be seen as a useful approach for WIL assessment as it encourages learning through experience, while collecting evidence of this experience, which results in invaluable information for the learner's future endeavours.

This leads to Jackson's (2018: 556) belief in including students in their evaluation process as supported by constructivist approaches to assessment. Bourner (2003) describes reflective learning as the missing link between experience and learning, thus developing the capacity to "learn how to learn". McIntyre, Lathlean and Esteves (2019) further support this view by stating that reflective study promotes deep interest to occur within the reflecting person. As such, reflection can be seen to be an integral stage in the experiential learning cycle of Kolb (1984) which is considered a predominant conceptual underpinning for adult learning (Bourner, 2003). Richmond (1993: 118) concurs with this line of thinking by adding that "the systems thinking paradigm, when combined with the learner-directed learning process, will breed students who are hungry to understand how things really work and who will continually be looking for how these workings might change over time".

Kember (1999) went on to identify seven types of reflection operating on varying levels of complexity, namely habitual action, introspection, thoughtful action, content reflection, process reflection, a combination of content and process reflection, and premise reflection. Mezirow (1998) defines premise reflection as the process by which people become conscious of their inner frame of reference, which consists of innate values and beliefs that give events meaning, as a result, reflecting on questions of 'Why am I doing what I am doing?'. Premise reflection can also be seen as critical reflection, being an integral element of critical pedagogy. Jonck and Coning (2018) cite De Coning (2014) who further explains that content reflection, process reflection, and premise reflection are integral components of reflective learning.

Critical reflection, as indicated by the seminal authors cited above, can be shown to be an important aspect of WIL as it enables the student to focus on what they are doing, why they doing it, how they did it, what worked well, what did not work well and problems encountered. This process then allows the student, especially a WIL student, to recognize the learning problems and gaps and identify possible learning opportunities within the training environment, in the absence of the academic supervisor. This would then lead to the student becoming more self-reflective and to develop the foresight of sourcing opportunities on their own, thus thinking to learn (Rodgers, 2002: 864) which is an important component of lifelong learning.

Adeani *et.al.* (2020: 140) refer to a study conducted by Middleton in 2017 whose findings indicated that “critical reflection was a challenging task, since its process included a personal reflection that brought enlightenment, empowerment, and transformation that was not easy for anyone”. This highlights the need to have students engaged in reflective activity throughout the qualification as preparation for the practice of it during WIL. This as a result, should encourage the development of an engaging curriculum that addresses relevant graduate attributes as demanded by industry requirements.

Reflection of one’s own experiences and that of others in SA brings attention to the concept of decolonisation in education. Heleta (2016: 2) strongly believes that SA needs to “rethink, reframe and reconstruct the Eurocentric and colonial curriculum and teaching methods at universities”. WIL and reflection in WIL could additionally provide an environment for decolonising the learning experience of students within the South African context. An appropriate way to open the students’ eyes to Africa may be by placing them in the organisations within Africa, enabling them to gain experience and knowledge from fellow Africans. This places students in the heart of the experience, where reflection can only contribute to learner development and growth. Assessment, either formative or summative, will provide the opportunity to have students reflect on their experiences within a SA context.

Cornish and Jenkins (2012: 161) refer to Dewey's 'role of action' and Grimmett's 'restructuring of experience' as two important factors when interpreting 'reflective practice'. This thinking leads to an understanding of the importance of the combination of students, academic assessors and industry assessors as key role players in the assessment of WIL. Dawson, *et.al.* (2019: 28) in their study identify the main purposes of feedback as "justifying grades; identifying strengths and weaknesses of work; improvement and affective purposes", which is important to note in relation to the involvement of the key role players in assessment of WIL and at the same time incorporating critical reflection (Jackson, 2018: 556). It can be understood that including students within the assessment of WIL will address the issues of reflection and reflective practice. Considering peer and self-assessment, being known practices of reflection and self-evaluation, would further allow for effective assessment of WIL.

Gibbs (1988) provides a reflective cycle (Figure 2.3) which is seen as an expansion of Kolb's experiential learning cycle.

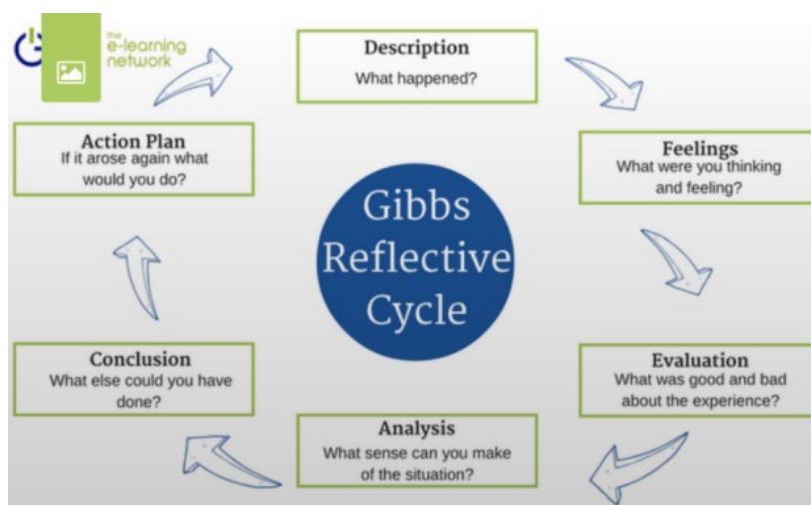


Figure 2.3: Gibbs reflective cycle (1988)

De Weerd *et.al* (2006: 318) note that reflection is seen as a significant mediator between “experience and identity”. Their belief is that identity transformation should inspire and encourage educational institutions to create innovative learning environments that will be able to address the professional as a ‘whole person’, as compared to just being the “hands or the brain” (De Weerd *et.al*, 2006: 324). Their idea of identity transformation is seen as a reflective activity that leads to benefits within the task of assessment in WIL. Any reflective activity is synonymous with feedback. Effective feedback from academic or industry supervisors could lead to successful reflective activities undertaken by the students.

Richardson *et.al*. (2013) in their study present a collaborative model for feedback in WIL (Figure 2.4). They suggest that a more collaborative approach to assessment and feedback in assessment is essential in involving all key parties of WIL (student, academic supervisor and industry supervisor). This involvement/collaboration starts at the inception of the WIL experience, which is before, during and after the placement of the student.

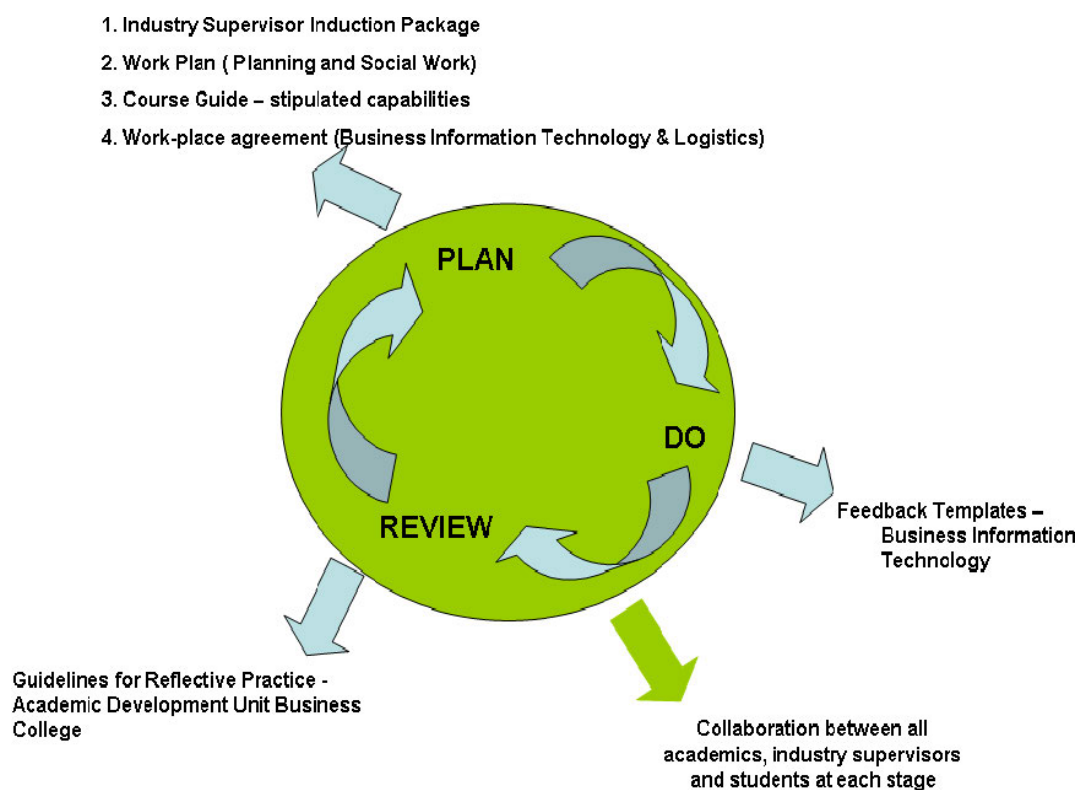


Figure 2.4: Collaborative model of industry feedback.

Richardson, Henschke and Kelly (2009).

This model highlights the importance of the inclusion of the industry supervisor/mentor in the assessment of WIL from the initial stages of planning the WIL practice for the students, and also the inclusion of the student in the process. It sees feedback as an important component of the assessment process as effective feedback allows for corrective action when and where it is needed most.

There are various measures undertaken to determine the accomplishment of outcomes of WIL. These include, but are not limited to logbooks, presentations, written reports, and portfolios of evidence. A Portfolio of evidence is an assessment practice that is gaining increased interest among many academics and therefore requires further understanding of its importance as a reflective WIL assessment practice.

2.7.7 Portfolio of Evidence (PoE)

As discussed above, reflective practice is necessary both to learn from experience and for lifelong learning and is recommended for WIL (Orrell, 2011). The portfolio method of assessment is a good source of reflection which has seen an increase in use over the years (Clarke and Boud, 2018: 479). Students are expected to explain their various experiences and then reflect on them. This gives them the opportunity to identify the learning opportunities and reflect on their experiences, which could result in students providing feedback for their own training experience in the form of a collection of evidence of the work they have engaged in. This has become a common requirement for students on training (Smith, 2014: 212).

The desired outcome of Portfolio Assessment is to assess critical thinking. Rodgers (2002: 843) questions if it is possible to assess a “skill that is vaguely defined”, placing attention on what is considered as evidence of reflection and if there could be specific criteria that provides guidance for this.

Clarke and Boud (2018: 479) highlight the fact that portfolios reflect a diverse range of resources with a variety of educational goals that range from a simple file of documentation of evidence, to a comprehensive journal of deep reflection on experience, while developing students' "ability to integrate theory into practice" (Buckley, Coleman, and Khan, 2010: 187). Clarke and Boud suggest caution where portfolios are used only for the purposes of summative assessment with no proper feedback on the reasoning for a particular mark, or how a student could improve so as to attain a better mark, since this may risk the success of the aim of portfolio assessment. Portfolios used within the context of formative assessment, on the other hand, provide for more successful implementation with appropriate feedback provided effectively and efficiently. This could contribute to the concept of self-directed and self-regulated learning as increasingly demanded by institutions.

2.8 Effects of the Covid-19 Pandemic on practice of WIL

The disruption caused by COVID-19 has brought about the need for the reshaping of WIL as it resulted in the limiting of WIL activity. Traditional methods of WIL could no longer remain as the only effective approach within the Covid situation. The changing nature of the workplace and the new ways of connecting necessitates new ways of looking at WIL and its practices (Kay, McRae and Russell, 2020: 493). These authors also indicated that the working environment was no longer confined to the physical office or to time restrictions. The already inherent challenges of WIL placed further demands on the need for continuous change and this new situation the world was faced with, has further placed demands for change with the practice of WIL (Dean and Campbell, 2020). The restrictions placed on the country during lockdown periods of the Covid-19 pandemic necessarily effected the implementation of WIL. The different alert levels dictated the degree of WIL implementation, as in level 1 WIL was allowed, at level 2, WIL could continue as long as there was compliance with the physical distancing measures, while at level 3, WIL was not allowed unless it was an essential service or the trainee was allowed to work through online simulated placements. At level 4 WIL was not allowed unless it was online and home based (Hodges and Martin, 2020: 415).

Due to the country being placed at alert level 4 for a long period, the practice of WIL was disrupted. This resulted in the need for new methodologies and frameworks for learning and assessment of WIL to be interrogated as individuals engaged with the new concept of “remote work settings, fluid time constraints and continuous connectivity” (Dean and Campbell, 2020: 355). In an attempt to ensure that WIL experiences offered to students remained dynamic, meaningful and appropriate, educational institutions partnered with business organisations, both domestically and internationally (Australia, 2019:9). This provided opportunities for students to be placed within organisations that were locally or internationally based, and to work remotely where possible.

As a result, the changes brought about by the Covid-19 pandemic and the change to most companies resorting to remote working, provided further opportunities for WIL placements. The traditional boundaries present in industry were no more. If a student possessed a laptop and the company was willing to provide training opportunities for the student, then remote working environments emerged. The need for immediate action placed creativity and innovation as key outcomes for higher education institutions and businesses as they continue to work and remain connected despite the enforced lockdowns by government (Dean and Campbell, 2020: 356).

What has emerged from the after-effects of Covid-19 is a decrease in the need and demand for WIL in some sectors and an increase in demand in other sectors (Dean and Campbell, 2020: 356). As for instance, training opportunities in the business administration, management, marketing sectors, were able to provide remote training opportunities, while sectors like the medical and science fields required contact training placements and were necessarily disrupted. If students were able to be accepted in those sectors while adhering to Covid-19 regulations, then the student was able to complete the training. However, if organisations within the sector were unable to provide a safe training site for these students during Covid-19, the students were unable to train. This resulted in some students having to forego training activities within traditional work placements.

However, other assessment methods were adopted including project-based learning (PBL) and simulations (Dean and Campbell, 2020). Students were required to complete projects based on, for example, case studies, to determine the level of integration of theory into practice that the student had achieved, often resulting in the adoption of creative and innovative interventions by academics and HEIs, into the sectors that were experiencing a decrease in demand for WIL students. More innovative ways of providing placements, and monitoring and assessing of WIL could therefore be considered in order to accommodate the opportunities and challenges that remote working presented.

Covid-19 has developed much “out of the box thinking”, in designing inclusive WIL programmes, while fostering novel partnerships between businesses, higher education, students and government, both nationally and internationally (Dean and Campbell, 2020: 358). Together with this is the need for effective, appropriate, holistic assessment of WIL.

2.9 Conclusion

Taking a holistic, systems thinking approach (as discussed in the next chapter) to the assessment of WIL, it is important to consider the imperatives of HE, the role, value and support of government, the demands of the WOW, the professional identity of students, their influence and role in their learning and the assessment of their learning, the overall benefits of WIL, assessment of WIL and the overall aim of education in HEIs. It is evident that a need exists for much more effective practices of assessment of WIL with the inclusion of all key partners.

The review of literature thus points to a consensus that looks at WIL as a necessary component of a professional qualification because of its multiple benefits to enriching the quality and scope of teaching and learning in practical and professional fields. “Trends confirm that work experience is more highly valued as evidence of work-readiness than a degree” (Ferns, Dawson and Howitt, 2019: 99).

Although the WIL programme offers many advantages to the various partners, the literature acknowledges that inherent challenges do exist with the management of WIL considering the levels of involvement from diverse parties to the process. The literature presented suggests that a lot has already been accomplished with regards to the management of WIL. However, WIL continues to evolve in the face of various adversities experienced and a shared understanding of the assessment of WIL is clearly still lacking from the literature and thus remains elusive.

This chapter considered the placement of WIL at UoTs, graduate attributes' contribution to employability of students, together with the role of various partners to the WIL programme. Of central interest to this study is the evaluation and assessment of WIL, which presents specific challenges as well as opportunities for improvement. Current practices reveal a disjointed approach to the assessment practices of WIL which are in a state of disarray with no structured approach yet emerging. The literature presented also includes evidence of the complexity of the assessment of WIL which its multi-dimensional nature.

This chapter therefore suggests that assessment of WIL requires a multi-dimensional, integrated approach to learning to occur at the university as well as in the WOW. Studies have outlined the value of multiple stakeholder involvement in WIL and assessment of WIL in developing an effective WIL practice for UoTs, while the assessment of WIL appears to be calling for a more integrated approach including the various partners to WIL, along with the integration of the various possible methods of assessment. This integrated approach would provide opportunities for designers of WIL assessment to include a mixture of approaches within a single assessment of the WIL module. This mix of assessment activities could then be justified as relevant to the individual programme outcomes. It is therefore important to include the experiences and beliefs of significant role players (students, academics and industry mentors) in any investigation of WIL assessment.

The complex situation of WIL and its assessment presented in this chapter appears to necessitate an investment in new and innovative approaches. The systems thinking approach, while already adopted in some aspects of educational practice, has not yet made an impact on the assessment of WIL. This approach, as adopted for this study, offers the ability to analyse the current situation, consider the potential for a transformed situation, and identify possible gaps and trends that could lead to discussions on necessary changes as well as the adaptability required in the assessment of WIL.

The next chapter outlines the theoretical framework that was adopted for the study.

3 CHAPTER THREE

Theoretical orientation and conceptual framework

“The more we study the major problems of our time, the more we come to realise that they cannot be understood in isolation. They are systemic problems, which means that they are interconnected and interdependent”.

Capra (1996)

Chapter 2 provided an overview of the literature relevant to WIL and the assessment of WIL. WIL has its origins in the early ideas of theorist Kolb who identified learning as a process of knowledge creation through transformation of experience (Kolb 1984:38). WIL can be considered as an all-encompassing term that describes issues of “curricular, pedagogic and assessment practices” that has to be successfully completed to attain a qualification (Jackson, 2018: 555). This necessitates the consideration of the WIL experience in its entirety (holistically) to determine the various levels of involvement and the required levels of exposure to the WOW.

3.1 Introduction

“Research is about investigating particular issues; a process that cannot be done without background knowledge”, while allowing the researcher to determine his/her “point of entry” (Rajkoomar, 2015: 14). Osanloo and Grant (2016: 13) explain a theoretical framework as a foundation for a research study, and relate it to a blueprint for a house. They state that a structure and vision for a study becomes unclear with the absence of a theoretical framework, just as a house cannot be built without an architectural plan. Professor Norma Mertz (2017) states in her video:

“a theoretical framework is a lens through which you are looking and approaching the research. So, it frames what you see and what you may not see. It guides the various parts of the study, so it can have a very encompassing effect on that study. It is important to note that the theoretical framework guides the study as the research delves into the known and unknown, while drawing from the various areas that become relevant to the study in its entirety”.

Systems thinking is the theoretical framework chosen for this study with specific reference to ‘soft systems thinking’ methodology. The approach is suggested by the complexity of the system of WIL practice within the broader HE system in SA. This is confirmed by Dhukaram, *et.al.* (2018:04) who cites Cooper (2010) stating that “systems approach is needed as the education system is not a simple, isolated system: the action of individuals, technology and social practices bleed-in to education from general civil life”. It could be argued that this is especially the case as regards WIL training.

HEIs are among the world's oldest institutions, serving as a foundation for global economic, social, and ethnic development (Taylor and Machado, 2006: 153). This implies that the HE system can be seen as linking to the wider economy and society, as well as comprising a combination of various subsystems that interact as a whole, which can be understood through a systems thinking methodology. The education system has both external and internal subsystems that affect or impact on its success. HEIs exist in a very competitive world, with the added demands of developing graduates that are readily employable in the WOW. They cannot be managed entirely as traditional businesses, considering the diversity of their roles as contributors to the public good as well as providers of human capital to the economy. WIL and the assessment of WIL are diverse components of this broader vision of an education system as they contain elements which are not clearly recognisable as parts of a traditional educational system. Considering HE from the perspective of a systems thinking approach, presents the opportunity to evaluate the present system along with its sub-systems.

This study investigates the development of an integrated (systems thinking) approach to the assessment of WIL. Hence, the chapter focuses on the key concepts and theories that are associated with systems thinking, linking to the key areas as identified in the literature review chapter relating to assessment and practices related to assessment of WIL, leading to a more holistic understanding of the practice of assessment of WIL at UoTs. However, before attempting to discuss and interpret systems thinking, it is necessary to understand the term “system”.

3.2 The systems concept defined

The Merriam Webster Dictionary defines a system as “a regularly interacting or interdependent group of items forming a unified whole”. The word ‘interdependent’ is important in understanding the effects of the working of a system as defined in this chapter. Jackson (2003: 1) in his book *Systems Thinking, Creative Holism for Managers*, provides a simple definition of systems as “a complex whole, the functioning of which depends on its parts and the interactions between those parts”. He adds that if one has to consider this definition for systems then it is possible to identify different types of systems such as:

- Physical – such as river systems;
- Biological – such as living organisms;
- Designed – such as automobiles;
- Abstract – such as philosophical systems;
- Social – such as families;
- Human activity – such as systems to ensure the quality of products.

He adds that the problem with describing a complex system as merely the sum of its parts leads to the whole taking a form that makes it not recognisable from its own parts. He thus provides an alternative holism, which considers systems to be much more than the mere sum of their parts, where the parts may in fact be ineffective independently (Jackson, 2003: 4).

This could assist in comprehending the assessment of WIL where disparate assessments may be contradictory if operating independently from each other. Several of the systems identified above may also be relevant to WIL.

3.3 Holism and Systems Thinking

The concept of 'holism' dates back to the 1920s and Jan Smut's book *Holism and Evolution*. Smut's idea of holism is closely linked to today's theory of systems thinking, which, it can be argued, is still at an early stage of understanding its applicability to the real world, despite having arisen more than 75 years ago. *Holism and Evolution* was published in 1926. The message that permeates the book is that "the whole is more than the sum of its parts" which is the definition of holism as explained by Jaros (2002) in his article 'Holism revisited: its principles 75 years on'. Jaros states that despite the popularity of the book, the concept of holism which was introduced in the 1900s was simply too early for it to be acknowledged as a theory. He makes reference to Koestler (1978), who suggests that Holism "went against the Zeitgeist [of the time]" indicating that this could be because of the fact that it did not include laboratory tests, as it took more of a philosophical than an empirical approach, which might have been seen as a threat to the then prevalent reductionist method and as a result rejected by the scientific community. Literature shows, however, that the idea of holism did resonate with other authors, and that there have been parallel developments of this idea of holism and systems towards the end of the twentieth century.

The idea of systems thinking has in fact been developing and progressing since the 1970s (Zexian and Xuhui, 2010: 141). The biologist, Ludwig von Bertalanffy, explained this later systems movement with the idea that 'systems' can be extended to 'complex wholes of any kind' (Checkland, 1999: 48) – bringing to recognition the ideas of Jan Smuts whose concept of early Holism links to the ideas of systems thinking.

Backlund (2000: 449) goes on to explain that “what could be part of a system depends very much on what relations are considered”. This leads to the idea that everything on earth is linked to another thing and that “every person that is part of a system of people is affected by the way he/she affects others or indirectly affects himself/herself”. Watkins (2007: 29) concurs with this view and relates systems to the philosopher Hegel’s proposition of “the axiom of internal relations”. He explains that Hegel’s axiom entails “that things would not be the things they are, if they were not related to everything else in the way that they are”.

It is therefore evident that, following Jan Smuts (and before him Friedrich Hegel), various seminal authors have been influential in the development of systems thinking including Bertalanffy and West Churchman, followed by Ackoff: James G. Miller; Peter Checkland; Boulding; Ross Ashby; Stafford Beer; Donald Schon; Bela Banathy; and Michael Jackson who further developed the literature relevant to systems thinking. Ackoff (1994); Arnold and Wade, (2015); and Sillitto, *et.al.* (2017) all indicate that a system involves a group of elements in which the behaviour of one element is influenced by another. They also explain that interaction is important and that each element that is involved in any situation is dependent on, or interlinked to, another, and that no individual system or sub-system can successfully function independently.

Thus, it is evident that various authors have provided definitions for systems which overlap. For a recent definition, Dori *et.al.* (2020: 1539) see a system as “an arrangement of parts or elements that together exhibit behaviour or meaning that the individual constituents do not”.

3.4 ‘Systems Thinking’ defined

Pertinent definitions that relate to this study include Richmond (1994: 139), who defines systems thinking as “the art and science of making reliable inferences about behaviour by developing an increasingly deep understanding of underlying structure”.

Peter Senge (1990) in his book, *The Fifth Discipline*, defines systems thinking as “a framework for seeing interrelationship rather than things, for seeing patterns of change rather than static snapshots”. He indicates that systems thinking is a discipline for seeing wholes (a holistic approach as introduced by Smuts).

Arnold and Wade (2015) attempted to further interrogate this concept of systems thinking in order to arrive at a comprehensive definition. They considered definitions of various authors (Richmond, Senge, Rouse, Sweeney and Sturman, Hopper and Stave, Kopainsky, Alessi and Davidsen; Squires, Wade, Dominick and Gelosh; and Forrester) in finally arriving at the definition below:

“Systems thinking is a set of synergistic analytic skills used to improve the capability of identifying and understanding systems, predicting their behaviors, and devising modifications to them in order to produce desired effects. These skills work together as a system” (Arnold and Wade, 2015: 675).

These authors also provide a diagram that illustrates the commonalities amongst the definitions of systems thinking as indicated in Figure 3.1 below.

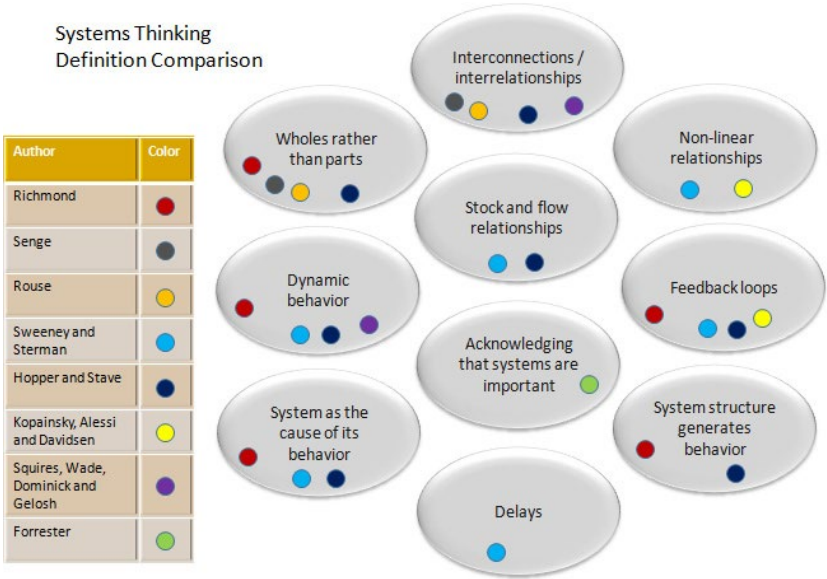


Figure 3.1: Comparison of systems thinking definitions
 Arnold and Wade (2015: 674)

3.5 The Goal of Systems Thinking

The goal of systems thinking is to gain a better understanding of the system which is the focus of the study, and to identify the points that have maximum influence, or areas where tiny adjustments can have an important effect. Thus, systems thinking is a framework that many authors have embraced as applicable for solving practical problems in the real world.

Dolansky *et.al* (2020: 2316) contribute by providing a working definition of Systems thinking being the “the ability to recognize, understand, and synthesize the interactions, and interdependencies in a set of components designed for a specific purpose. This includes the ability to recognize patterns and repetitions in the interactions and an understanding of how actions and components can reinforce or counteract each other. These relationships and patterns occur within different dimensions: temporal, spatial, social, technical or cultural. It is fundamental to undertaking specific methodology or strategies to explore and redesign a set of components comprising a whole”.

As a result, merely considering assessment of WIL as an individual component of a degree course would not achieve the desired outcome of the study as compared to considering the assessment of WIL as an integrated system involving the key elements of the academic, the industry player and the student (WIL partners) while at the same time identifying patterns and repetitive actions involved at the institutional and wider societal levels. These links within WIL and their interconnectedness are key to understanding the function of assessment of WIL and the wider implications of successful WIL training within the institutions involved and within the economy as a whole.

3.5.1 Interdependency relevant to systems thinking

There are various commonalities evident in the definitions, which lead to an understanding of systems thinking as relations that are connected to one another when considering a system in its entirety.

The terms “patterns and repetitions”, “multi-level” and “devising modifications” will be specifically significant for this research. This could lead on to identifying systems thinking as involving situations of multi-levels that are unique to its situation. This means that there is a possibility of developing or identifying patterns in behaviour where continuous feedback and improvement is relevant, thus enabling the concept of systems thinking to be seen as all encompassing (holistic). This multi-level identification would present opportunities for identifying possible patterns emerging that allow for a better understanding and interpretation of the situation of assessment, while highlighting significant interconnectedness within the entire education system.

Arnold and Wade (2015) cite Richmond (1991) who goes on to justify systems thinking by stating that:

“As interdependency increases, we must learn to learn in a new way. It’s not good enough simply to get smarter and smarter about our particular ‘piece of the rock’. We must have a common language and framework for sharing our specialized knowledge, expertise and experience with ‘local experts’ from other parts of the web. We need a systems Esperanto. Only then will we be equipped to act responsibly. In short, interdependency demands Systems Thinking. Without it, the evolutionary trajectory that we’ve been following since we emerged from the primordial soup will become increasingly less viable” (Arnold and Wade, 2015: 670).

Dolansky *et.al* (2020: 2315) concur that interdependency is key to systems thinking, where the ability to “view, assess and manipulate the interdependencies between people, processes, products and services” is required. This lends itself to the concept of community of practice (CoP), where learning and sharing of experiences among the various partners of WIL, within their practices, could provide numerous benefits to the successful practice of WIL and assessment of WIL. These shared experiences would provide a guideline to the designing of a framework for assessment of WIL among UoTs.

Douglas (2006: 5) adds that people have been taught for millennia to regard the world as a collection of separate elements, and therefore tend to reason in a disconnected manner 'thinking inside the box', which may result in the inability to see the forest for the trees. This suggests that a mindset change is necessary in order to develop the ability to adapt to new ways of doing things (thinking outside the box). This change lends itself to the concept of integrated thinkers.

3.5.2 Integrated thinking within systems thinking

Martin and Austin (1999) explain that integrated thinkers:

“work to see the whole problem, embrace its multi-varied nature, and understand the complexity of its causal relationships. They work to shape and order what others see as a chaotic landscape. They search for creative resolutions to problems typically seen by others as a simple ‘fork in the road’ or an irresolvable bind brought about by competing organizational interests” (Martin and Austin, 1999: 02).

Integrated thinkers can be seen as individuals who could have the advantage of taking a wider vision than do linear thinkers in anticipating problems and therefore being able to reflect and project accordingly. Richmond (1994: 138) concurs when he states that thinking more productively and creatively/innovatively, by encompassing the aspects of holistic thinking, could result in an all-encompassing approach to problem solving. Cabrera and Cabrera (2015: 17) explain that for systems thinking to truly work, it cannot be reserved only for the scientists but for everyone, from parents to leaders of organisations.

Arnold and Wade (2015: 670) agree that “all people in decision-making roles should have a solid grasp of system thinking”. Maani and Maharaj (2004: 45), claim further that individuals displaying system thinking characteristics perform better in complex decision-making tasks, even if they are unaware of it.

This further emphasises the fact that system thinkers, having the ability to approach a situation from a holistic point of view, could make better informed decisions. Hebel (2007:501) adds that the benefits of Systems Thinking include the use of a holistic approach that considers all critical aspects of the business. The partnerships inherent in the involvement of WIL highlight the importance of cross-sector collaboration to address some of the challenges faced by managers of the WIL programme, as a result, presenting implications not only for conceptualising WIL and its assessment but also for considering the professional skills being developed through WIL.

Multi-dimensional approaches are required if any attempt at improving quality in HE is to be successful. It is in this context that Mouyabi (2010:1179) argues the importance of including relevant stakeholders when making decisions in HEIs. For the system of assessment in WIL, it is apparent that stakeholders are varied and therefore decisions relevant to assessment of WIL should include an integration of multi-level partners. Embracing Systems Thinking concepts therefore makes it necessary for the UoTs to consider students, academic WIL co-ordinators, industry WIL supervisors, staff, government, UoT management and any other relevant stakeholders in decision-making processes.

This diagram indicates the complexity of considering a problem in its entirety, knowing the various interconnections, how and why they are related and the effects thereof, provides a complete understanding of the situation and possible avenues to follow, and most importantly, the aspect of feedback and that there is the possibility of continuous improvement. It offers systems thinking as a conceptual framework for problem-solving that considers a problem in its entirety. Problem-solving in this way involves pattern finding that leads to an enhanced understanding of the problem. This then could be considered as a new approach to assessing a problem of HE, specifically associated to assessment of WIL, providing a better understanding and new perspective to existing problems of a messy nature.

Dolansky *et.al.* (2020: 2315) state that it is necessary to measure systems effectively which can be useful in education, practice, and research. Randle and Stroink (2018) support this view indicating that “interest in systems thinking is evident in many disciplines as it takes on different definitions, such as in fields of education and organisational management”. They explain that it is seen as a problem-solving framework allowing one to see the problem completely from a holistic viewpoint. They go on to explain that systems thinkers possess “a more holistic mindset, together with an expanded understanding of causality and they recognise that systems undergo constant change” (Randle and Stroink, 2018: 646).

3.5.4 Learning organisations

Hsu and Lamb (2020: 31) present the concept of the “learning organisation” which they believe has increased in interest amongst the academic community. This idea of a ‘learning organisation’ involves systems thinking as it stresses the importance of the whole as compared to the individual parts. Senge (1990: 3) explains learning organisations as “organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together”.

Burnell (2016: 472) suggests that the idea of successful introduction of systems thinking into an organisation is not merely dependent on it being “sold” to individuals but rather looks at the experience of how systems thinking helps one to reflect and act efficiently, which relates to Kolb’s idea of “circle of learning” (Kolb, 1984:101). Systems thinking must be seen as a tool used to develop both the analytical self as well as the social-emotional self, to better understand complex systems, which would include our “internal selves, emotions, behaviours and motivations” (Cabrera and Cabrera, 2015: 173). They state that it is important to ensure this balance as a lack of it could result in the development of smart people who are unable to “relate to one another, cannot work in teams and who make decisions based on ego rather than discovery and contribution”.

It can be assumed then that understanding and applying systems thinking methodology is a holistic approach to problem solving. Systems thinking results in the ability to merge oneself into the process as it becomes a part of the thinker, who would apply it to all problems in a systematic manner so as to understand and interpret the situation more accurately. This would become linked to an individual’s ability to analyse and solve problems, resulting in systems thinking methodology becoming a process of continuous learning and integration. This process can be seen as beneficial not just for the academics wanting to find solutions, but to the students that will be engaging in the WOW via the WIL programmes. If the student develops the ability to successfully analyse situations using systems thinking then they, while alone on training, can become effective team players and make decisions that lead to success.

3.5.5 The learning gestalt and its links to systems thinking

Richmond (1993: 114) talks about the “new learning gestalt”. He refers to the three evolutionary threads being “educational process, thinking paradigm and learning tools”. He states that the fusion of these three threads can result in the “successful permanent change in the way people learn”.

This educational process involves the move from teacher-directed learning to learner-directed learning, and this thinking paradigm is compatible with the systems thinking paradigm including the use of mental models and feedback loops, while the learning tools look at the vast possibilities technology brings to the learning environment. The blending of these three threads could lead to a better understanding of the learning environment as indicative for this study into the assessment of WIL.

Sweeney and Sterman (2000: 2) provide a list of specific systems thinking skills as indicated below:

- Understand how the behavior of a system arises from the interaction of its agents over time (i.e., dynamic complexity);
- Discover and represent feedback processes (both positive and negative) hypothesized to underlie observed patterns of system behavior;
- Identify stock and flow relationships;
- Recognize delays and understand their impact;
- Identify nonlinearities;
- Recognize and challenge the boundaries of mental (and formal) models.

3.5.6 Systems thinking and community of practice

The HE landscape is seen as a complex collection of relevant and interacting communities resulting in enhanced student learning amongst the interacting communities. Kock and Roux (2012:107) state that sharing best practices and enhancing organisational effectiveness leads to organisational adaptability, where the systems thinking process promotes this collaboration and sharing of best practices in an organisation. Viewing the concept of assessment of WIL holistically and understanding the interactions and interrelationships of the various processes of assessment is critical in breaking the silos within these practices. This is indicative of the view of Brits (2011:1295) who believes that silo practices in the UoTs could be dealt with effectively through the application of systems thinking.

Communities of practice are seen as part of the Knowledge Management concept, where systems thinking is considered a catalyst for knowledge-sharing (Mhlongo, 2021: 38). CoPs assist with increasing development of collective knowledge across organisations (Conner and Clawson, 2004: 41), supporting the concept of holistic engagement as in systems thinking.

3.6 Mental models in systems thinking

Mental models attempt to explain or provide meaning regarding how we see the nature of our reality (Cabrera and Cabrera, 2015: 29). They explain that mental models are found all around us, as simple or wildly complex. They can be seen simply as an individual's thought processes regarding how something works in reality. They further explain that our mental models can be sometimes "right enough" or totally wrong. Wrong because they tend "not to capture the complexities of the real world" and yet this becomes our perceived reality. A key contributor to the improvement of this process is the concept of 'feedback'.

Cabrera and Cabrera (*ibid*) state that our mental models lead us to think of the real world in certain ways, which results in actual behaviours, which then provide feedback that informs the mental models, which are referred to as the dominant "thinking paradigm" (Watkins, 2007: 53, cites Richmond, 1993). It can be assumed then that feedback provides the ability to review the actual from the perceived situation, and then to decide on the best mental model influenced by feedback provided, thus placing feedback at the core of developing a successful, effective mental model.

Watkins (2007: 53) relates mental models "as the 'filters' through which we interpret our experiences, evaluate plans, and choose among possible courses of action". This could prove to be an effective approach for this study, as illustrating these mental models of WIL and the assessment of WIL, could provide a clearer picture of the present situation, as compared to expectations of it, in an attempt to find solutions to problems.

Richmond (1993: 117) refers to “laundry list thinking” (linear format, providing responses in the format of a list) as being dominant of the western world, whereas the systems thinking paradigm brings in alternatives to this. This is because the causes and effects are linked to each other by means of a circular process which is referred to, as discussed above, as ‘feedback loops’. He claims that this results in a “shift from viewing the world as a set of static, stimulus-response relations to viewing it as an ongoing, interdependent, self-sustaining, dynamic process” (Richmond, 1993: 117). These feedback loops could provide an opportunity to re-evaluate the current practices of WIL and assessment of WIL, where the causes and effects can be linked to create a more holistic view of the problems identified. “Therefore, addressing a problem is not seen as a one-shot deal. Rather, it is considered necessary to think in terms of ongoing, interdependent relations whose strengths vary over time, partly in response to interventions that may have been implemented into the system” (Richmond, 1993: 118). After the introduction of systems thinking as General Systems Thinking (GST) it was categorised into Hard Systems Thinking (HST) and Soft Systems Thinking (SST). SST is the theory of reference for this study, but a brief introduction to HST is provided below prior to a detailed discussion of SST, in order to provide the context.

3.7 Categories of systems thinking

3.7.1 Hard Systems Thinking (HST)

Systems thinking has been applied to various world problems since the 1950s to 1980s. This period saw the introduction of the General Systems Thinking (GST) that Checkland introduced to the world as “public knowledge” (Zexian and Xuhui, 2010: 141). These authors point out that GST does not offer substantive concepts and methodology in dealing with complex real-world problems as it is dependent rather on an abstract mathematical model. This led to the concept of Hard Systems Thinking (HST) (Simelane 2017: 34) which is a kind of applied systems thinking.

Jackson (2003: 47) explains HST as a common term that was contributed by Checkland, which included various systems approaches to solving problems in the real world. These approaches were identified as 'operational research', 'systems analysis and 'systems engineering'. HST is generally applied in well-defined technical problems (as in the fields of engineering, science and technology) (Checkland and Scholes, 2005: 10).

Zexian and Xuhui, (2010: 142) explain however that although HST is applied to real-world human concerns, it lacks the ability to deal with the diversity of the human activities involving "worldviews and values within human organisations". Thus HST methodologies would not be appropriate for understanding matters such as assessment of WIL which are largely dependent on human activity and individual experience. In order to deal with human activity in all its complexity, SST and SSM were devised (Zexian and Xuhui, 2010: 142; Checkland, 2000: 16). SST is designed to be applicable in "fuzzy, ill-defined, situations involving human beings and cultural considerations" (Checkland and Scholes, 2005: 10). The difference between these two approaches can be explained by noting that HST sees systems as an objective part of our world (an ontological concept), while SST considers systems as subjectively constructed by people (an epistemological concept). Maani and Cavana (2007: 23) provide a comparison of the hard and soft approaches to system thinking in the form of the table (Table 3.1) below.

	Hard approach	Soft approach
Model definition	A representation of the real world	A way of generating debate and insight about the real world
Problem definition	Clear and single dimensional (single objective)	Ambiguous and multi-dimensional (multiple objectives)
Philosophical paradigm	Positivist	Interpretivist
Systemicity perspective	Lies in the world	Lies in the process of enquiry into the world
People and organisation	Not normally taken into account	Are integral parts of the model/system
Data	Quantitative	Qualitative
Validity	Repeatable, comparable with the real world in some sense	Defensibly coherent, logically consistent, plausible
Goal	Solution and optimisation	Insight and learning
Outcome	Product or recommendation	Progress through group learning

Table 3.1: Comparison of Hard and Soft Systems methodology

Adopted from Pidd (1996: 121; Pidd (2004: 10) and Checkland and Holwell (2004: 56)

The most significant difference between hard and soft systems is therefore that with hard systems thinking the implementation of the designed system would be the end result, while in SST, only the agreed changes need to be implemented (Watkins, 2007: 92 cites Checkland). The adoption of the SSM can help support the analysis of the messy situation of WIL and the assessment of WIL, where changes that support success can be implemented, but no definitive end point is sought.

3.7.2 Soft Systems Methodology (SSM)

The greatest development of Checkland's work has been recognised as the development of the SSM as it provides important interventions in systems thinking relating to problematic situations in human affairs (Zexian and Xuhui, 2010: 141) as with the problematic situation of assessment of WIL which happens in different contexts, with different players and in a dynamic set of contributing systems. Assessment of WIL is considered to be a very complex and problematic task as examining is largely situated with a body external to the HE institution, which differs from the normally acceptable method of assessment conducted by academics within the HE system. SSM is more aligned to environments that are "complex, messy, ill-defined" and most importantly where human and organisational factors, as well as individual value systems, are not detached from problem solving and decision making (Checkland, 2000: 16; Maani and Cavana, 2007: 23). Checkland and Scholes in their book *Soft Systems Methodology in Action* provide a clear account of SSM (2005: 1) as "based on systems thinking which enables it to be highly defined and described, but flexible in use and broad in scope". There is a focus on building mental models (conceptual models) of the real-world problems (Cabrera and Cabrera, 2015: 154).

3.7.2.1 The experience action cycle

"Experience-based knowledge" relates to the fact that individuals see the world in different ways. Our experiences (and perceptions) mould the actions we take. "We are all the time taking purposeful action in relation to our experience of the situations we find ourselves in, and the knowledge which that experience yields" (Checkland and Scholes, 2005: 3), indicating that experience-based knowledge that leads to purposeful action will in effect lead to gaining new experiences. This can have a twofold effect on the process of conceptualising WIL and assessment of WIL. Firstly, WIL industry examiners each bring their own experience and knowledge to their assessments, thus adding to the enriching experience of WIL itself, and providing opportunities for others to learn from shared experiences.

Their unique background provides for rich exposure to the environment for the student and added benefit to the experience of WIL. Secondly, the students themselves will be able to gain meaningful experience from their actions in the real world (training) as they take purposeful action (guided by the industry mentor/supervisor) in the tasks assigned to them.

This process is thus explained as a cyclical process, whereby content will continuously change. “Each time round the cycle the world experienced is a somewhat different place, and hence the cycle embodies fundamentally the possibility of learning” (Checkland and Scholes, 2005: 3). Notably, this could then lead to improvements due to feedback as a process of self-reflection. This is reflected in the experience-action cycle in figure 3.3 below. It can be assumed that by encouraging examiners, and most especially students, to self-reflect, this process can result in a rich picture of experiences gained, lessons learnt, remedial actions taken and successful results achieved.

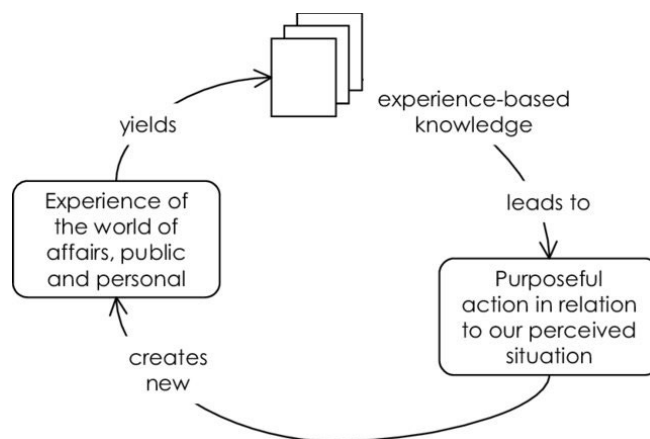


Figure 3.3: The experience-action cycle

Donal Schöns affirms this idea of self-reflection in what he terms 'reflection-in-action'. Ramage and Shipp (2020) provide an explanation of Schöns' idea, where a reflective practitioner (system thinker) is one who "habitually reflects-in-action, and who cultivates their ability to do so". This is indicative of post-hoc reflection, which is reflection in action (while the event is taking place and immediately afterwards). It therefore allows for reflection to take place while the event is in progress, therefore allowing for remedial action to be taken immediately resulting in a cyclical process, where new changes/challenges bring about new transformations and adaptations. Ramage and Shipp indicate, however, that 'reflection-in-action' has met with many criticisms, specifically the fact that it relates to an individual's involvement. However, they indicate that reflection-in-action leads "to on-the-spot experiment and further thinking that affects what we do – in the situation at hand", thus enabling an individual to critically reflect while working on a task or activity. This could prove substantive for the practice of assessment of WIL, considering the inherent difficult and diverse nature of the assessment of students out on training and working in diverse contexts.

SSM supports the cyclical movement from experience to purposeful action in an attempt to constructively change real situations, with the influence of feedback (Checkland and Scholes, 2005: 4). SSM involves creating mental models that are relevant to the real-world situations and then comparing them to perceptions of the real-world situation through the use of symbols (Checkland and Scholes, 2005: 6; Carley and Palmquist, 1992: 602). Carley and Palmquist (1992: 603) make reference to Stryker (1980), who argues that "humans respond not to the native world, but to the world as categorised or classified; the physical, biological and social environment in which they live is a symbolic environment. The symbols that attach to the environment have meaning, are cues to behaviour and organise behaviour". This process assists in providing a better understanding of various individuals' mental models and allows for comparisons to take place, leading to constructive decision making that results in purposeful action taken regarding improvement of the real-life situation. This is reflected in Figure 3.4 below Checkland's basic shape of SSM.

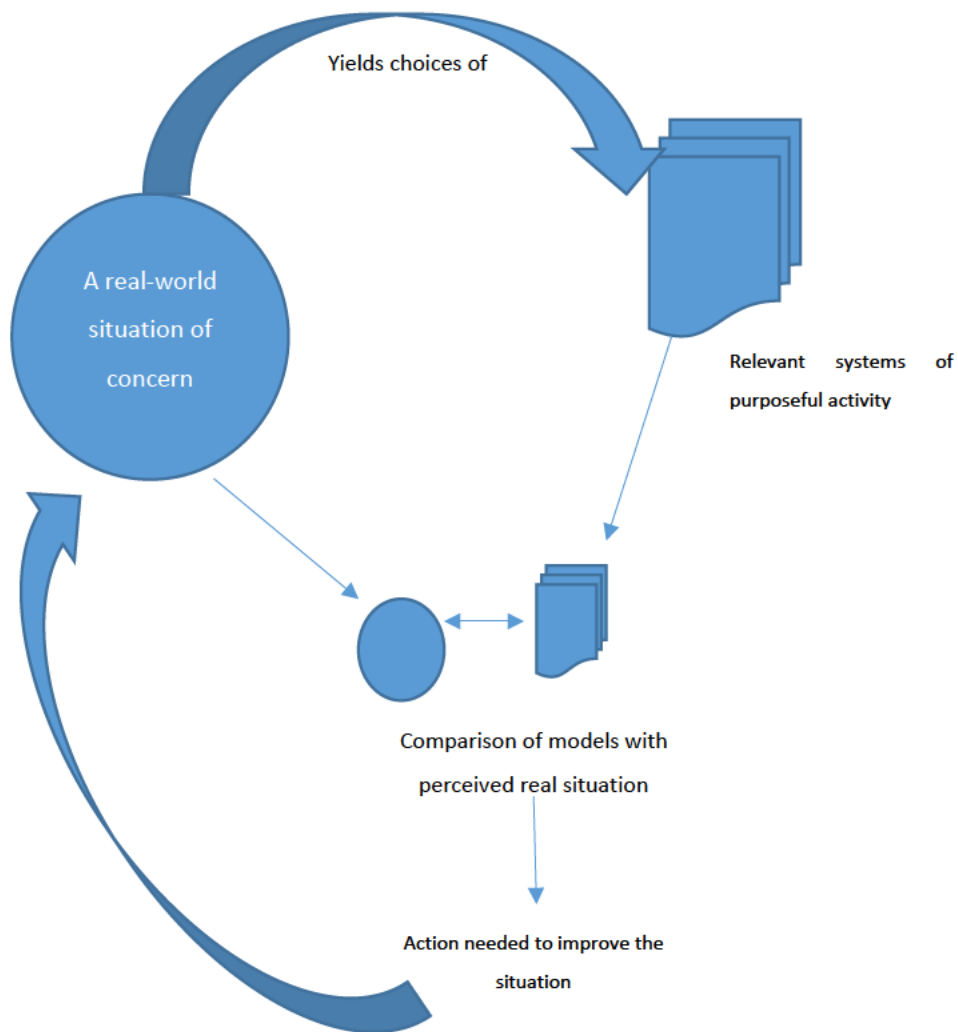


Figure 3.4: Checkland’s basic shape of SSM.

The model indicates the steps to be followed as listed below:

- Find out about a situation in the real world which has provoked concern;
- Select some relevant human activity systems,
- Make models of them:
- Use the models to question the real-world situation in a comparison phase;
- And use the debate initiated by the comparison to define purposeful action which would improve the original problem situation.

The important, and possibly most effective, action in this process is the fact that “taking the action would itself change the situation, so that the whole cycle could begin again” resulting in a continuous, cyclical process. This makes SSM “doubly systemic” as explained by Checkland and Scholes, whereby it is firstly a “cyclic learning system” and secondly used to initiate purposeful change. This would prove relevant to the educational sector, as change is considered a constant in academic activity. With the various opportunities, challenges, technological advancements, that are experienced daily, change is inevitable.

An increase in the use of the methodologies of systems thinking has resulted in various changes and developments to SSM. One of these being an increased focus on cultural issues. Vidgen, Wood-Harper and Wood (1993: 103) point out that the cultural stream compliments the logic-driven stream of the SSM process, whereby social and political factors are considered. Figure 3.5 depicts an improved version of Figure 3.4 which now includes the cultural stream and logic-driven stream to SSM.

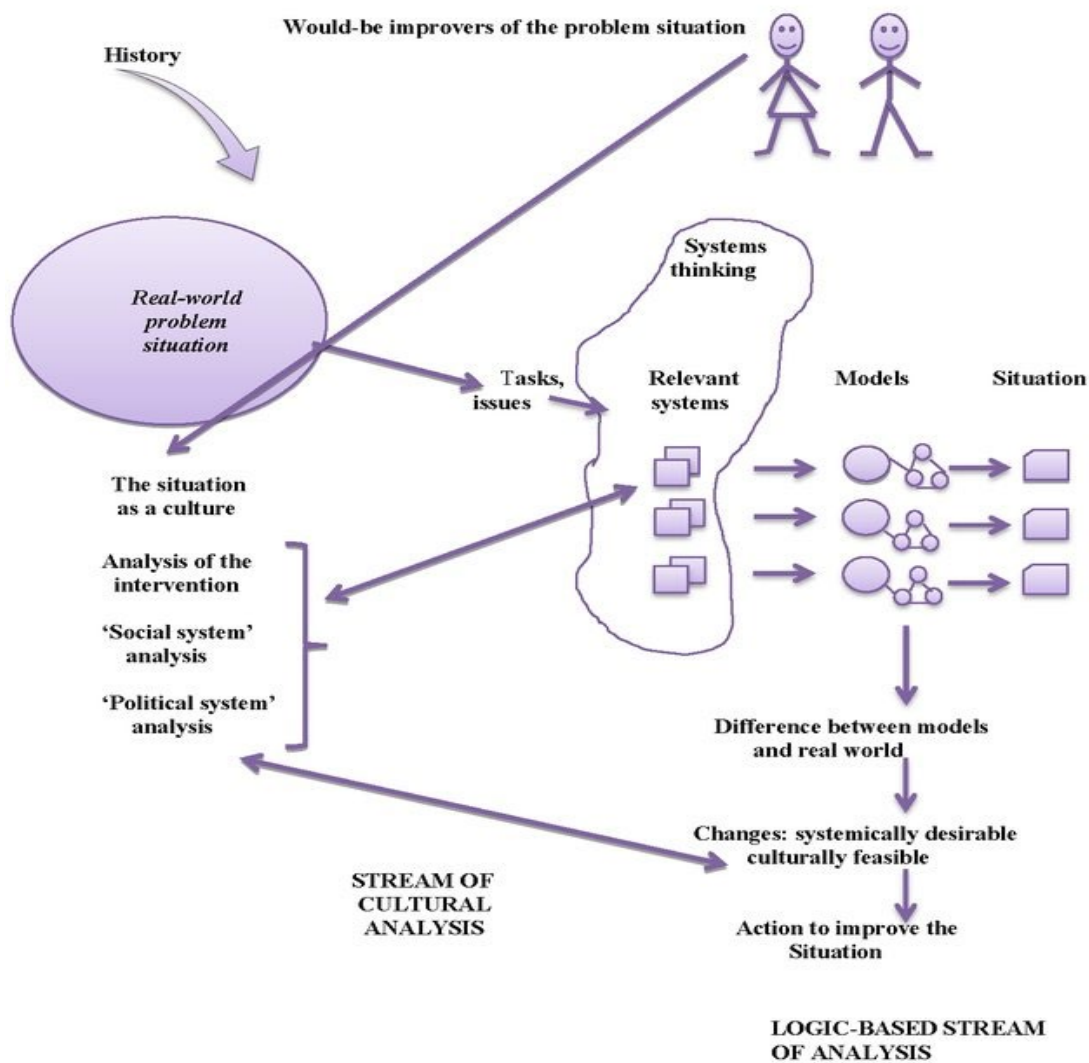


Figure 3.5: The process of SSM

Checkland and Scholes, 2005

3.7.2.2 Seven-stage model of SSM

Checkland and Scholes (2005: 27), being seminal authors of 'soft systems thinking', which forms the platform of assumptions and approaches underpinning this thesis, make reference to the seven-stage model of SSM as originally provided by Checkland in the 1900s.

This seven stages model allows for the identification of changes required for successful improvement of the process, which forms the structure of the data analysis for this study. The seven stages model has been adapted over the years and is reflected below as a revised version provided by Burge (2015:1).

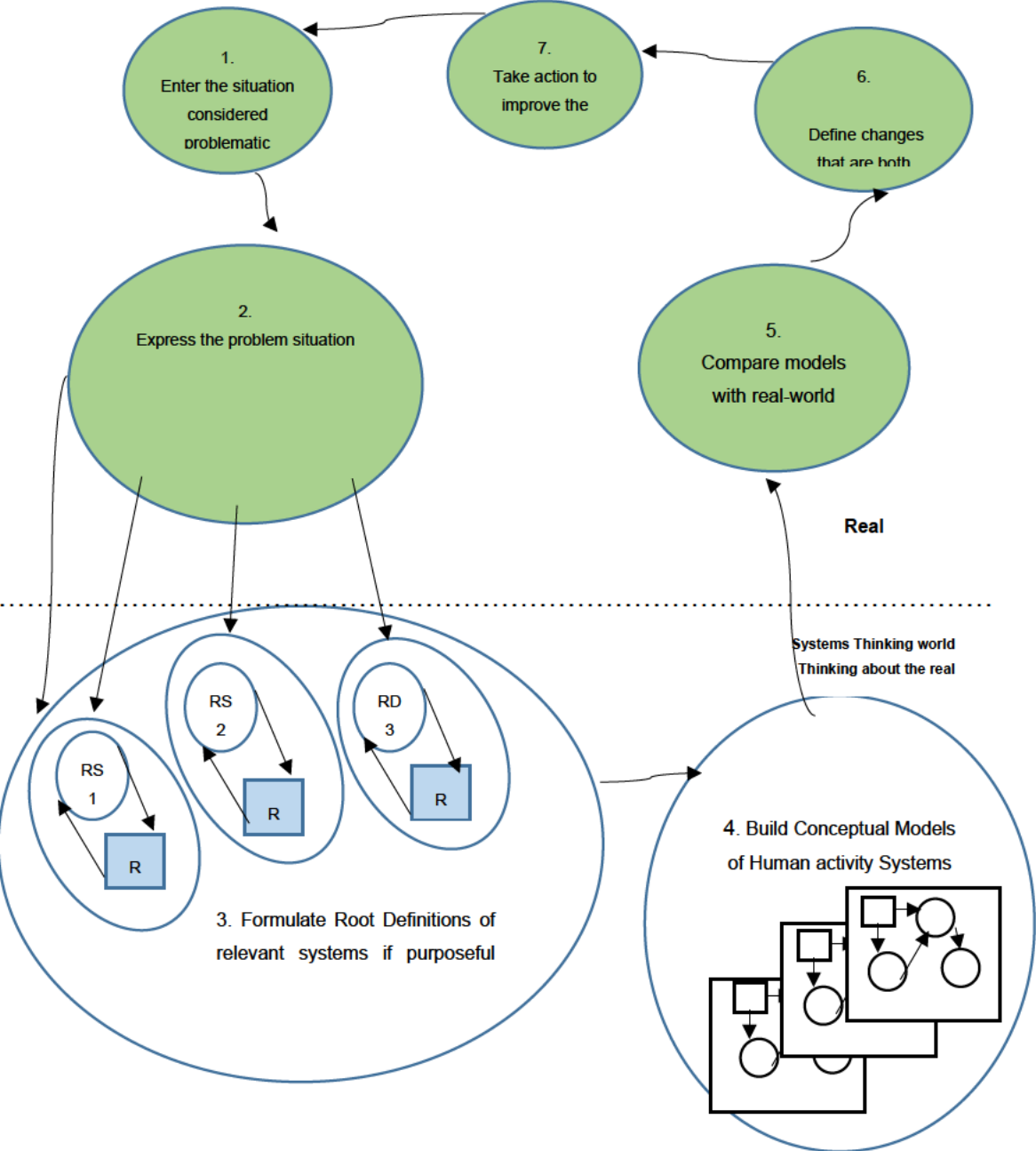


Figure 3.6: The 7 steps Soft Systems Methodologies
Burge (2015:1)

Checkland and Scholes (2005) refer to von Bulow's (1989) summary of the seven stages model.

“SSM is a methodology that aims to bring about improvement in areas of social concern by activating in the people involved in the situation a learning cycle which is ideally never-ending. The learning takes place through the iterative process of using systems concepts to reflect upon and debate perceptions of the real world, taking action in the real world, and again reflecting on the happenings using systems concepts. The reflection and debate is structured by a number of systemic models” (Checkland and Scholes, 2005: 28).

Sankaran, Tay and Orr (2009: 6) add that the move from the real world to the systems thinking world is indicated by the line that separates stages 1 and 2 from stages 3 and 4 (figure 3.6). A move back into the real-world situation allows for assessing the feasibility and desirability of the solutions that were decided upon through the conceptual modelling conducted in stages 5 and 6, which is followed by action to improve the situation in stage 7. This holistic approach to problem solving presents a new way of looking at problems faced with the assessment of WIL that allows for a more integrated approach to addressing the problem and identifying possible solutions.

With the view that it is a relatively difficult process to understand SSM as the texts on the subject matter is not very easy to understand, Burge (2015: 3) provides a simplified, easy to understand, explanation of the seven stages model of SSM as developed by Checkland.

Step 1 **Enter situation considered problematic:** This step involves gathering information and views about the problematic situation, key stakeholders and current performance.

Step 2 **Express the problem situation:** this stage requires that multiple views of the situation need to be captured, with the tool of a Rich Picture depiction that would adequately capture the various perceptions related to the situation that would not adequately be captured by mere words.

A Rich Picture:

- *Allows differences of interpretation to be identified*
- *Permits agreement to be made on the interpretation to be taken*
- *Is a source of inspiration as to what relevant systems could be modelled through the assimilation of relationships, issues etc. It helps identify themes to take into the systems world.*

A rich picture (situation summary) is a graphical representation of the key issues and variable that form part of the system that is of concern (Maani and Cavana, 2007: 64). There is no formal technique or skill in drawing that is required for this rich picture drawing. The rich picture presents a creative way of recording relationships of WIL and the assessment of WIL, as compared to the traditional form of a “laundry list” approach (listing one below the other)

Step 3 Formulate Root Definitions of relevant systems of purposeful behaviour: *This involves the development of a Root Definition, which is a statement of purpose that captures the essence of the particular situation of the relevant system. The CATWOE acronym as developed by Checkland is used to help develop the root definition.*

CATWOE:

- [C] *The Customer: individual(s) who receive the output from the transformation (this has been refined in more recent years to BATWOE which considers not just individuals that are positively affected by the transformation, but also those negatively affected as well).*
- [A] *The Actors: individuals who would DO the activities of the transformation if the system were made real*
- [T] *The Transformation: The purposeful activity expressed as a transformation of input to output*
- [W] *Weltanschauung: German word that literally means “world view”. It is the belief that makes sense of the root definition*
- [O] *Owner: the wider system decision maker who is concerned with the performance of the system*

[E] Environmental Constraints: the key constraints outside the system boundary that are significant to the system

Step 4: Build Conceptual Model of Human Activity Systems: *This stage involves the building of the conceptual model as informed by the other stages in the SSM. Burge suggest that adding simple explanations on sticky notes when constructing Conceptual Models present arguments that defend the positions taken in a Conceptual Model that can be used as needed. This provides an interesting way of looking at creating conceptual models for WIL and the assessment of WIL, including the various partners to WIL and external contributors, as defending arguments allows for the reader to better understand the reasoning for the suggested model and having doubts cleared.*

Checkland identified 3 Es relevant to the monitoring and controlling functions of the 7 stages model activities. These include:

- Effective: is the system doing the right thing - contributing to the higher-level goals?
- Efficacy: is the system providing the desired result?
- Efficient: is the system using the minimum of resources?

Burge (2015: 9) suggest that this approach to monitoring and control presents a more cyclical approach that allows for continuous flow of monitoring, control and remedial action.

Step 5: Compare models with the real world: Step 5 involves comparing the reality we experience with that captured in the models, with the purpose of initiating discussions resulting in identifying changes for improvement. This step presents an interesting way of analysing the current situation (reality) of WIL and the assessment of WIL to that of the models created in being able to identify changes required for improvement.

Step 6: Define Changes that are both desirable and feasible: This stage determines the feasibility of implementing the changes as resource challenges and restrictions need to be considered. Also, important to take into consideration is resistance (or not) to change by the stakeholders, and the conflicting views likely to exist within the proposed model/plan. This then suggests that even though changes may be recommended for the assessment of WIL, the successful implementation of these are dependent on the individuals that accept or do not accept the changes

Step 7 Take action to improve the Problem Situation: This final stage involves the implementation of the new system that will affect the bigger system leading to more opportunities and problems; and so on, as the process starts again. Important to consider here is that with the assessment of WIL, new opportunities and problems may unfold which would result in a cyclical process of review and renewal.

Burge (2015: 14) concludes by stating that he finds SSM fascinating because it entails the use of logic to define what “good” looks like, and to move towards it, rather than to search for root causes to solve a problem. He adds that it offers a refreshingly new alternative to problem solving as compared to other approaches but indicates that it is quite a difficult process.

3.8 Creativity and systems thinking

Creativity is seen as a dynamic phenomenon (Corazza, 2016: 265) that requires both “originality and effectiveness” (Runco and Jaeger, 2012: 92). This is a standard way of understanding creativity that taps into an individual’s ability to be productive and successful in their activities and to be original (innovative). Jackson (2003: 31) states that when we look at challenges in a creative way, we can perceive them as components of larger “messes”.

This relates to interdependence and therefore allowing for problems to be approached in a more integrated way (a systems thinking approach), and becoming a catalyst for creativity. The search for possible originality and effectiveness should be at the core of the definition of creativity, prior to any attainment of creativity (Corazza, 2016: 261). Corazza states that this process is extremely important for reflecting on overall experiential evidence of the phenomenon and also to effectively educate new innovators. The possibility of possessing both characteristics of being creative and holistic in attempting to solve problems could result in establishing competitive advantages for individuals and organisations. This integrated ability to be creative would be beneficial for this study as creativity is critical for holistic thinking in developing an integrated assessment framework for WIL, with possible 'spin-offs' in developing creative thinking in students. Hence, this will enable a comprehensive analysis of the current practices of WIL and the assessment of WIL.

3.9 Conclusion

This chapter has looked at the theoretical framework which guided this study. The special focus to this study is SSM that involves a seven stages model of transformation and continuous improvement. This model presents a novel way of analysing the practice of WIL, with specific reference to assessment of WIL. Moreover, the practice of mental models that can be depicted to provide a holistic understanding of reality as compared to expectations of assessment in WIL. This provides opportunities to identify possible solutions that are relevant to the unique situations that are present in different contexts, while engaging in a holistic analysis of the situation, considering the perceptions of all relevant parties to the problematic situation of assessment of WIL.

The next chapter presents the methodology used in this study and describes the research approach and the methods that were used to collect and analyse data.

4 CHAPTER FOUR

Research Methodology

4.1 Introduction

The previous two chapters outlined the research, literature review and theoretical orientations relevant to the concept of a holistic understanding of WIL and assessment strategies relevant for WIL practices. This chapter focusses on the research design and methodology used in the study, the process used in administering the data collection instruments, and the methods used to collect and analyse the data.

Research is considered to be a socially methodical search for new, unique and better insight (Madhushani, 2016: 27) entailing the ability to think critically, while examining the different aspects; understanding and formulating guiding principles that govern a particular procedure; and developing and testing new theories (Leedy and Ormrod, 2010:8). This approach enabled a holistic understanding of the principles of WIL and the assessment of WIL, while critically reflecting on ways of enhancing professional skills through the practice of WIL and developing guiding principles for relevant practice. Du Plooy-Cilliers, *et.al.* (2014:3) also link the process of research to the idea of systems indicating that all systems are interdependent and that the activities of one individual affect those of other individuals either in a positive or negative way. This draws a link to the theoretical framework of this study.

Interviewees for this study were drawn from the 5 consenting UoTs in SA. Two departments from the Management Sciences Faculty of each UoT were selected based on their offering of the WIL programme, specifically those that place students at relevant host organisations for training. Interviews were finally conducted with nine consenting WIL Co-ordinators. The information received from these co-ordinators led to the interviews with the WIL industry mentors. After numerous attempts to secure interviews with additional industry mentors, a final number of six interviews were conducted. These interviewees represented various fields within the discipline of Management Sciences.

Questionnaires were distributed to students as derived from the sample frame for this study, which was provided by the WIL co-ordinators that were interviewed. A final number of 137 completed student questionnaires were included in the study.

4.2 Research paradigm

Paradigms are referred to as research traditions or worldviews, allowing for a researcher to adopt a specific way of studying a phenomenon related to their field (Du Plooy-Cilliers, *et.al.* 2014). The interpretivist paradigm is adopted for this study as it appropriately underpins the assumptions on which the study was designed. This research aims to study the behaviour patterns and experiences of individuals involved in WIL who constantly change and are exposed to changing environments that influence their behaviour, which justifies the selection of the interpretivist/ constructivist approach. Interacting and engaging in dialogue with the research participants to understand the social world from the participants' experiences and the subjective meaning that they attach to it (Rajkoomar, 2015: 68 citing Wahyuni 2012: 71) was the approach adopted, enabling the collection of information-rich data from the participants.

4.3 Research site

This study was conducted at five of the six UoTs within SA. All six UoTs in SA were initially approached for ethical clearance to conduct the study at their relevant institutions and all six provided ethical clearance for the study to be conducted. However, data was only received from five UoTs as one did not eventually engage in the data collection process, despite numerous efforts made to engage the WIL co-ordinators in the study. Despite this limitation, the data collection was spread over various geographical areas in SA, within three Provinces.

4.4 Delimitations/scope

A decision was taken that the study should include only Universities of Technology and no other type of educational institution, because of UoTs' unique and historic involvement in WIL programmes. This presented an opportunity to collect data from institutions that have been entrenched in the practice of WIL and therefore the possibility of possessing an abundance of rich information. The intention of the study to focus on UoTs in SA meant that other educational institutions were not included. UoTs and their predecessors, such as Technikons, have been involved with the practice of WIL as UoTs are primarily focused on inclusion of practical components within their qualifications and they have long standing relationships with industry.

These factors lend themselves to providing the kinds of information related to WIL and assessment of WIL which were important for the study thus justifying an exclusive focus on UoTs. The Faculty of Management Sciences at all UoTs were targeted as the population for this study as the management sciences faculty at all institutions offer varied programme offerings and have a strong history of offering WIL programmes. Only two departments from each institution were selected, making it a manageable sample from which to collect data. Other disciplines who send students for work experience, such as medicine and engineering, were beyond the scope of this study.

The study adopted systems thinking as the theoretical framework, however the focus was predominantly on SSM and not any other approaches relevant to systems thinking. SSM takes cognisance of the perceptions of individuals and is people driven and as the nature of this study involves the perceptions of individuals, this was adopted.

4.5 Research design

Creamer (2019: 59) explains research design as a "thoughtfully constructed link between the purposes of a research study and the strategies used to implement it".

The process of conducting the study, involving the methodology adopted, the data collection methods and the techniques used for analysing the data (Wagner, Kawulich and Garner (2012: 21) were developed to achieve the specific objectives of the study.

Considering the inherent complexity of the processes involved in the assessment of WIL, and the theory underpinning this study being systems thinking, a framework was needed that allowed for interrelationships and patterns of change to be identified, and this was adopted rather than observation of things independently (Senge, 1990). The systems thinking approach, more specifically 'soft systems thinking' methodology, as discussed in Chapter 3, provided a structure for analysing the current situation and for developing a framework for the assessment of WIL. This satisfied the research requirements identified by Wager, Kawulich and Garner (2012: 52) and Mackenzie and Knipe (2006: 194) who see the choice of paradigms as associated with certain methodologies that determine the intent, motivation and expectations for the research and set down the choices regarding methods or research design. For this study a mixed methods approach was adopted, which allowed for an analysis of the interrelationships that exist within WIL and the assessment of WIL, and for a triangulation process to be incorporated in the analysis of the data. These are discussed further below.

4.5.1 Research Method

4.5.1.1 Mixed method research

Creswell (2015: 2) defines mixed method as “an approach to research in the social, behavioural, and health sciences in which the investigator gathers both quantitative (closed-ended) and qualitative (open-ended) data, integrates the two, and then draws interpretations based on the combined strengths of both sets of data to understand research problems – thus resulting in a more valid and reliable conclusion to a problem”.

Mixed method research is also adopted in situations where a single approach is unable to fully investigate the phenomenon, especially in cases where the phenomenon is considered to be complex and multifaceted (Rajkoomar, 2015: 74). This is true for the complex situation of WIL and the assessment of WIL which includes various partners and varied levels of involvement, where a single approach would not provide for a sufficiently full analysis of the phenomenon. This mixed method approach involved a quantitative survey to provide a broad understanding of the students' experiences with WIL and their perceptions of what assessment methods they are generally involved with, and which they would prefer. This allowed for a sample to be approached that could represent most of the UoTs within SA (five of the six participated, as explained above). The qualitative methods on the other hand offered the ability to gather some further data on students' experiences of WIL assessment from the open-ended survey questions, together with more detailed data emerging from the perspective of the WIL co-ordinators and industry mentors. A scan of relevant documents available on the institutions' websites, added a further qualitative perspective.

Creswell (2015: 2) states that "a core assumption of this approach is that when an investigator combines statistical trends (quantitative data) with stories and personal experiences (qualitative data), this collective strength provides a better understanding of the research problem than either form of data alone" while "adding richness to the findings and conclusions" (Athanasou, *et.al.*, 2012: 59). This yields a more complete analysis of the data collected as the quantitative and qualitative methods complement each other (Creswell, Feters and Ivankova 2004: 7).

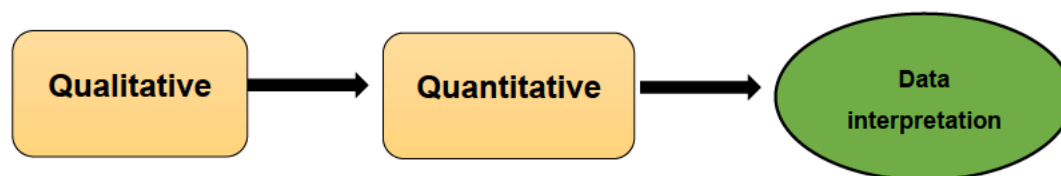
The development of an assessment framework for WIL, as informed by a systems thinking approach, required an in-depth analysis of personal experiences and collective data trends identified by industry assessors, academic assessors, and students, along with document scans, enabling a triangulation of the findings. This enhanced the authenticity of the data, increasing the validity of the evidence (McNiff and Whitehead 2011: 154). This triangulation process is often associated with using mixed methods (Sekaran and Bougie 2013: 104). Results are derived by using different methods and sources each of which is investigating the same phenomena (Sekaran and Bougie 2013: 104 and Maree 2012: 39).

4.5.1.2 The mixed method design

Mixed method designs may include convergent, explanatory or exploratory sequential designs (Creswell, 2015: 35). The design planned for this study was an exploratory sequential design which consisted of two phases (Figure 4.1). The first phase involved the collection of qualitative data involving a document scan and one-to-one interviews; the second phase involved quantitative data collection by means of questionnaires which allowed for the quantitative data and qualitative data methods to supplement each other (Du Plooy Cilliers, *et.al.*, 2014: 33).

The design was planned so that interviews could assist with developing an instrument (the questionnaire) for the second, quantitative, phase (Creswell, 2015: 39). However, for the purposes of this study, ethical processes require the compilation of the instruments during the stages of proposal submissions. As a result, the instruments, including the quantitative questionnaires, were compiled and submitted with those of the qualitative instrument (interview schedule) after having completed a basic literature review. Once the study was approved (after ethical clearance) and the interviews were concluded, the questionnaire was reviewed for possible further development. However, no further changes were seen to be required. The process of continuing with the quantitative data collection after the qualitative data was collected still applied.

Figure 4.1: Sequential Design

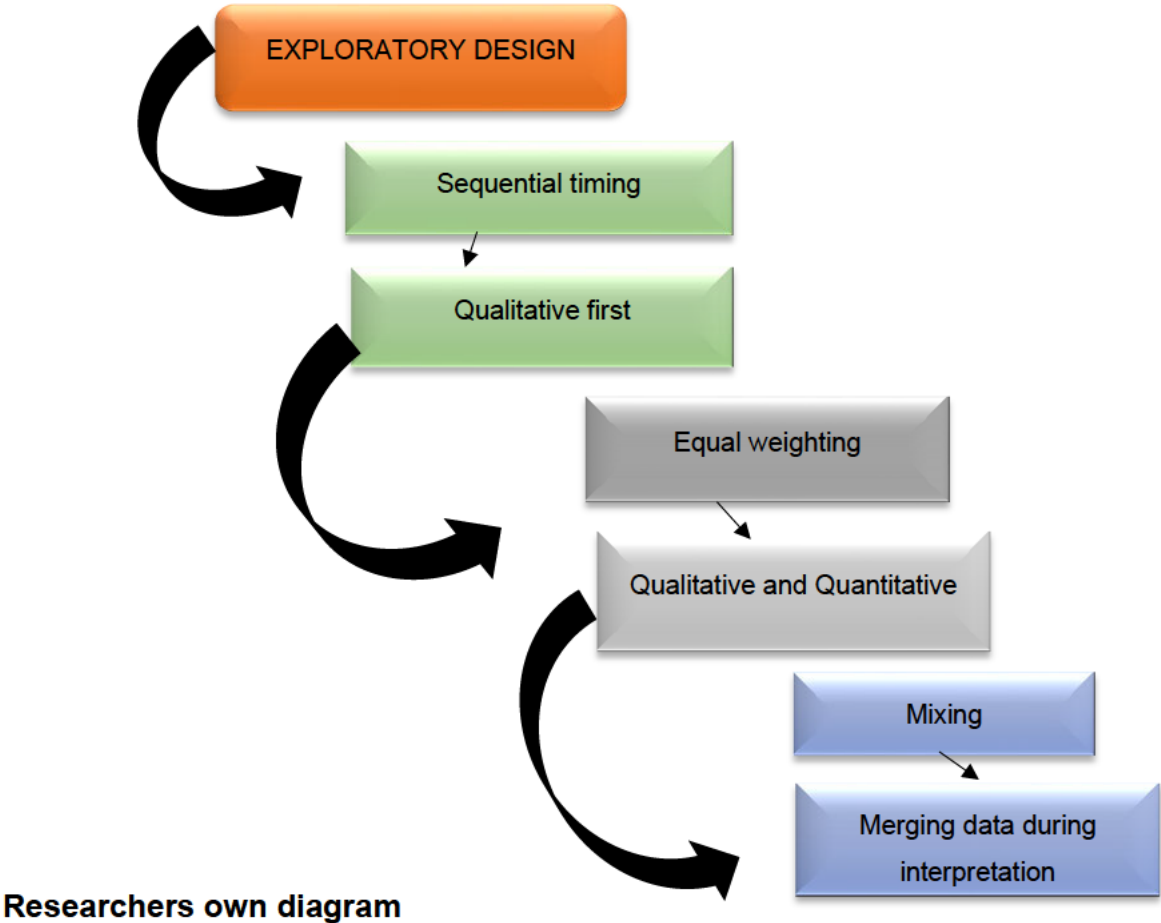


Adapted from Creswell (2015)

Creswell and Plano Clark (2011: 80-82) indicate that there are three decisions a researcher needs to make when deciding on the design to be selected. These include timing (the order), the weighting (emphasis placed on which method) and the mixing (how the datasets will be merged).

For this study, the first decision of timing included the sequential approach. The qualitative and quantitative methods were weighted equally for the second decision, as both the methods provided vital data and correlations from the participants selected for the study, which was pertinent in drawing final conclusions. The third decision of mixing of the methods occurred at the stages of interpretation as the analysis of both the qualitative and quantitative data were then merged to provide a broader interpretation and conclusion to the study (Figure 4.2).

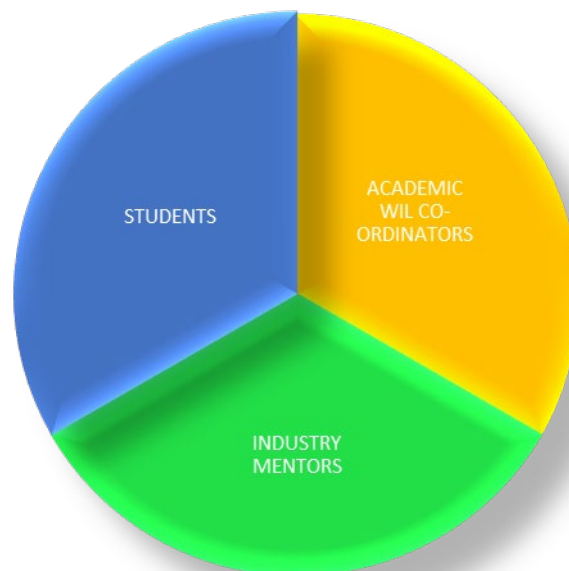
Figure 4.2: Design decisions



4.5.2 Target population

Population is a total group of people or entities (social artefacts) that are the subject of research interest and from whom information is required (Maree 2012: 69; Goddard and Melville 2001: 34; Du Plooy-Cilliers, *et.al.*, 2014: 132 cites Wiid and Diggins, 2013: 186). The common factor linking the selected population to this study was the respondents' involvement in WIL and the assessment of WIL. The focus of the study was their involvement and interaction with the assessment components of WIL, therefore justifying the population of individuals who were involved in WIL, who had some involvement in assessment practices that were specifically workplace-based. Other approaches to WIL, such as work preparedness, were not included as the research frame for this study. The target population was therefore all six UoTs within SA. This included the academic WIL co-ordinators, students who had completed their WIL training, and industry WIL supervisors/mentors (Figure 4.3).

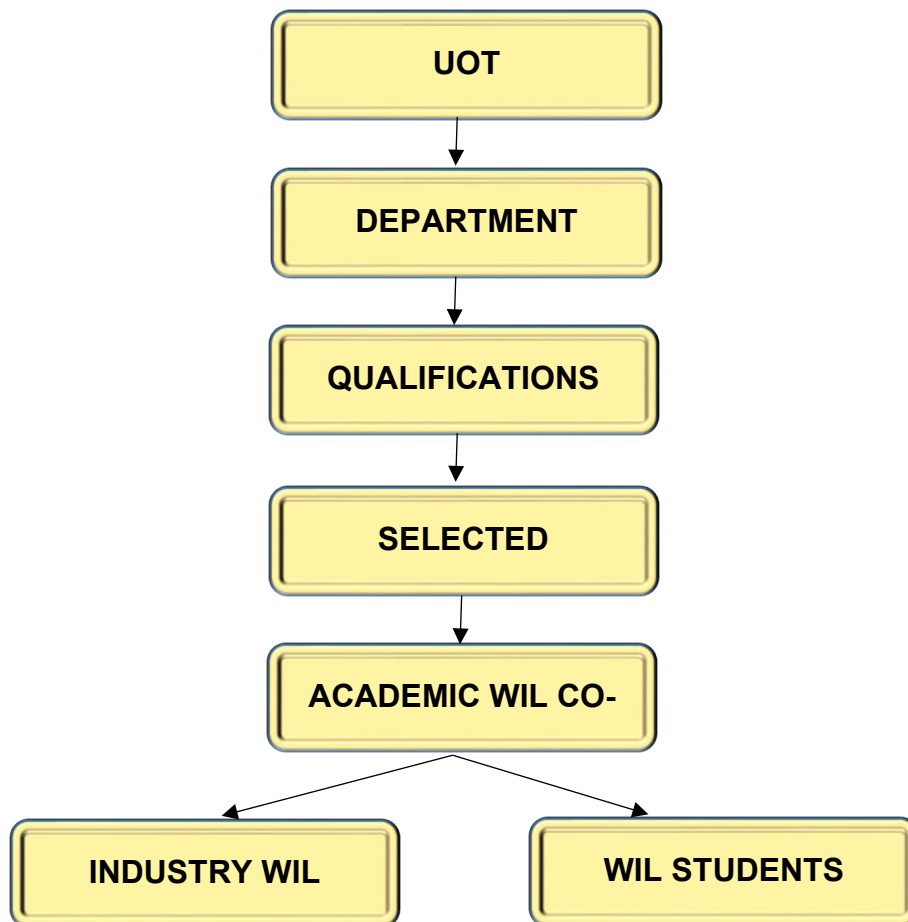
Figure 4.3: Target population included in study



4.5.3 Sampling

The sample for this study was selected from the population of academics (WIL co-ordinators), industry mentors and students that were directly involved in WIL, most specifically assessment of WIL as representative of the total population (Du Plooy-Cilliers, *et.al.*, 2014: 135; Goddard and Melville, 2001: 35; Maree, 2007: 79), as it is not possible to study the entire population, the Management Sciences Faculties were targeted within all UoTs. The Management Sciences Faculty includes an array of diverse qualifications that offer the WIL programme and therefore was appropriate to this study. Department HODs from the Management Sciences Faculty within the six UoTs were contacted for permission to participate in this study. Once HOD approval was received, the WIL co-ordinators were contacted for final participation.

Figure 4.4: Process of selection of qualifications that included workplace training.



4.5.4 Pilot study

The pilot study was carried out with five (5) students in the final year of studies from the institution where the researcher is currently employed within the Information and Corporate Management Department, for the student questionnaire. These students do not form part of the sample population for the study and therefore were approached to assist with the pilot study. Consent was received from the relevant students prior to the administering of the questionnaires. Students were requested to complete the questionnaire and comment on the clarity of questions and any other issues that might hinder the completion of the questionnaire. On completion of the questionnaire and analysis of the pilot study results, one inadequacy was identified by the respondents. This was identified as a misunderstanding of a term used in the questionnaire. This was rectified and was helpful in ensuring the questions were understandable to all and thus resulted in increasing the validity of the instrument.

4.5.5 Data collection procedures

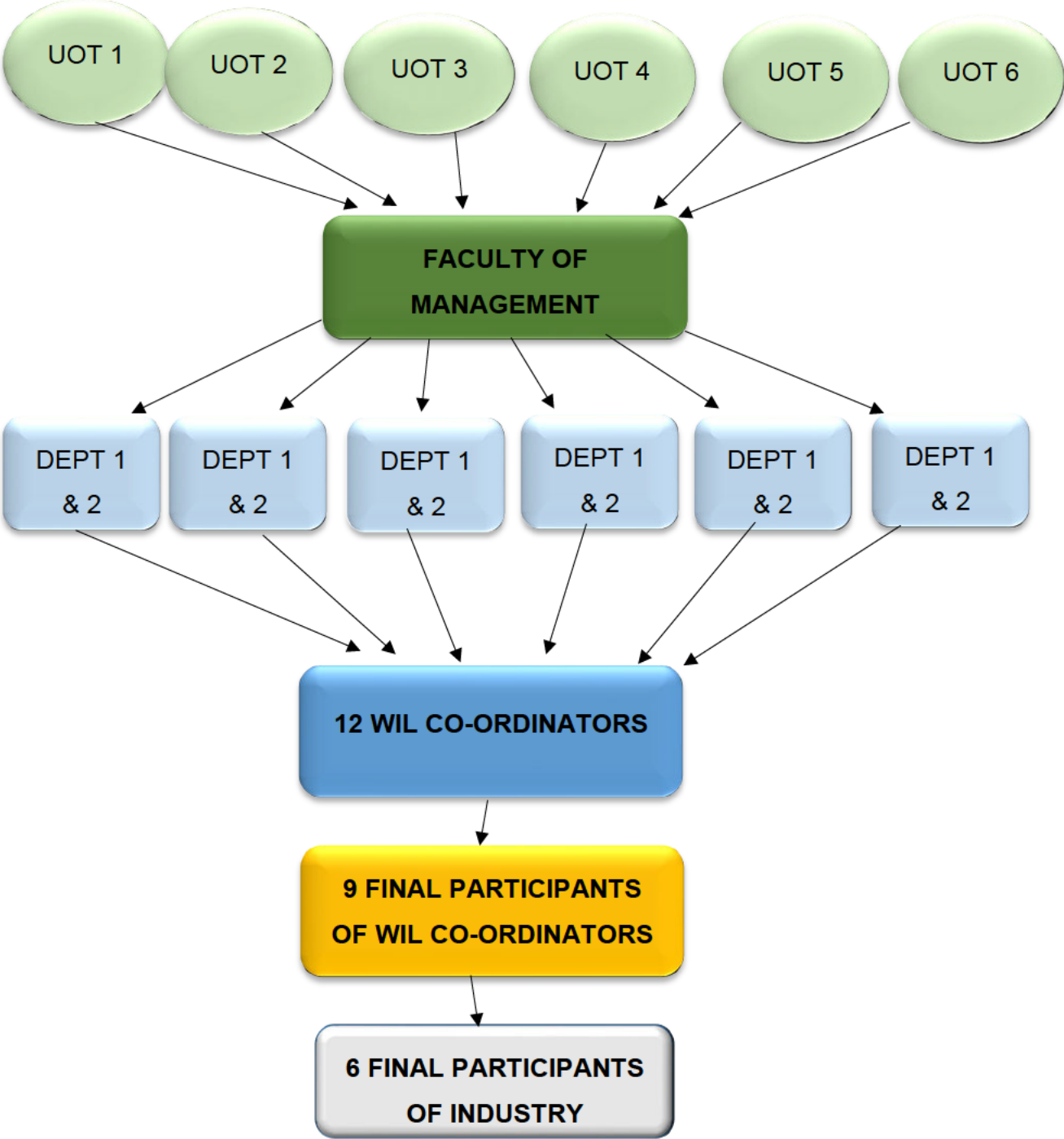
4.5.5.1 Qualitative data collection

Maree (2020: 92) cites Patton (1990:184) indicating that no defined rules indicate the sample size for a qualitative inquiry as it depends on what the study attempts to discover, what will be considered as useful information, what might be considered as high stakes, and what is considered as credible information as well as how much of time and resources are available for the researcher. For this study, purposive sampling was adopted for the qualitative data collection as part of the mixed methods approach since the study required data to be collected from WIL co-ordinators specifically and not all academics, as well as the industry mentors involved with WIL. Another key criterion was that the WIL co-ordinators had to be exposed to workplace-based WIL that included assessment as a criterion. Industry mentor details were sourced from WIL co-ordinators during the interview sessions.

This was necessary as the industry mentors were linked to the same qualifications as the academic WIL co-ordinators which resulted in the possibility of triangulation of findings to identify any discrepancies in individual perceptions of the system of WIL assessment. This resulted in the purposeful sampling of industry mentors that were in partnership with the selected departments from the various UoTs, for the placement of students at their respective organisations.

Data collection was attempted from the six UoTs. Access to various individuals was extremely difficult due to the restrictions imposed by the SA government resulting from the sudden breakout of COVID-19. Employees were working from home for a period of time and accessing contact details of various individuals that had no access to their emails or their office phones, placed huge challenges in securing the necessary participants for the study. This was specifically true for industry mentors as alternate contact details was not available. Data was finally collected from 9 WIL co-ordinators and 6 industry mentors. However, despite numbers being fewer than desired, the respondents were representative of a variety of sectors in commerce: Public Administration and Economics, Marketing and Retail Management, Office Technology Management, Business and Information Management, Marketing, Retail Business and Sports Management, Tourism and Event Management and Retail Business Management.

Figure 4.5: Process of selection of sample for qualitative approach



4.5.5.2 Quantitative data collection

For this study, the survey method of quantitative data collection was followed which involved a sample frame that was provided by the WIL Co-ordinators. The census method was then followed as all students within the selected department were approached for completion of the questionnaire. The sample frame included the students that were registered for the WIL programme at the time of data collection, and who had taken part in WIL training and were available at the time of data collection.

All available students from the sample frame were provided with the questionnaire to complete so as to maximise the response rate as indicated in Table 4.1. Each questionnaire distributed to these participants included a letter of information (Appendix C) and consent form (Appendix D).

Table 4.1: Sample frame for quantitative data collection

UOT	Department	No. of students included in sample frame	No. of responses received
Institution A	Marketing and Retail management	30	23
	Public Relations management	32	28
Institution B	Office management and Technology	30	26
	Public Relations Management	33	28
Institution C	Tourism and Event Management	20	09
Institution D	Marketing, Retail Business and Sport Management	20	09
Institution E	Business and Information Management	22	08
	Retail Business Management	10	06
TOTAL		197	137

Initially students were contacted during their lessons to encourage their completion of the questionnaires. Students were handed copies of the questionnaire to complete and to be collected once completed. However, due to the Covid-19 pandemic and the lockdown, messages of reminder, including an online Google form, had subsequently to be sent out to the various students via email or sms (depending on the information received), including the link to the google form. Follow-up messages were sent to students to encourage completion of the questionnaire. This process proved very time consuming and repetitive as various attempts were made to encourage students to respond to the questionnaire. This process resulted in the overall collection of 137 completed questionnaires, which represents a response rate of 70%.

4.5.5.3 Synopsis of selected methods

The selected data collection process was necessary to identify information-rich data, which enabled a process of triangulation of results. Quantitative data complemented and supplemented qualitative data in strengthening the analysis and the interpretation of the findings as received from the WIL co-ordinators, industry mentors/supervisors and the open-ended responses from students that had undertaken WIL programmes. This process resulted in an in-depth analysis of the current situation involving the perceptions of the current practices relating to WIL and its assessment by its principal stakeholders. Most importantly, this comprehensive process allowed for the researcher to identify challenges/problem areas that exist with this present system of WIL and the assessment of WIL, which could then be compared to the expectations (mental models) of the key partners to WIL.

4.6 Data collection

Both primary and secondary data contributed to the data collection process. Firstly, secondary research (as included in chapters 2 and 3) was conducted which helped with the understanding and exploring of existing literature and theory related to the framework for this study.

The data collected during this process also aided in the development of the instruments for the primary data collection phases. This process was then followed by the primary data collection of the appropriate quantitative and qualitative research instruments to ensure that validity and reliability (as explained further below) was maintained for this study.

4.6.1 Data collection instruments

Varied research methods were used to collect data as discussed above.

Document scan: An initial document scan was conducted using the online platforms of the various UoTs. This allowed for the collecting of information relevant to the:

- departments offering WIL within their qualifications
- qualifications that included workplace training as WIL
- duration of the WIL training
- period of inclusion of WIL

Information on the websites of the various UoTs offer limited information relating to WIL but were sufficiently relevant to provide a starting point for the process of population identification, and to determine the departments that would be included as the population of the study. This was necessary as it involved determining the departments that offer WIL programmes within their qualifications and the general information that they included regarding WIL on their websites and handbooks. The subsequent literature reviewed, together with the initial document scan and the researcher's own experience with WIL as a WIL co-ordinator, contributed to the development of the final qualitative instruments (interview schedules) for this study.

Interview Schedules: Two interview schedules were developed, one for the WIL co-ordinator and one for the industry mentor. This was considered necessary as there were slight changes necessary on the interview schedules due to the nature of the interviewee categories, even though the overall objectives behind the questions remained the same.

An example would be that in the WIL co-ordinators' schedule the question would read as "Indicate the number of years you were employed at your institution", while the industry mentors schedule would read as "indicate the number of years you were employed at your company". These slight changes in the wording of the question resulted in two schedules being prepared. The interview schedule consisted of twenty-two questions, however if respondents needed to be probed further with a question, this was included during the interview session that was applicable to that interview.

Questionnaires: The qualitative data collected and the information from the document scan contributed to the development of the quantitative instrument. While these instruments were both designed at the stages of the proposal, as per the requirements for ethical clearance as mentioned above, the interview sessions corroborated the questions/ statements provided within the questionnaire. The questions indicated in the questionnaire were designed to solicit the answers necessary for the achievement of the aims of the study. The questionnaire included a total of 27 questions. There were only three open-ended questions, these being specifically included to gather data from the participants in their own words on their individual experiences with the industry mentor and with the assessment of WIL. This allowed was necessary to determine the student's level of contact with their mentor, and their individual perspectives of assessment in WIL.

4.6.1.1 Interviews

All WIL co-ordinators from the Management Sciences Faculty from the 6 UOTs in SA were contacted to be included in the interviews. A request was made via email or telephonically to discuss a convenient time and place for the interviews which would ensure that the process is comfortable and convenient for the interviewee. All requests were accompanied by the letter of information (Appendix C) and consent form (Appendix D). Some individuals were very co-operative and immediately agreed on a date and time, while others were not so willing and needed a follow up call or email request.

The interviews were firstly conducted as face-to-face interviews, which included four of the interviews. These interviews were conducted at a place of convenience as agreed upon by the interviewee. However, due to the Covid-19 pandemic that overwhelmed the entire world and forced the country into a state of various lockdown levels, further interviews had to be conducted telephonically. This placed delays and additional burdens on the already difficult task of securing interviews with pertinent individuals which continued over a period of 8 months. Finally, 5 interviews were successfully completed telephonically. All interviewees were provided with consent forms and once completed were engaged in the interviews. This resulted in a final number of 9 WIL co-ordinators being interviewed for this study.

Each interview session with the WIL Co-ordinators took between 45 and 60 minutes. The responses were not recorded but written out as closely as possible to the words and meanings relayed by the interviewees. These responses were then immediately captured into Word after each session to avoid any misrepresentation of the information, and transcripts were emailed to interviewees for verification and approval, after which they were ready for analysis. The confidentiality of the interviewees was maintained at all times and interviewees' names and personal details were not captured or displayed in any reporting of the results.

The researcher conducted the interviews in a conversational and interactive manner so as to offer a non-threatening way of gathering each participant's perspective. The semi-structured interview approach allowed for an engagement in a more conversational style. The open-ended questions provided an opportunity for exploration into the relevant responses that yielded further in-depth information. The process allowed for follow-up questions or question clarification to be conducted by the researcher when the need arose. This approach allowed for the researcher to gather the relevant information around the WIL approaches adopted by the various UoTs, while also exploring the WIL Co-ordinators' perceptions concerning assessment of WIL and their experiences with assessment.

Once the interviews with the WIL co-ordinators were completed, each WIL co-ordinator was requested to supply contact details of their respective industry partners for inclusion in the industry mentor interviews. Since the country was still facing the challenges of COVID-19 during this period, the industry mentors' interviews were also conducted telephonically. The telephone interviews proved advantageous during this period of Covid-19 restrictions and was also less expensive (DuPlooy Cilliers, Davis and Bezuidenhout, 2014: 151). However, the Covid-19 pandemic posed numerous challenges in contacting the respective industry mentors – for instance, individuals were frequently working remotely and contact details available for them were mostly office phone numbers. It was difficult to locate alternate contact details for these individuals, while gaining access to individuals at their offices was extremely limiting and erratic. This process resulted in a final number of six industry mentors responding to the request and being interviewed.

It must be noted that participation in the study is at the discretion of the participants themselves and participants cannot be compelled to participate as clarified by the ethics protocol. As a result, even though various efforts were made to achieve the inclusion of various participants, the response rate was totally dependent on the interest and commitment of the proposed participants themselves. It must also be noted that industry personnel are extremely burdened by work pressure and tight deadlines, where the attitude of “time is money” is prevalent. Another challenge that was faced was that some academic WIL co-ordinators did not provide the contact details of their industry supervisors despite various requests being made and the request being made during the WIL Co-ordinators' interview sessions and assurance being given that the contact details would be supplied, some WIL co-ordinators did not provide the information. This would seem to suggest a certain degree of reluctance on the part of the WIL co-ordinators to get their industry representatives to engage in the study, with the uncertainty of the type of information that might be provided, despite assurances of anonymity.

4.6.1.2 Questionnaire

A questionnaire was selected as the most appropriate instrument for student data collection as these generally include closed-ended questions, checklists and rating scales (Du Plooy-Cilliers, *et.al.*, 2014: 152), which makes them fairly quick and easy for students to respond to. Questionnaires also enable many respondents to be contacted and included (Babbie, 2011: 255).

A single questionnaire was designed and distributed to collect primary data from the participants as per the sampling technique discussed above. The questionnaire was divided into Sections A, B and C. Section A covered the demographical information, Section B included information related to WIL and section C related to information on assessment. Pertinent data relating to the various assessment types that respondents were involved in, and the trends in the choices of the assessments most popular for the respondents, were collected.

Questions were designed to uncover the universities' use of the training manuals and the extent of their focus on assessment; the types of assessment the students encountered in training; their personal opinions on the respective usefulness of the different types of assessment included (which were also linked to certain pertinent questions that were included in the interview schedules), their preferred method of assessment and supervisors' involvement in assessment. Questions mostly focused on students' perception of the assistance and support received from the academic WIL co-ordinator and industry mentor and exposure to the assessment practices they were involved in.

Each questionnaire was accompanied by a letter of information (Appendix C) relating to the study and the reason for the questionnaire, together with the information of the researcher. A consent form (Appendix D) was also included requiring all respondents to sign as acceptance to be included in the study, prior to completing the questionnaire. The questionnaires were initially distributed directly to students at their lecture venues once permission was granted by their respective lecturers.

Four qualification respondents of the final eight qualification respondents sampled were conducted in this manner (as indicated in Table 4.1). The copies of the questionnaires were taken to the participants' place of convenience, in this case being the lecture venues of the student, which were completed and duly submitted, with little hesitation or negativity. This resulted in 105 questionnaires completed and collected by means of face-to-face contact.

However, as explained above, with the challenges of Covid-19, this process had to be reviewed and a new method of distribution had to be followed. The questionnaires were then converted into google forms which were emailed to the participants as per the list provided by the WIL Co-ordinators. The google form link was distributed to students either via email or sent via text message to their respective phone numbers (sms) depending on the contact information that was provided by the respective WIL co-ordinators. The questions that appeared in the google form were a duplicate of the hard copy questionnaires with no deviations from the original document, except for those necessitated for online purposes. This process yielded the collection of the balance of 32 questionnaires collected via the online method. Evidently, for this study the process of face-to-face data collection proved more successful than the online method of data collection.

Even though numerous follow up requests were conducted, the responses were very few and varied as compared to the immediate completion of the questionnaire during the face-to-face distribution sessions. This could be to a certain extent attributed to the fact that students had to utilise their own data to access the form and complete it. Also, it was observed that a request made electronically was not usually as welcomed as a request made face to face. It proved easier to ignore the online request as compared to a physical, face to face contact session during a lecture period. The final quantitative data collection resulted in a response from 137 participants across five UoTS.

4.7 Data analysis

The analysis of a mixed methods research study uses techniques that “mix” both the qualitative and quantitative data in order to derive conclusions (Creswell and Plano Clark, 2011: 203). Analysis involves the identifying of patterns and themes in the data, leading to conclusions being drawn from them (Rajkoomar, 2015: 107) resulting in a process of making sense out of combined data (Nicholas, 2017: 32).

Nicholas (2017:32) states that consolidating, reducing and interpreting data is the complex process within qualitative research analysis. The qualitative data analysis was relevant for this study as it allowed for the discussion and consideration of a more holistic picture in relation to the interaction between the issues relevant to assessment of WIL (Du Plooy-Cilliers, *et.al.*, 2014: 231). It allowed for the identification of trends, assessing variables and identifying of changes necessary for implementation.

4.7.1 Data analysis for the qualitative research

Phase one of the study involved the adoption of a qualitative approach (semi-structured interviews, both face-to-face and telephonic) which resulted in the collection of rich data relating to the experiences and opinions of the respondents. The data obtained was then managed by means of being labelled, filed and stored, to be ready for analysis. Data was further categorised into raw, organised and analysed data. This process involved an interconnected process whereby interpretations and recommendations were made as a result of the choices made at stages of organisation as well as the way data was initially captured.

Raw data (the interviews with the WIL co-ordinators and the industry WIL mentors) was stored and managed using the Microsoft Office packages MS Word and Excel. The coding process of the data into themes and categories was guided by the research questions that allowed for the grouping of the data and then the identification of commonalities and differences in the responses from the participants.

The process of coding helped to identify themes that were deduced from the responses, which translated into common ideas and words becoming evident, which were then further organised and classified. This process together with the use of the theoretical framework of Checklands 7 stages model of SSM, provided for a systematic analysis of the qualitative data.

4.7.2 Data analysis for the quantitative research

Quantitative data analysis entails the use of statistics including procedures that involve assembling, classifying, tabulating and summarising numerical data to obtain their meaning (Monette, Sullivan and Dejong, 2007: 364). The process began with the converting of the raw data into a form that was useful for analysis (Creswell and Plano Clark, 2011: 204). Statistical analysis is known to remove the guesswork from the interpretation of data as it allows for objective and defensible conclusions to be drawn (Du Plooy-Cilliers, *et.al.*, 2014: 206). The data collected from the respondents were analysed with Statistical Package for the Social Sciences (SPSS) version 27.0. The results are presented as descriptive statistics in the form of graphs, cross tabulations and other figures for the quantitative data that was collected. Inferential techniques, on the other hand, include the use of correlations and chi square test values, which are interpreted using the p-values. The traditional approach to reporting a result requires a statement of statistical significance. A p-value is generated from a test statistic. A significant result is indicated with " $p < 0.05$ ".

The data were collected, coded, edited and processed and the findings were analysed and included in Chapter 6 to follow. The purpose of the questionnaire was to confirm and triangulate data relating to students' perceptions on assessment issues with regards to WIL in relation to the data collected from the interviews with the WIL academic supervisors and the WIL industry supervisors/mentors. The results of both the quantitative and qualitative data were interpreted and analysed (Chapter 5) using the theoretical framework (presented in Chapter 2) and the literature (reviewed in Chapter 3) and discussed in relation to the literature (Chapter 7) of the study.

This process allowed for the discovery of meanings and patterns in the data and for explaining relationships in the study findings regarding the phenomenon of WIL and the assessment of WIL.

4.8 Validity and reliability

Reliability and Validity are assessed routinely in quantitative studies, since researchers use research methods that generate measurable, numerical and statistical results (Du Plooy-Cilliers, *et.al.*, 2014: 253). These authors add that this does not mean that validity and reliability are not a consideration in qualitative studies, although the terminology used might differ while it describes the same issue. Validity is the degree to which what one is measuring is what is supposed to be measured (Wagner, Kawulich and Garner, 2012: 80). Once the validity of an instrument is established, there is no need for it to be proved again as it is then dependent on the proper use of the instrument (Berg and Latin, 2008: 188). A pilot study was conducted prior to administering the questionnaires, to ensure that the questions were simple and easily understood while it was clear of ambiguity (Junpath, 2013: 64) and that the questions elicited the information that it was expected to do.

Reliability is the extent to which an instrument is able to measure a construct the same way every time that it is used, under the same conditions including the same respondents (Wagner, Kawulich and Garner, 2012: 80 cites Key, 1997). They also refer to reliability as the ability to determine if the methods of gathering data actually collected the data sought. It is important to note that if an instrument is not reliable, it cannot be valid (Maree, 2020: 263) as reliability demands consistency over time (Rajkoomar, 2015: 106).

Various authors (Fink and Kosecoff 1985: 50; Kerlinger 1964: 442-3; Leedy and Ormrod 2010: 94) have highlighted the threats to reliability during data collection as: ambiguity contained in measurement instruments that lead to misinterpretation; lack of clear and standard instructions; abstract concepts are not measured with enough indicators of equal kind and administration of data collection conditions differ; failure to pre-test the instrument; not including all alternatives as options; no sequential order of questions; the questionnaire is very long and not simple enough to read and the interview sessions are too long. The pilot study, which is conducted in quantitative research projects so as to increase the validity and reliability of a study (Du Plooy-Cilliers, *et.al.*, 2014: 257) aided in alleviating these issues for this study.

4.8.1 Trustworthiness

The issues relevant to validity and reliability in quantitative studies are addressed by 'trustworthiness' for qualitative studies. Trustworthiness is achieved in qualitative research by engaging in detailed and in-depth multiple meanings and perspectives of respondents in their respective personal responses (Harney and Monks, 2014: 30). Trustworthiness is classified into credibility, transferability, dependability and confirmability (Du Plooy-Cilliers, *et.al.*, 2014: 258 cites Lincoln and Guba, 1985). As explained by the above authors "Credibility refers to the accuracy in interpreting the data collected from respondents by the researcher; transferability relates to extent to which the results and analysis of the study can be applied beyond the study; dependability focusses on the level of integration between data collection method, data analysis and the theory resultant from the data; and confirmability relates to how well the findings flow from the data". It can therefore be assumed that with qualitative analysis the emphasis on trustworthiness lies within the interpreting of the data to confirm accuracy, reliability and confidence that the interpretation has not been misrepresented or falsified.

The research takes cognisance of this, and the researcher has been careful in interpreting the data while adopting methods of initially preparing a draft of the transcripts and then sending these to the relevant respondents for confirmation of the transcripts. The researcher has then interpreted the data by identifying similarities, differences, and important criteria, which were then grouped for commonality and analysed in accordance with the selected theoretical framework of this study to lead to a holistic understanding and findings of the study. The researcher took special care to ensure that the data was revisited continually to ensure that no misrepresentation occurred. Since the study was on the assessment of WIL within specific settings and localities, the findings of the study cannot be directly applied to other qualifications involved in WIL and assessment of WIL outside of this research study, but interesting comparisons can be made, and useful conclusions drawn.

4.8.2 Ethical Considerations

Sekaran and Bougie (2013: 13) state that in considering ethical issues the researcher must “conduct research in good faith, pay attention to what the results indicate, surrender the ego and pursue organisation instead of self-interest”. They further state that ethical behaviour must permeate all stages of research from the data collection, data analysis, reporting and dissemination of information on the Internet stages.

In this study, the researcher ensured that ethical issues were adhered to from the outset. Once permission was received for the initial proposal, application was made to the institutional ethics committee for ethical clearance to allow for the data collection for the study to be approved. Ethical clearance had to be sought from all 6 UoTs. Once this ethical clearance was received for the study, the collection of data was undertaken.

4.8.2.1 Anonymity and confidentiality

All participants were assured of anonymity, whereby they were informed that participation is voluntary and that participants could withdraw from the study at any time they felt the need to. A letter indicating the anonymity and confidentiality of the participation accompanied all data collection instruments, indicating that the data would be used purely for research purposes.

Du Plooy-Cilliers, *et.al.* (2014: 267) state that a major concern for research participants is the protection of their identity and sensitive information about themselves. The importance of protection of an individual's identity and personal information becomes even more pertinent after the introduction of the Popi Act in 2013 in SA. Universities are known to receive different kinds of data and are expected to administer sophisticated, layered approaches to management of this information (Netshakhuma, 2019: 60). Du Plooy-Cilliers, *et.al.* (2014: 267) further add that researchers need to clearly communicate their intentions and ethical responsibility to their participants and that they must distinguish between the two and provide a clear explanation of what the intended research study aims to achieve. The study data collection instruments included a full explanation of the study, its aims, and the reason for the data collection. The questionnaires included a covering letter explaining the details of the researcher and the purpose of the study. The letter explained that participation in the survey was entirely voluntary. Participants were assured of confidentiality and anonymity and that the answers to the survey would only be used for the research purposes to draw statistical conclusions. All respondents were assured of their anonymity in the study results (see Appendix C).

As discussed above, similar steps were followed in the case of the qualitative approach where the invitation to be interviewed was presented telephonically or via email with an accompanying covering letter and consent form. The interview participants were ensured of anonymity and confidentiality where no mention of any names would be included in the reporting of the results.

All participants have been allocated a number and no reference to any names were made in the study reporting documents. Care was taken to ensure that all recordings are kept safely locked up, ensuring that no transcripts are breached. All completed anonymous questionnaires and interview transcripts will continue to be kept in a secure locked office and disposed of after five years.

4.9 Conclusion

This chapter discussed the research procedure chosen for the study. The use of mixed methods enabled both breadth (137 students from 5 UoTs responded to the questionnaires) and depth (interviews were conducted with 9 WIL Coordinators representing 5 different industry sectors, and insights were gained from six industry representatives, from 4 sectors). This approach, along with a document scan of the broad objectives and structure of the syllabi (gained from institutional websites), enabled a triangulation of the findings and an assessment of the current experiences and intentions of key stakeholders. The approach was designed to indicate where differences exist, where experiences overlapped, where challenges are faced, and thus what potential exists for a positive transformation of the WIL assessment system in coherent and mutually acceptable ways.

A comprehensive explanation of the selection process of respondents was provided, along with the data collection procedures and the data analysis processes. The limitations experienced were acknowledged and, while it proved impossible to achieve the inclusion of one of the six institutions targeted, and the numbers of industry supervisors finally involved was a disappointment, neither of these was seen as invalidating the findings in any way, as the methods were sufficiently comprehensive to ensure a valid and reliable outcome.

5 CHAPTER FIVE

Presentation of Research Findings: Qualitative Analysis

5.1 Introduction

Chapter 4 focused on the research design and methods that were adopted for this study. The study involved a two-phase sequential design whereby qualitative data were collected prior to administering a questionnaire (quantitative data collection). This chapter presents the findings from the qualitative data collected from semi-structured interviews conducted with two key partners to WIL: the WIL academic supervisors (WIL co-ordinators) and the WIL industry mentors (industry supervisors). This chapter presents the findings in relation to the main research question and the sub-questions set for the study, which are as follows:

How can an integrated (systems thinking) framework for the assessment of WIL by Universities of Technology be developed?

Research Question one: What are the current methods of assessment of WIL within UoT programmes?

Research Question two: How can any identified challenges associated with the assessment of WIL be addressed?

Research Question three: Can improved assessment methods be integrated within a coherent flexible system?

The interviewees were nine academic WIL co-ordinators and six industry WIL mentors/supervisors. As discussed in Chapter 4, the academic WIL co-ordinators included two representatives from each of four UoTs, and one from a 5th UoT with no representative from the sixth institution. A final number of six WIL industry mentors were interviewed.

An integrated analysis of the qualitative data (interview with academic WIL Coordinators, Industry mentors/supervisors and open-ended questions from the student questionnaire) is provided in this chapter. The justification for this integrated approach to the analysis lies in the ability to provide a comprehensive holistic understanding and analysis of the current practices of assessment of WIL that leads to a transformed system of assessment of WIL. The perspectives of the various stakeholders as identified for this study assists in understanding the views of the various partners that may support or complement each other or oppose certain beliefs relevant to partners.

The findings from the data were reviewed in relation to SST methodologies and specifically the CATWOE framework as discussed in Chapter Three. This assisted in analysing the current situation of WIL, to assist in the further development of an integrated and functional assessment framework. The qualitative data was analysed thematically by identifying main themes and subthemes and linking these to the CATWOE. Each category of the CATWOE was used as the main theme. The raw data was first analysed to identify the main themes and subthemes. The data was then grouped according to the themes and subthemes. Any data that referred to the theme was first allocated to the theme in the first round of sorting. Thereafter the information was reviewed for relevance to the theme and removed, sifted, and sorted according to relevance in the second round of sorting. Thereafter the final stage involved the finalisation of the data that was relevant to each theme. These themes were linked to each letter of the CATWOE acronym. These were then elaborated and explained accordingly as per the identified theme.

5.2 CATWOE

The CATWOE categories (figure 5.1), as identified by Checkland, have therefore been adapted to reflect the focus of this study as follows:

[C] *The Customer: individual(s) who receive the output from the transformation (this has been refined in more recent years to BATWOE which takes into account not just individuals that are positively affected by the transformation, but also those negatively affected as well).*

In the case of this study the customers are identified as the students that embark on the WIL programme and expect an optimal training experience, the university who strives to train and develop successful graduates, the academics who aspire to deliver an optimal WIL system, the organisations that partner with the academic institution to accept students into their place of work for training together with the industries that expect to receive work ready graduates and the country for improving the economy. Ideally the possibility of BATWOE would also be considered at this stage.

[A] *The Actors: individuals who would DO the activities of the transformation if the system were made real.* In the case of this study the actors are the academic WIL co-ordinators, industry mentors/supervisors, students registered for the academic programme offering WIL, academic staff within the qualification offering the WIL programme, the support departments within the academic institutions (central Co-operative education department), government support departments and the academic institution.

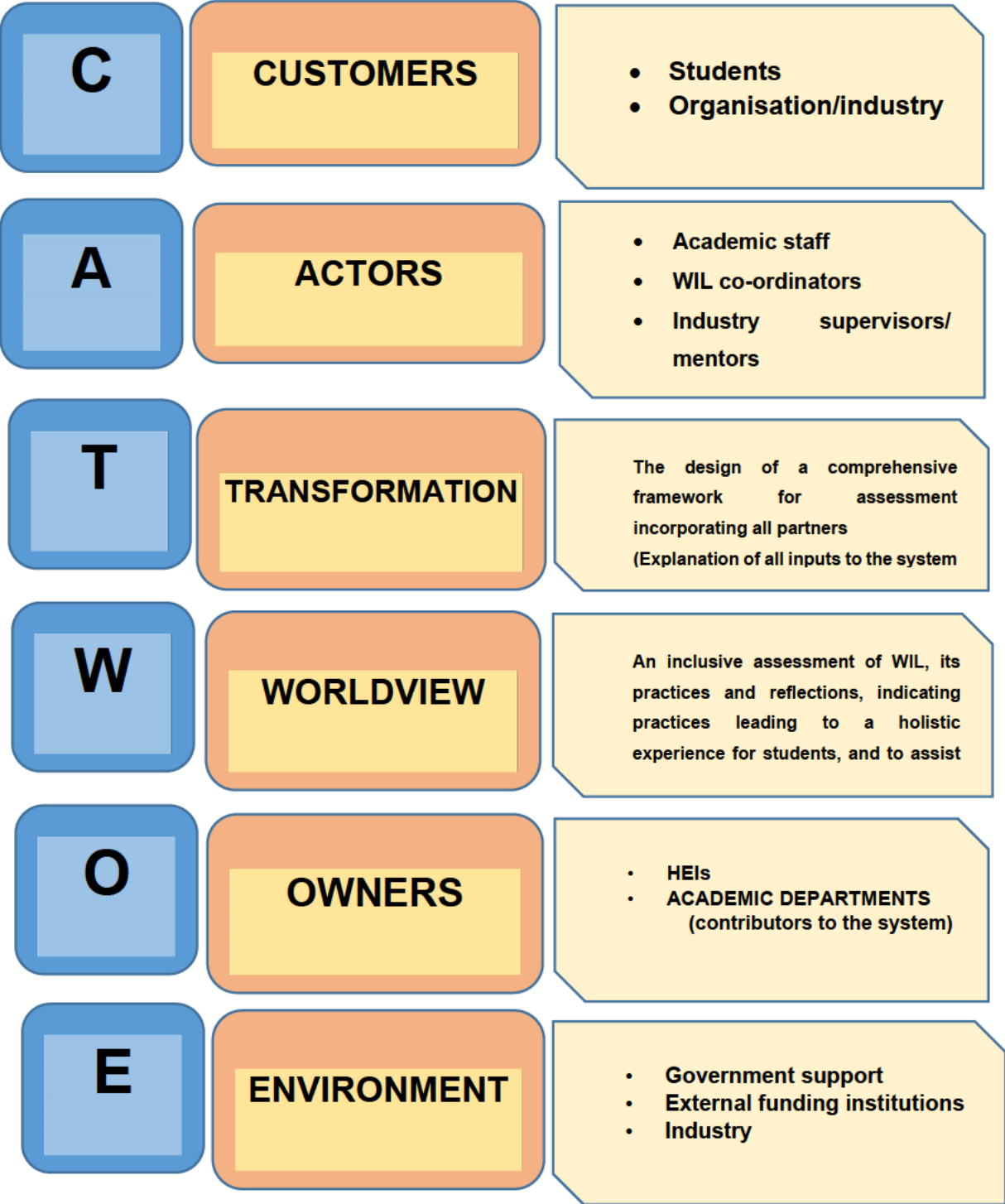
[T] *The Transformation: The purposeful activity expressed as a transformation of input to output.* In the case of this study the purposeful activity would be the input from the current system towards a better functioning and more integrated system which incorporates the varied integrated assessment activities/practice for the WIL programme

[W] *Weltanschauung: German word that literally means “world view”. It is the belief that makes sense of the root definition.* This would be the holistic integrative worldview of the system of assessment of WIL.

[O] *Owner: the wider system decision-maker who is concerned with the performance of the system.* For this study the owner would be the University offering the WIL programme.

[E] *Environmental Constraints: the key constraints outside the system boundary that are significant to the system.* For this study the key constraints would be the financial constraints affecting the successful implementation of the system together with limited manpower.

Figure 5.1: CATWOE - WIL



CATWOE provides a structured manner in analysing the information that was received from the interviews in understanding the perceptions of WIL academic co-ordinators and Industry supervisors/mentors. This information is presented below as an integrated approach to analysing the responses of the interviewees. An integrated approach provides for a more holistic understanding of the current situation of WIL and assessment of WIL and leads to a better-informed structure for future implementation.

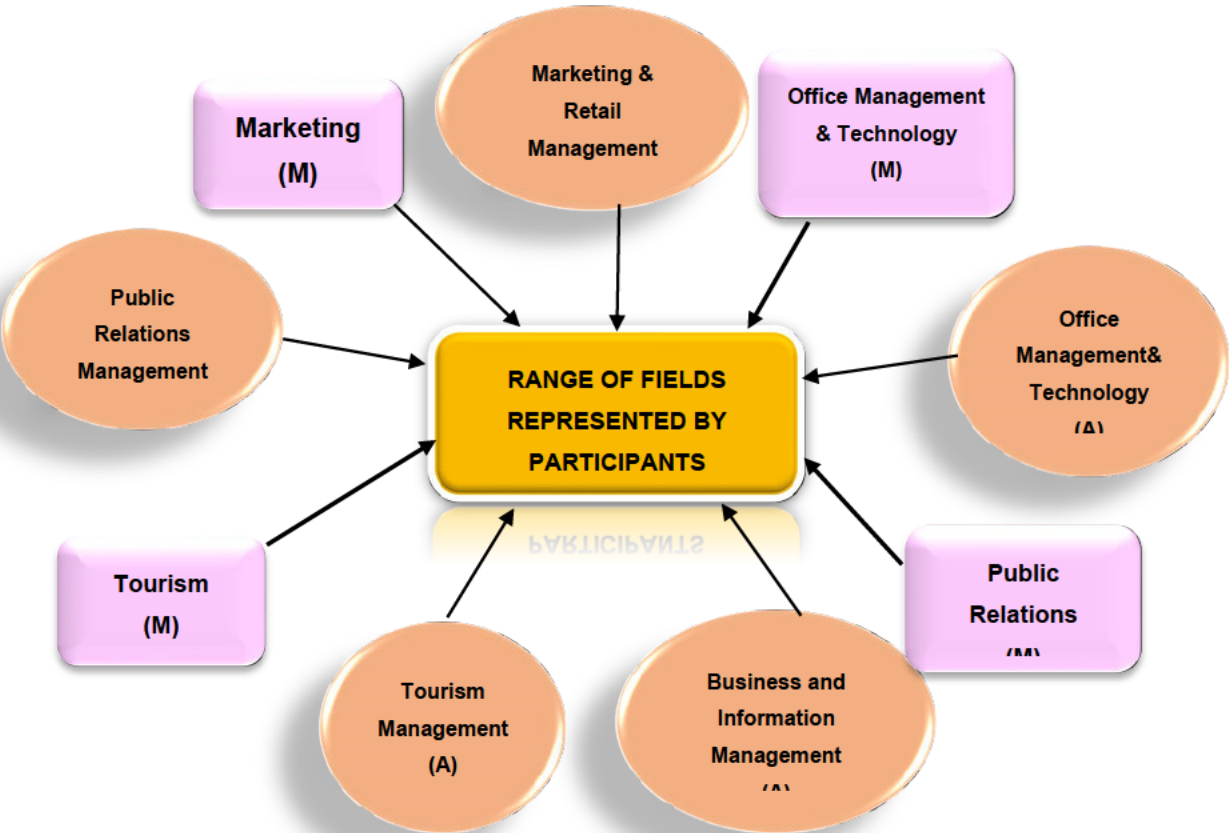
5.2.1 Customers and Actors

Customers and actors have been identified as the students, WIL co-ordinators, Industry mentors/supervisors, and organisations (which are represented by the industry supervisors). The sections that follow provides an analysis of the interview sessions (qualitative analysis) of the academic supervisors and industry mentors along with the open-ended responses from the students' questionnaire, while the student's analysis (quantitative analysis) is included in the chapter to follow (Chapter 6).

5.2.1.1 Fields of practice (Academic WIL co-ordinators and Industry mentors)

WIL has become a component in various qualifications other than the traditional areas of nursing, medicine and engineering. The nine academic WIL co-ordinators and six industry mentors/supervisors were asked questions relating to their fields of practice as indicated in figure 5.2. WIL Co-ordinator interviewees will be referred to as Interviewee A1 to A9 from here onwards, while the industry mentors/supervisors will be referred to as M1 to M6.

Figure 5.2: Interviewees’ fields of practice (Academic co-ordinator and industry mentor)



5.2.1.2 Years of service (experience)

Interviewees provided an indication of their years of experience as WIL co-ordinator within their respective fields as an academic (Table 5.1) and the Industry mentors indicated the number of years of employment at their organisation and the number of years of involvement as a WIL industry mentor (Table 5.2).

The teaching experience of WIL co-ordinators ranged from 8 years to 35 years, with the majority of the interviewees having more than 11 years’ experience. Their years of experience as WIL co-ordinators ranged from 3 years to 22 years with the majority of the interviewees having under 10 years of experience as a WIL co-ordinator.

Interviewee A6 had the longest experience working with WIL, therefore possessing vast experience in the management of WIL. Thus at the time of the interviews, these WIL co-ordinators were senior staff with many years of experience in the relevant academic fields of study, which suggests their appropriateness as providers of the information sought (Oswald-Egg and Renold, 2021: 1).

Table 5.1: Academic WIL co-ordinators years of service

Interviewees	No of years employed at UoT	No of years as WIL Co-ordinator
Interviewee A1	18 years	05
Interviewee A2	34	07
Interviewee A3	08	03
Interviewee A4	15	05
Interviewee A5	25	15
Interviewee A6	25	22
Interviewee A7	09	09
Interviewee A8	11	04
Interviewee A9	13	04

All nine interviewees indicated that they held the position of both lecturer and WIL Co-ordinator within their departments. Only one participant had a reduced workload as a result of the addition of the role of WIL Co-ordinator. This reflects a common practice within UoTs of identifying an existing academic as an appropriate WIL co-ordinator. WIL co-ordination is seen as an addition to ones normal workload (Kilgour *et.al.*, 2014:23) indicating the display of a certain degree of passion for the management of WIL, as additional responsibilities are added to an existing academic role, but also entailing limited time to devote to WIL. Interviewees indicated that the role of WIL co-ordinator is merely allocated as part of a normal workload and managed accordingly, suggesting a lack of training of WIL academic co-ordinators and the practice of on-the-job training (Nicholas, 2017: 15). This further brings focus to the challenge of the assessment structure being under-resourced.

Table 5.2: Industry mentor's years of service

	No of years of employment in present company	No of years as WIL industry mentor	Assessor of trainee
Interviewee M1	03	02	Yes
Interviewee M2	08	02	Yes
Interviewee M3	15	05	Yes
Interviewee M4	38	09	Yes
Interviewee M5	06	06	Yes
Interviewee M6	2.5	02	Yes

The table 5.2 indicates that 50% of these interviewees had a fairly short experience as WIL mentors, which also correlates with their more limited years of experience within their present organisations. However, three of the interviewees (M3, M4 and M5) possessed substantial experience as a mentor.

Four mentors indicated that they are both the mentor and supervisor for the trainees, while two indicated that they are just the supervisors to the trainees. Thus, most of the industry mentors take responsibility as supervisors and mentors to their students, while some students are exposed to the training environment with no mentors assigned to them. All interviewees are involved in the assessment activities for their trainees, indicating a degree of consensus on the role the industry mentor/supervisor plays in assessment.

This correlates with the students as 90% indicated that they did have a mentor at the workplace (industry mentor), while 10% did not have any mentor allocated. The students were asked to comment on the type of assistance they received from the mentor. These ranged from activities related to orientation to the organisation, job, and colleagues; activities to assist in explaining the tasks, including clarification of tasks; coaching and mentoring the students and providing guidance and feedback to them. Students' comments included:

“When the task is given to me and I do not understand it he explains it to me clearly”.

“Instructions and guidance on the tasks I was given, how to manoeuvre a specific computer programme and as well as my way around the workplace”

“She showed me the ropes with regards to all the work I had to do. She made it easier for me to practically practice all the theory learned at University”.

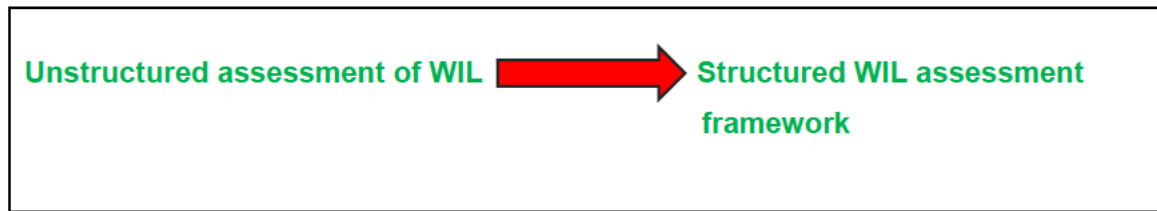
Students’ comments also indicated that the relationship with the mentor was very important in helping them to settle in and feel welcomed into the organisation: *“My mentor guided me throughout. If ever I came across a difficulty, they helped see me through it. She never turned me away if I had any queries. She was extremely approachable, and it was clear she did want me to overcome any obstacles. She was very pleasant”.*

Mentors tend to also address issues of soft skills as indicated by students who stated that their mentors also enlightened them on issues of *“How to be punctual at all times. Always ensuring the improvement of communication skills. How to work under pressure and being a natural”.* The statements from students reveal that the training and exposure by the mentors are not restricted to just the task or activity but that some mentors focus on developing the student holistically as indicated by the following: *“Willing to assist if you have any difficulties in understanding something, always encouraging me to do my best”.* *“He was able to teach me more on communication skills”.*

5.2.2 Transformation

The transformation process looks at identifying the inputs into the system that will allow for an analysis of current practices, leading to a transformation (figure 5.3) into the desired outcome of a structured process of assessment of WIL. The section above indicated the customers and actors relevant to the WIL process, providing an understanding of their involvement in WIL and assessment of WIL. This section looks at the various inputs into the system of assessment of WIL as identified by the interviewees.

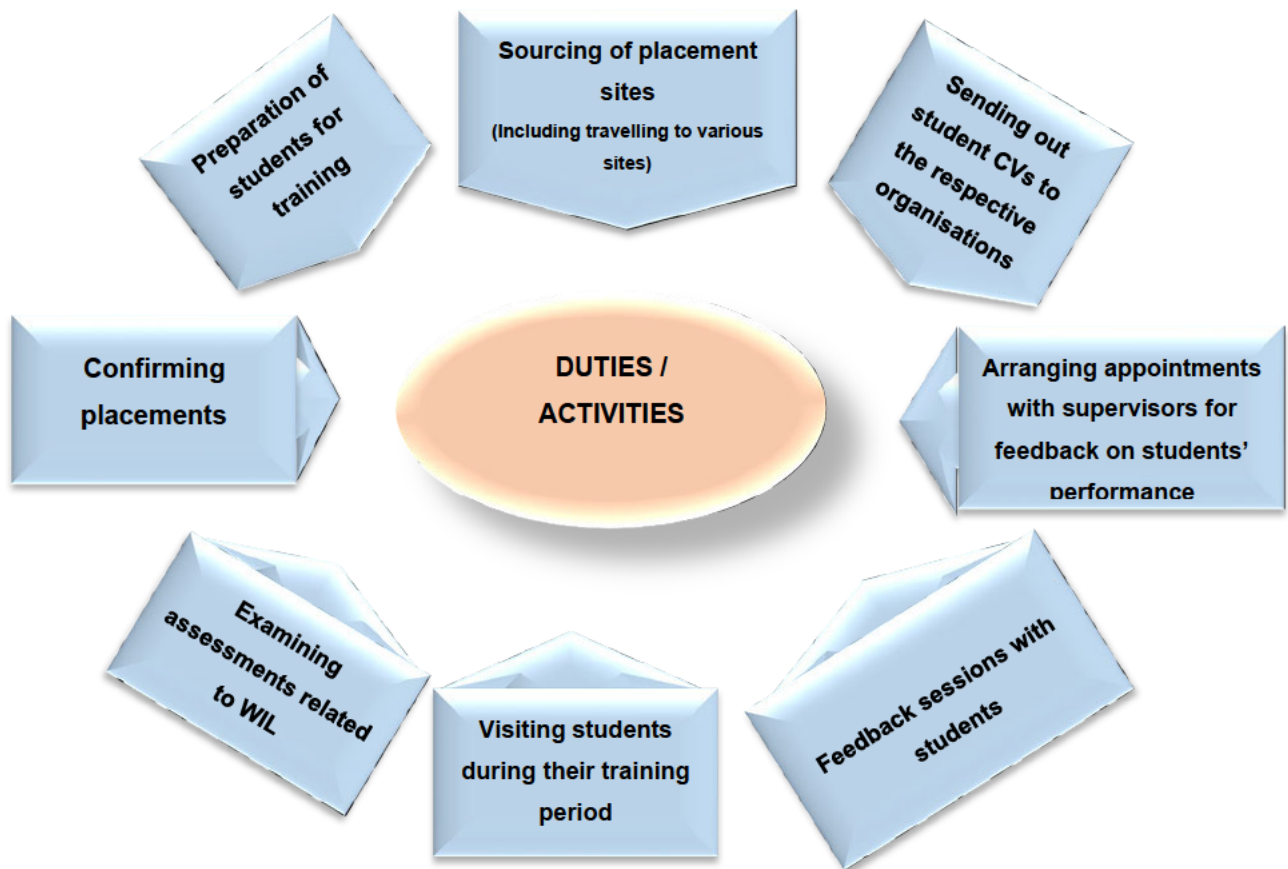
Figure 5.3: Desired transformation process



5.2.2.1 Processes adopted by Academic WIL Co-ordinators

All interviewees were asked to explain the steps or processes they follow for WIL within their departments. Eight of the nine interviewees indicated that they are responsible for the sourcing of placements, forwarding CVs, finalising placements, monitoring the training period, and completing all assessments for the module. Two of those eight interviewees also added that they encourage students to seek placement themselves, but only as a form of assistance to the WIL Co-ordinator and in developing their skills of seeking employment opportunities. One interviewee indicated that his department encourages students to source their own placements, which is restricted to only sourcing the placement, while approval of the work site is still the responsibility of the Academic WIL Co-ordinator. The responses indicate a level of divergence in the practice of the duties/tasks adopted by the departments, but also highlighted some common approaches to WIL co-ordination as depicted in figure 5.4 below.

Figure 5.4: Common duties/activities amongst WIL co-ordinators



These common tasks revolve around the duties necessary during the training period of the student (once the student is ready for the training placement). Notably, no indication was provided of any integration of WIL related activities throughout the qualification. Four interviewees indicated that work preparedness workshops are offered to students prior to the training period, but no clarity was given as to the extent of involvement of the WIL co-ordinator with these workshops. Two respondents indicated that the central Co-operative Education Department offered training to the students. The role/duties of the WIL co-ordinator does not suggest any involvement in the development of the WIL programme itself or integration of WIL into the qualification from the first year level, as a result, suggesting that the WIL co-ordinators role is active only when the student is ready for the training, that is during the students third year of study. This reveals a disjointed approach to WIL and assessment of WIL as the lack of integrated within the qualification is evident.

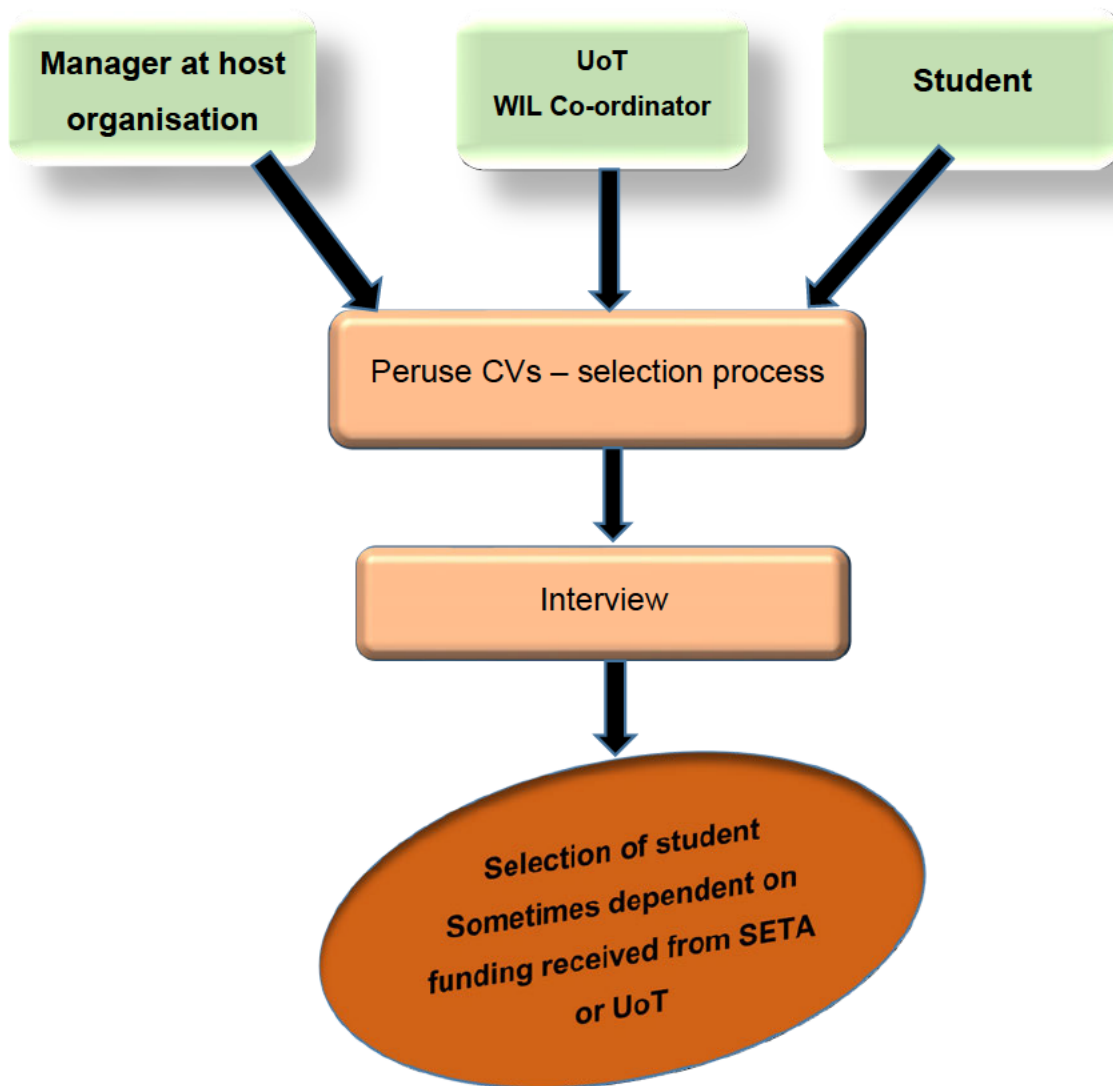
5.2.2.2 Processes followed by Industry mentors for acceptance of trainees

Host organisations vary from large organisations to small sole proprietorships. As a result, the process of recruitment of students also varies. However, all industry mentor interviewees (M1-M6) indicated that one individual is responsible for the recruitment of students for training in their respective organisations, which could range from the Human Resources Manager to the owner of the company. The WIL supervisor/mentor is not the person responsible for recruiting the student trainee. Four interviewees indicated that they are sent students from the university, as the UoT makes the request for trainees to be accepted by the industry organisation for training as and when they require this assistance. One interviewee indicated that the manager of his organisation contacts the UoT to make a request to have students appointed as trainees at their organisation, while another indicated that the students themselves approach the company requesting for placement opportunities. This indicates a degree of consultation required between the academic institution and the organisation to ensure a smooth process of placements of students as one of the duties of the academic WIL co-ordinator.

Once the institution provides students' CVs to the organisation for consideration of trainee placement, the responsible individual makes the selection by means of either just screening the CVs or by conducting an interview as well. This reveals that the process of acceptance and selection of trainees is not restricted to just one method but provides varied opportunities for trainees to seek placements. Students themselves also have an opportunity to approach organisations for placement opportunities, thus indicating an opportunity for students to be included in the WIL process from the start.

The Figure 5.5 below depicts the process followed for the selection and acceptance of students as trainees by host organisations.

Figure 5.5: Selection and acceptance process of trainees



Interviewee M6 indicated that they “generally have an informal assessment with the student/s and gage their abilities and experience prior to the start date”, indicating another form of selection being included. From the data it therefore emerged that the selection process differs amongst UoTs and host organisations, depending on the need of the host organisation. There is no general requirement or process that is followed for selection of trainees except the perusal of CVs.

5.2.2.3 Duration of UoTs WIL programmes

Interviewees were asked to indicate the duration of the WIL training period for their respective academic programme. The period of training ranged from two months to six months as indicated in Table 5.3 below, although the responses indicate three months as a preferred common practice. However, there is no consistency with the requirements of an acceptable time period for training. This is evidence of an imbalance in the exposure students receive, resulting in varied levels of work experience attained even though training is received.

Table 5.3: Duration of WIL Training

INTERVIEWEES	DURATION OF WIL
Participant 1	3 months
Participant 2	2 months (200 hours)
Participant 3	3 months (12 weeks)
Participant 4	3 months
Participant 5	6 months
Participant 6	2 months, 1 week (9 weeks)
Participant 7	5 months
Participant 8	6 months
Participant 9	3 months

5.2.2.4 Pre-requisites for training placements

The CHE, Good Practice Guide (2011: 3) states that WIL programmes should engage in promoting the successful integration of students into the WOW, allowing graduates to make meaningful contributions in the context of development needs, creative training, teaching, learning and assessment activities.

This suggests that a degree of student preparedness is needed prior to students being placed into the WOW and placing this responsibility in the hands of the UoT. It was then necessary to determine the level of preparedness of students for their training period. Notably, the training period also needs to be identified as preparedness for graduate employment.

Interviewees were asked if there were any requirements of students prior to embarking on WIL training. All nine interviewees indicated that students need to be registered as a third-year student to engage in WIL placement. One interviewee commented that the “*student must pass all first- and second-year major modules and be registered for third year modules only*”, to be considered for training (Interviewee A3). This reveals that the WIL training is undertaken by final year students that have completed most of the modules within the qualification, thus indicating the attainment of considerable theoretical knowledge in the relevant field prior to them entering the WOW. Hence, an indication of a degree of theoretical knowledge being seen as a pre-requisite for students embarking on the WIL programme, or possibly that this third-year placement practice is simply an unexamined norm. On the other hand, Tezcan, *et.al.* (2020: 523) suggest that scaffolding WIL within a core curriculum for a qualification, not only prepares students for the problem-solving skills they require for their profession, but also enables the delivery of a transformative educational experience.

Tezcan *et.al.*, 2020: 522 cites Stephen Billet (2011) who believes that having WIL experiences early in the undergraduate qualification, and sequencing the WIL experiences throughout the qualification, may provide students with the opportunity of identifying their preferred area of specialisation.

5.2.2.5 Work preparedness programmes

Five of the WIL Co-ordinator interviewees explained that students complete a work preparedness programme prior to the start of their training.

These programmes are sometimes offered within the Department, while some are offered by the Central Co-operative Education department, suggesting a degree of support and involvement by the central co-operative education department, even though at a minimal level. Four of the interviewees did not indicate any structured work preparedness programme, however, three of these noted that 'ad hoc' preparedness sessions were offered to students in the semester prior to them going on WIL placement.

One interviewee added that "*students are expected to apply for training as a measure to expose them to the interview process*" (Interviewee A2), while three other interviewees appreciated the value of this process even though their department did not follow this practice. Students are exposed to lessons as well as in preparation for the training period as confirmed by one interviewee who indicated that "*classes for WIL are conducted prior to training period, where guest lectures are invited as well as workshops on relevant issues pertaining to WIL, including individual debriefing sessions which allows for addressing of more sensitive issues that need to be explained to students*" (Interviewee A9).

All interviewees were in agreement that there was no guideline for the preparation of students prior to the start of the training period. Four revealed that there are varied ways of providing this support within the academic department, all of which implies that students often enter the training period with very little or no prior preparation.

5.2.2.6 Offering type of WIL

Knowledge of the offering type of WIL is necessary for one to understand the distinction between the practices of the various UoTs. It was evident from the interviews that WIL is offered in two different ways within programmes. Interviewees were asked about their offering type for the WIL programme (if it is a stand-alone module or embedded within another module in the programme) as indicated in Table 5.4 below.

Two of the interviewees indicated that WIL is embedded in modules within the qualification, while seven of the interviewees indicated that their WIL module is offered as a stand-alone module within the qualification. This signifies the level of importance allotted to WIL with its inclusion in the curriculum as a stand-alone credit bearing module (7).

It must be noted however that differences do exist in the management and guidelines to the practice of these WIL programmes which indicates an environment that allows for discrepancies to exist.

Table 5.4: Offering type of WIL

INTERVIEWEES	OFFERING TYPE (stand alone or embedded)
Participant 1	Embedded
Participant 2	Stand alone
Participant 3	Stand alone
Participant 4	Stand alone
Participant 5	Stand alone
Participant 6	Stand alone
Participant 7	Stand alone
Participant 8	Stand alone
Participant 9	Embedded

5.2.2.7 Disparities in assessment practices indicative of lack of a systematic approach

Interviewees were asked to comment on the practices undertaken relating to the assessment of WIL within their UoTs. A clear distinction needs to be made of the two approaches to the assessment of WIL that were evident from the interviews.

One looks at the assessments designed and administered by the academic WIL co-ordinator that are either projects, assignments or presentations which are linked to the module. These are either completed prior to the training period or during the training period, and assessed by the academic WIL co-ordinator. The other approach to the assessments is the on-the-job (practical training) assessments, which is completed by the industry mentor and the student, while the student is on training. Here the academic WIL co-ordinator merely oversees the completion of these assessments and is not responsible for the mark allocation of the student. The academic WIL co-ordinator is however, responsible for the final indication of successful completion of the training by the student.

All interviewees indicated that all assessments completed by the WIL students have a mark allocated. However, the method of indicating the final mark differs depending on whether the module is a stand alone module or an embedded one. As indicated in Table 5.4 above, 7 of the interviewees indicated that the WIL module is a stand alone module, which correlates with their responses that indicate that the WIL result is reflected as a Pass or Fail on the record of the student. These assessments include the logbook, appraisal forms and any other type of appraisal of the students' skills and abilities during the training period. These then are justified as the appraisal of students' performance in industry, which cannot be allotted a mark, but merely indicated as the students' ability to either achieve the competence or not. Arising from this finding, the 7 participants indicated that the final mark is merely indicated as a pass or fail on the academic record of the students. It must be noted that these stand-alone WIL modules also include other types of assessment activities such as assignments, projects, portfolios and other relevant activities, which are mark driven.

Of note is the fact that WIL is considered a module, whether embedded or stand alone. As a result, the selection of the method of assessment is important. All seven interviewees that indicated that they offer stand-alone modules for WIL, also indicated that they follow the continuous assessment method, while the other two with the embedded WIL programme adopt the examination method of assessment. Thus, all assessment activities included in the stand-alone modules contribute to the final mark indication for the student, which is indicated by a pass or fail on the academic record.

The factors that contribute to the Pass or Fail include, but are not limited to, the successful completion of the training period, skill and competency assessment by the industry supervisor, and relevant assessment activities such as presentations, projects, and other related activities set by the university.

The two interviewees who indicated that WIL is embedded within another module in the qualification, stated that all assessments (summative or formative) contribute to the attainment of a final mark for the student. This includes the assessments such as projects, assignments and presentations that are linked to the training experience gained by the students exposed to the WOW. These two interviewees also indicated that, due to the assessments being examined by the UoT WIL Co-ordinators, these assessments are allocated a mark, thus complying with a degree of consistency within assessments. None of the WIL assessments, like the logbook, that are linked to appraisal of competence are given a mark allocation, thus also corroborating the position outlined by the other 7 interviewees on the assessment of the logbook.

All interviewees indicated that they had no guiding policy for the management of WIL within their institutions. They did indicate that they made reference to the CHE WIL Good Practice Guide for general guidance but that this was vague and left too much of decisions in the hands of the academic WIL co-ordinators. All participants did also indicate that they follow the general Institutional Teaching and Learning policy for assessment, conforming to their institutions' assessment guidelines. This allows for departments to decide on the specific approaches to adopt for their own programmes. All interviewees indicated that they had to decide on the types of assessment to include and the number of these assessments.

Interviewees' responses revealed an indication of an unwritten consensus that the assessment of WIL does not follow the rigorous requirements required of other module assessments within the UoT. This could be attributed to the inherent nature of the expectations of the assessment (requiring third-party involvement). This reveals the existence of inconsistencies in assessment practices among the various UoTs and within various departments, as no criteria or framework is offered for assessment of WIL.

The degree, nature and level of assessment is not regulated by any formal guideline or policy that provides guidance to WIL co-ordinators needing to decide on what assessments to include, nor on the range of assessments necessary for a successful WIL experience, except for the CHE WIL Good Practice Guide. This guide provides the different modalities for WIL but is not very specific on the practical implementation of the WIL programme.

Even though there was consensus amongst WIL Co-ordinators as to the lack of formal guidelines or policy for assessment of WIL, there was clear agreement on the importance of assessment in WIL. This was also confirmed by students as 93% agreed that assessment is important while only 7% of the students did not think that assessment of WIL is important. Students indicated below:

“Because I now understand what’s going on in a work place and it allows for evaluation of a student’s performance.”

“Because it shows you by completion of the assessment there are certain things or activities you should have achieved and there is a certain percentage of performance that you should get”.

“Gives the lecturer feedback on what you were doing at the training and helps analyse your findings about the place”.

“In order to find out where one must improve”.

Assessment activities in WIL seems to provide some guidance to students as to what needs to be achieved in WIL as indicated by *“It provides a list of the work that should be completed through WIL”* and *“Manual was given out that explains the importance of WIL and the assessments that led to the understanding of a workplace was handed out to students”.*

Students also felt that it was important because the feedback proved effective in understanding the task and successful completion of it as indicated by *“It gives a feedback and reflection of what I have done. It ensures that I was doing the tasks I was expected to do”*.

Students also saw WIL as an assessment in itself as indicated by *“WIL was an assessment itself, under a module work preparedness. The grades in that module serve as a clear criterion of successful completion of competency assessment”*. This indicates agreement that WIL academic supervisors, industry mentors and most importantly, students, see assessment as an important activity in WIL that provides multi-level benefits to all partners of WIL.

5.2.2.8 Moderation of WIL assessments

Interviewees were asked to comment on the moderation of the WIL modules. The two interviewees who had embedded (included within another module) WIL modules, indicated that they follow external moderation as per the requirements of HE (Table 5.5). Three of the 7 stand-alone modules are moderated while the other 4 are not moderated. This suggests that all the assessment activities completed by the trainee, along with the logbook, is exposed to moderation to ensure a degree of consistency in the assessments completed and to ensure a degree of quality control related to the assessment activities undertaken.

Table 5.5: Moderation of WIL

	Embed / stand alone	Moderation	
		Yes	No
Participant 1	Embedded	X	
Participant 2	Stand alone		X
Participant 3	Stand alone		X
Participant 4	Stand alone	X	
Participant 5	Stand alone		X
Participant 6	Stand alone		X
Participant 7	Stand alone	X	
Participant 8	Stand alone	X	
Participant 9	Embedded	X	

All three of the stand alone modules that are moderated follow the institution's policy for any exit level module, which requires the appointment of an external moderator. Interviewee A7 also indicated that the "*external moderation was also the recommendation made by the Advisory Board Committee*". This reveals once again the assessment practices of WIL are notably not standardised and therefore allow for discrepancies to permeate throughout the process.

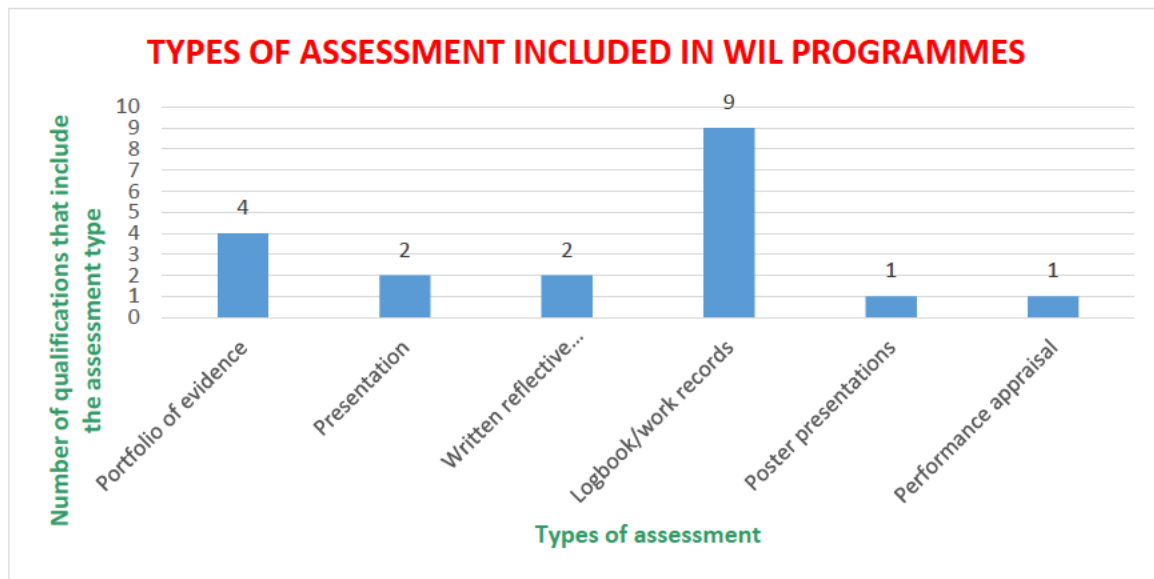
5.2.2.9 Commonality of assessment activities adopted by Academic WIL Co-ordinators

Interviewees were asked to indicate the various types of assessments they include in their WIL programme which is depicted in Figure 5.6 below. Eight interviewees indicated that they refer to the assessment manual as a logbook while interviewee A9 indicated that his department refers to it as "work records". Interviewee A5 explains the logbook "*as an evaluation document regarding the student's performance in industry*".

All Interviewees' responses indicated that they include a range of assessments including presentations, reflective writing tasks, portfolio of evidence (PoE), poster presentations and performance appraisals. The figure below indicates the number of interviewees that include these types of assessments within their WIL programme.

The interviewees responses, as reflected in figure 5.6, indicate the Portfolio of Evidence as the second most frequently adopted type of assessment after the logbook. The poster presentation and the performance appraisal were the least adopted type of assessment. This suggests that the logbook is still the most used form of assessment for training. Kennedy, *et.al.* (2015: 156) state that decision making relating to learning spaces, and the related activities, are mostly aligned and there seems to be a common understanding between academics, industry mentors and students. Therefore activities that engage the learner, while addressing the outcomes of the assessment, are needed as they provide for opportunities moving away from the traditional approaches to the more creative and innovative ways of assessing.

Figure 5.6: Commonality of assessments in WIL



The interviewees (M1-M6) were asked to indicate the various assessment activities that are included for the evaluation of the trainees. All interviewees indicated that they have a logbook that is provided by the UoT that the industry mentor has to complete. This logbook includes various ratings of the students' abilities while on training. Mentors also indicated various other forms of assessment that the trainees are involved in.

“Students are requested to complete various assessments for the modules they are registered for and assistance is given to students for these purposes.” (Interviewee M1). These assessments are given to students by the WIL co-ordinators or academics from the UoTs, which are additional to those required for the WIL module.

“... the company mentors also assess students based on the various aspects within the tasks given to them and the projects completed while at training.” (Interviewee M2).

“Assessments are done at the end of their term and these forms are provided to me by the University.” (Interviewee M5)

As noted above, students are placed at various organisations of differing structures and sizes. Some organisations are sole proprietors while others are partnerships or companies. This results in some students training in various departments within an organisation, while some may train within one sector only. Hence, the interviewees were requested to indicate as to whom is responsible for the assessing of the trainee. One interviewee indicated that the mentor is responsible for the assessing, however if a student trains with someone else, then that individual assesses that section for the student. Another interviewee indicated that *“each section reports on the students’ performance and manager/mentor does the overall assessing of students.”* (Interviewee M4)

This indicates that the student is assessed by one or many mentors/supervisors, thus indicating a more layered approach to assessing of the one student. This then leads to some situations where many assessors assess students for one assessment. This demonstrates the potential skills of industry mentors as assessors in providing reliable and authentic assessing.

Importantly, industry mentors evidently focus mainly on the WIL logbook as a form of assessment for the students. Even though other types of assessment activities do exist, these are minimal in nature and not very common. However, of interest is the fact that industry mentors also conduct performance appraisal type reviews for the students’ abilities based on the type of activity they are exposed to in the company as a form of assessment for the company and not necessary for academic purposes. This will relate to situations of how employees are reviewed by means of performance appraisal reviews. Online assessments were also considered.

5.2.2.10 Challenges and opportunities for implementing online assessment practices for WIL

Online assessment would require the use of online tools to design teaching, learning and assessment activities for students (Husain, 2021: 34).

Interviewees (A1-A9 and M1-M6) were asked if online assessment is included in WIL within the Diploma. Only one Academic WIL Co-ordinator indicated that they have a component of online assessment included in their WIL programme, which was prior to Covid-19. The other 8 Academic WIL Co-ordinators did not have online assessment. All Industry mentors (M1-M6) interviewed, also indicated that they are not currently involved in any online assessment as they mainly assess the student using the logbook.

While Academic WIL Co-ordinators indicated that they did not currently include an online approach to assessment of WIL, they did show interest in including it in future practices. Interviewee A5 indicated that they have “*plans for the new programme to include this*”. Interviewee A9 also added they have included a “*slight change now with online submission of Portfolio of Evidence (PoE) and formative class tests.*”

Interviewees’ comments indicate that online assessment is definitely considered a possibility, however, it has not been generally included in the assessment of WIL as yet. However, there was a subtle indication from the interviewee’s responses that a degree of misunderstanding exists whereby online assessment seems to be mostly related to the method of submission as compared to the online activities for assessment. There needs to be clarity provided as to the role of online assessment so that a common understanding may be attained by all regarding the potential role of this assessment in WIL practices, thereby adding to the adoption of innovative Teaching & Learning practices. “Online projects or placements involve students and industry working online and potentially geographically-dispersed. Students communicate via a variety of digital platforms and technologies which may not include any face-to-face interaction” (Kay, *et.al.*, 2019: 405).

Interviewees were also asked if they considered online assessment to have any benefit to the department or institution. All interviewees agreed that online assessment is important and is needed to improve engagement amongst students, institutions and industry, “making it an easier and more efficient system” (A2) however certain reservations were expressed as well.

Interviewee A5 expressed concerns relating to the accessibility to the online system. *“Students and industry partners might not be too willing to adopt this method unless access to data and equipment is available. It would be much easier and better method to follow if we overcome these challenges”* (A5). Interviewee A6 also added that *“need a paradigm shift in students regarding access and willingness to complete online assessment. Also creates room for fraud”*.

Interviewee M3 clearly disagreed with the idea of online assessment as he indicated that his company *“is a small organisation and prefer to work with manual logbooks and face to face with students as it is more immediate and comprehensive”*.

Consideration needs to be given to the fact that even though the option of online assessment is seen as a good idea and welcomed by most industry mentors, the type of organisation and their practices need to be considered when implementing such a requirement. While academic WIL co-ordinators also acknowledge the importance of including online activity for WIL assessment, there exist various challenges in implementing this within WIL. Caution needs to be placed on the fact that the adoption of the online approach must not become a deterrent for WIL placements as the partnership between consenting organisations is essential for the successful placement of students into the WOW.

5.2.2.11 Academic WIL Co-ordinators’ and Industry mentors’ perspective on Assessor skills

Academic WIL Co-ordinators were asked to comment on their perceptions of the assessor skills demonstrated by the industry mentors, while industry mentors were required to comment on their own skills as assessors. It was interesting to see the correlations and differences in the views and opinions of these two sets of interviewees.

Industry mentors (M1-M6) were asked if they felt confident that they possessed the relevant training and experience to assess the students' abilities. All six interviewees indicated that they had the necessary industry experience to assess a trainee, which they related to the years of experience they had gained in industry within their relevant positions.

Interviewee M3 strongly indicated that he has the necessary experience to assess students as *“Academic aspects are assessed by the UoT. We only assessing students on their work performance, which is activities done on a daily basis in the organisation. This prepares them for the real world”*. This reveals that industry mentors considered their training of the students was only relevant to the experience trainees gained during their training period, of which the industry mentors had relevant experience. Interviewee M4 also added that he *“has been mentoring students for a long time and knows the industry requirements well”*.

However, all interviewees did indicate an interest in engaging in assessor training opportunities to further enhance their abilities and skills in assessing the students. This means that even though industry mentors are capable of assessing their trainees, they would welcome opportunities for further training. *“I would appreciate formal training regarding assessing to help with understanding expectations of institutions and help students in achieving these requirements, as our experience lies within the industry realm”* (Interviewee M1).

Interviewee M2 stated *“Yes and No. Yes because I always work with volunteers and have learnt to assess their abilities over time. No, because since only working with trainees for two years, more experience may be necessary. Also, some training in assessing is welcomed”*.

“Yes, but always room for improvement.” (Interviewee M5)

“Pertaining to office management tasks, I feel that I am in a good position to do so, however I am always willing to learn and adapt to better meet my objectives.” (Interviewee M6).

It is evident that even though industry mentors believe they possess the necessary skills and experience in assessing the trainee, they do also highlight a need for exposure to further training with regards to the assessing of trainees. This brings to light possible engagement opportunities existing between UoTs and industry, thereby suggesting a more holistic view to assessing that would lead to a more integrated approach to assessment of WIL.

WIL co-ordinators (A1-A9) were also asked to comment on the involvement of industry mentors in the assessment activities of students on training. All interviewees concurred with the important role the industry mentor plays in the assessment of students with the use of the Logbook/work record primarily. WIL co-ordinators indicated that students enter their activities/tasks every day into their logbook and the industry mentor/supervisor signs this to acknowledge the tasks completed or engaged in. Interviewee A5 also added that mentors *“also complete a questionnaire regarding the student’s overall performance that is sent to the WIL Co-ordinator”*. This interviewee also added that *“some supervisors (mentors) are very involved in the training process but not all are the same.”* Interviewees did indicate some degree of additional commitment as they engage in more time-consuming tasks related to assessments whereby these industry mentors also provide monthly reports on students’ progress and performance.

Interviewee A9 added that *“Managers act as mentors, who are responsible for signing off work records, performance appraisal forms and contribute to certain evidence within the portfolio of evidence for each student. Employers (Mentors) provide vital feedback to all students during the training and within the required documentation. Industry supervisors’ (mentors’) role in assessment is huge.”*

However, interviewees did also indicate a level of concern as *“discrepancies exist with supervisors assessing the logbooks of students. Therefore it is required that the percentage contribution of the logbook assessment to the final mark for the student for modules that include a final mark, needs to be reviewed and reduced. Supervisors vary in their assessment abilities with students”* (Interviewee A1).

This suggests that WIL modules that are mark dependent, need to re-evaluate the weighting of the industry assessor activities that contribute to the final mark for the student. This could mean re-evaluating the assessment of WIL in general.

Interviewee A5 added *“since various industry supervisors are involved, it is an issue of personalities. Different personalities, results in variations in ratings of students. Good to have guidelines to follow for assessment.”* Interviewee A7 also indicated that she experienced *“some issues with supervisors not understanding the process completely, while some supervisors are too strict, therefore information sessions with supervisors are required.”* Interviewee A9 indicated that *“it is always a challenge to get commitment from some supervisors.”*

The involvement of industry assessors in the assessment of WIL is widely accepted as key to achievement of outcomes, as industry assessors are understanding of the practical expectations of industry and the effectiveness of the related activity. A lack of the existence of any guideline or framework for WIL assessment results in assessors being placed in a situation where decisions are made that are subjective with regard to their experiences only, and for biases to creep in, even if not intentionally. This once again highlights the challenges associated with assessment as the situation of varied mentors give rise to multiple layered challenges associated with evaluation of WIL. These activities become the strands of the unstructured system of assessment, thereby suggesting the parts of a ‘messy’ situation that requires transformation to a more structured system of assessment.

Notably, industry mentors/supervisors are content with their role as an assessor and strongly believe that they are sufficiently experienced to assess the students, but also welcome any additional training opportunities. However, the WIL co-ordinators, even though they acknowledge the important role the industry mentor plays, do also raise concerns of inconsistencies, irregularities, low levels of interest and commitment from some mentors, and lack of experience with academic level assessing. These are valid concerns that need to be addressed to ensure a coherent system of assessment of WIL.

An analysis of the inputs into the WIL system reflects a situation of a misaligned practice of WIL and assessment of WIL as the lack of clear guidelines creates a situation of disarray and confusion, leaving important decisions in the hands of individuals lacking structure and systemic flow. Added to this is the fact that WIL co-ordinators and industry mentors have heavy workloads with no additional time for them to upskill themselves in areas needing improvement.

The section to follow looks at the worldview of the system of WIL analysing the perceptions of the various partners with regards to the mental models of assessment of WIL.

5.2.3 Worldview

5.2.3.1 Pre-Professional Identity development for students (PPI)

Opportunities for students to develop self-efficacy, explore self-identity and build emotional intelligence are essential in establishing PPIs (Ferns, Dawson and Howitt, 2019: 106). Students need to develop PPIs during their years at the UoT and most importantly while on training. As part of students' developmental process, it was necessary to determine the WIL Co-ordinators' understanding and perception of students' involvement in the assessment of their own WIL practices, as this is one aspect of PPIs that the study focussed on. The assessment of WIL is the most significant aspect of this study as the aim is the development of an integrated (systems thinking) approach to assessment of WIL. As a result, the sections to follow make reference to critical issues relevant for the assessment of WIL as experienced by the WIL co-ordinators. For this reason, WIL Co-ordinators were asked to share their views on students' involvement in assessment of WIL.

Students need to develop their PPIs during their years at the UoT and also within the training period in the WOW. Involving students as assessors in their own training experience provides opportunities for student's development. Understanding what industry mentors think about this involvement of students in assessment is essential in knowing whether the support for this exists.

Self-assessment - Interviewees (A1-A9) were asked to comment on whether their WIL programme includes any peer assessment activity for the students on training. Eight interviewees indicated that this type of assessment is not included presently within the assessment for WIL. Only one interviewee indicated that their students are involved in some sort of self-assessment. *“They complete a student feedback form which looks at their performance during training period. The work records (logbook) also include some aspects of self-evaluation by the students. Self-assessment is included in a small scale presently”* (Interviewee A9).

Interviewees were also asked to comment on whether they consider self-assessment as an important inclusion in the assessment activities of students on WIL training. All interviewees indicated a positive response to inclusion of self-assessment as they considered it important as it allows for reflective review. Interviewee A2 added that *“it is important as this presents the opportunity to gain more experience in being able to identify learning opportunities. Makes them more employable.”*

Other interviewees indicated that *“Self-assessment is very important. Students need to learn how to critically analyse their performance so that they can learn from their own experiences”* (Interviewee A5), *“it is a way to grow and contribute while identifying areas that need improvement”* (Interviewee A7). *“Students must know their strong and weak points and where to better themselves to be able to be ready for the workplace. It’s good that they are involved.”* (Interviewee A8).

Even though interviewee A6 confirmed the good practice of involvement of peer assessment, he did indicate that this was not practiced at his company presently. This involvement in self-assessment reflects the opportunity to engage students as critical learners, as their experiences lead to heightened self-awareness and deeper understanding of practice (Trede, Macklin and Bridges, 2012: 377). Although all interviewees agreed and confirmed the importance of including peer assessment in practice, only one interviewee indicated that it is a formal aspect of their assessment of WIL.

WIL industry mentors/supervisors were also asked to reflect on their views on having students involved in the assessment of their training. There was consensus from all interviewees (M1-M6) indicating the importance of including students in the assessment of their own training (self-assessment) as *people learn through assessing their own performances, which will make them better at understanding and identifying their mistakes or failures. It will help them develop skills of identifying solutions to problems instead of needing to be told what to do* (Interviewee M2). Interviewee M3 added *“quality of students has improved drastically so students would be capable of assessing their own abilities. Increases their self-awareness and ability to come up with alternatives to problems”*. Interviewee M5 supported this by stating that *“it is important to see how they view themselves and their performance and based on that they should be given feedback.”* (Interviewee M5)

Various positive aspects were highlighted by interviewees. However one participant did indicate some concerns even while he was positive about the inclusion of students in the process, as he indicated that *“students are still students and therefore their expectations of the working environment would be very different to that of the academic expectations”* (Interviewee M1).

This brings to light the issue of students’ expectations of the world of work as compared to the real situation and also students’ experience with understanding the real world. These are issues that require careful consideration in the planning phases of the WIL programme, together with the preparedness of the students for the training resulting in an integrated approach to WIL and assessment. Also of importance is the consensus between the academic WIL co-ordinators and the industry mentor/supervisor on the inclusion of students in the assessment of their own WIL experience.

Peer assessment - Interviewees (A1-A9) were asked if they see peer assessment as important in the assessment of WIL. Interviewees unanimously agreed that it is important. However only two interviewees indicated that peer assessment is already included as part of the assessment for their WIL practice and one of these indicated that the peer assessment is more formative than a summative assessment for their students.

Interviewee A7 indicated that it is *“important to evaluate others, as it helps one reflect on one’s own performance”*. There was therefore consensus among the interviewees that peer assessment has benefits to the WIL programme, but concerns exist concerning its practical implementation, as reflected by two interviewees below.

Two interviewees indicated that it is good for students to be exposed to peer assessment, however, they were unsure as to how to incorporate this into training as mostly students are placed alone in training positions and do not have another student with them. If the situation includes another student from another institution is available, then it would work. *“It becomes a challenge to assess other students from different organisations as circumstances are different for each student. But if used as a central method of assessment may be good idea for WIL students”* (Interviewee A9).

Although the interviewees’ statements reveal a consensus on the value of peer assessment, a degree of hesitation was prevalent relating to the implementation of this in the WOW, thus suggesting the need for careful thought and planning if any level of inclusion of peer assessment is expected in the assessment practices for WIL.

Industry interviewees (M1-M6) were also asked to provide their views on the inclusion of peer assessment in the assessment activities of WIL. Only Interviewee M3 had a positive view of peer assessment indicating that *“the students can talk to each other and also be able to understand the situations as they are also going through the same process. They able to share experiences and good practice as well”*.

Three interviewees strongly disagreed and did not see peer assessment as a good option, while interviewee M2 stated *“yes it helps as when working closely with others you learn from each other. Also, since peers are on same level as the individual, they will be able to share more easily and understand each other better. But also, negative aspect as some might not get along with each other and therefore not assess fairly”*. Interviewee M4 expressed concerns as he indicated that he *“sees challenges with that as students need maturity in being able to peer assess. Need to understand the importance of fair assessment. Students need to be capable of assessing – distinguish between being good to friends and punishing students they don’t like”*.

Some of the negative aspects therefore related to the maturity of students in being able to assess others fairly as well as students inability to divorce their personal relationships from the role of assessing. This suggests that student exposure to practices of peer assessment needs to occur early in the curriculum so that experience can be gained prior to exposure at the WIL training period.

It is interesting to note that both the academic WIL co-ordinators and the industry mentors appreciate the importance of peer assessment but share some of the same concerns with regards to the practicality of the implementation and attainment of the overall outcomes of this type of assessing. The majority of students, on the other hand, were convinced of the benefits of peer assessment as 66% indicated that peer assessment was an interesting way of assessing WIL, although 34% did not think so.

Some students identified with the benefits of peer assessing indicating that *“it allows for integration of various ideas from different people”* and *“you get to learn more from others, different from your own ideas and mostly important; the ability to work with people”*. They also indicated that *“having your work read by others gives them an opportunity to correct your mistakes and that improves the quality of your assessment”*. *“It was a challenge to my creative thinking”*.

However, some did not appreciate peer assessment as they *“did not enjoy the peer assessment because as the student we did not pay much attention on the details of someone’s portfolio. We just rated them for the sake of rating and submit”*. Students also felt that it was *“Time consuming and stressful and create loopholes for lies”*. This suggests that ratings could be just completed recklessly and does not reflect the true assessment of the student, but despite these negative comments the majority of the students did appreciate peer assessment and understood the benefits of involvement in this type of assessment.

5.2.3.2 Perceptions on Feedback and Reflective practice in assessment

Academic WIL co-ordinators (A1-A9) and Industry mentors (M1-M6) were asked to indicate their perceptions on feedback in WIL. All interviewees agreed that feedback is essential as it allows for students to know when they are not performing well and provides an opportunity for them to improve. Feedback allows for students to stop, think about their activities and performance, identify problem areas, and consider changes. This corresponds with the findings of Winstone and Carless (2019) as they indicate that feedback cannot merely be seen as information that is provided by an academic or peer, but for it to be effective, it needs to be included as a process of engaging students proactively in making sense, seeking and using the comments received on their performance to further inform their learning. This then helps to identify the gap between the actual performances of students in contrast to what is expected or considered as ideal performance. Interviewees confirmed that both partners of WIL (WIL Co-ordinators and the industry mentors) provide feedback to the students as it allows the student to further reflect on their experience and improve on their weaknesses.

Interviewees added that *“it helps to improve the student’s performance and also the WIL practice within the Department” (interviewee A4)*, while *“feedback allows for students to realise the impact of their performances and what are the ways of improving their performance” (interviewee A5)*. Industry mentors also concurred by indicating that *“for students to learn from the training process, one cannot just be given a mark. There needs to be a discussion on a one-on-one basis with the trainees for feedback to be effective” (M2)*

Interviewee A7 added that it allows for one to *“see what mentors say about the student’s performance. It provides feedback for academic purposes as well. Short interview is conducted with students to determine their experience gained. Also, advisory board input is received.*

Questionnaires are emailed to supervisors for recommendation on academic issues as well” and it “helps with future planning as it provides opportunity to improve what’s being done presently and identify good practice as well” (Interviewee A2).

Industry mentors appreciated the fact that feedback could be given to students immediately, face to face, or via WhatsApp group discussions if necessary, allowing for immediate changes in behaviour to be instituted. Interviewee M6 added that *“it facilitates critical reflection and achievement of goals and objectives.”*

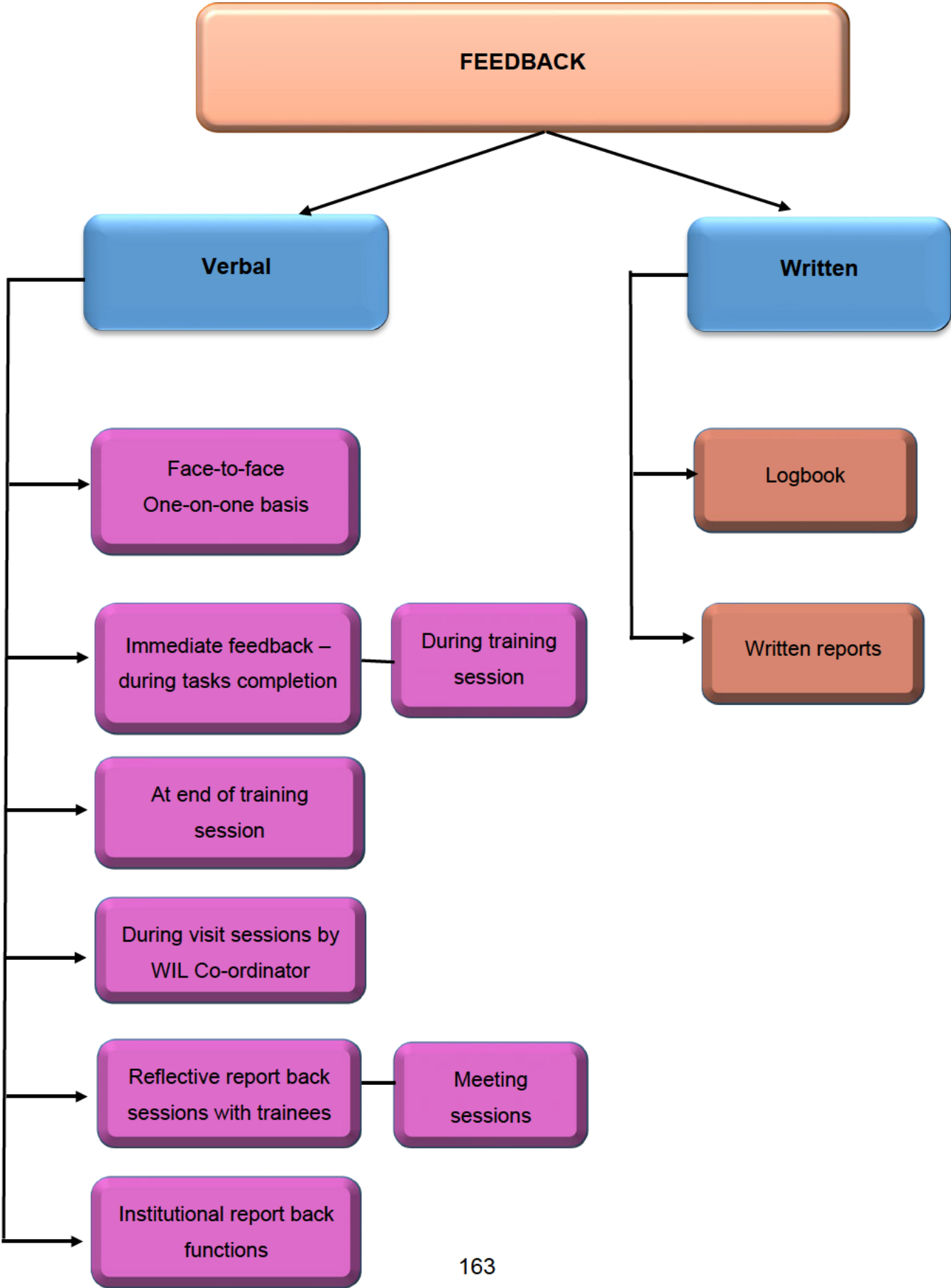
Interviewees have clearly expressed their understanding of feedback and the importance of it in the process of WIL as Interviewee A9 also added that they *“include a performance appraisal as well from the industry mentor for the student (trainee) as part of the assessment feedback”.*

Importantly, both the academic WIL co-ordinator and the industry mentors understood the importance of feedback and the role it plays in improving performance, with industry mentors more specifically interested in the immediate feedback that is provided to students that allows them to identify their mistakes and make immediate changes to their performance.

5.2.3.3 Range of Feedback Activities relevant to WIL

Feedback is provided in many ways to trainees and in different combinations. Industry mentors (M1-M6) were asked to indicate the different ways that they provide feedback to the trainees. It is evident that while the logbook is the most common form of assessment method for the trainees and is one that also contains information about the means of feedback to the trainees, verbal feedback is more favoured as it is immediate. The diagram 5.7 below depicts the various types of feedback that the interviewees (M1-M6) incorporate in the training process.

Figure 5.7: Types of Feedback included in the WIL programme



5.2.3.4 A need for a Community of Practice within WIL

A community of practice (CoP) involves “Groups of people who share a concern or a passion for something they do” and therefore form a CoP in order to “learn how to do it better as they interact regularly” (Nicholas, 2017: 27 citing Wegner, 1999). A CoP among WIL co-ordinators would provide opportunities for an improved integrated approach to assessment of WIL. This would allow for an opportunity for WIL Co-ordinators to learn from each other as they share their experiences, challenges and good practices. This is something that is not practiced presently amongst the UoTs or within each UoT. Although there was no question included in the interview schedule related to CoPs, it was picked up during the interviews as an idea that needed comments from the interviewees as statements around collaboration and mutual understanding within a community of engagement arose. A holistic WIL experience would require a community of engagement among WIL practitioners within UoTs. This aspect was informally discussed during the interviews as it was necessary to gather information from the various interviewees to determine the level of reflections and good practices that took place among the various interviewees to highlight and justify the need for the establishment of a CoP amongst WIL Co-ordinators.

5.2.3.4.1 WIL co-ordinators individual reflections on their practice

Interviewees (A1-A9) were also asked to comment on any good practice they identified during their years of experience with WIL and for any other general comments on WIL and assessment of WIL. None of the interviewees were aware of any institutional guidelines or resources available for assistance in the development of the WIL programme focussing on designing, delivering and assessing of WIL. Interviewees displayed interest in having such a guideline that would provide them with a focused system while also providing an opportunity for adaptation specific to their fields. A CoP amongst WIL co-ordinators would provide an opportunity for development of this guideline and sharing of common interests, challenges and practices. This idea was welcomed by all interviewees.

There was strong consensus on the reflective practice undertaken by the interviewees as a sense of good practice amongst the WIL co-ordinators. Five interviewees indicated that they have interview sessions with the WIL students during and after their training. All who mentioned these felt that this was important as this “*provides important reflection sessions and important information to the WIL coordinator and the Department (interviewee 5)*”. It must be noted however that a single co-ordinator, was in most instances, supervising up to 100 or more students while holding down a normal lecturing load. The interviewees did indicate that the reflective presentations were conducted on a “one-to-one” basis with students (Interviewee A3), which is indicative of the additional workload implications.

Interviewees indicated their appreciation of the continuous assessment method of assessing WIL which allows for students to also “*write a journal on their WIL experience*” (interviewee A7). One interviewee highlighted the fact that students are encouraged to find placements for themselves. They felt that this “*leads to building confidence in students, and allows for growth in students. Is great opportunity for students to develop skills of job searching and securing*” (Interviewee A6).

Interviewees’ comments brought to light various issues such as assessment, industry and institutional relationships/partnerships, work preparedness activities and skills development for students as good practice amongst the community of WIL co-ordinators. These reflect a holistic view of approaching assessment as all contributing factors to assessment need to be considered in the design of an integrated system of assessment for WIL.

5.2.3.4.2 Challenges experienced in WIL

Academic WIL Co-ordinators and Industry mentors (A1-A9 and M1-M6) were asked to comment on the challenges they faced with the assessment of WIL specifically, but not forgetting the wider aspects that impinge on WIL assessment as well.

These Co-ordinators indicated many challenges as reflected in Table 5.6 below. Issues of administration and assessment as well as management of large numbers of students and additional heavy workloads have been raised as challenges and are indicators of an understaffed approach to assessment of WIL.

Table 5.6: Challenges of WIL co-ordinators

Challenges as relayed by WIL co-ordinators	
Administration related challenges	Time constraints with regards to travelling for site visits.
	Sourcing placements for students.
	Co-ordination of the entire WIL programme
	Time needed for one person to evaluate 150 students each who conduct 20-30 minute presentations and 10 minute feedback session each.
	Large number of students become a huge challenge to be managed by one person.
	Admin issues are a problem. Placement of students – large numbers
	Students not submitting or stating that they did not have time. Commitment issues.
Assessment	Discrepancies with mentors assessing abilities
	Time needed for one person to evaluate 150 students each who conduct 20–30-minute presentations and 10 minute feedback session each.
	Logbook completed and returned to WIL co-ordinator is sometimes fraudulently completed by students. These are sometimes difficult to determine, which also takes much time to investigate and confirm.
	Some supervisors do not understand the process. Supervisors sometimes too strict. This results in additional information sessions to be conducted with industry supervisors.
	Challenge to have supervisors complete the performance appraisal document and submit on time.

All 9 interviewees provided clear indication of the challenges they face as WIL coordinators that are overlooked in lieu of other more “important” academic activities, suggesting the position of WIL as a stepchild to the education process.

Industry mentors (M1-M6), on the other hand, indicated their appreciation of being part of the UoTs’ WIL programme and their involvement in grooming students for the WOW. However, they also highlighted issues of management of WIL, the negative attitudes of some trainees, and busy schedules conflicting with student mentoring responsibilities as challenges.

One interviewee (M5) indicated that sometimes students seem less than passionate about the field of study they are involved in and therefore their performance is limited as *“they do not put enough effort into the work activities, and only focuses on passing the module or training”*.

Interviewee three expressed the importance of having students understand how to handle criticism and effectively implement a change in behaviour. He further alluded to the fact that students’ exposure to these activities during their academic study period would enable them to better understand criticism and its contribution to improving performance in industry, as a result indicating criticism as an important aspect to be included in work preparedness activities of students or possibilities for integration within the curriculum.

It is evident that Academic WIL Co-ordinators are those that face the majority of the challenges, and they attribute these largely to the administration of the WIL process.

5.2.4 Owners

5.2.4.1 Silos Vs Interconnectivity within UoTs

UoTs face dynamic and complicated situations on a regular basis, which challenges their success and management styles.

This requires UoTs to replace the traditional ways of management with new innovative approaches in order to be seen as strong competitors in this extremely competitive era. UoTs are often seen as working in functional silos as compared to an integrated whole (Mhlongo, 2021:7). Systems thinking practices advocate the importance of seeing the whole as compared to individual parts. A systems approach is required as the education system is not a simple, isolated system: the action of individuals, technology and social practices bleed into education from general civil life (Dhukaram, *et.al.*, 2018: 04, citing Cooper, 2010).

5.2.4.1.1 Institutional structures and support for WIL

Interviewees were asked to comment on the management of WIL at their institutions. All 9 interviewees (A1-A9) indicated that their institution has a central co-operative education unit that provides general support to the relevant departments. However, two of these interviewees believed that more support and assistance is required from these central units in order to alleviate the highly challenging administrative tasks associated with the management of WIL.

Participant A6 indicated that although assistance, which sometimes includes visits to companies for monitoring students that are on training, is received from the co-operative education unit, this is very minimal. The overall task of managing WIL is ultimately left with the academic department. There is no guideline as to the extent of assistance that can be received from the central office. The interviewees noted that having one individual manage WIL responsibilities for the department, while continuing with their other academic duties, is a very difficult task and that any assistance from the central co-operative education department would be greatly welcomed as student numbers range from 60 to 150.

Two of the nine interviewees indicated that their co-operative education department provides work preparedness programmes that are offered to students prior to their training. One participant, on the other hand, indicated that their system includes a combination of centralisation and decentralisation, as there is both a central Co-operative Education Department for the Institution and then a Faculty WIL Co-ordinator followed by the Departmental WIL Co-ordinator. This indicated a different approach to the management of WIL with additional support being offered by the Faculty, thus tending towards a more integrated approach. The Faculty WIL co-ordinator is responsible for maintaining consistency within the Faculty in the management of WIL and for providing support and assistance to the Departmental WIL co-ordinators, thereby providing more direct support compared to the Institutional Co-operative Education Unit.

This indicates a more integrated approach to management of WIL with additional support from the central co-operative education department and the Faculty, while providing an opportunity for interconnectivity at multi-levels, in fact a more systematic approach to management of WIL for UoTs.

However, overall, WIL co-ordinators are left to make critical decisions based on their experiences and knowledge with little or no training provided, as well as minimal support from the Institution in general. This also ensures that WIL is regarded as an add-on to educational practices rather than being integral to the educational experience and critical to the successful completion of a qualification. Interviewees response to the practice of assessment within WIL indicates that there are many aspects that are working well, while various other issues lack consistency, alignment and integration. These make the assessment of WIL into an unstructured practice clearly needing further guidelines or a framework that positions it as a structured practice within each university.

5.2.5 Environmental constraints

It is important to identify the various key constraints that are outside the system boundary that are significant for the system. For this study it is necessary to identify the constraints outside the system that affect the success of the assessment of WIL. Overall analysis of the interviewees' responses highlighted some salient issues that affect the system of WIL and assessment of WIL as identified below:

- Government support
- External funding institutions
- Industry support

5.2.5.1 Funding constraints

Assistance in the form of funding from the government as well as various organisations would be welcomed by the academic departments offering the WIL programme. This funding could be provided in the form of stipends that could be paid to the trainees to cover their costs of travel and subsistence. This also becomes necessary as some organisations only take on students for training if funding is received for the student's placements in the form of internships supported by government. This was indicated by interviewee M1 who acknowledged that the number of students that can be accepted by his company is dependent on the funding received from SETAs. The SETA funding is offered to students that are able to continue with the training for the minimum period of six months even though the institutional requirements for the WIL programme may require a shorter period of training. This involves an agreement between the student, the academic WIL co-ordinator and the host organisation. In this case the student is allowed to continue with the training as per the SETA requirements after the WIL requirements are met, which is an advantage to the student as the possibility of gaining additional training is offered.

This is further supported by interviewee M5 who indicated that once a person is working and getting paid then only will he or she normally offer their true value to the position. When they are paid for their training period, then this interviewee found that one is able to see the true potential of the individual, thus indicating the importance of funding for the success of the WIL experience.

Funding is also a necessity for the appointment of additional support staff for the WIL programmes. In this regard interviewees expressed their concern with regards to the lack of attention being placed on the appointment of support staff or additional academic staff for the WIL programme. Interviewees felt that more assistance was required for the placement of the WIL students together with the sourcing of placements and the visits to organisations during students' placements (A1).

One interviewee (A2) also added that buy-in is needed from organisations to support the inclusion of the appointment of permanent academic staff for the management of the activities related to WIL. Another interviewee (A3) also added that if there was more time allocated to WIL co-ordinators then more of the monitoring activities could be possible, which implies the need for appointment of additional support staff or identification of a dedicated individual as a WIL co-ordinator. The current unsatisfactory situation is further constrained by the increased numbers of students accepted on an annual basis into UoT academic programmes (A4, A6). It would therefore appear that funding support from the government is urgently needed for the appointment of these permanent WIL co-ordinators that should be key role players in the success of an integrated WIL programme.

5.3 Limitations

As discussed above, the Covid-19 pandemic presented various challenges that prevented easy and effective data collection from the sample population. The pandemic started in 2020 and continued into 2021 and beginning of 2022 which was the prime time of data collection for this study.

This led to various challenges with gaining access to students for completion of questionnaires, as face to face contact was extremely limited. Most institutions followed the online method of teaching, resulting in students and academics seldom being present on campus but instead working from remote locations. In this situation the scarcity of data, devices, inadequate network coverage and services provided various additional challenges to gaining access to students and academic supervisors as well as to industry supervisors. This led to the low rate of response from industry mentors as discussed in Chapter Four.

5.4 Conclusion

This chapter discussed the findings from the qualitative data collection process. The use of mixed methods enabled the collection of data that was both inclusive of the parties involved in WIL and representative of the various sectors in Management Sciences. The data revealed that while there were many good practices with WIL there were various issues that required careful planning and change to foster an environment of overall successful WIL practice amongst UoTs. The academic WIL co-ordinators and the industry mentors provided thought-provoking accounts of their experiences with WIL and their expectations of involvement in WIL activities.

The CATWOE framework allowed for a structured, engaged and interactive approach to analysis of the participants' information. A comprehensive explanation of the participants' comments led to creative ideas emerging ranging from assessment methods, assessment types and the possibility of developing a CoP, to providing for a structure for the analysis of the data.

6 CHAPTER SIX

Presentation of research findings: Quantitative analysis

6.1 Introduction

This chapter presents the results and discusses the findings obtained from the quantitative data collection instrument adopted for this study. The questionnaire which formed part of phase two of the data collection process, included three open-ended questions, as discussed in the previous chapter, with some further reference being made to them in this chapter. The questionnaire was distributed to 197 third year students from 5 UoTs. A total of 137 questionnaires were returned, representing a response rate of 70% and these formed the data that was analysed. The data collected from the responses was analysed with SPSS version 27.0, with the assistance of a qualified statistician. The results present the descriptive statistics in the form of graphs, cross tabulations and other figures for the quantitative data that was collected. Inferential techniques include the use of correlations and chi square test values, which are interpreted using the p -values. The traditional approach to reporting a result requires a statement of statistical significance. A p -value is generated from a test statistic. A significant result is indicated with " $p < 0.05$ ".

6.2 The Research Instrument

The research instrument consisted of 27 items, with a level of measurement at a nominal or an ordinal level. The questionnaire was divided into 3 sections which measured various themes as illustrated below:

- A Biographical data
- B Work Integrated Learning
- C Assessment Related

6.3 Reliability Statistics

The two most important aspects of precision are reliability and validity. Reliability is computed by taking several measurements on the same subjects. A reliability coefficient of 0.60 or higher is considered as “acceptable” for a newly developed construct (Ekolu and Quainoo, 2019: 25).

Table 6.1 below reflects the Cronbach’s alpha score for all the items that constituted the questionnaire.

Table 6.1: Cronbach alpha scores

	Section	Number of Items	Cronbach Alpha
B4	Work Integrated Learning	7	0.823
C18	Assessment Method Most Preferred	6	0.879
C19	Assessment Method that was Most Challenging and Thought Provoking	6	0.791
C27	WIL Component - Online Classroom	14	0.927

The reliability scores for all sections exceed the recommended Cronbach alpha value, which indicates a degree of acceptable, consistent scoring for these sections of the research study.

6.4 Factor Analysis

Factor analysis is a statistical technique aimed at data reduction, typically used in survey research.

The matrix tables below are preceded by a summarised table that reflects the results of KMO and Bartlett's Test. The **KMO and Bartlett's Test** Table 6.2 below shows two tests that indicate the suitability of data for structure detection. The **Kaiser-Meyer-Olkin Measure of Sampling Adequacy** is a statistic that indicates the proportion of variance in the variables that might be caused by underlying factors. High values (close

to 1.0) generally indicate that a factor analysis may be useful with the data, while less than 0.50 indicates not so useful factor analysis. Factor analysis did prove useful for this study as scores were higher than 0.50 and closer to 1.0.

Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that the variables are unrelated and therefore unsuitable for structure detection. Small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with the data (Cramer and Howitt, 2004). Factor analysis is done only for the Likert scale items. Certain components divided into finer components. This is explained below in the rotated component matrix.

Table 6.2: KMO and Bartlett's Test

	Section	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
			Approx. Chi-Square	df	Sig.
B4	Work Integrated Learning	0.772	349.415	21	0.000
C18	Assessment Method Most Preferred	0.838	158.537	15	0.000
C19	Assessment Method that was Most Challenging and Thought Provoking	0.682	124.677	15	0.000
C27	WIL Component - Online Classroom	0.726	375.335	91	0.000

All of the conditions for factor analysis are satisfied. That is, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy value should be greater than 0.500 and the Bartlett's Test of Sphericity sig. value should be less than 0.05.

Table 6.3: Rotated Component Matrix – B4

B4	Component	
	1	2
I consider WIL to be an important component of the Diploma	0.090	0.920
I think that WIL is important to my study	0.202	0.890
I was satisfied with my WIL Experience	0.761	0.265
I received adequate guidance from my academic supervisor	0.742	0.122
I received adequate guidance from my industry supervisor	0.805	0.078
I was given clear outcomes for the WIL period	0.798	0.211
My expectations were met with the WIL placement	0.764	0.025

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Table 6.4: Rotated Component Matrix – C18

C18	Component
	1
Logbook	0.705
Presentations	0.821
Written reports	0.746
Reflective journals	0.822
Reflective presentations	0.871
On site visits	0.792

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 6.5 Rotated Component Matrix – C19

C19	Component	
	1	2
Logbook	-0.081	0.941
Presentations	0.719	0.361
Written reports	0.702	-0.029
Reflective journals	0.819	-0.071
Reflective presentations	0.897	0.191
On site visits	0.590	0.610

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Table 6.6 Rotated Component Matrix – C27

C27	Component	
	1	2
The online classroom for WIL is regularly used	0.074	0.919
The online classroom has interesting and enlightening information posted	0.108	0.945
There are online assessments included in the online classroom	0.373	0.788
The online classroom is thought provoking	0.552	0.289
The online classroom includes blogs	0.669	0.339
The online classroom has interesting discussions for WIL students on training	0.664	0.507
The online classroom is available to me during my training period	0.661	0.071
I am able to communicate to other students via the online classroom while on training	0.558	0.114
I am able to communicate to my lecturer via the online classroom while on training	0.905	0.163
I enjoy the online experience	0.753	0.240
I enjoy the online assessments	0.807	0.217
I can access the online classroom easily	0.918	0.086
The resources available to me outside of contact lectures make it easy to access the online classroom	0.804	0.381
I have a good understanding of the use of the online classroom	0.885	0.050

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

The principal component analysis was used as the extraction method, and the rotation method was Varimax with Kaiser Normalization. This is an orthogonal rotation method that minimizes the number of variables that have high loadings on each factor. It simplifies the interpretation of the factors. Factor analysis/loading show inter-correlations between variables. Items of questions that loaded similarly imply measurement along a similar factor. An examination of the content of items loading at or above 0.5 (and using the higher or highest loading in instances where items cross-loaded at greater than this value) effectively measured along the various components.

The statements that constituted section C18 perfectly measured what it set out to measure. Respondents identified 2 different trends (sub-themes) within the remaining sections. The two broad trends identified from the data are WIL management and Assessment of WIL.

6.5 Section A: Biographical Information

This section summarises the biographical characteristics of the participants. Participants were required to indicate their gender, age and racial identification. Table 6.7 below describes the overall gender distribution by age.

Table 6.7: Gender distribution by age

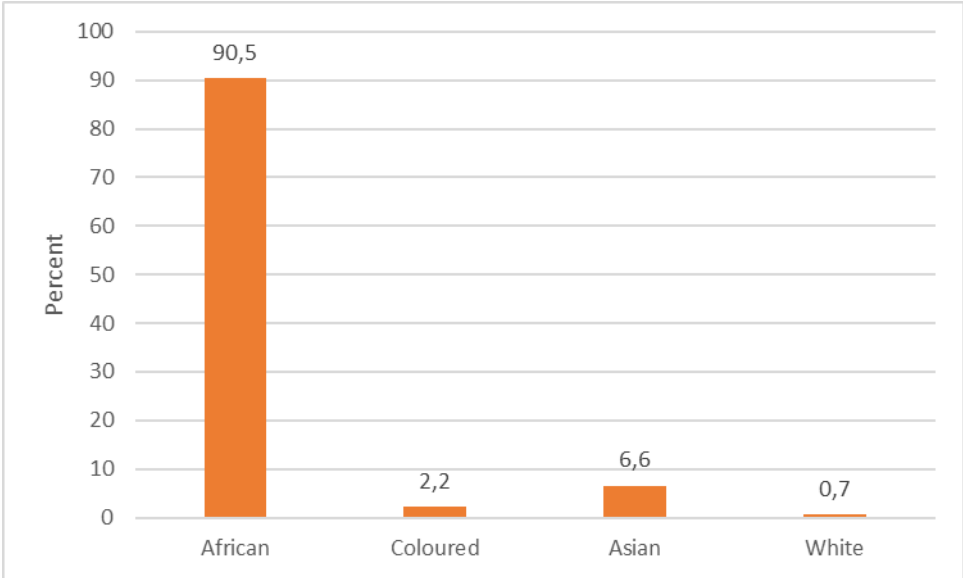
Age (years)		Gender		Total
		Male	Female	
20-24	Count	29	75	104
	% within Age	27.9%	72.1%	100.0%
	% within Gender	72.5%	77.3%	75.9%
	% of Total	21.2%	54.7%	75.9%
25-30	Count	7	18	25
	% within Age	28.0%	72.0%	100.0%
	% within Gender	17.5%	18.6%	18.2%
	% of Total	5.1%	13.1%	18.2%
31-34	Count	2	1	3
	% within Age	66.7%	33.3%	100.0%
	% within Gender	5.0%	1.0%	2.2%
	% of Total	1.5%	0.7%	2.2%
35-40	Count	1	2	3
	% within Age	33.3%	66.7%	100.0%
	% within Gender	2.5%	2.1%	2.2%
	% of Total	0.7%	1.5%	2.2%
41 and over	Count	1	1	2
	% within Age	50.0%	50.0%	100.0%
	% within Gender	2.5%	1.0%	1.5%
	% of Total	0.7%	0.7%	1.5%
Total	Count	40	97	137
	% within Age	29.2%	70.8%	100.0%
	% within Gender	100.0%	100.0%	100.0%
	% of Total	29.2%	70.8%	100.0%

Overall, the ratio of males to females is approximately 3:7 (29.2%: 70.8%) ($p < 0.001$). This reveals that young females predominate in the qualifications relevant to the Management Sciences Faculty within the UoTs, thus indicating that a higher number of females are completing qualifications than males within these fields of study (Marketing and Retail Management, Public relations management, Office management and Technology, Tourism and Event management, Sports Management and Business and Information Management).

Within the age category of 31 to 34 years, 66.7% were male. Within the category of males (only), 5.0% were between the ages of 31 to 34 years. This category of males between the ages of 31 to 34 years formed 1.5% of the total sample.

The majority of the respondents are within the age group of 20-24. This correlates with the fact that the respondents had just completed their Diploma or were completing their Diploma, being an undergraduate qualification, which would generally attract this age group. Within this category 27.9% were males, while 72.1% were females. Within the category of male, 72.5% were between the ages of 20-24 and within the category of females 77.3% fall within this category. There were just two individuals that were 41 years and over, being one male and one female. This brings to light that the qualifications at diploma level do not attract many students from the more mature age group. The age distributions are not similar as there are more respondents younger than 30 years ($p < 0.001$).

Figure 6.1: Racial composition of participants



The sample was predominantly African (90.5%) ($p < 0.001$). The remaining race groups were significantly smaller. Considering that SA's population includes a majority of the African race group, this result is relevant. Of note is the considerable increase in the number of young African students registered at UoTs in SA.

6.6 Section Analysis

The section that follows analyses the scoring patterns of the respondents per variable per section. The results are first presented using mean scores for the variables that constitute each section.

6.6.1 Work Integrated Learning (WIL)

This section deals with student perceptions of WIL. It seeks to determine the individual experiences of students with regards to the importance of WIL, the various sectors of placement and the students' experiences of the mentoring they received. This information is key to the objectives of this study.

6.6.1.1 Importance of WIL and guidance

A binomial test was used to determine whether there was a significant difference in the scoring patterns per statement. A cut-off value of 3 was used, with original mean scores < 3 implying levels of agreement, and original scores greater than 3 corresponded to levels of disagreement. (The reverse coding implied that scores > 3 corresponded to agreement and scores < 3 corresponded to levels of disagreement.)

The following patterns are observed:

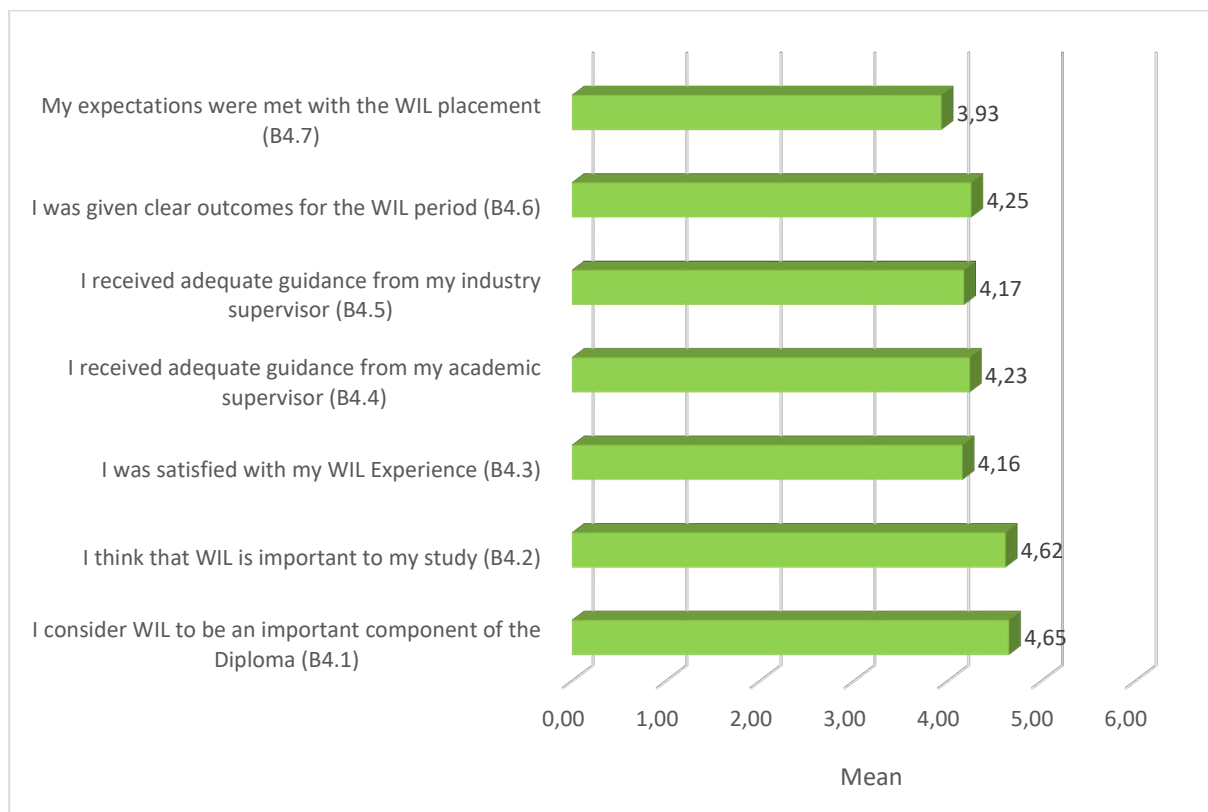
- All of the statements show (significantly) higher levels of agreement whilst other levels of agreement are lower (but still greater than levels of disagreement)
- There are no statements with higher levels of disagreement
- The significance is shown in the table.

The highlighted *p*-values are less than 0.05 (the level of significance), implying that there was a significant difference in the levels of agreement and disagreement.

Table 6.8: Summary of scoring patterns.

		Count	Weighted Mean	Reverse Coded Weighted Mean	Standard Deviation	Median	Percentile 25	Percentile 75	Binomial Test p -value (cut off = 3)
I consider WIL to be an important component of the Diploma	B4.1	137	1.35	4.65	0.65	1.00	1.00	2.00	< 0.001
I think that WIL is important to my study	B4.2	137	1.38	4.62	0.67	1.00	1.00	2.00	< 0.001
I was satisfied with my WIL Experience	B4.3	137	1.84	4.16	0.93	2.00	1.00	2.00	< 0.001
I received adequate guidance from my academic supervisor	B4.4	137	1.77	4.23	0.86	2.00	1.00	2.00	< 0.001
I received adequate guidance from my industry supervisor	B4.5	137	1.83	4.17	0.87	2.00	1.00	2.00	< 0.001
I was given clear outcomes for the WIL period	B4.6	137	1.75	4.25	0.82	2.00	1.00	2.00	< 0.001
My expectations were met with the WIL placement	B4.7	137	2.07	3.93	1.03	2.00	1.00	3.00	< 0.001

Figure 6.2: Reverse coded scores for the ordinal data.



Factor analysis identifies two statements as sub-themes being “I consider WIL to be an important component of the Diploma” and “I think that WIL is important to my study.”

There are high levels of agreement relation to this sub-theme “Importance of WIL”. The scoring patterns for the statements is similar and high (average = 4.64). The high level of agreement implies that respondents believe that WIL is important to the qualification. This is supported by McManus and Rook (2021: 270) who explain the importance of WIL as Australian Universities continue to increase their involvement in WIL as they promote graduate employability while trying to get their graduates “work-ready”. As a result, respondents seem to comprehend the importance of WIL to their success in the workplace and the completion of their qualification. This suggests a possible buy-in to WIL programmes by students.

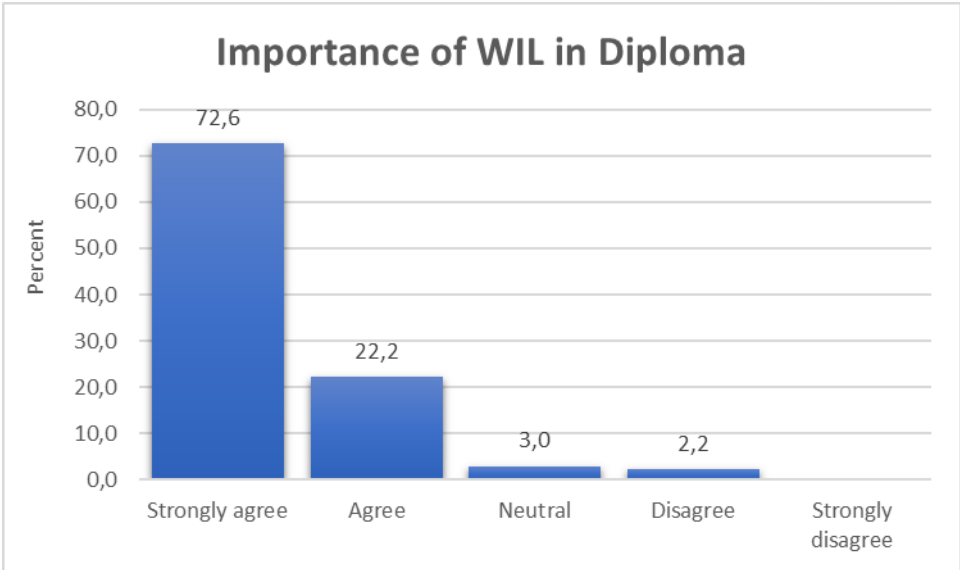
The remaining statements formed a sub-theme called “Guidance”. The scoring patterns are lower than for the Importance of WIL, but still having a high level of agreement. Data reveals that students seem to be adequately satisfied with their WIL

experience together with their guidance from the academic supervisor and the industry mentor. The least important, with the lowest value is the expectations of the WIL placement being met. This suggests that even though the students were pleased with the guidance received, they were not always happy with the placement, which could mean that the expectations were not met with the physical placement in the organisation. Students' expectations of a training site may not have been matched with that of the actual placement site itself.

6.6.1.1.1 I consider WIL to be an important component of the Diploma

Figure 6.3 below indicates the importance of WIL from the perspective of the students.

Figure 6.3: Importance of WIL in Diploma

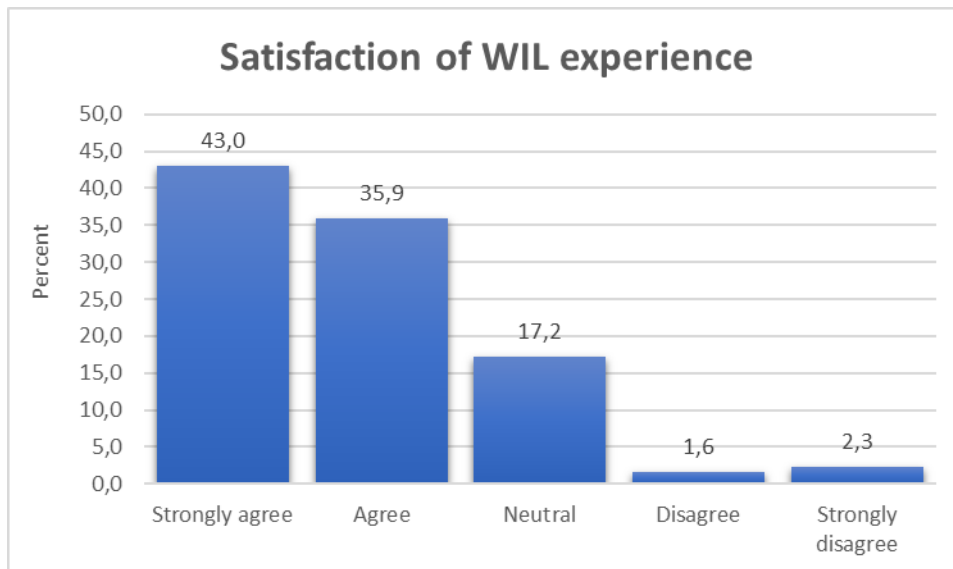


Participants were expected to respond on the level of importance they placed on the inclusion of WIL within their Diploma. 94.8% of the respondents agreed that WIL is an important component to their Diploma (72.6% and 22.2%). This indicates a large percentage of participants' agreement that WIL is indeed important as indicated in figure 6.3 above.

6.6.1.1.2 Satisfaction with the WIL experience

Students level of satisfaction with the WIL experience is reflected in figure 6.4 below.

Figure 6.4: Satisfaction with WIL experience



Participants were required to respond as to their satisfaction with their WIL experience. There was strong agreement by students that they did indeed have a good WIL experience as overall 78.9% (43.0 + 35.9) were satisfied with their experience as indicated in Figure 6.4 above. While those in disagreement and those who gave a neutral response, represented a smaller percentage, these were also significant.

6.6.1.2 Length of training period students engaged in

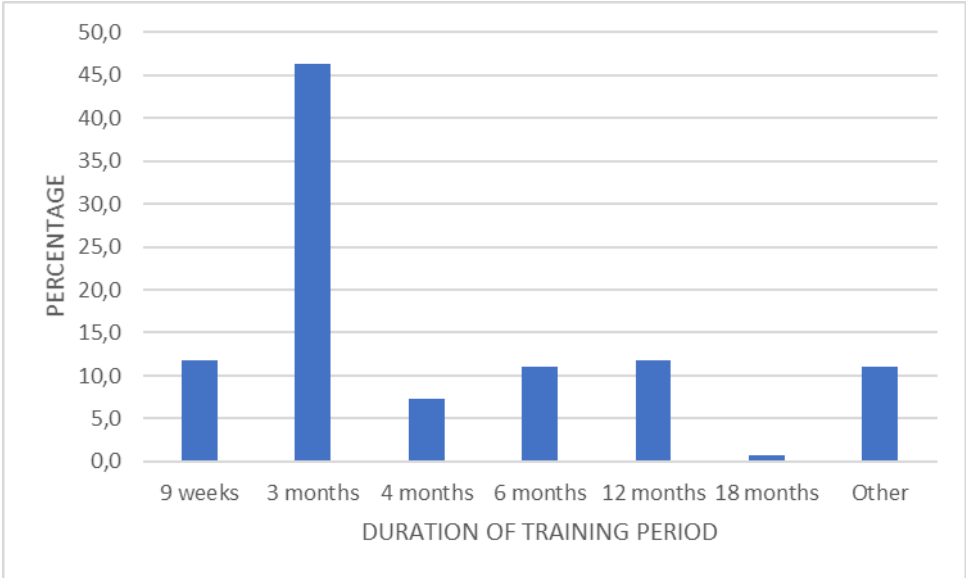
The table 6.9 below indicates the descriptive statistics for the number of months spent training at the organisations.

Table 6.9: Months spent training at organisations

Count	Mean	Reverse Coded Mean	Standard Deviation	Median	Percentile 25	Percentile 75
137	4.42	1.58	3.37	3.00	3.00	4.00

On average, respondents spent ± 3.37 months at the training organisations. The time period spent at the organisation differs significantly from institution to institution as well as from qualification to qualification, however, 3 months training period (as indicated in figure 6.5) seems to be the most common practice for the training period amongst the institutions. The additional 6- and 18-months training period occur seldom as a result of special arrangements between the student and the industry mentors.

Figure 6.5: Length of training period



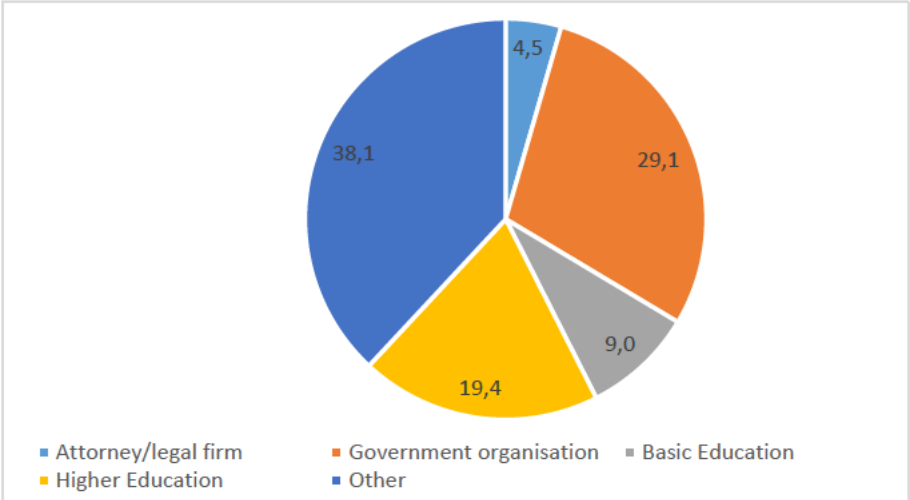
11% of the Participants that selected other indicated their training periods as 200 hours, 1 month, 5 weeks, and 10 months. These results further reflect the varied training periods that students are exposed to indicating the lack of a structured guideline for WIL that would provide a general guideline for the acceptable minimum

training period, ensuring a degree of commonality amongst the period of exposure of students who are engaged in training.

6.6.1.3 Categories of industries represented

The figure 6.6 below indicates the type of industry at which respondents served their training.

Figure 6.6: Categories of industries training were conducted at



The graph indicated that a little less than 30% of the students spent their time in government departments, with a further 19.4% in higher education ($p < 0.001$). Most participants spent their time at “Other” organisations (38.1%) ($p < 0.001$). These “other” are reflected below in Table 6.10 below.

Table 6.10: Industry categories included as ‘other’

Industry categories	Frequency	Percent
Automobile	13	9.5
Driving School	1	0.7
Health	3	2.2
Hospitality	5	3.6
Journalism	1	0.7
Media	1	0.7
NGO	1	0.7
NPO	6	4.4
Political Sector	1	0.7
PR	3	2.2
Private Company	1	0.7
Regional Office	1	0.7
Residence office	1	0.7
Sales	3	2.2
Services	1	0.7
Tourism	3	2.2
Not specified	07	5.2

Responses included in the ‘other’ category (Table 6.10) mostly included automobile companies (9.5%), while the next most common placement site was at NPOs (4.4%). The range of organisations is fairly wide, indicating that students are able to be placed at various categories of organisations to have their training period served, indicating a strong possibility of organisations being able to accept students for training.

6.6.1.4 Student mentorship in WIL training

Table 6.11: Student Mentorship

		Did you have a mentor in the workplace?	
		Yes	
If you answered yes above, did you find the mentor to be of assistance to you?	Yes	Count	108
		% within If you answered yes above, did you find the mentor to be of assistance to you?	100.0%
		% within Did you have a mentor in the workplace?	90.0%
		% of Total	90.0%
	No	Count	12
		% within If you answered yes above, did you find the mentor to be of assistance to you?	100.0%
		% within Did you have a mentor in the workplace?	10.0%
Total	% of Total		10.0%
	Count	120	
	% within If you answered yes above, did you find the mentor to be of assistance to you?	100.0%	
	% within Did you have a mentor in the workplace?	100.0%	
		% of Total	100.0%

Of the 122 respondents who had a mentor, 120 responded relating to the assistance provided by the mentor. Ninety percent of the respondents indicated that the mentor did provide assistance ($p < 0.001$) which confirms the assistance students received from their mentors as a critical contributing factor to the success of the WIL experience. Of note is the intensity of the mentorship that students received which was revealed by students in the open-ended question included in the questionnaire. The mentorship activities ranged from aspects of orientation of students to the workplace, job specific training, motivational and supportive talks, work ethical standards issues, and guidance and mentoring on aspects of soft skills. The majority of the students appreciated the support and assistance gained from their mentors indicating mentors' interest in the students' training and providing a motivational and inspiring relationship.

The Table 6.12 below represents responses as to whether respondents had an academic supervisor (Work integrated learning lecturer) at their university for the WIL period.

Table 6.12: Academic supervisor

	Frequency	Percent
Yes	120	87.6
No	17	12.4
Total	137	100.0

Unsurprisingly, the majority of the respondents (87.6%) indicated that they had an academic supervisor. However, of concern is the fact that the balance, even though a small percentage (12%) indicated that they did not have an academic supervisor. This raises an area of concern as to the level of academic mentorship, support or guidance these students had received during their training period.

Summary. This section has reflected on the WIL experience in relation to the importance students place on WIL as well as the satisfaction gained from the WIL experience. The data revealed that a fairly broad spectrum of fields was represented by the students' placements which on average resulted in 3 months of training. Overall, the practice of allocating academic supervisors and industry mentors to students is normal practice and students did express their satisfaction with the mentorship they received from their industry mentors.

6.6.2 Assessment Related

This section deals with the assessment practices associated with the students' WIL experience. It focuses on the training manual; other types of assessment included in the WIL experience; students' awareness of the requirements of the assessment of WIL; and students' perceptions of the importance of assessment for WIL.

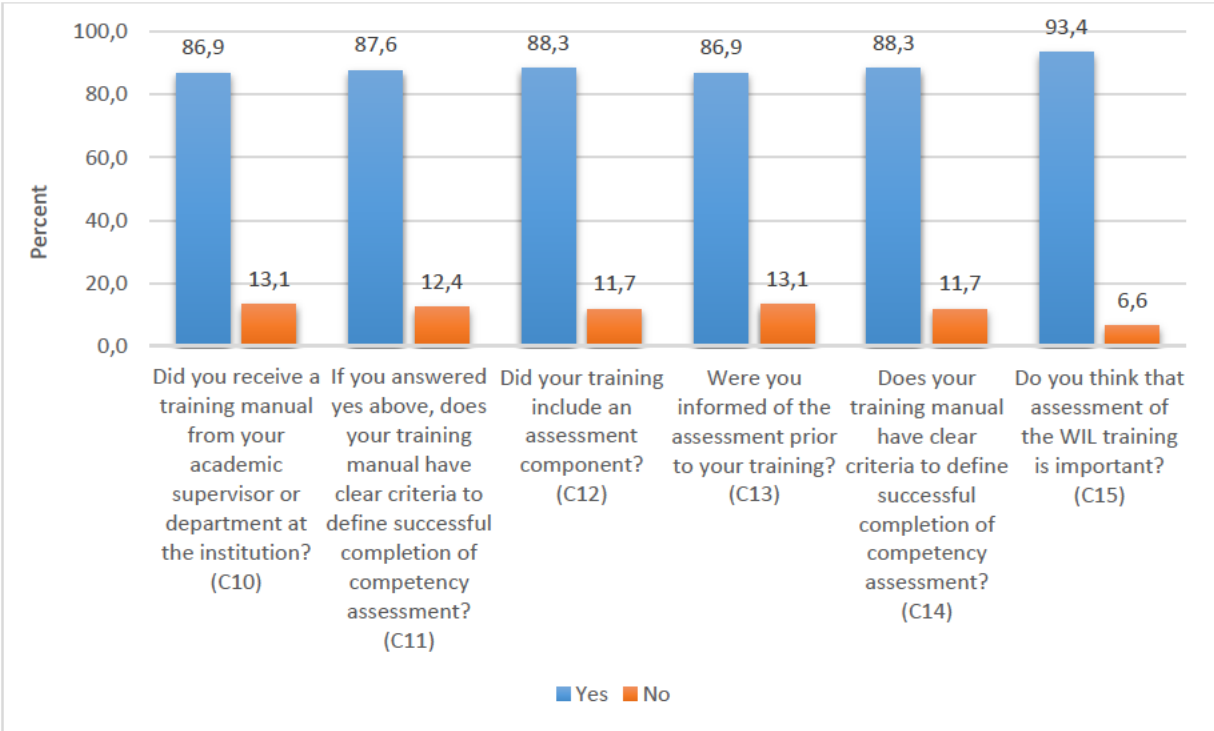
6.6.2.1 Assessment engagements in WIL

Table 6.13 below summarises the scoring patterns for the statements relevant to the assessment activities of WIL.

Table 6.13: Assessment engagements in WIL

		Yes		No		Chi Square p-value
		Count	Row N %	Count	Row N %	
Did you receive a training manual from your academic supervisor or department at the institution?	C10	119	86.9	18	13.1	< 0.001
If you answered yes above, does your training manual have clear criteria to define successful completion of competency assessment?	C11	120	87.6	17	12.4	< 0.001
Did your training include an assessment component?	C12	121	88.3	16	11.7	< 0.001
Were you informed of the assessment prior to your training?	C13	119	86.9	18	13.1	< 0.001
Does your training manual have clear criteria to define successful completion of competency assessment?	C14	121	88.3	16	11.7	< 0.001
Do you think that assessment of the WIL training is important?	C15	128	93.4	9	6.6	< 0.001

Figure 6.7: Assessment



All statements show significantly higher levels of agreement (Yes) ($p < 0.001$). These high levels of agreement to the understanding of the assessment requirements and training manual contents can be attributed to the fact that students did confirm the support and assistance from the WIL academic supervisor and the industry mentor. This indicates that students did receive the necessary support and guidance from the academic supervisor in understanding the requirements of the WIL logbook together with that of the assessment requirements for the WIL training period. Significantly, students do understand the importance of assessment in WIL and therefore would place importance on understanding the requirements for the assessment accordingly.

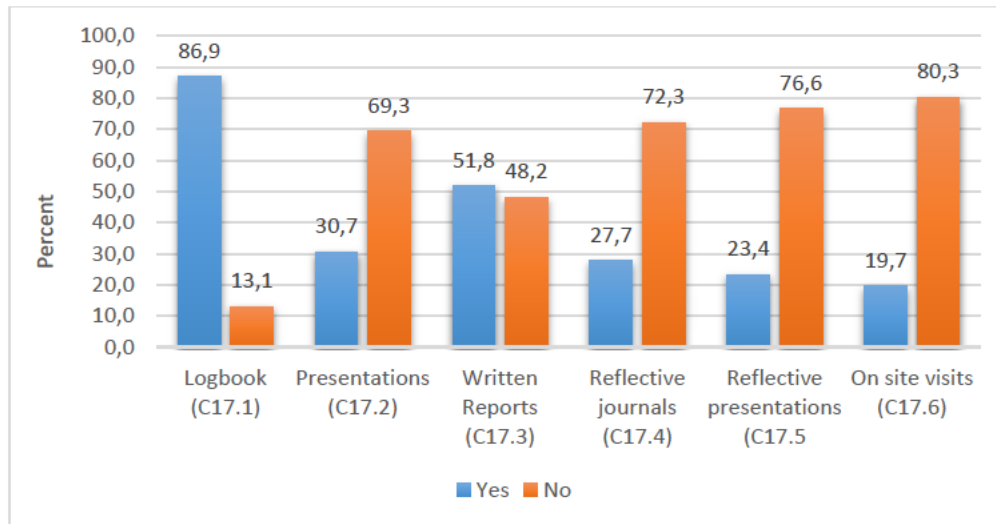
6.6.2.2 Types of assessment

Table 6.14 below indicates the type of assessments that were expected to be completed for the WIL programme.

Table 6.14: Types of assessment

		Yes		No		Chi Square
		Count	Row N %	Count	Row N %	p-value
Logbook	C17.1	119	86.9%	18	13.1%	< 0.001
Presentations	C17.2	42	30.7%	95	69.3%	< 0.001
Written Reports	C17.3	71	51.8%	66	48.2%	0.669
Reflective journals	C17.4	38	27.7%	99	72.3%	< 0.001
Reflective presentations	C17.5	32	23.4%	105	76.6%	< 0.001
On site visits	C17.6	27	19.7%	110	80.3%	< 0.001

Figure 6.8: Types of assessment



Logbooks have always been the standard form of assessment of WIL as indicated by the 86.9% of respondents that indicated that completing log books was a required aspect of the training. It is surprising to note that 13% were not required to submit logbooks. Written reports were the other assessment type which were also common practice with just over half (51.8%) required to write written reports, while around a quarter (27.7% and 23.4% respectively) reported having to write reflective journals or to give reflective presentations. Onsite visits (19.7%) are reflected by a small percentage of respondents which raises concerns as these are visits made by the academic supervisor to the students' training site that is expected to be a mandatory activity. The lack thereof presents barriers to the universities maintaining strong relationships with industry partners.

6.6.2.3 Scoring of assessment preferences

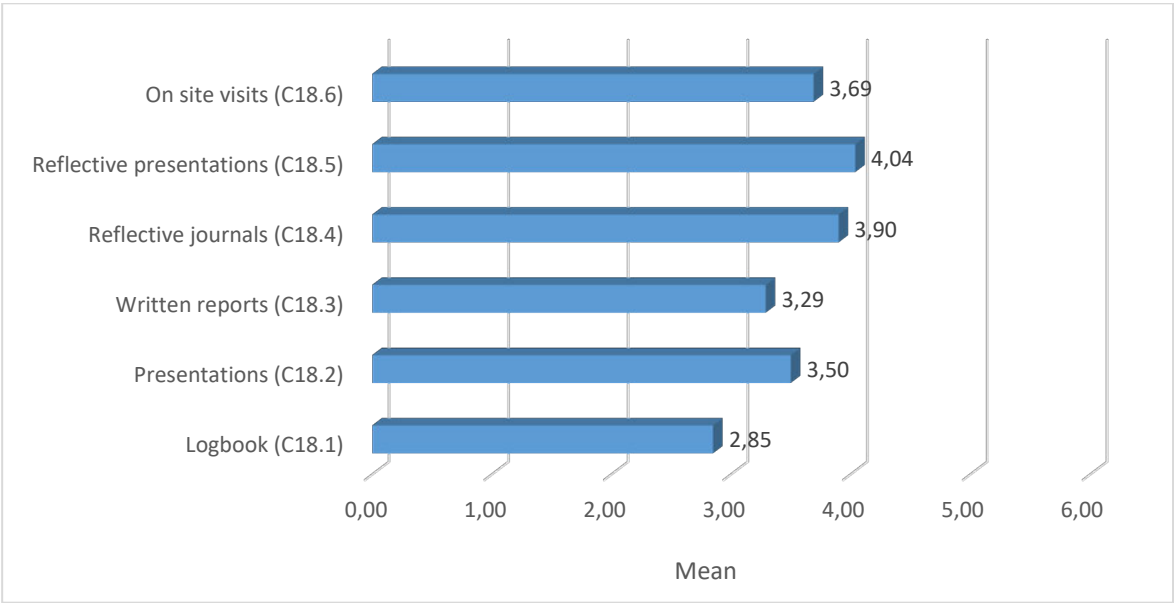
Participants were requested to indicate the assessment type that they most preferred amongst those they were exposed to. Table 6.15 below is a rating of the assessments in the students' order of preference.

Table 6.15: Rating of assessments

		Count	Weighted Mean	Reverse Coded Weighted Mean	Standard Deviation	Median	Percentile 25	Percentile 75	Binomial Test p -value (cut off = 3)
Logbook	C18.1	137	3.15	2.85	2.18	3.00	1.00	5.00	0.411
Presentations	C18.2	137	2.50	3.50	2.13	2.00	0.00	4.50	0.012
Written reports	C18.3	137	2.71	3.29	1.95	3.00	1.00	4.00	0.038
Reflective journals	C18.4	137	2.10	3.90	1.95	1.50	0.00	4.00	< 0.001
Reflective presentations	C18.5	137	1.96	4.04	2.01	1.00	0.00	4.00	< 0.001
On site visits	C18.6	137	2.31	3.69	2.23	1.00	0.00	5.00	0.021

The reverse coded mean is used to show order of importance as depicted in figure 6.9 below.

Figure 6.9: Preferences of assessment



Notably, even though the reflective presentations and journals are not common in practice, students indicated a preference for these types of assessment, as compared to the logbook, which is the most commonly used method of assessment for WIL. When designing assessment of WIL, students' preferences therefore appear to diverge from those chosen by the academic supervisor who is responsible for deciding on the assessment to be included. It should be noted that reflective presentations and journals are more aligned with the student-centred approach considered in the literature to provide more authentic assessments.

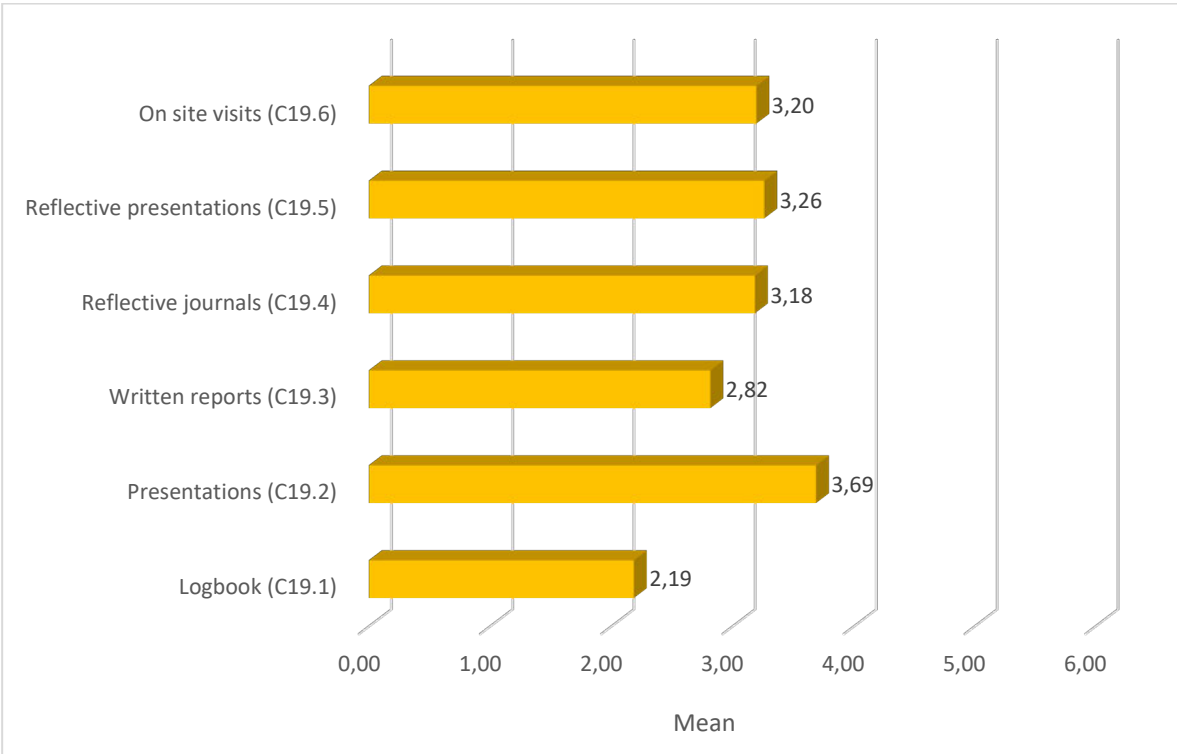
6.6.2.4 Method of assessment most challenging and thought provoking

Students were required to rate the method of assessment that they felt was most challenging and thought provoking. The table below (table 6.16) presents their ratings of the method of assessment in this regard.

Table 6.16: Most challenging assessment method

		Count	Weighted Mean	Reverse Coded Weighted Mean	Standard Deviation	Median	Percentile 25	Percentile 75	Binomial Test p -value (cut off = 3)
Logbook	C19.1	137	3.81	2.19	2.14	5.00	2.00	6.00	0.223
Presentations	C19.2	137	2.31	3.69	2.03	2.00	0.00	4.00	0.001
Written reports	C19.3	137	3.18	2.82	2.06	3.00	1.00	5.00	0.445
Reflective journals	C19.4	137	2.82	3.18	2.33	3.00	0.00	5.00	0.457
Reflective presentations	C19.5	137	2.74	3.26	2.33	3.00	0.00	5.00	0.620
On site visits	C19.6	137	2.80	3.20	2.42	3.00	0.00	5.00	0.504

Figure 6.10: Most challenging assessment type



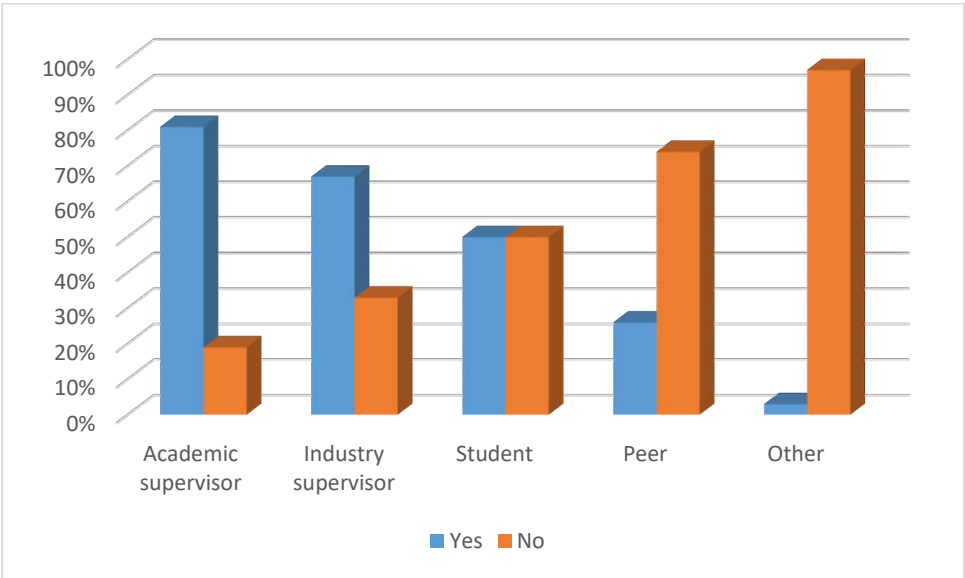
Only C19.2 shows a significantly higher level of agreement. The remaining statements all have *p*-values that are not significant, implying similar levels of agreement and disagreement. However, some values are marginally more in agreement, whilst others are marginally more in disagreement.

The highest rank is for C19.2, and the lowest is for C19.1. This once again brings to light the fact that students seem to consider the reflective presentations as more important and challenging as a form of assessment as compared to the logbook entry. Reflective presentations also require students to ‘think out of the box’ and tap into their critical thinking skills as they reflect and analyse their experiences and future prospects. Data thus reveals that what is practiced is not what is expected and appreciated most by students and therefore highlights the fact that these assessments are included without consultation with the affected parties (students) and therefore may not lead to achieving the desired outcome.

6.6.2.5 Partners involvement in the assessment activities for WIL

Participants were asked to indicate which individual was involved in the assessment of their WIL training. Figure 6.11 below indicates the people involved in the assessment of the training. The data reveals that of the 137 participants, 111 participants had an academic supervisor, 92 had industry supervisor, 69 were involved in the assessment of their own training, 35 had their peers assessing them, while 04 participants indicated they had other involvement, this being a tutor who was included in assessing them.

Figure 6.11: Partner involved in assessment activities

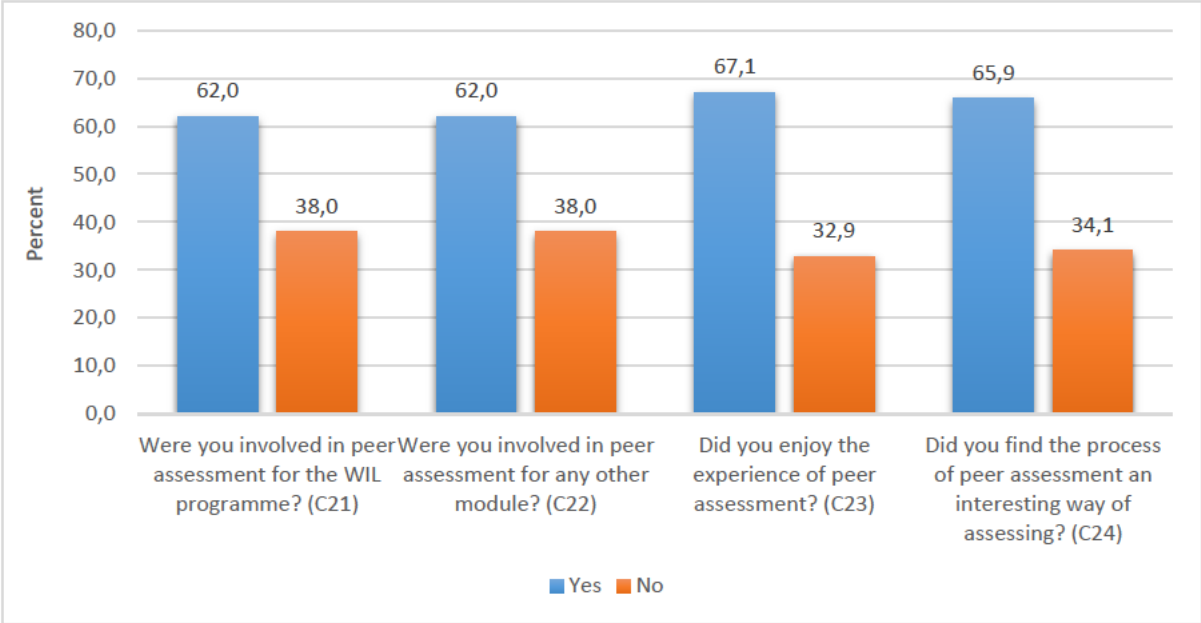


The table 6.17 below summarises the responses to the statements therein (C21 – C24).

Table 6.17: Students perception of Involvement in assessment of WIL

		Yes		No		Chi Square p-value
		Count	Row N %	Count	Row N %	
Were you involved in peer assessment for the WIL programme?	C21	85	62.0	52	38.0	0.005
Were you involved in peer assessment for any other module?	C22	85	62.0	52	38.0	0.005
Did you enjoy the experience of peer assessment?	C23	57	67.1	28	32.9	0.049
Did you find the process of peer assessment an interesting way of assessing?	C24	56	65.9	29	34.1	0.033

Figure 6.12: Students involvement in WIL assessment



All statements show significantly higher levels of agreement (Yes), with C23 being marginal. Therefore, a considerable percentage of students were involved in peer assessment activities either in the WIL programme or in other modules. Interestingly, there was a high percentage of students that enjoyed the peer assessment experience and found it to be an interesting way of assessing. This suggests that students are welcoming varying methods of assessment and most importantly the need for them to be involved in the assessment process themselves.

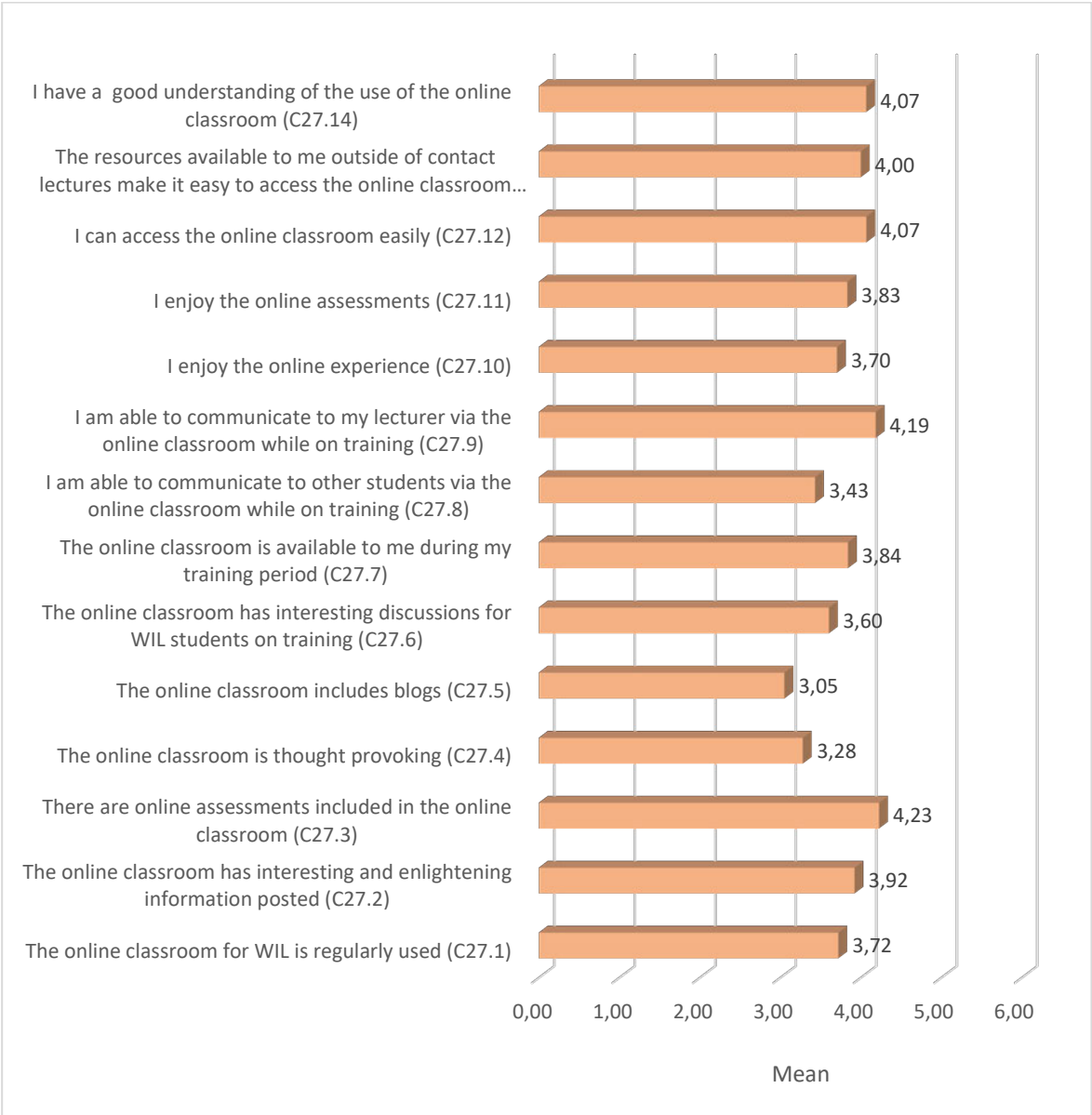
6.6.2.6 Online assessment practices

47 of the 137 respondents indicated that the WIL component included an online classroom. The responses of the 47 is shown below.

Table 6.18: Online assessment in WIL

		Co unt	Weig hted Mean	Revers e Coded Weight ed Mean	Stan dard Devi ation	Medi an	Perc entile 25	Perc entile 75	Binomia l Test p- value (cut off = 3)
The online classroom for WIL is regularly used	C27.1	137	2.28	3.72	1.24	2.00	1.00	3.00	< 0.001
The online classroom has interesting and enlightening information posted	C27.2	137	2.08	3.92	1.11	2.00	1.00	3.00	< 0.001
There are online assessments included in the online classroom	C27.3	137	1.77	4.23	1.05	1.00	1.00	2.00	< 0.001
The online classroom is thought provoking	C27.4	137	2.72	3.28	1.37	3.00	2.00	4.00	0.002
The online classroom includes blogs	C27.5	137	2.95	3.05	1.36	3.00	2.00	4.00	0.108
The online classroom has interesting discussions for WIL students on training	C27.6	137	2.40	3.60	1.24	2.00	1.00	3.00	< 0.001
The online classroom is available to me during my training period	C27.7	137	2.16	3.84	1.43	2.00	1.00	3.00	< 0.001
I am able to communicate to other students via the online classroom while on training	C27.8	137	2.57	3.43	1.35	2.00	1.50	3.50	0.001
I am able to communicate to my lecturer via the online classroom while on training	C27.9	137	1.81	4.19	1.10	1.00	1.00	2.00	< 0.001
I enjoy the online experience	C27.10	137	2.30	3.70	1.32	2.00	1.00	3.00	< 0.001
I enjoy the online assessments	C27.11	137	2.17	3.83	1.15	2.00	1.00	3.00	< 0.001
I can access the online classroom easily	C27.12	137	1.93	4.07	1.14	2.00	1.00	2.00	< 0.001
The resources available to me outside of contact lectures make it easy to access the online classroom	C27.13	137	2.00	4.00	1.22	2.00	1.00	2.50	< 0.001
I have a good understanding of the use of the online classroom	C27.14	137	1.93	4.07	1.11	2.00	1.00	2.00	< 0.001

Figure 6.13: Online assessment



Only 34% of the respondents indicated that they were involved in online assessment. This indicates that a large percentage of WIL programmes do not include this assessment method. However, the highest score indicates that most students involved in online assessments know how to engage with the online platform and enjoy the online assessments. The least score was for the online blogs indicating that this was not very popular with the online classroom or may not have been included in the online classroom activity. The overall results indicate that there is a positive move towards

online assessment. However, this needs to be explored more thoroughly and included in the assessment practices of WIL for further reflections on its benefits to WIL.

6.7 Cross tabulations

A Chi square test of independence was performed to determine whether there was a statistically significant relationship between the variables (rows vs columns). The null hypothesis states that there is no association between the two. The alternate hypothesis indicates that there is an association.

6.7.1 Academic supervisor and feedback

The p -value between “Do you receive feedback from your WIL assessment? (C26)” and “Did you have an academic supervisor (Work integrated learning lecturer) in your university for the WIL period? (B9)” is 0.037. This means that there is a significant relationship between the two variables. That is, having an academic supervisor did play a significant role in terms of how respondents viewed receiving feedback. It is noted that there is a high frequency where Yes interacts with Yes. P -values more than 0.05 do not have a significant relationship.

Table 6.19: Academic supervisor vs feedback

			Did you have an academic supervisor (Work integrated learning lecturer) in your university for the WIL period? (B9)		Total
			Yes	No	
Do you receive feedback from your WIL assessment ? (C26)	Yes	Count	89	8	97
		% within Do you receive feedback from your WIL assessment? (C26)	91.8%	8.2%	100.0%
		% within Did you have an academic supervisor (Work integrated learning lecturer) in your university for the WIL period? (B9)	76.1%	50.0%	72.9%
		% of Total	66.9%	6.0%	72.9%
	No	Count	28	8	36
		% within Do you receive feedback from your WIL assessment? (C26)	77.8%	22.2%	100.0%
		% within Did you have an academic supervisor (Work integrated learning lecturer) in your university for the WIL period? (B9)	23.9%	50.0%	27.1%
		% of Total	21.1%	6.0%	27.1%
Total	Count	117	16	133	
	% within Do you receive feedback from your WIL assessment? (C26)	88.0%	12.0%	100.0%	
	% within Did you have an academic supervisor (Work integrated learning lecturer) in your university for the WIL period? (B9)	100.0%	100.0%	100.0%	
	% of Total	88.0%	12.0%	100.0%	

6.7.2 Importance of WIL assessment in relation to experiencing assessment within WIL

The *p*-value between “Do you think that assessment of the WIL training is important? (C15)” and “Did your training include an assessment component? (C12)” is 0.011. This means that there is a significant relationship between the variables. That is, students saw the importance of the assessment of their WIL training because they were

exposed to the practice of assessment in WIL which could have been a fairly reasonable experience.

Table 6.20: Assessment experience vs importance of WIL

			Did your training include an assessment component? (C12)		Total
			Yes	No	
Do you think that assessment of the WIL training is important? (C15)	Yes	Count	116	12	128
		% within Do you think that assessment of the WIL training is important? (C15)	90.6%	9.4%	100.0%
		% within Did your training include an assessment component? (C12)	95.9%	75.0%	93.4%
		% of Total	84.7%	8.8%	93.4%
	No	Count	5	4	9
		% within Do you think that assessment of the WIL training is important? (C15)	55.6%	44.4%	100.0%
		% within Did your training include an assessment component? (C12)	4.1%	25.0%	6.6%
		% of Total	3.6%	2.9%	6.6%
TOTAL		Count	121	16	137
		% within Do you think that assessment of the WIL training is important? (C15)	88.3%	11.7%	100.0%
		% within Did your training include an assessment component? (C12)	100.0%	100.0%	100.0%
		% of Total	88.3%	11.7%	100.0%

6.7.3 Importance of WIL in relation to information received about assessment

The *p*-value between “Do you think that assessment of the WIL training is important? (C15)” and “Were you informed of the assessment prior to your training? (C13)” is 0.018. This means that there is a significant relationship between the two variables,

indicating that receiving pertinent information about the assessment did have a positive effect on students' understanding the importance of assessment for the WIL training.

Table 6.21: Information on assessment vs importance of assessment

			Were you informed of the assessment prior to your training? (C13)		Total
			Yes	No	
Do you think that assessment of the WIL training is important? (C15)	Yes	Count	114	14	128
		% within Do you think that assessment of the WIL training is important? (C15)	89.1%	10.9%	100.0%
		% within Were you informed of the assessment prior to your training? (C13)	95.8%	78.8%	93.4%
		% of Total	83.2%	10.2%	93.4%
	No	Count	5	4	9
		% within Do you think that assessment of the WIL training is important? (C15)	55.6%	44.4%	100.0%
		% within Were you informed of the assessment prior to your training? (C13)	4.2%	22.2%	6.6%
		% of Total	3.6%	2.9%	6.6%
TOTAL	Count	119	18	137	
	% within Do you think that assessment of the WIL training is important? (C15)	86.9%	13.1%	100.0%	
	% within Were you informed of the assessment prior to your training? (C13)	100.0%	100.0%	100.0%	
	% of Total	86.9%	13.1%	100.0%	

6.7.4 Peer assessment practice

The *p*-value between “Did you find the process of peer assessment an interesting way of assessing? (C24)” and “Were you informed of the assessment prior to your training? (C13)” is 0.008. This value indicates a significant relationship between these variables. That is, being informed of the requirements and expectations of the assessment prior

to students commencing with the training, did have a positive effect on students' interest in peer assessment. If students were briefed on the expectations of the assessment and peer assessment, then there might have been a greater degree of acceptance and agreement to the process of involvement in peer assessment activities.

Table 6.22: Peer assessment

			Were you informed of the assessment prior to your training? (C13)		Total
			Yes	No	
Did you find the process of peer assessment an interesting way of assessing? (C24)	Yes	Count	54	02	56
		% within Did you find the process of peer assessment an interesting way of assessing? (C24)	96.4%	3.6%	100.0%
		% within Were you informed of the assessment prior to your training? (C13)	45.4%	11.1%	40.9%
		% of Total	39.4%	1.5%	40.9%
	No	Count	65	16	81
		% within Did you find the process of peer assessment an interesting way of assessing? (C24)	80.2%	19.8%	100.0%
		% within Were you informed of the assessment prior to your training? (C13)	54.6%	88.9%	59.1%
		% of Total	47.4%	11.7%	59.1%
TOTAL	Count	119	18	137	
	% within Did you find the process of peer assessment an interesting way of assessing? (C24)	86.9%	13.1%	100.0%	
	% within Were you informed of the assessment prior to your training? (C13)	100.0%	100.0%	100.0%	
	% of Total	86.9%	13.1%	100.0%	

Participants' responses indicate a degree of interest in the peer assessment method which could be attributed to participants being informed of the aspects of peer assessment.

6.8 Correlations

Bivariate correlation was also performed on the (ordinal) data. The results are found in the appendix (Appendix G). The results indicate the following patterns. Positive values indicate a directly proportional relationship between the variables and a negative value indicates an inverse relationship. All significant relationships are indicated by a * or **. The various correlations are indicated below.

The correlation value between "I was satisfied with my WIL Experience (B4.3)" and "My expectations were met with the WIL placement (B4.7)" is 0.669. This is a directly related proportionality. Respondents indicate that the greater the expectations of WIL, the greater the levels of satisfaction, and vice versa.

"I was given clear outcomes for the WIL period (B4.6)" and "My expectations were met with the WIL placement (B4.7)" is 0.507. This is indicative of the fact that the clearer the outcomes for the WIL placement, the greater the expectations of WIL.

"My expectations were met with the WIL placement (B4.7)" and "I am able to communicate to my lecturer via the online classroom while on training (C27.9)" is 0.436. There was greater ability to meet expectations of the training due to having access to the lecturer via the online classroom during the training period.

Negative values imply an inverse relationship. That is, the variables have an opposite effect on each other, meaning as one increases, the other decreases. The correlation value between "Written reports (C18.3)" and "The online classroom has interesting discussions for WIL students on training (C27.6)" is -0.300. This reveals that the better the online classroom discussions, the less the need for a (written report) assessment. Even so, written reports are necessary forms of assessment to determine trainees'

reflections, but the online space provides an opportunity for trainees to engage with other trainees and discuss their experiences while reflecting on their own experiences.

Correlation between “I am able to communicate to my lecturer via the online classroom while on training (C27.9)” and “Presentations (C19.2)” is -0.096. This indicates that the better the online discussions with the academic co-ordinator, the less the need for presentations. This means that students can engage regularly with the academic supervisor and have immediate responses relating to problems the students might be facing, and also include feedback to the academic on the students’ performance and expectations, resulting in a more integrated engagement between the student and the academic while the student is on training, which offers more opportunity for feedback and engagement than one would be receiving from a presentation after the training is over. This correlated with “I received adequate guidance from my industry supervisor (B4.5)” and “I received adequate guidance from my academic supervisor (B4.4)” is 0.546. This appears to indicate that the greater the assistance from the academic supervisor, the better the guidance from the industry supervisor. There is also an indication of correlation between “I am able to communicate to other students via the online classroom while on training (C27.8) and Reflective presentations (C18.5) which is -0.001. This indicates that the better the engagement and reflective activity with other students via the online platform, the less the need for reflective presentations after the completion of the training period. The engagement during the training, and collaborations, discussions and support of other students on training (sharing of ideas, challenges and best practices) is more effective than after the completion of the training period.

6.9 Conclusion

This chapter discussed the findings from the quantitative data collection process, which is supported by the qualitative data collection process from the previous chapter. The analysis commenced with the biographical information of the participants followed by pertinent issues relevant to WIL and the importance of WIL, leading to a more detailed analysis of the aspects relevant to assessment of WIL. The data revealed students' perceptions of their experiences with WIL and assessment of WIL, reflecting on their most preferred and appreciated practices of assessment. Correlations of participants' statements revealed interesting trends and patterns related to their preferences and behaviour.

The data presented revealed many good practices of innovative teaching and learning within WIL and assessment of WIL. These ranged from varied WIL training periods to identification of assessment practices most preferred by participants to practices of peer assessment, self-assessment and online assessment. However, there were interesting divergences between some of the students' preferences and the most common types of assessment they experienced.

Chapter 7 discusses the main findings of the study in relation to the objectives of the study and the theory framing this study (Chapter 3), together with the literature reviewed (Chapter 2).

7 CHAPTER SEVEN

Discussion of Findings

7.1 Introduction

This chapter presents the integrated findings from both the qualitative and quantitative data collected for this study and discusses them within the context of the literature. A mixed methods approach was adopted for this study and the triangulated findings are discussed in this chapter. The data collected were analysed to identify and highlight the potential amendments that need to be incorporated into the practice of assessment of WIL, leading to an improved practice at UoTs.

The study aim was to investigate the development of an integrated system of assessment for WIL that would be all encompassing yet flexible enough to be adopted within various sectors. The findings are summarised in accordance with the research objectives below and discussed within a 'CATWOE' SST format.

The research questions were:

Research question one: What are the current methods of assessment of WIL within programmes at UoTs?

Research question two: How can any identified challenges associated with the assessment of WIL be addressed?

Research question three: Can improved assessment methods be integrated within a coherent flexible system?

Key to any successful project or activity is the integration of the activities of all parties in achieving the overall vision of the project. This is true for UoTs, as they strive to achieve their educational goals for WIL through their academic staff and students. This implies an openness to breaking silos and embracing interconnectedness. The adoption of systems thinking, specifically SST methodologies, therefore provided appropriate tools for an overall analysis of the present situation of WIL assessment and its current challenges.

The process allowed for an integrated look at the present practices, together with WIL partners' perceptions of WIL practice, and an understanding of their joint future expectations for improved practice. Despite the many challenges associated with WIL programmes, as indicated in the literature and supported by the findings of this study, an investment in the management of this process is in the strategic interest of UoTs, and of the wider economy of the country.

The findings of this research reveal that the current practice of WIL presents a somewhat disjointed approach which places WIL as an additional inclusion at the end of a qualification, with assessment still largely relying on the use of logbooks (Ajjawi, *et.al.*, 2020) along with a lesser emphasis on a wide variety of different additional approaches. This study envisages, ideally, including WIL in the curriculum from the beginning, as a grounding for successful assessment practices and thus authentic outcomes of WIL. This is envisioned against a backdrop of understanding the inherent difficulty of embedding and scaffolding employability enhanced learning activities within a transformed curriculum (Young, *et.al.*, 2019).

The study is significant in that it contributes to the body of knowledge relating to the application of 'soft systems thinking' techniques to address various difficult issues in academia. Systems thinking offers "ways of selectively handling, in a transparent manner, the detail that may complicate our thinking" so that the core issues of a situation become evident (Reynolds and Holwell, 2020: 6). SSM has mainly been used in business management, with some inclusion in academia (Yadin, 2013) but with no application so far to WIL and the assessment of WIL. This study seeks to close that gap.

The findings demonstrate the potential value of strengthening inter-relationships between several complex factors within academia. It will therefore help to improve the management and assessment of WIL and to boost the significance of partner relationships within the external environment of UoTs (industry, government and funding organisations).

7.2 ‘Customers’ and ‘Actors’: the current uncoordinated situation

Mentorship. Customers were identified as the students, the organisation, and the wider economy of the country, while the Actors were the WIL co-ordinators, the lecturers involved, and the industry mentors. Data suggests that the success of the WIL programme lies with the careful integration and co-operation of these partners, while findings suggest that this is not currently the case.

Mentorship. One of the most positive recorded assessment relationships was that between students and industry mentors. Data suggests that students that have a good relationship with their industry mentor and receive immediate feedback (practical assessment), appreciate their experience of WIL and are able to identify with the benefits of the WIL experience. Statements such as “*My mentor guided me throughout*”; “*If ever I came across a difficulty, he helped see me through it*”; “*She never turned me away if I had any queries*” and “*She was extremely approachable and it was clear she did want me to overcome any obstacles*” indicate students’ appreciation of the mentoring and feedback received. Students appreciated the approachable nature of industry supervisors and their honesty in the feedback given. Mentoring of WIL students appeared to be important (Nduna, 2012: 234) from both the industry mentors and the academic supervisors as indicated by the great majority of students. Fleming, McLachlan and Pretti (2018: 329) also support the need for engaged mentoring of students in WIL in order to achieve any level of commitment from the WIL partners.

All WIL players also indicated an appreciation of the outcomes of WIL and all respondents understood the importance of its inclusion in a qualification. They also all saw the need to integrate activities within the qualification to achieve a more coherent system of management and assessment of WIL. However, the Academic WIL Co-ordinators were often critical of the WIL mentors' assessment skills while industry mentors, even while demonstrating confidence in their own ability to assess WIL students, also expressed an interest in, and the need for, further training as assessors, which would place them in a better position to understand academic expectations of assessing. This is also supported by Nduna (2012: 234) who acknowledges the need to accredit and register assessors relevant to certain disciplines within the practice of WIL. This therefore presents a clear opportunity for improved relationship building and closer engagement between the University and industry.

WIL co-ordinators, for their part, expressed their concerns with the strain which the additional workload of WIL responsibilities places on them, indicating a need for further training opportunities to capacitate them to effectively manage this role as they engage in activities additional to those of a 'mainstream' academic.

Time span of WIL training. Data revealed that students' training period ranged from 9 weeks to 12 weeks, which raises concerns as to varied levels of exposure to the working environment the students receive. Students indicated the need for longer WIL placements and this was generally supported by industry mentors, who felt the WIL period is often not sufficient to cater for really effective training. They felt that a longer period would present the students with additional time to transition into the new environment and to gain relevant graduate attributes and pre-professional skills. It would appear therefore that the issue of the length of training periods needs some clearer guidelines reflecting greater consistency in practice, with room for flexibility depending upon the context, and sensitivity to its impact on the wider curriculum.

Work preparedness programmes. The existence of work preparedness programmes, prior to students' exposure into industry, was evident from the findings, while the level of exposure to these and their effectiveness were not always made clear. Industry mentors, on the other hand, did suggest the need for inclusion of soft skills development of students that ideally should be instilled throughout their undergraduate studies. Pre-requisites are common practice within any qualification. The inclusion of work preparedness programmes as a pre-requisite for work training placements presents an opportunity for soft skills training within the academic qualification. Current practices indicated a degree of inconsistency as some departments include these practices, while others do not. Also the departments that include work preparedness, do so as isolated practices with no clear guideline as to their practice or assessment. These are then ad hoc curriculum interventions as per the WIL Co-ordinators' planning, which indicates a lack of structure or general guidelines across institutions.

Employability skills included in WIL activities lead to an increase in a student's 'career literacy', instilling real world experience, and an ability to take personal initiative (Griesel and Parker, 2009: 20; Heymann, *et.al.*, 2022). Students also acknowledged industry supervisors' support in issues such as communication skills, punctuality, handling work pressure, adopting an appropriate dress code, and developing team work skills. However, while there is an awareness of the significance of these 'soft skills' there was no consistency in their application or assessment.

The findings thus indicated an element of fragmentation in the existing levels of management of WIL at UoTs. WIL Co-ordinators expressed their concern and disappointment with having WIL merely added to the existing workload of academics with little or no relief for the additional responsibilities of managing WIL. These practices oppose the recommendations of Truer *et.al.* (2012) as cited by Nicholas (2017: 23), who highlights the importance of institutions having WIL experts available at University or Faculty level. Only one WIL Co-ordinator indicated that their institution had a Faculty level WIL Co-ordinator who can be identified as a WIL expert at Faculty level. All other WIL Co-ordinators indicated that this position was not a permanent one but rotated amongst academics within the Department.

An overview of the interview data suggests that either an academic with a passion for WIL accepts the role, or that the task is simply handed to an academic as part of their workload. While support received from the Central Office of the Co-operative Education Department was noted by some WIL Co-ordinators, others supported the idea of inclusion of a central WIL Department for all UoTs. Those that indicated the existence of the Central Office expressed a genuine need to have more structured and ongoing support and guidance from this central body. Industry mentors also expressed the need for a “one stop shop”, as in a Central Department to contact for all their training requests.

A concern common among WIL Co-ordinators was the need for training in their positions as they were generally merely required to take on the position within their Departments, after which they were expected to learn “on the job”. This is also noted by Msulwini (2017:17) who indicates that many WIL Co-ordinators’ responsibilities require them to be multi-skilled even though they are not exposed to any training for the related tasks. The tasks of a WIL Co-ordinator are wide-ranging, from preparing students for training, sourcing placements, confirming and approving placement sites, sending out CVs and confirming student placements, arranging appointments, soliciting feedback from students and industry mentors, visiting students during training periods, assessing the entire WIL component with the industry mentor, and any other related duties. These duties were seen by the Co-ordinators themselves as activities that extended further than the responsibilities of an academic as a module specialist. The study findings therefore support the need for appropriate training of WIL experts to manage this multi-tasked portfolio.

The most pertinent question therefore is: should practices of assessment of WIL be standardised or is there a possibility of a degree of consistency that can be agreed upon within a flexible and dynamic system, as would be consistent with SST? The latter would allow for consistency in practice, breaking of silos, and a co-ordinated and integrated practice enabling more consistency in assessment, while avoiding prescriptive practices at odds with the academic freedom enjoyed by UoTs, along with other SA universities.

Encouraging a more integrated approach also aligns with the development of opportunities for CoPs, leading to improved practices of information sharing and decision making. It is not sufficient to leave the development of employable graduates in the hands of individual academic departments, but recommendations for formalised and accepted practices on development of employability should be the joint strategic focus of HEIs, industry and government (Abelha, *et.al.*, 2020). Thus, supporting the formation of CoPs, fostering an opportunity for co-ordinated support and policy development, also, around issues relevant to assessment of WIL.

7.3 The Transformation: openings for greater cooperation indicated by the findings

Different time spans for WIL; different approaches to work preparedness and the assessment of employability skills, including different skills sets of assessors, appear to indicate that WIL and its assessment, as currently practiced, lacks a clearly integrated and coherent structure.

7.3.1 WIL specialist posts

An enhancement to the practice and assessment of WIL, suggested in the literature and indicated as valuable by data gathered from the interviewees, lies in the prospect of UoTs employing permanent WIL specialists within Departments or Faculties, to facilitate a more structured and co-ordinated management of WIL, including its assessment

This addresses the issues of feelings of inadequacy and being overworked as expressed by the WIL Co-ordinators. However, the success of this centres around the availability of funds, as WIL experts would need to be appointed in a permanent capacity (see 'environmental constraints', below).

7.3.2 Central Co-operative Education Department

The involved participation of the Central Co-operative Education Department presents a further opportunity for a systematic flow of WIL activities within UoTs. It not only presents a “one stop shop”, fostering interactions between UoT personnel and industry partners, but also presents opportunities for regulations to be monitored and improved.

7.3.3 Educational practices

Another area of concern that emerged was the discrepancy in assessment preferences. The differing conceptions of the WIL Co-ordinators and the students concerning self and peer assessment, revealed the existence of strands of teacher centred practices and thinking still existing amongst WIL coordinators, at odds with the move of UoTs to a more student centred (inclusive) approach to educational practice as a whole.

Data revealed a level of divergence in the duties/tasks of WIL Co-ordinators. These identified discrepancies lie in the differing approaches to Learning, Teaching and Assessment of WIL. This is confirmed by Higgs (2014: 254) who explains that practice is situated and relevant to WIL co-ordinator’s experience and frame of reference which is resultant of the varied people, cultures and workplace settings relevant to WIL. However, this study suggests that a fair degree of consistency is needed to ensure that authentic practices are undertaken amongst the general community of academics practicing WIL.

7.3.4 Integration of graduate employability within a holistic curriculum offering

The findings of the study highlight the importance of WIL in the holistic development of students as supported by Bilgin, Powell and Richards (2022:01) and Abelha *et.al.* (2020) who note the move of universities towards prioritising employability skills in their qualifications.

Moreover, the HESA Report of 2009 clearly indicates the need for graduate employability awareness to be evident in the entire curriculum (Griesel and Parker, 2009). However, WIL Co-ordinators all confirmed that WIL only happens at the end of the qualification, which in practice reduces the possibility that these attributes will be developed throughout the qualification. Again, students are exposed to work preparedness programmes only just prior to training.

Although a structured integration of WIL activities within the entire curriculum was lacking, WIL Co-ordinators were in favour of this practice for future implementation. Pre-professional Identify (PPI), which is the ability to know and relate to the “skills, values, behaviour, community and philosophy of the intended career of a student” (Jackson, 2016: 926) links to the development of graduate attributes, this being the goal of UoTs as they intend to develop students’ professional and practical skills (von Treuer *et.al.* 2011: 195). PPIs support the development of a student beyond the classroom, which links to the intended outcomes of WIL that allow for the practical application of theory within the WOW. An integration of these PPIs from the start of a qualification, leading to the final practice of training in the (WOW), was supported by the industry mentors who indicated that they expected students to be exposed to more than just academic skills and knowledge, but salient issues of soft skills and personal development as well.

7.3.5 Embracing a culture of Community of Practice (CoP)

The study findings were consistent with Nicholas’s (2017) proposal that WIL Communities of Practice (COPs) be encouraged. All WIL Co-ordinators and industry mentors highlighted the importance of strong engagements between the institutional representatives and the industry mentors to ensure a smooth integrated practice of WIL. Two WIL Co-ordinators also indicated the importance of having sessions with other WIL practitioners in order to share ideas, challenges, and experiences so that they would be able to “find out where one must improve”.

Patrick *et.al.*, (2008: 45) further supports this engagement as he indicates the feeling of isolation experienced by university staff working with WIL, reflected in their experience of being trapped within their own university, state or region, as they are left to work on their own with matters relevant to WIL. The idea of CoPs was therefore welcomed by WIL Co-ordinators and Industry mentors as they felt that this type of engagement is needed, not just within institutions but across various UoTs, that would provide for greater engagement opportunities on matters of management and assessment of WIL. This type of practice lends itself to the possibility of breaking silo mentalities that may exist and encourages new innovative ways of managing the already challenging task of the management and assessment of WIL.

7.3.6 Assessment integration

Assessment should be designed so that it supports and encourages the learning process and also allows for individual development of students in their varied experiences (Clements and Cord, 2013). This is directly related to “authenticity” in assessment as explained by Gulikers, Bastiaens and Kirschner (2006:338). Authentic assessment is what industry mentors and students are expecting, which is often considered problematic by UoTs since it is different in nature from the assessment practiced in other courses due to the diverse placement settings away from the UoT (Ajjawi, *et.al.*, 2020: 304).

Industry mentors’ requests for “more indicators and expectations in logbooks of assessment requirements to provide clear understanding of [university] expectations” (M1), suggests the need for authentic assessment in WIL to filter through the entire WIL experience, which also supports the findings of Ferns, Dawson and Howitt (2019: 105) who found that assessments that were designed in collaboration with industry partners attained the best results.

This notion of “authentic” assessment would prove effective if it threads through the entire qualification in the various activities that are WIL related.

Findings indicated that if students understood the requirements of WIL and the assessments included, they experienced improved levels of appreciation and understanding of the assessment and were more willing to participate in these activities. 62% of students indicated their involvement in assessment activities while on WIL training.

The collaborative model of industry feedback (Richardson, Henschke and Kelly, 2009), which highlights the importance of the inclusion of students and industry mentors in the early stages of development of WIL programmes and assessment, is supported by the findings of this study as industry mentors call for more interaction with academics, and students supported assessments which involved peer and self-assessment. Industry mentors confirmed that assessment is sometimes not relevant to the current practices in industry (M4).

Whilst industry mentors indicated their satisfaction with their role as assessors of WIL trainees, academic WIL Co-ordinators expressed their concerns with industry mentors being the sole assessors of trainees. Issues of discrepancies among varied assessors and varied assessor characteristics were core to these concerns and this concern is supported by Trede and Smith (2014: 155) who also indicated that workplace supervisors are principally experts in their fields and only mentors (academic assessors) as a secondary responsibility.

7.3.7 Engaging students in the assessment of their WIL experience

Self-assessment. Many authors (McNamara, 2013:186; Boud and Falchikov, 2006: 341; Boud, Lawson and Thompson, 2013: 941) have advocated the need for students to be included in their own assessment activities thus contributing to shaping their professional identities. The findings of this study generally concur as WIL Co-ordinators, Industry Mentors and students themselves all supported this inclusion. All WIL Co-ordinators were positive about the idea of including students in self-assessment activities, but with only one indicating that this is currently practiced.

A WIL Co-ordinator (Interviewee 5) also indicated that “*Students need to learn how to critically analyse their performance so that they can learn from their own experiences*”. This was supported by an industry mentor (Interviewee 2) stating “*people learn through assessing their own performances, which will make them better at understanding and identifying their mistakes or failures*”.

Peer assessment. Thus, the idea of self-assessment was welcomed in principle, but eight WIL Co-ordinators thought that it would be difficult to practice *peer* assessment as most placements are of individual students which would pose challenges to this method of assessing. Industry representatives from small business organisations in particular were quite content with the current practice of assessment as they indicated the inappropriateness of having peer assessment in situations where the student is the only one in training. (They did not consider the possibility of online peer assessment, which could overcome this difficulty). In addition, academic WIL Co-ordinators and Industry Mentors, while keen to include students in the assessment activities of their own WIL experiences, agreed that it might be impractical to include peer assessment as a WIL activity, due to a level of immaturity of students potentially standing in the way of a fair assessment.

Students however (87%), presented an opposing view indicating that they were in favour of their involvement in peer assessment activities of WIL. They expressed interest and appreciation of the inclusion of both peer and self-assessment, not just for WIL activities but in assessment activities in general within their qualification. This supports the literature that sees peer and self-assessment as positive, learner-centred, assessment methods (Fathi, Affzali, Parsa, 2021: 212). The students felt that being exposed to peer assessment would add to their development as a reflective learner. They welcomed receiving criticisms from fellow students, as well as being involved themselves in their peers’ work. They believed that this would increase their sense of understanding of different perspectives within the same situation. The idea of learning from each other was therefore strongly supported. Thus, students were keen about peer and self-assessment while WIL co-ordinators and industry mentors were notably more resistant.

7.3.8 Reflective and other assessment types

An interesting comparison can be drawn between the current WIL assessment activities, which predominantly involve the logbook (87%) with varied inclusions of presentations and reflective activity, in contrast to what the students themselves gave as their preferred assessment activities. Students indicated reflective presentations, as their preferred form of assessment followed by reflective activity, even though they also indicated that they saw these as the most challenging of activities.

Reflective activity is considered important for the development of professional competency (Donohoe, 2019: 96). This was supported by the study findings as all three stakeholder groups indicated a level of understanding of reflective practices and appreciated the role it plays in teaching, learning and assessment activities. The majority of the students appreciated and accepted the various feedback messages they received from their supervisors and indicated that they engaged in reflection to help improve their own performances. As noted above, Reflective Presentations, Reflective Reports and Portfolios of Evidence were the forms of assessment preferred by students, even though they also indicated that they considered these as the most challenging. Industry mentors were supportive of the reflective feedback sessions (formal or informal) they engaged in, as they felt that it helped to improve students' performance.

It was also seen as important since immediate (on-the-job) feedback and reflection proved more effective in avoiding problematic situations or misinterpretations of task activities. WIL Co-ordinators also agreed with the sentiments of the students and the industry mentors and added that they appreciated the feedback received from both the students and the mentors as it presented opportunities to identify problem areas and implement corrective action as and when it was needed. This allowed for improved practices in future implementation of WIL activities and assessment. The verbal feedback options were preferred over the written feedback options – it being a more direct and clear approach. Overall, a consensus was established between all partners on the importance of reflection and feedback within WIL.

7.4 Worldview: integrated activities as a catalyst for holistic assessment of WIL

Assessment of WIL therefore emerged as a complex and 'messy' process that appears to require a more systematic system to counter the effects of a disparate set of approaches. WIL co-ordinators' concerns about inconsistencies in industry mentors' abilities in assessing, and industry mentors' need for assessor training (both of which emerged from the data) present an opportunity for consideration of a renewed approach to assessing WIL. With the need for greater integration into the curriculum and involvement of various partners of WIL in assessment, it becomes possible to consider an improved management of assessment.

A further issue which arose was the disconnect where students indicated a preference for a more student-centred approach to assessment activities (reflective presentations/reports) as compared to the traditional practices of the logbook still practiced as a mainstay approach by the WIL Co-ordinators. Assessors with a limited understanding of academic requirements of assessment can present a challenge to the effective management of WIL assessment. Issues of inconsistency (too lenient or too strict assessors) can create unfairness.

As a result, engaging in a more inclusive approach to assessment, with the involvement of more parties than just the industry mentor would present a more balanced approach. These various aspects present a need for a more varied range of assessments that are more student centred and involve more than one assessor (student, WIL academic co-ordinator and industry mentor). The literature is largely silent on this complexity which therefore presents a gap that this study helps to address.

7.4.1 Strengthening partner relationships leading to a smooth transition into the world of work

The need for the smooth transition of university students to employment following graduation, necessarily means that there must be a stronger connection between academics, students and employers (Kennedy *et.al.*, 2015: 05). This tripartite relationship has been understood as key to the success of the WIL experience and yet it is generally not fully realised.

The majority of the WIL industry mentors appreciated the engagement sessions during the placement of the trainees at their organisations. However, they also called for more inclusive and regular engagements with the university. They felt that this would lead to a more engaged and cohesive experience in developing students into employable graduates. WIL Co-ordinators also valued the involvement of industry representatives in the decision-making process of curriculum development, which is already evident to some extent in their involvement as advisory board members for the Department. While this relationship was appreciated, there were indications of a need for stronger relationship-building initiatives, with further inclusion of the student voice.

In addition to the academic Institution, industry mentors and students – who are seen as core to the WIL relationship, other players such as the SETAs, government and funding institutions were considered as important for the success of the WIL programme. WIL Co-ordinators indicated the involvement of SETAs as funding opportunities for WIL placements, but these were limited in relation to the number of placements required. This inadvertently restricts the number of trainees that can be accepted by industry as expressed by Industry mentors.

7.5 Owners and the Environment: current challenges and opportunities for embracing a challenging environment with the further involvement of owners/ stakeholders

7.5.1 Owners

UoTs, the DHET, Industry (the economy of the country) and Government can be identified as the owners of the system. The support of Government and Industry are important to the success of the practice of WIL and the assessment of WIL. Analysing WIL practices from the holistic approach of SSM, places WIL not as an independent 'add on' but ideally as the continuous development of those practical skills and professional graduate attributes that are the positive reverse side of the theoretical training provided by the universities from students' first year of study. For this practice to be successful it would appear to be necessary for the extended partners of WIL to become more invested in the undergraduate programme as a whole, and for assessment of WIL to become more effective if extended holistically across all learning areas.

7.5.2 The Environment

On a negative note are the severe constraints of the environment in SA that present obstacles to employment of youth in the country overall, and thus to the success of an envisioned integrated system of WIL and assessment of WIL.

Economic constraints and government support. Key concerns identified in this study are the weak economy and the lack of adequate support from government. Although support is possible in the form of SETA funding, this is not happening effectively (Balwanz and Ngcwangu, 2016). SETA funding, due to its links between industry, government and HEIs, places itself in a strategic position to foster increased engagement.

SETAs responsibility for administering the funds that are collected in terms of the Skills Development Levy presents an opportunity to link a student to an organisation early in the curriculum phase enabling the student to secure a substantive placement. UoTs share the responsibility of sourcing placements and industry would have the opportunity of engaging with students as early as first year, in order to influence their development during their years of study in line with industry standards. This would allow for greater engagement of students with industry, while minimising or removing geographical restrictions on placement opportunities, as students would become funded trainees. An offshoot of this type of initiative would place UoT management in a position to include WIL programmes into more of its academic qualifications as the benefits of this approach become better understood. This could result in an all-round beneficial relationship for all WIL Actors, while existing relationships could be further strengthened and new engagements developed.

Private sector involvement. While there is clearly no way in which WIL programmes can be exempt from the huge challenges existing in SA at present in relation to the economic and political environmental, strengthening of industry partnerships could result in MOUs and projects with industry to further build an effective WIL programme. Financial constraints emerged as a major contributor to the various challenges faced in effectively managing WIL, and, while Government funding is unlikely to increase, it is in the interests of industry to invest in the future through skills training.

7.6 Proposed framework for assessment of WIL

In light of the discussions above, the analysis of data and the review of literature, a proposed framework for effective integration of assessment activities into WIL is presented below. The proposed framework takes into consideration the inherent challenges of the current practices, while incorporating the best practices as indicated by the research findings and aligning the necessary improvements into a comprehensive approach to assessment activities within the practice of WIL.

It was evident that for assessment to be practiced effectively a comprehensive analysis was required as presented in figure 7.1. [It should be noted that the circle is not envisaged as complete – but as involving improvements continuing into the future in an ongoing spiral as new policies are implemented and as circumstances change]

Figure 7.1: CATWOE analysis of effective integration of assessment activities within WIL

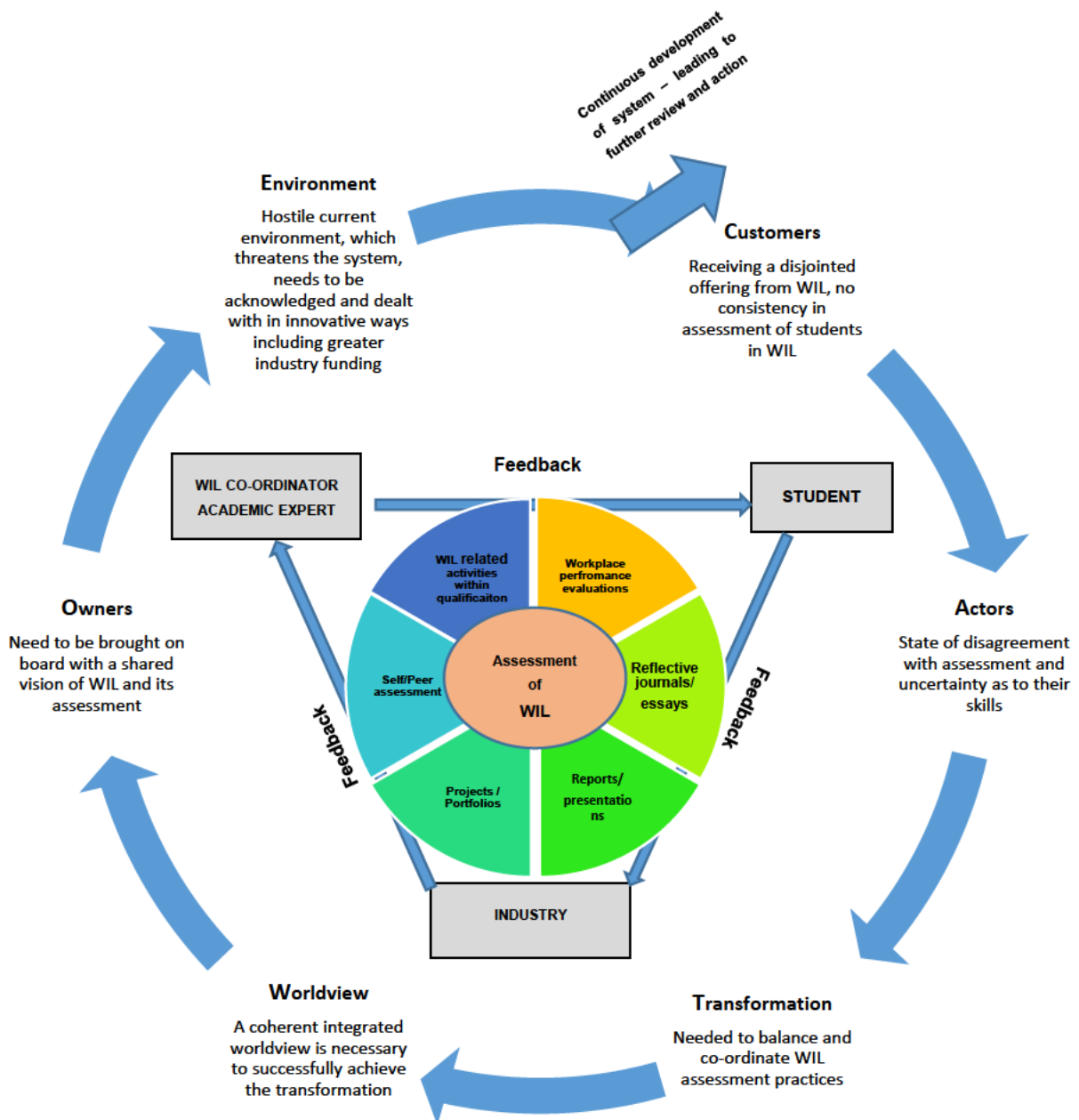


Figure 7.1 therefore illustrates an integrated approach to WIL and assessment of WIL. The figure incorporates the CATWOE components which have been used in this research as a means of identifying and improving dysfunctional systems – in this case, in the management and assessment of WIL. The figure presents a model for the guidance of UoT management and curriculum planning of WIL offerings:

- **C**ustomers. The students are important customers and should become a significant partner within the assessment of WIL, as they become more involved in their own assessment activities. Other customers as stakeholders should be integrated further into the system
- **A**ctors are key to the partnership of WIL as they plan, present, manage and monitor the assessment activities. They are seen as key initiators of the assessment activities of WIL and, in partnership with students, they should support a more integrated approach to successfully assessing WIL.
- **T**ransformation involves the process of implementing innovative practices in order to strengthen the relationships between all parties, presenting a more integrated approach to assessment. The development of CoPs within UoTs, and between UoTs, offers opportunities for engaged practices leading to identification of common issues, support for challenges and sharing of best practices within assessment of WIL.
- **W**orldview. A holistic worldview will present the possibility of approaching WIL and assessment of WIL from the wider viewpoint of all contributing partners.
- **O**wners are the custodians of the WIL programme and therefore have a vested interest in the success of the integrated and aligned assessment activities of WIL which should guarantee more effective outcomes. The owners should become key external partners supporting the success of the assessment practices of WIL as they will also contribute to, and critique, the process.

- **E**nvironmental factors may be seen as key constraints, but also as sparking potential innovations. Viewed as challenges, they can contribute to the financial prospects necessary for implementing a successful approach to WIL and assessment of WIL. The prospects of securing financial support for WIL programmes may be dependent on the delivery of an approach to WIL which presents opportunities for stronger engagements in innovative projects and partnerships between UoTs, government and industry.

7.7 Conclusion

Successful implementation and practice of WIL and of WIL assessment is thus indicated within the literature, and from the findings of this research, as being dependent on a variety of factors and partners. Findings indicate a somewhat incoherent approach in the current practice and assessment of WIL, while WIL itself is positioned as an additional element only included into the final year of a curriculum. Literature and the findings of this study present a different view of ideal practices. The challenges of WIL assessment, seen through the lens of a SSM can enable a more holistic and integrated approach to WIL and assessment of WIL to emerge. However, it is evident that the nature of a viable integrated approach to the practice of WIL must first be established. These findings and suggestions are presented in the next chapter as overall recommendations, the achievement of the research objectives, and a conclusion to this study.

8 CHAPTER EIGHT

Conclusions and Recommendations

8.1 Introduction

The previous chapter presented a discussion of the findings of the study in light of the literature reviewed. This chapter draws conclusions as to the achievement of the research objectives and makes recommendations for the development of a holistic approach to the assessment of WIL for improved practice at UoTs. It also discusses the limitations of the study and makes suggestions for further research.

The objectives of the study are:

1. To investigate the current methods of assessment of WIL Programmes at UoTs.
2. To address identified challenges associated with the assessing of WIL.
3. To develop an improved integrated method of assessment of WIL within a coherent yet flexible system.

A discussion on how each of the above objectives have been achieved follows.

8.2 OBJECTIVE 1

To investigate current methods of assessment of WIL within Programmes at UoTs. (Current experiences and practices of Customers and Actors)

It was established that WIL practices, including the assessment of WIL, reflected a pattern that had not changed much in recent years to accommodate new realities and, although this pattern was similar across different institutions, there were discrepancies in practice.

The principal method of assessment remained the logbook, which is completed by the industry assessor to reflect the achievement of different work-related tasks. Industry assessors, while feeling competent in this task, also indicated that further support with the requirements of the university would be appreciated. Also, while their mentorship was very much appreciated by the students, their competence as assessors was questioned by some WIL co-ordinators – and there was no fixed standard for benchmarking assessor marking standards.

A range of other assessment practices were noted from different universities including presentations, reflective journals, portfolios of evidence, and written reports. Since these were practiced in an ad hoc manner, it is recommended that a fair range of assessments for WIL be agreed upon, providing room for flexible practice among WIL Co-ordinators but contributing to fair assessment practices across the practice of assessment of WIL. This is needed to prevent the practice of over assessment and under assessment within WIL.

While the concept of self-assessment was approved by WIL Coordinators, only one university actually practiced it, and peer assessment was not reflected in the practices of any of the UoTs, being seen by Coordinators as difficult to implement and also unlikely to be practiced fairly by students.

Although online assessment was included and experienced by a limited percentage of students (34%), overall appreciation of the online method of assessment was expressed by students. Academic WIL co-ordinators welcomed the inclusion of online assessments and were pleased to consider more inclusion of this method of assessing if already practiced and to consider the inclusion of they did not already have it. Industry mentors also expressed an interest in involvement in online assessment of their trainees, however concerns around practical implementation of this was prevalent. Therefore, it is recommended that robust discussions with key partners needs to take place to carefully plan and execute the adoption of online methods of assessing as this presents opportunities for improvement to the assessment practices of WIL.

Training periods varied from nine weeks to 3 months generally, with six months and 18 months being additional periods arranged through special agreements between the student and the industry mentors. This indicates discrepancies between the depths of training which different students experience. This in itself presents an environment of unfair practice as some students are gravely disadvantaged compared to others in the period of exposure into the WOW.

A comprehensive overview of assessment practices within the context of WIL (Objective 1) was therefore achieved.

8.3 OBJECTIVE TWO

To address identified challenges associated with the assessment of WIL.
(The Transformation process).

Position of WIL in the curriculum. The practice of having WIL training confined to the final year of an undergraduate course was judged, in the light of the literature and of the students' and industry assessors' comments, to be restrictive. Integration of the skills acquired through WIL were seen as ideally spread throughout the curriculum, but this was not happening beyond brief work preparedness interventions provided just before WIL training by some universities. Embedding of graduate employability skills within the qualification, and their specific assessment, present opportunities for the development of an integrated approach throughout the curriculum, spanning both classroom and workplace activities, which was not being realised at present. This relates to the findings of Abelha *et.al.* (2020: 10) as their systematic review analysis highlighted the concern of development of soft skills amongst graduates that needed attention in developing graduate employability, being a focus amongst HEIs.

A well structured work preparedness programme is therefore recommended that could be introduced across institutions, with guidelines on suggested practice so that students are introduced to work preparedness opportunities. The current isolated offering at the end of a qualification should be revised to offer scaffolded WIL activities, ideally from early in the curriculum, leading to a final stage of work placements. This presents a more balanced and integrated approach to students gaining authentic learning experiences throughout the development of their academic qualification, involving both theory and its practical application. The embedding of graduate employability skills within the qualification and their specific assessment, present opportunities for the development of an integrated approach spanning both classroom and workplace activities.

Restrictions on assessment practices. The inclusion of students in strategic decisions of assessment, as recommended in the literature and supported by the students themselves, was not practiced. Also, a wider and more inclusive range of assessors and assessment practices was not implemented despite the clear advantages of this emerging from the data.

The inclusion of students in strategic decisions of assessment is therefore recommended as supporting a student-centred approach where students are responsible for constructing meaning of their learning through the activities of learning and assessment (Ajjawi, *et.al.*, 2020). Self and peer assessment practices enhance a student's academic performance as they develop their self-regulated and co-regulated learning (Yan, *et.al.*, 2022). The inherent reflective nature of these assessment types as supported by the majority of the students (66%) are therefore recommended. The challenges of peer and self-assessment are, however, acknowledged, and as a result, the involvement of robust discussions amongst WIL experts and WIL partners on effective practice is indicated here.

Assessors with a limited understanding of academic requirements of assessment can also present a challenge to the effective management of WIL assessment, as discussed above.

Issues of inconsistency (too lenient or too strict assessors) can create unfairness. As a result, the involvement of more parties than just the industry mentor is recommended as presenting a more balanced approach. A flexible mix of assessments leading to the final attainment and achievement of the WIL outcomes is therefore recommended as allowing for a fair assessment of students' overall performance, while a closer association between academic and industry players can develop industry assessors' confidence in their assessment skills and a greater understanding on the part of the academics of current industry practice.

It is therefore recommended that a clear mix in assessment activities are engaged in during the various levels of academic progression, work preparedness workshops and training, adequate and relevant training periods, student involvement in assessment of their own training experience, varied assessment tasks (portfolio of evidence, presentations, reflective activities, and reports) all leading to a more authentic assessment practice, and thereby enabling the WIL Co-ordinator to employ a more well-rounded, integrated, approach to assessment. A flexible mix of assessments leading to the final attainment and achievement of the WIL outcomes is therefore recommended as allowing for a fair assessment of students' overall performance, while a closer association between academic and industry players can develop industry assessors' confidence in their assessment skills and a greater understanding on the part of the academics of current industry practice.

While the varied fields of practice within WIL call for adaptability in its application, structured guidelines to the assessment of WIL would appear to be in the interests of UoTs themselves, WIL co-ordinators and of their industry partners, as also of the 'customers' – the students and wider economic community.

Communities of Practice. In view of the lack of communication between different UoTs established in the data, they are strongly recommended to form, or strengthen, Communities of Practice, in order to provide a supportive structure to the WIL experience, encouraging open discussions of WIL related matters, sharing of ideas and solving of problems.

CoPs present a sense of belongingness that can break silos and unite disparate practices, leading to more informed and inclusive approaches as supported by Nicholas (2017). This author argues that WIL Communities of Practice (CoP) have the ability to encourage WIL co-ordinators to share ideas, strategies, best practices, their work ethic, and other WIL related activities, enabling learning from each other and providing support for each other's' development. CoPs, as a result, also present opportunities for more research activities to be undertaken, leading to further improvements and sharing of practice.

Enhanced engagement with industry. While clear engagement with industry exists for all UoTs in the implementation of WIL programmes, there were strong indications that these could be further developed. Improved engagements with industry are therefore recommended, presenting the potential for increasing funded projects in consultation with UoTs. A successful project that includes industry partnerships in youth training exists in the Youth Employment Service (YES) project. This is a business-led collaborative project that looks at innovative ways involving technological best practices to provide youth with a dignified first chance. This is a 12 month training experience opportunity (Yes4youth.co.za). The success of this project is confirmation of the possibilities that can be attained through improved and structured industry partnerships in supporting youth employability in the country.

Objective 2 was therefore achieved.

8.4 OBJECTIVE THREE

To develop an improved integrated method of assessment within a coherent yet flexible system. (Solutions within an SST **Worldview**, in the interests of the **Owners** of the system, and in the context of the current **Environment**)

The primary objective of the study was to explore the development of an integrated approach to the assessment of WIL, incorporating the methodologies of systems thinking, specifically SST methodology.

The proposed integrated approach to assessment of WIL (as depicted in figure 7.1, Chapter 7, above) is rooted in the theoretical framework of systems thinking, as discussed in Chapter Three, inclusive of the WIL partnership as discussed in Chapter Two.

To ensure the successful adoption of the proposed integrated model of assessment of WIL, the following is recommended:

It is recommended that UoT curriculum planners:

- Foster and apply the practice of cohesive integration amongst all parties to WIL (industry mentors, students and academic WIL co-ordinators), embracing the holistic development of students.
- Plan integrated WIL assessment activities that reflect the specific WIL outcomes that are module and qualification aligned.
- Plan and deliver assessments that foster the inclusive approach of student involvement in activities of peer and self-assessment.
- Integrate effective workplace performance tasks that contribute to authentic assessment practices.
- Plan activities that encourage and thrive on effective feedback practices that lend themselves to continuous improvement of practices.
- Identify and develop new projects in collaboration with industry in order to generate more support from industry, government and financial institutions.

WIL, when implemented as an integrated, interconnected system, presents opportunities for an aligned practice of assessment, ensuring enhanced outcomes in the interests of all stakeholders.

It is also recommended that UoT Management engage with academics to create more buy-in of WIL throughout departments. UoT Management should consider the adoption of a systems thinking approach to WIL practices and the wider context of curriculum delivery within UoTs.

A need to empower Central Co-operative Education Departments with more manpower is suggested to ensure professional WIL practice and avoid the “hopefully someone agrees to join” attitude of appointments.

The employment of WIL experts is necessary to ensure a co-ordinated, progressive practice of WIL from committed and capacitated individuals, passionate about WIL. It is also important for UoT management to reconsider the practice of annual increases in student numbers in relation to the demand for their placements in industry, as this is a key factor in the success of graduate employability.

A partnership strengthening opportunity should be considered in relation to assessor training for industry mentors, which leads to upskilling of the workforce. The adoption of the proposed model for WIL and assessment of WIL (Figure 7.1) to achieve an effective management system for WIL and its assessment at UoTs is recommended

It would be in the interests of the Management of UoTs to consider the advantages of offering a more structured WIL programme which could result in building stonger relationships with other UoTs, industry partners and government.

8.5 Contributions to knowledge

The study was conducted with UoTs in SA, with an emphasis on Departments in the Management Faculties that offer WIL programmes, specifically workplace-based training. Thus, while the findings cannot be generalised, other HEIs may also find value in the holistic systems model that has been developed in this study, which presents an integrated approach offering flexibility for inclusion within various fields of practice.

This knowledge may be used to implement and manage WIL programmes and assessment of WIL in academia more generally. The study proposes WIL as core to an academic qualification that includes activities throughout the curriculum which eventually culminate in the practice of work placements in industry.

It is conceded that the success of the suggested approach is in large part manpower reliant, and therefore dependent on each academic institution's budgetary constraints and abilities to raise further funds.

More widely, the study findings have implications for management of UoTs that seek improved practices in relation to Learning, Teaching and Assessment. The increasing demands of industry, and fast developing global economy, force UoTs to develop improved practices that will ensure their continued relevance. This study therefore presents currently informed practices that seek to bridge the gaps that may exist between university practice and the requirements of the economy.

8.6 Further research opportunities

A longitudinal, participatory action research study, undertaken by any of the participating institutions, could take this approach forward by implementing the recommendations within their practice, and documenting the successes and challenges experienced – thus enhancing the validity of the recommendations on an ongoing basis. [Note that this development is suggested in the illustrated model presented in Chapter 7 above]

Another project focussing specifically on the viability of funding opportunities which may be available from the private sector, in order to institute the recommendations fully, could be undertaken by researchers from interested UoTs. This could involve various industry sectors, perhaps in partnership with existing initiatives such as the Youth Employment Service (YES).

8.7 Limitations of the study

The focus for this study was only on Management Faculties of UoTs in SA. Other faculties which undertake WIL of various kinds, such as health or engineering faculties, were excluded.

The findings and recommendations cannot therefore be generalised to other countries or to other disciplines. While all six UoTs agreed to participate initially, one withdrew before the data collection process began. Also, it was not possible to implement any of the recommendations in order to involve a participatory action research element, as had originally been planned. This has had to remain as a suggestion for further research.

8.8 Conclusion

In conclusion, while a great deal of research has been undertaken in relation to the need for WIL and the importance of WIL, there were clear gaps in the literature relating to the assessment of WIL as an integrated, yet flexible, practice, appropriate for adoption by different institutions. This study offers guidelines based on an integrated approach, leading to a more rational, holistic practice of assessment of WIL and ideally envisaged as operating throughout the whole undergraduate curriculum.

This chapter presented suggestions for development of an inclusive approach to WIL and assessment of WIL. It recognised that the educational sector is going through significant changes, where student-centeredness is being widely adopted, requiring institutions' management, as well as academics, to adopt visionary thinking consistent with 4IR, globalisation, and environmental awareness, all of which essentially require collaboration and innovation. Thus, a systematic approach to problem solving presents ways of approaching problem situations and devising dynamic, integrated, collaborative, solutions.

Issues of WIL management, WIL practices and their integration into the curriculum, as the basis for an integrated approach to assessment of WIL, are discussed in this chapter. However, as with any mind-set shift, the commitment of the individual will be key to its success.

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APPENDICES

APPENDIX A - INTERVIEW SCHEDULE - WIL CO- ORDINATORS

Developing an Integrated (Systems Thinking) approach to Assessment of Work

Integrated Learning

	QUESTIONS
1	Please indicate the number of years that you have been employed at your institution.
2	Are you a Work Integrated Learning co-ordinator?
3	How many years have you been involved in supervision of the Work integrated learning students?
4	Is there a centralised system for the management of WIL at your institution or a decentralised system?
4a	If it is a decentralised system, then who is responsible for the management and control of WIL in your department?
4b	If it is a centralised system, then who is responsible for the management and control of WIL at your organisation?
5	Please explain the steps that are followed within your programme for the practice of work integrated learning in your department.
6	Can you tell me if there is an assessment component to the WIL programme at your department?
6a	[If the answer is 'no'] Why do you think that there is no assessment, and should there be?
6b	[If the answer is 'yes'] Does the assessment of WIL form part of your responsibilities for the management of WIL?

7	Can you explain to me the current assessment methods that are included in WIL as practiced by your department?
8	What is your institution's policy with regards to the assessment of WIL?
9	What is your view of students' involvement in the assessment of their WIL?
10	Do you see peer review as being a part of the assessment process of WIL?
11	To what extent are industry supervisors involved in the assessment of WIL?
12	Are the assessments of WIL moderated?
13	If they are moderated, please detail the procedure that is followed for moderation.
14	Who is responsible for the moderation of WIL?
15	Does online assessment form part of the WIL assessment practice for your department?
16	If yes, explain to what extent the online assessment forms part of the WIL practice.
17	If no, do you think that online assessment will be of any benefit to your department or institution?
18	What role does feedback play in the assessment of WIL?
19	What are the ways in which feedback is given to students?

20	Have you faced any challenges with the assessment of WIL? If yes, please explain these challenges.
21	Are there any particularly good practices identified by your department with respect to the assessment of WIL which you believe would be of benefit to other institutions?
22	Is there anything else that you would like to tell me about WIL and particularly your ideas on WIL assessment?

APPENDIX B - INTERVIEW SCHEDULE - INDUSTRY

Developing an Integrated (Systems Thinking) approach to Assessment of Work

Integrated Learning

	QUESTIONS
1	Please indicate the number of years that you have been employed at your company.
2	Are you a Work Integrated Learning mentor/supervisor?
3	How many years have you been involved in supervision of the Work integrated learning students?
4	Is there a centralised system for the management of WIL at your organisation or a decentralised system? How do you recruit students for training?
4a	If it is a decentralised system, then who is responsible for the management and control of WIL students?
4b	If it is a centralised system, then who is responsible for the management and control of WIL at your organisation?
5	Please explain the steps that are followed within your organisation for selection and acceptance of students for WIL.
6	Is assessing the student part of your requirement for supervision of the student?
6a	[If the answer is 'no'] Who is responsible for the assessing of the student?
6b	[If the answer is 'yes'] What are the various forms of assessment that you are involved in?
7	If the student trains at various departments within your organisation, how does the assessment task take place and by whom?

8	Do you feel confident that you have the required training and experience to assess the student's abilities?
9	What is your view on students' being involved in the assessment of their WIL? (Self assessment)
10	Do you see peer review as being a part of the assessment process of WIL?
11	Do you feel that the assessment process provides a true reflection of the student's performance?
12	Do you know if the assessments of WIL are moderated?
13	If they are moderated, please detail the procedure that is followed for moderation.
14	Who is responsible for the moderation of WIL?
15	Does online assessment form part of the WIL assessment practice?
16	If yes, explain to what extent the online assessment forms part of the WIL practice.
17	If no, do you think that online assessment will be of any benefit to your organisation?
18	What role do you think feedback plays in the assessment of WIL?
19	What are the ways in which feedback is given to students?
20	Have you faced any challenges with the assessment of WIL? If yes, please explain these challenges.
21	Are there any particularly good practices identified with respect to the assessment of WIL which you believe would be of benefit to other organisations?

22	Is there anything else that you would like to tell me about WIL and particularly your ideas on WIL assessment?
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Thanking you for your assistance and valuable information. I am really grateful for your assistance towards this study and sincerely appreciate your time.

APPENDIX C – LETTER OF INFORMATION



LETTER OF INFORMATION

Title of the Research Study: The Development of an integrated (systems thinking) approach to the assessment of Work Integrated Learning.

Principal Investigator/s/researcher: Radha Reddy, Masters in Business Administration, MBA (UKZN)

Co-Investigator/s/supervisor/s: Dr J Skinner, PhD, Philosophy (UKZN); Prof P Green, PhD (UKZN)

Brief Introduction and Purpose of the Study: The study that will follow in the next three years will provide guidance and a framework for WIL co-ordinators in dealing with the challenging task of assessing WIL, which would inadvertently lead to improved performance and efficiency. The study objectives are:

1. To investigate the current methods of assessment of Work Integrated Learning within Programmes at UOTs.
2. To address identified challenges associated with the assessing of Work Integrated Learning.
3. To develop an improved integrated method of assessment within a coherent yet flexible system.

This study will explore the formulation of a systemic framework for the assessment of Work Integrated Learning. It will focus on identifying the challenges associated with assessment of WIL, analyse systems methodology applicable to the assessment of WIL and conclude with the formulation of a systemic framework for the assessment of WIL.

Outline of the Procedures: (Responsibilities of the participant, consultation/interview/survey details, venue details, inclusion/exclusion criteria, explanation of tools and measurement outcomes, any follow-ups, any placebo or no treatment, how much time required of participant, what is expected of participants, randomization/ group allocation)

The data collection instruments include semi-structured interviews with academics/ WIL co-ordinators, questionnaires which will be distributed to students and industry partners involved with the assessment of WIL. The interviews will take place at the institutions of the relevant participants, namely; CPUT, CUT, DUT, MUT, TUT and VUT. Questionnaires will be distributed online to all participants at their various campuses and follow ups will be conducted online to ensure submissions of consented individuals. The questionnaires will take approximately 30 minutes to complete.

Risks or Discomforts to the Participant: (Description of foreseeable risks or discomforts to for participants if applicable e.g. Transient muscle pain, VBAI, post-needle soreness, other adverse reactions, etc.)

You will not be exposed to any discomforts and risks during participation in this study.

Benefits: (To the participant and to the researcher/s e.g. publications)

A minimum of two journal articles to be published in scholarly journals.

A workshop or workshops to be held for DUT staff and students.

Presentation(s) at an academic conference.

The development of a framework for the assessment of WIL at UoTs.

Reason/s why the Participant May Be Withdrawn from the Study: (Non-compliance, illness, adverse reactions, etc. Need to state that there will be no adverse consequences for the participant should they choose to withdraw)

You can withdraw at any stage of the study as your participation is voluntary.

Remuneration: (Will the participant receive any monetary or other types of remuneration?)

No remuneration will be awarded.

Costs of the Study: (Will the participant be expected to cover any costs towards the study?)

You will not be expected to cover any costs related to your participation in this study.

Confidentiality: (Description of the extent to which confidentiality will be maintained and how will this be maintained)

The questionnaires will include a covering letter explaining the details of the researcher and the purpose of the study. It will be clearly stated that participation in the survey is voluntary and not compulsory in any way. You will be assured of confidentiality and anonymity and that the answers to the survey will only be used for the research purposes to draw statistical conclusions and that all respondents will remain anonymous and no mention of any names will be made in the study results.

In the case of qualitative research, an invitation to attend a focus group will be sent to the sample. The letter will be accompanied by a covering letter stating similar details as described in the quantitative research approach. The interview participants will also be ensured of anonymity and confidentiality where no mention of any names will be made during the reporting of results. All participants will be referred to numerically with no reference to names. Care will be taken to ensure that all recordings are kept safely locked up ensuring that no transcripts are breached.

All completed anonymous questionnaires and interview transcripts will be kept in a secure locked office and disposed of after five years.

Research-related Injury: (What will happen should there be a research-related injury or adverse reaction? Will there be any compensation?)

Since the study involves completion of a questionnaire and interview sessions there will be no research-related injury.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher, Radha Reddy (031) 373 6882 or 079 881 7853), my supervisor, Dr Jane Skinner (031 904 3045; 083658 5951) or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support, Prof S Moyo on 031 373 2577 or moyos@dut.ac.za

APPENDIX D – LETTER OF CONSENT



CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, **Radha Reddy** (name of researcher), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: **IREC 164/18**,
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____	_____	_____	_____
Full Name of Participant	Date	Time	Signature/Right Thumbprint
I, <u>Radha Reddy</u> (name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.			
<u>Radha Reddy</u>	_____	_____	
Full Name of Researcher	Date	Signature	
_____	_____	_____	
Full Name of Witness (If applicable)	Date	Signature	
_____	_____	_____	
Full Name of Legal Guardian (If applicable)	Date	Signature	

APPENDIX E - STUDENT QUESTIONNAIRE FOR ASSESSMENT OF WORK INTEGRATED LEARNING

I, Mrs Radha Reddy (employee number 50002609) (ID 7602190078085) am a student in the Faculty of Management Sciences, being registered for a PhD. The proposed research project for a PhD study is “The Development of an integrated (systems thinking) approach to the assessment of Work Integrated Learning”, which will follow an action research approach. The study that will follow in the next three years will provide guidance and a framework for WIL co-ordinators in dealing with the challenging task of assessing WIL, which would inadvertently lead to improved performance and efficiency.

I would like to request your participation in this study and assure you that all participants will remain anonymous throughout the study. No reference to any names and details will be included in any part of the study, ensuring confidentiality at all times.

Please mark the appropriate box with an X.

SECTION A: BIOGRAPHICAL INFORMATION

1. Please indicate your gender

	Mark with an X	Office use only
Male		1
Female		2

2. Indicate age category

20-24		1
25-30		2
31-34		3
35-40		4
41 and over		5

3. Indicate your racial identification

Black		1
Coloured		2
Indian		3
White		4
Asian		5
Other		6
If other, please specify.		

WORK INTEGRATED LEARNING QUESTIONS

4. Please mark with an (X) in the appropriate box

		Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree
4.1	I consider WIL to be an important component of the Diploma.					
4.2	I think that WIL is important to my study.					
4.3	I was satisfied with my WIL Experience.					
4.4	I received adequate guidance from my academic supervisor.					
4.5	I received adequate guidance from my industry supervisor.					
4.6	I was given clear outcomes for the WIL period.					
4.7	My expectations were met with the WIL placement.					

5. Indicate the length of your training at the relevant company.

9 WEEKS		1
3 MONTHS		2
4 MONTHS		3
6 MONTHS		4
12 MONTHS		5
18 MONTHS		6
OTHER		7
If other, please specify the period		

6. Please indicate the industry that you served your training at

Attorney/legal firm		1
Construction firm		2
Government organisation		3
Basic Education		4
Higher Education		5
Banking sector		6
Other		7
If other, please specify the field		

7. Did you have a mentor in the workplace? **A mentor is a person appointed by the company you served your training at to support and provide guidance to you during your training at the company.**

YES		1
-----	--	---

NO		2
----	--	---

7.1 If you answered yes above, did you find the mentor to be of assistance to you?

YES		1
NO		2

8. Kindly indicate the assistance you received from your mentor.

9. Did you have an academic supervisor (Work integrated learning lecturer) in your university for the WIL period?

YES		1
NO		2

ASSESSMENT RELATED QUESTIONS

10. Did you receive a training manual from your academic supervisor or department at the institution?

YES		1
NO		2

11. If you answered yes above, does your training manual have clear criteria to define successful completion of competency assessment?

Yes		1
No		2

12. Did your training include an assessment component?

YES		1
NO		2

13. Were you informed of the assessment prior to your training?

YES		1
NO		2

14. Does your training manual have clear criteria to define successful completion of competency assessment?

Yes		1
No		2

15. Do you think that assessment of the WIL training is important?

YES		1
NO		2

16. Provide an explanation for your answer above in question 15.

17. Indicate the type of assessments you were expected to complete for the WIL programme. Tick all relevant boxes.

Logbook		1
Presentations		2
Written Reports		3
Reflective journals		4
Reflective presentations		5
On site visits		6
Other If other, please specify		7
No assessment included in the module		8

18. Rate the assessments in the order of assessment method you most preferred.

(1 being most preferred and 5 being least preferred, with 0 being any method that you did not use.)

Assessment method	0	1	2	3	4	5	6
Logbook							
Presentations							
Written reports							
Reflective journals							
Reflective presentations							
On site visits							
Other:							

(Please state the method under other, if other is selected)

19. Rate the method of assessment that was most challenging and thought provoking.

(1 being most challenging and 6 being least challenging, with 0 being not used)

Assessment method	0	1	2	3	4	5	6
Logbook							
Presentations							
Written reports							
Reflective journals							

Reflective presentations							
On site visits							
Other:							

20. Who was involved in the assessment of your training? (Tick all appropriate boxes)

Academic supervisor (lecturer)		1
Industry supervisor		2
You, the student		3
Peer (your fellow students)		4
Other. If other, please specify		5

21. Were you involved in peer assessment for the WIL programme? (Tick the relevant box only)

(Peer assessment is the method of having your work analysed/marked by another student)

Yes		1
No		2

22. Were you involved in peer assessment for any other module? (Tick the relevant box only)

Yes		1
No		2

If you answered yes for question 21 or 22 above, continue below. If you answered no, then move to question 26.

23. Did you enjoy the experience of peer assessment? (Tick the relevant box only)

Yes		1
No		2

24. Did you find the process of peer assessment an interesting way of assessing? (Tick the relevant box).

Yes		1
No		2

25. Provide an explanation for your answer above in question 24.

26. Do you receive feedback from your WIL assessment?

Yes		1
No		2

27. Does the WIL component include an online classroom?

Yes		1
No		2

If you answered **yes** above, please answer the following.

	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree
27.1 The online classroom for WIL is regularly used.					
27.2 The online classroom has interesting and enlightening information posted.					
27.3 There are online assessments included in the online classroom					
27.4 The online classroom is thought provoking					
27.5 The online classroom includes blogs					
27.6 The online classroom has interesting discussions for WIL students on training					
27.7 The online classroom is available to me during my training period.					
27.8 I am able to communicate to other students via the online classroom while on training					
27.9 I am able to communicate to my lecturer via the online classroom while on training					
27.10 I enjoy the online experience					
27.11 I enjoy the online assessments					
27.12 I can access the online classroom easily					
27.13 The resources available to me outside of contact lectures make it easy to access the online classroom					
27.14 I have a good understanding of the use of the online classroom					

APPENDIX F – ETHICAL CLEARANCE



Institutional Research Ethics

Committee Research and Postgraduate
Support Directorate 2nd Floor, Berwyn
Court
Gate 1, Steve Biko Campus
Durban University of
Technology

P O Box 1334, Durban, South Africa,

4001 Tel: 031 373 2375

Email: lavishad@dut.ac.za

http://www.dut.ac.za/research/institutional_research_ethics

www.dut.ac.za

20 July 2020

Mrs R Reddy
16 Allamanda
Road Glenhills
Durban North

Dear Mrs Reddy

**Developing an integrated (systems thinking) approach to assessment of Work
Integrated Learning**

Ethical Clearance number IREC 164/18

The Institutional Research Ethics Committee acknowledges receipt of your gatekeeper permission letter from the Tshwane University of Technology.

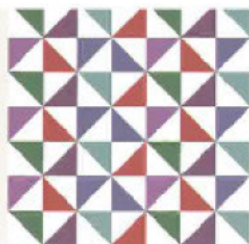
Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection from Tshwane University of Technology.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely,

Dr M A Sathar
Deputy Chairperson: IREC



Institutional Research Ethics Committee
 Research and Investigations Support, Jurekone
 24001 Berwyn Court
 Gile L. Stevelink Campus
 Durban University of Technology
 P O Box 314, Durban South Africa, 4001
 Tel: 031 279 3375
 Email: ethics@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics
www.dut.ac.za

Appendix F

13 September 2019

Mrs R Reddy
 16 Allamanda Road
 Glenhills
 Durban North

Dear Mrs Reddy

Developing an integrated (systems thinking) approach to assessment of Work Integrated Learning
Ethical Clearance number IREC 164/18

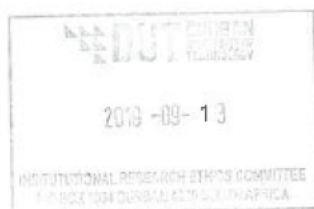
The Institutional Research Ethics Committee acknowledges receipt of your gatekeeper permission letter from the Cape Peninsula University of Technology.

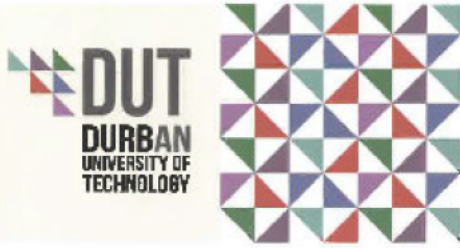
Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection from Cape Peninsula University of Technology. Permission to conduct research at the Tshwane University of Technology will only be issued once the relevant gatekeeper permissions have been submitted to IREC.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

 Professor J K Adam
 Chairperson: IREC





Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Benway Court
Gate 1, Steve Biko Campus
Durban University of Technology
P.O. Box 1334, Durban, South Africa, 4001
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Email: irec@dut.ac.za
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www.dut.ac.za

Appendix F

11 January 2019

IREC Reference Number: **REC 28/18**

Mrs R Reddy
16 Allamanda Road
Glenhills
Durban North

Dear Mrs Reddy

Developing an integrated (systems thinking) approach to assessment of Work Integrated Learning

The Institutional Research Ethics Committee acknowledges receipt of your final data collection tool for review.

We are pleased to inform you that the data collection tool has been approved. Kindly ensure that participants used for the pilot study are not part of the main study.

In addition, the IREC acknowledges receipt of your gatekeeper permission letter from the Durban University of Technology.

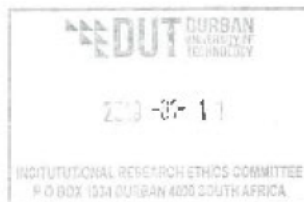
Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection from the Durban University of Technology **ONLY**. Permission to conduct research at the Mangosuthu University of Technology, Tshwane University of Technology, Cape Peninsula University of Technology, Vaal University of Technology and Central University of Technology will only be issued once the relevant gatekeeper permissions have been submitted to IREC.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely,

Professor J K Adam
Chairperson: IREC





Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Bowen Court
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Appendix F

9 April 2019

IREC Reference Number: **REC 28/18**

Mrs R Reddy
16 Allamanda Road
Glenhills
Durban North

Dear Mrs Reddy

Developing an integrated (systems thinking) approach to assessment of Work Integrated Learning

The Institutional Research Ethics Committee acknowledges receipt of your gatekeeper permission letters from the Mangosuthu University of Technology and Central University of Technology.

Please note that **FULL APPROVAL** is granted to your research proposal. You may proceed with data collection from the Mangosuthu University of Technology and Central University of Technology. Permission to conduct research at the Tshwane University of Technology and Cape Peninsula University of Technology will only be issued once the relevant gatekeeper permissions have been submitted to IREC.

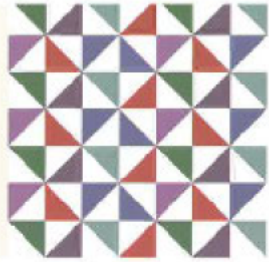
Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely,

Dr S K K Pillai
Deputy Chairperson: IREC





Institutional Research Ethics Committee
 Research and Postgraduate Support Directorate
 2nd Floor, Benoni Court
 Gate 1, Steve Biko Campus
 Durban University of Technology
 P.O. Box 1374 Durban South Africa, 4001
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www.dut.ac.za

Appendix F

18 February 2019

IREC Reference Number: **REC 28/18**

Mrs R Reddy
 16 Allarranda Road
 Glenhills
 Durban North

Dear Mrs Reddy

Developing an integrated (systems thinking) approach to assessment of Work Integrated Learning

The Institutional Research Ethics Committee acknowledges receipt of your gatekeeper permission letter from the Vaal University of Technology.

Please note that **FULL APPROVAL** is granted to your research proposal. You may proceed with data collection from the Vaal University of Technology **ONLY**. Permission to conduct research at the Mangosuthu University of Technology, Tshwane University of Technology, Cape Peninsula University of Technology and Central University of Technology will only be issued once the relevant gatekeeper permissions have been submitted to IREC.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely,

Professor J K Adam
 Chair-person: IREC



APPENDIX H – PROOF OF EDITING

126 Sandown Village

27 Harvey Road

Manors

Pinetown

3610

21 June 2023

Proof of Editing

This is to confirm that the attached thesis by Mrs Radha Reddy has been formally edited for language by Dr Jane Skinner, who is a qualified teacher of English with several years' experience in editing academic dissertations and theses.

Dr Jane Skinner

083 658 5951

APPENDIX I - TURNITIN REPORT

The screenshot shows a web browser window with the Turnitin interface. The browser's address bar displays the URL: http://www.turnitin.com/t_inbox.asp?r=20.11237940981488&svr=488&lang=en_us&aid=137576065. The Turnitin logo is visible at the top left, and the user's name, Radha REDDY, is shown in the top right navigation bar. Below the logo, there are navigation tabs for Assignments, Students, Grade Book, Libraries, Calendar, Discussion, and Preferences. The main content area is titled "NOW VIEWING: HOME > RESEARCH1 > PHD FINAL REPORT". Underneath, there is a section "About this page" with instructions on how to view a paper or a similarity report. Below that, the "PhD final report" section is active, showing an "INBOX | NOW VIEWING: NEW PAPERS" dropdown. A "Submit File" button is present on the left. On the right, there are links for "Online Grading Report", "Edit assignment settings", and "Email non-submitters". A table lists the submission details:

<input type="checkbox"/>	AUTHOR	TITLE	SIMILARITY	GRADE	RESPONSE	FILE	PAPER ID	DATE
<input type="checkbox"/>	Radha Reddy	PhD final chapters	10%		*		2132677951	17-Jul-2023

At the bottom of the page, there is a footer with copyright information: "Copyright © 1998 – 2023 Turnitin, LLC. All rights reserved." and several links: Privacy Policy, Privacy Pledge, Terms of Service, EU Data Protection Compliance, Copyright Protection, Legal FAQs, Helpdesk, and Research Resources. The Windows taskbar is visible at the very bottom, showing the search bar, taskbar icons, system tray, and the date/time: 8:13 PM, 2023/07/17.

(Supervisor)