DURBAN UNIVERSITY OF TECHNOLOGY

DEVELOPMENT OF A FRAMEWORK FOR THE PROVISION OF STUDENT-CENTRED ASSESSMENT IN HIGHER EDUCATION

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DEVELOPMENT OF A FRAMEWORK FOR THE PROVISION OF STUDENT-CENTRED ASSESSMENT IN HIGHER EDUCATION

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I know You'll come through
This mountain is moving
I fix my eyes on You
If You said it, You'll do it (Elevation Worship 2023)

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"And the Lord will guide you continually and satisfy your desire in scorched places
and make your bones strong; and you shall be like a watered garden,
like a spring of water; whose waters do not fail."
Isaiah 58:11 (ESV)

DEDICATION

This thesis is dedicated to my late loved ones:
My dad, father-in-law and sister.

Dad, even though you were lent to us for a brief season during our childhood,
I would like to thank you for inculcating a sound value system in me.

To my father-in-law, thank you for recognizing my worth.

.

To my sister, thank you Shantal for the support and believing in me.

DECLARATION

I, *Noelene Simone Ross*, declare that:

1. The research reported in this thesis, except where otherwise indicated, is my original research;

2. This thesis has not been submitted for any degree or examination at any other university;

3. This 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; and

4. The thesis does not include the writings of other authors without acknowledgment. Where writings have been re-worded, but relates to the thoughts by other authors, this has been referenced in-text. Where the exact words have been used, this is signaled with quotation marks and referenced.

2024-08-08

Noelene Simone Ross **Date**

ABSTRACT

The reform of education over the past three decades has influenced Higher Education Institutions (HEIs) to transform their assessment practices. Lecturers are required to facilitate learning through an innovative and student-centred approach. This involves inculcating knowledge, competencies and 21st century skills by integrating teaching and learning and assessment practices. This paradigm shift to a student-centred approach to assessment practices allows assessments to be authentic. Student-centred assessments increase autonomy, creativity, critical thinking and problem-solving skills. It prepares students to be adaptive graduates and life-long learners with the ability to explore real-world challenges and problems. Consequently, assessment practices perform an important role in Higher Education in order to address the critical skills and autonomy needed by students, which can be provided through the use of authentic or student-centred assessments that promote the use of 21st century skills. Therefore, nationally and globally, HEIs are required to adapt to the paradigm shift. Thus, the objectives of this study were to ascertain, explore and establish the practices of student-centred assessments at the Durban University of Technology. This study followed a convergent mixed methods design, adopting a case study approach. The quantitative phase of the study comprised questionnaires completed by staff and students from the Faculty of Accounting and Informatics. The qualitative phase was a document analysis of the institutional documents pertaining to assessments. The results from the quantitative and qualitative phases were analysed and interpreted to present the findings. The results from both phases were triangulated with the theoretical framework, conceptual framework and reviewed literature. The overall findings revealed that there was a need for student-centred assessment practices. The findings also indicated that staff supported various student-centred assessment and activities. However, there was limited usage of student-centred assessment due to the barriers and challenges that staff experience. The study recommends a proposed framework for the provision of student-centred assessments. This framework offers guidelines to assist lecturers in creating and evaluating assessments that foster student-centeredness, and that influence higher-order thinking skills and self-development.

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LIST OF ABBREVIATIONS

Centre for Excellence in Learning and Teaching	CELT
Council on Higher Education	CHE
Department of Higher Education and Training	DHET
Durban University of Technology	DUT
Higher Education	HE
Higher Education Institution(s)	HEI(s)
Programme Qualification Mix	PQM
South African Qualifications Authority	SAQA
Student-centred Assessment	SCA
Student-centred Learning	SCL

1 CHAPTER ONE
INTRODUCTION AND BACKGROUND

1.1 Introduction and background

Over the past three decades, discussions related to student-centred education and changes in education policy to adopt student-centred teaching, learning and assessment has been the focus in Higher Education Institutions (Baranova and Kaļķe 2021: 740). Nyakito and Allida (2018: 2) referred to educational transformation as a universal change that involved a paradigm shift from the traditional structure to a system that is aligned with the current needs and trends of society. This paradigm shift in Higher Education (HE) has created an environment that positions and empowers the student to construct knowledge whilst increasing the need for student-centred assessment (SCA), which is viewed as a critical component in Higher Education pedagogy. Scholars suggest that student-centred assessments and activities are influential in building student autonomy, responsibility and engagement in learning (Damşa and de Lange 2019: 10). Consequently, Gover, Loukkola and Peterbauer (2019: 6) argued that Higher Education Institutions (HEIs) are required to focus on the mode of pedagogical delivery, the design of assessment aligned to learning outcomes and feedback.

Tamtama (2019: 356) maintained that this shift to a modern educational model, which is student-centred, satisfies the needs for the 21st century workforce by preparing students to be competent and have the capability to face challenges (Husamah, Fatmawati and Setyawan 2018: 249), such as growth in Information and Communication Technology, automation, changes in globalization, changes in industry and increased employer expectations (Alshare and Sewailem 2018: 1). All of these changes can be attributed to the significant increase in technological advancement in industries (Wrahatnolo 2018: 1), to which the Fourth Industrial Revolution (4IR) could be seen as a contributor, since it involves disruptive technologies that transforms one's way of life and work. Scholars are of the opinion that these significant changes could be effected or embraced and challenges mitigated through the adoption of a student-centred approach since this approach is intended to

stimulate creative thinking, critical thinking, reflective thinking and problem-solving (Baranova and Kaļķe 2021: 743).

Several studies have been conducted; including those by Kaput (2018: 9-10); Shaaban (2018: 1); and Banerjee and Roy (2021: 2113) that have contributed to our understanding of student-centredness, as well as research by Gover, Loukkola and Peterbauer (2019: 6); Coleman and Money (2020: 422); and Zairul (2020: 504) amongst other scholars, which explained the benefits of student-centred education. However, as argued by Abidi and Safieddine (2016: 4189) and maintained by Trinidad (2020: 1013), there is theoretical evidence but insufficient empirical studies indicating the level of transformation in assessment practices, as well as other factors that may influence transformation.

Trinidad (2020: 1021) focused on the understanding of student-centred learning at Higher Education Institutions, including the perception of and challenges in implementing SCL in HE classrooms. Trinidad's study identified a gap in assessment (purpose and process) and the power relationship between lecturer and student (refer to Figure 1.1). These two areas as identified by the aforementioned study are part of the dimensions of Weimer's learner/student-centred model.

Apart from Trinidad (2020: 1014), various scholars, including Du Plessis (2020: 3-4); Mirete *et al.* (2020: 4); Nghia, Phuong and Huong (2020: 120); and Sangster (2021: 2-3), have used Weimer's Student-centred model to identify and argue differences in Higher Education practices from teacher-centred to student-centred in the following focus areas, namely Balance of Power, Function of Content, Role of the Teacher, Responsibility for Learning and the Purpose and Processes of Evaluation. This model, which formed part of the conceptual framework, has been addressed in Chapter 2 (Theoretical Framework), which was viewed from a Constructivist learning theory perspective.

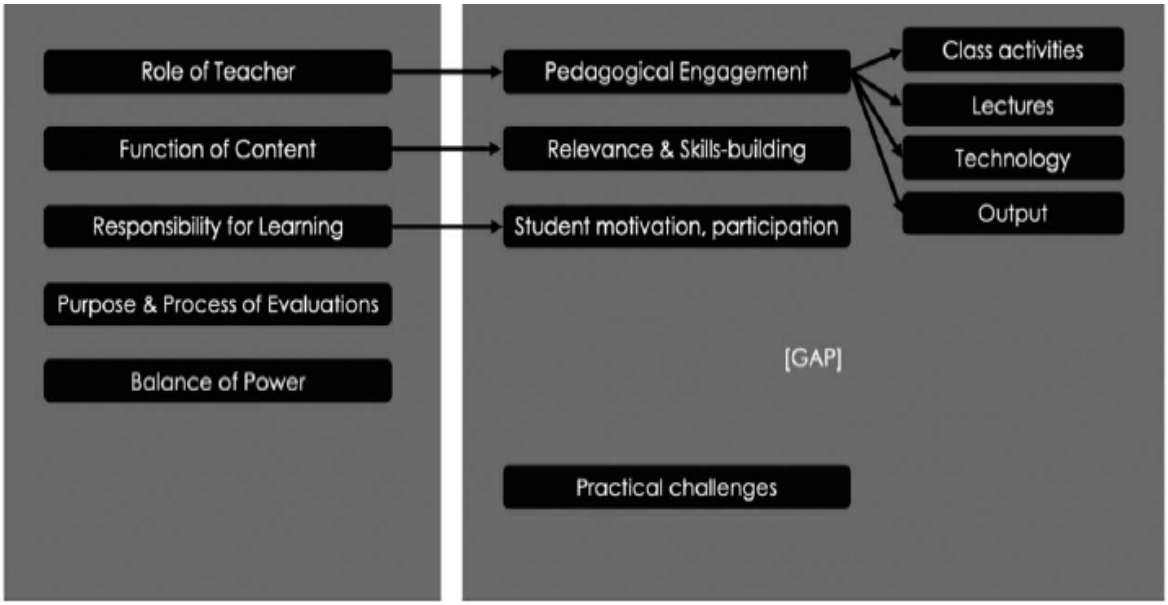


Figure 1.1 Comparison of Weimer's Student-centred model (left) to Trinidad's study (right)

Source: Trinidad (2020: 1016)

Besides the above-mentioned gaps, scholars have indicated that individual and institutional characteristics have influenced student-centred assessment practices and activities in universities (Baporikar and Ololube 2018: 371; Nghia, Phuong and Huong 2020: 188; Xue, Du and Yang 2021: 16). The findings from these studies suggested that the usage of student-centred assessment practices in Higher Education Institutions is seen as a mechanism to encourage and enhance student learning.

However, the extent to which lecturers employ SCA practices varies, which may be associated with the following institutional barriers: heavier teaching loads, a lack of training and support, insufficient time, large class sizes and the lack of resources to implement SCA techniques (Musarat, Farhat and Isamar 2019: 38; Adamu, Tsiga and Zuilkowski 2020: 2; Aladawi 2020: 17; Kitiashvili 2020: 562). These factors are addressed in Chapter 3 (Literature Review). Apart from these factors, Flores *et al.* (2020: 378) argued that innovative, authentic methods to assess student learning need to be endorsed by students, meaning that students have to concur that these student-centred assessments enhance and add value to their learning. Students and staff perceptions are reflected in Chapter 5 (Data Analysis).

Another area that has been influenced by the reform of education is the changes in educational and institutional policies at HEIs. Hoidn (2020: 194) defined Higher Education policies as follows:

> *Higher education policies are the guiding frameworks or roadmaps that depict the collective values of and political vision on the goals and specific objectives of teaching and learning, the actions and actors to achieve these objectives, their evaluation, and the timeline of the policy.*

These changes in education policies would most presumably be seen by policy-makers, researchers and experts as necessary for educational reform as literature would suggest (Lamb, Maire and Doecke 2017: 3). This has led to continuous dialogue amongst governments, forums and international organisations which resulted in the development and/or change in educational policies to adapt to the transformation of education.

At the Durban University of Technology, the following guidelines and policies, which include the Assessment policy, Teaching and Learning Strategy, E-learning policy and General Education Guidelines, have been developed by the institution in order to adapt to the paradigm shift. In addition, the current strategic plan of DUT, entitled ENVISION2030, focuses on the development of four perspectives, namely Stewardship, Systems and Processes, Sustainability and Society (Durban University of Technology 2020a: 1). Each perspective highlights the importance of adapting to the 21st century and the paradigm shift in education. Aspects such as institutional culture and accountability, creativity, innovative curricula and research, and graduates that can be decisive and adapt to change are part of the current plan.

Literature suggests that the mission and educational values of an institution should drive the teaching, learning and assessment practices, since the role of universities has evolved from knowledge acquisition to knowledge production and knowledge application, as well as the ability of graduates to be able to use what has become known as 21st century skills (Al-Gaseem, Bakkar and Al-Zoubi 2020: 898). From the various changes in policies and practices, it is evident that DUT envisages such objectives and aims to develop meta-cognition skills within their graduates. Meta-

cognition, which involves self-reflection and higher-order thinking, is a significant component in Higher Education pedagogy. Weimer's learner/student-centred model highlights the importance of students being proactive and/or actively engaged in constructing meaning to a systematic transformation of student-centred assessment and student-centred instruction in HEIs (Troop, Wallar and Aspenlieder 2015: 16; Abidi and Safieddine 2016: 4185; Li 2016: 105; Sangster 2021: 9).

Troop, Wallar and Aspenlieder (2015: 23) concur, whilst Martin and Bolliger (2018: 209) support that a shift in focus from content to process increases the active engagement of students. Moreover, Li (2016: 106) claims that students will not be pressurized into studying but will adopt an attitude of being aware of their learning responsibility through a student-centred teaching environment that promotes student-centred assessment, which includes self-assessment, peer assessment and project-based learning (Martin and Bolliger 2018: 213; Morais, Ferreira and Veloso 2021: 21; Cole 2022: 2). This is consistent with the constructivist theory that emphasizes how people construct their own understanding and knowledge based on their experiences and reflections, hence the way in which individuals explore and assess is salient.

Whilst recognition is given to the body of literature that supports the theory of constructivism in influencing higher-order thinking skills, problem-solving, autonomy and a sense of ownership in learning, the system in which Higher Education Institutions operate should not be overlooked since institutional and instructional contexts, culture and policies may influence SCA. Consequently, this study has explored the current student-centred assessment practices at DUT in an attempt to ascertain the factors that contribute to the success or hindrance to student-centred assessment practices.

1.2 Statement of the problem

Due to the reform of education over the past three decades, there has been a demand globally for lecturers to prepare students for the 21st century by helping and directing them in an ever-increasing global knowledge economy and inter-connected landscape (Tierney and Kan 2016: 1760; Stolberg, Johnson and Kupe 2018: 1; Teo 2019: 170). Hence, lecturers need to facilitate teaching, learning and assessment in a holistic

manner that produces students who will be autonomous, with the ability to apply critical thinking and creativity, which are characteristics of student-centred education. Consequently, literature suggests that there is a need for students to go further than the traditional paradigm or passive learning, whereby emphasis is generally placed on content knowledge and examination skills (Teo 2019: 170), as well as rote learning/memorization of facts and terms, and 'teach to test' (Reich *et al.* 2019: 48). Even though the relationship between learning and assessment in the traditional paradigm is seen as "linear", "retrospective and judgmental" (Cope and Kalantzis 2021: 7), literature indicates that it is useful for grading purposes (Mäkipää and Hildén 2021: 2) and to evaluate or determine what has been learned (Wafubwa and Csíkos 2021: 984).

Apart from preparing adaptive graduates, literature has indicated that Higher Education Institutions are subject to either institutional or government audits or accountability (Tierney and Kan 2016: 1761; Marginson 2018: 26; Sutin 2018: 19; Reich *et al.* 2019: 41). The purpose of these audits is to monitor scholarly output for the purpose of rewarding Higher Education Institutions in accordance with their career-oriented curricula, knowledge production, performance and producing graduates that are employable with the necessary skills for the 21st century, as well as the ability to apply them (Jacob and Gokbel 2018: 7; Small, Shacklock and Marchant 2018: 148, 150; Santos 2019: 4).

Statistics on Post-School Education and Training in South Africa: 2020 released in March 2022 by the Department of Higher Education and Training (DHET) reveal the number of students that graduate from public Higher Education Institutions (HEIs), which is an indication of the throughput-rates. The source of these figures was the HEMIS database, extracted in November 2021, which disclosed that DUT achieved a 27.2 % graduation rate for Undergraduate Certificates and Diplomas (Department of Higher Education and Training 2022: 103). These rates are of concern since funding from government is linked to state policy goals, the performance of Higher Education Institutions and throughput rates. As previously mentioned, institutional accountability is of importance. Hence, Temoso and Myeki (2022: 1) maintain that HEIs, which include South African universities, are pressurized to perform and improve productivity. This includes increased efforts in student retention, graduation rates,

faculty productivity and an increase in student learning. Thus, Cele (2021: 68) claims that Higher Education Institutions are aiming for student-centred education in order to facilitate student engagement, since literature postulates that positive learning outcomes hinge on the engagement of students in educationally purposeful activities. In addition, learning and assessment processes must include clear expectations that reflect what is required from students; outcomes that are specific; and assessments that promote self-efficacy, critical thinking, problem-solving, autonomy, creativity, self-reflection, and that explore real-world challenges and problems (Heilporn, Lakhal and Bélisle 2021: 10; Cole 2022: 2; Singh *et al.* 2022: 7). These are characteristic of student-centred assessments, which include assignments, case studies, portfolios and project-based learning, as well as peer and self-assessment.

Scholars have suggested the use of student-centred assessment, which is viewed as a tool to develop the skills needed for the 21st century that has seen a paradigm shift in education. In addition, SCA can be used to encourage students to be involved in their studies due to the characteristics of these types of assessments, as mentioned above. Due to these various changes, challenges and demands on education, HEIs were required to re-think their teaching, learning and assessment methods, as well as to align their strategic plans accordingly. Consequently, the Durban University of Technology's Strategic Plan, entitled ENVISION2030, is focused on adaptive graduates that can apply knowledge and who are able to engage with society at local and international levels. The integrity, validity, applicability and empowerment of assessment as an integral part of teaching and learning are considered as salient aspects at DUT. As mentioned earlier, DUT's ENVISION2030 and the corresponding assessment and pedagogical documents have been discussed in the document analysis (Chapter 4: Methodology).

The aforementioned university and other HEIs wanting to be relevant, responsive and adaptive to the 21st century landscape is indicative that the skills produced through student-centred assessment practices should be encouraged to alleviate the insufficiencies of knowledge and skills, which weaken the employability of graduates. Moreover, the need to evaluate the extent to which assessments are student-centred and contribute to positive learning outcomes are significant.

1.3 Aim

The aim of this study is to develop a framework for the provision of student-centred assessment in Higher Education by exploring student-centred practices and theories.

1.3.1 Objectives

i. To ascertain the current student-centred assessment practices at DUT;
ii. To explore staff and students' perceptions of their experiences of student-centred assessments at DUT;
iii. To identify and explore learning theories applicable to student-centred assessment practices; and
iv. To develop a framework for the provision of student-centred assessments in Higher Education.

The following research questions were generated from the objectives:

i. What are the current student-centred assessment practices at DUT?
ii. What are staff perceptions of student-centred assessments at DUT?
iii. What are students' perceptions of student-centred assessments at DUT?
iv. Which learning theories are applicable to student-centred assessment practices?
v. What effective framework can be developed for the provision of student-centred assessment in Higher Education?

1.4 Significance of the study

This study envisages that the metacognition level of students who participate in student-centred assessments may increase. Literature indicates that these types of assessments promote problem-solving skills, higher-order and critical thinking, creativity and autonomy, which have become known as 21st century skills. Since assessment is an integral part of learning, the evaluation and design of assessment is a salient aspect in Higher Education Institutions. HEIs are expected to produce graduates that can adapt to the 21st century workforce demands, acquire the

necessary metacognition skills and apply knowledge to a real-life context. Hence the importance and relevance of student-centred assessment.

The findings from this study will establish the staff and students' perception, exposure and usage of student-centred assessment. This study proposes a framework for the provision of student-centred assessment, which will assist academic staff in the design of student-centred assessment aimed at fostering 21st century skills. This will benefit students in becoming adaptive graduates. In addition, the findings and usage of the framework will positively contribute to student engagement, which impacts on student retention and pass rates, eventually influencing government funding.

1.5 Overview of the research methodology

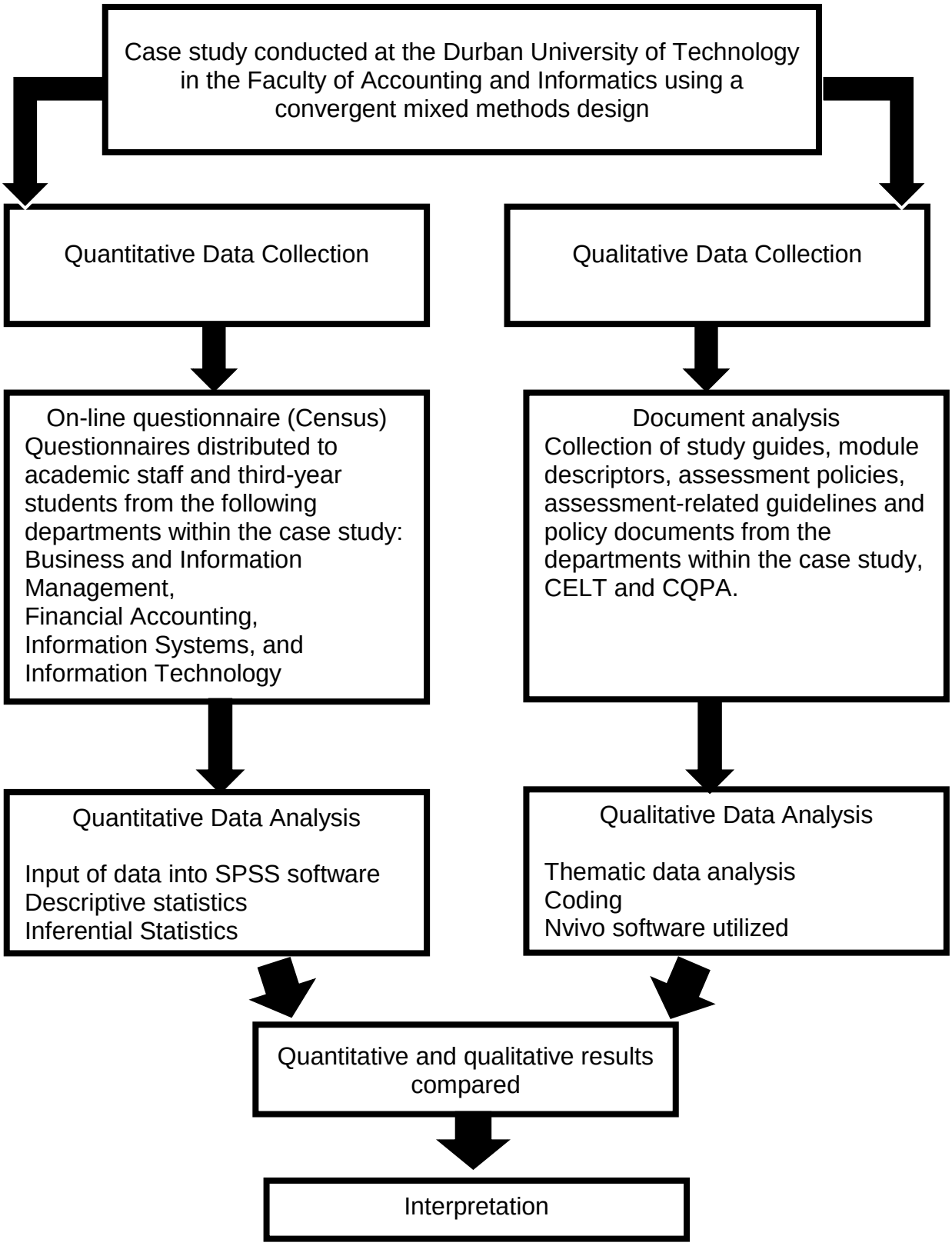


Figure 1.2 Overview of research methodology

Source: Self-generated (Ross 2023)

As depicted in Figure 1.2, this study adopted a case study approach, which followed a convergent mixed method design. The population was the Faculty of Accounting and Informatics at the Durban University of Technology. Selection of departments, level of students and documents are explained in Chapter 4, including ethical considerations.

The quantitative feature made use of a census, which included all third-year students and staff members from the Financial Accounting, Information and Corporate Management, Information Technology and Information Systems departments. A separate on-line questionnaire was administered to both staff and students. The data from the staff and student questionnaires were analysed using SPSS version 28.0. The results were presented using descriptive statistics presented in charts or graphs and inferential statistics whereby correlation tests, t-tests, simple linear regression and multiple linear regression were used.

A document analysis was conducted using organisational, institutional and programme documents pertaining to assessment which were obtained from the relevant departments. A thematic analysis was used for the document analysis. After data was coded and themed, NVivo 13 for Windows was used to generate cluster analysis, hierarchy charts, tree maps, word clouds and word trees, where necessary.

1.6 Clarification of terminology

1.6.1 Difference between learner and student

A learner refers to an individual studying at school and a student refers to a person studying at a Higher Education Institution. However, there are instances whereby these two terms are used interchangeably. For this study, the term ‘student’ will be used to denote an individual studying at a Higher Education Institution.

1.6.2 Lecturer

In this study, the term ‘lecturer’ is used to refer to a person lecturing to students at any Higher Education Institution. According to the literature reviewed, international studies also refer to a lecturer as an academic, educator, teacher, as well as faculty.

1.6.3 Metacognition skills

Metacognition, a term originally coined by Flavell (1979), was defined as 'thinking about thinking'. Unlike cognition which refers to processing and understanding the knowledge learned, metacognition refers to self-reflection about one's thoughts, decisions and behaviour (Afzal, Ali and Samreen 2023: 508). Self-reflection engages in examining new ideas and theories, making comparisons to prior knowledge and generating new concepts and viewpoints (Al-Gaseem, Bakkar and Al-Zoubi 2020: 897). Since the universities' role has evolved from knowledge acquisition to knowledge production and application, metacognition skills are valuable since these are higher order thinking skill that promote active learning (Al-Gaseem, Bakkar and Al-Zoubi 2020: 898; Tabanli 2023: 209).

1.6.4 Pedagogy

Pedagogy refers to the methods and activities that lecturers use in order to teach and impart knowledge. Pedagogy is also described as the art and science of teaching, which includes important theories, beliefs, practices and policies that do not merely inform but shape teaching (Murphy, Hall and Soler 2008: 3; Moore 2018: 18). In addition, lecturers serve or conduct an important role since the lecturer has influence over the students' learning through teaching styles, the learning process, assessments, overall performance evaluation and feedback (Ozuah 2016: 83; Muduli, Kaura and Quazi 2018: 169).

1.6.5 Student-centred assessment

Student-centred assessment refers to assessments that are authentic, meaning that it is meant to develop higher-order thinking and promote creativity, according to Wicaksana *et al.* (2019: 376). Assessments that are student-centred are intended to promote active participation, autonomy, metacognition skills, and assist students to apply knowledge to real-life situations (Bremner 2021: 166). Literature suggests that SCA encourages interaction between students, stimulating reflection and the student's desire to learn (Al-khresheh 2022: 34; Xhomara 2022: 102; Grøndahl Glavind *et al.* 2023: 1255).

According to the literature reviewed, international studies also refer to ‘student-centred’ as ‘learner-centred’. In this study, the term ‘student-centred’ is used.

1.7 Scope and delimitations of the study

This study was conducted in the Faculty of Accounting and Informatics only. Therefore, the findings cannot been generalizable beyond this Faculty. However, the findings, recommendations and framework may be of interest and relevance to other Higher Education Institutions, and particularly to other Universities of Technology in South Africa.

1.8 Structure of the thesis

This study is presented in seven chapters, which are arranged in the following manner:

Chapter One: Introduction and background to the thesis

This chapter provided an introduction and background to the research problem, including the rationale and objectives of the study. An overview of the methodology used was outlined, in addition, key concepts were clarified and the limitations and delimitations of the study defined.

Chapter Two: Theoretical Framework

This chapter provided the theoretical framework of the research. The different learning theories were examined and explored in relation to the implementation of effective pedagogy.

Chapter Three: Literature review

This chapter reviewed extant literature with the focus being on student-centred assessment in Higher Education Institutions. It included concepts of effective pedagogy, metacognition and student engagement, and noted any gaps in the literature that the current study can assist in filling.

Chapter Four: Research Methodology

This chapter described the research design, including the paradigm, approach, data collection methods and data analysis techniques that were employed.

Chapter Five: Presentation of results and discussion (quantitative data)

This chapter presented the findings of the analyzed quantitative data consisting of student and staff questionnaires.

Chapter Six: Presentation of results and discussion (qualitative data)

This chapter presented the findings of the documents reviewed, consisting of institutional documents pertaining to assessment.

Chapter Seven: Summary, conclusions and implications of the study

This chapter discussed the main findings in the context of the theories framing the study, relevant literature and the critical questions generated to address the objectives of the study. Based on this discussion, a framework for the provision of student-centred assessments in Higher Education Institutions was presented, conclusions have been drawn and recommendations for future research made.

1.9 Chapter summary

This chapter provided an overview of what this study entailed, which included the research problem, objectives, significance of this study and the methodology adopted. The next chapter will describe the theoretical framework of this study.

2 CHAPTER TWO
THEORETICAL FRAMEWORK

2.1 Introduction

It is important to explore the underpinning theories associated with student-centredness in order to gain an understanding of the principles associated with the developments in Higher Education towards a more engaged classroom with student-centred teaching, learning and assessment. A theoretical framework assists to outline the position of the paradigm shift from teacher-centred pedagogy to student-centred pedagogy.

Ravitch and Riggan (2016: 6) define a theoretical framework as a way in which all the elements of the research process, which includes the literature; theory; and the researcher's position and interest can be interrelated. Hence, it can be used as a lens to supplement or find meaning for a researcher's data (Kivunja 2018: 48). In addition, it includes the researcher's personal experience, convictions, values, views (Ravitch and Riggan 2016: xi) and the theories that guide the research. These theories have been developed to describe, forecast and comprehend phenomena, as well test and expand existing knowledge (Labaree 2013: para. 1 line 1).

Hence, Lederman and Lederman (2015: 597) highlight the importance of a theoretical framework, irrespective of the type of research that is being conducted, be it quantitative, qualitative or mixed methods, since it is considered as a support structure for the research study (Osanloo and Grant 2016: 12). The theoretical framework validates the study and positions it in the relevant field with the intention to expand or challenge formal theories (Crawford 2020: 38). In addition, Adom, Hussein and Agyem (2018: 438) emphasise that a theoretical framework locates the study by providing it with scientific and academic justification. The theories below are intended to provide the necessary framework and explanation.

2.2 Learning theories

Learning theories can be used to inform pedagogy since they define the way in which students gather, understand and recollect knowledge. Hence, Kamel-ElSayed and Loftus (2018: 255) argue that it is important for lecturers to have an understanding of learning theories, since it can assist them to reflect on their pedagogical methods and identify connections between different theories and applying it to improve learning.

Harasim (2017: 5) summarises learning theories as depicted below:

Table 2.1 What is a Theory?
(Harasim 2017: 5)

The Role of Theory			
Explains: Why? How? Where? When? What?	Provides: A framework or lens A guide for practice A means to envision change	Shapes: Understanding Discourse Ideas Technology Methodology Actions	The theory we employ (even unknowingly) shapes how we design and implement our practice

In addition to the above, Harasim (2017: 6) stipulates that learning theories are grounded in scientific methods, epistemologies, and the opinions of the era's knowledge communities. Epistemology is concerned with knowledge and how one knows. In addition, Harasim (2017: 6) highlights that there are two key epistemologies of the 20th and 21st centuries, namely the objectivist epistemology (displayed in behaviourist, cognitivist and connectivist learning theories) and constructivist epistemology (revealed in constructivist and collaborativist learning theories).

The objectivist considers learning to be facilitated externally through pedagogical approaches that influence and shape cognitive processes, whereas constructivists consider learning to be regulated by the individual. In addition, the objectivist epistemology believes in the transfer of knowledge from the lecturer, since students are considered to passively take in information; whereas the constructivist epistemology considers students to be actively involved in the construction of their own knowledge (Arbaugh and Benbunan-Finch 2006 as cited in Hendriks *et al.* 2019: 925; Yamamoto, Eriguchi and Eriguchi 2021: 66).

Medsker and Holdsworth 2001 as cited in Rayanto (2021: 10-13) summarise the differences between knowledge acquisition and instructional design practices in the Objectivist and Constructivist epistemology, as depicted in Tables 2.2 and 2.3.

Table 2.2 Knowledge Acquisition between Constructivism and Objectivism (Medsker and Holdsworth 2001 as cited in Rayanto 2021: 10-11)

No.	**Constructivism**	**Objectivism**
1.	Knowledge is represented internally as a personal interpretation of an individual's experience. Meaning is imposed on the world rather than existing independently of the person.	Knowledge exists outside the person in objective reality. The external world is completely and correctly structured in terms of entities, properties and relations. Meaning exists in the world independently from personal experience.
2.	There is no correct meaning for which one is striving. All truth is relative.	Teachers and learners strive for a complete and correct understanding of objective truth.
3.	A lesson attempts to influence how learners think in a content domain. Therefore, designers must attach themselves to a content domain in order to learn how experts solve problems in the domain.	Instructional design is separated from any particular content. General principles of learning apply across all content domains, with an emphasis on the acquisition of content knowledge.
4.	Emphasis is on developing thinking and learning skills.	Emphasis is on gaining content knowledge and skill.

This study adopted the Constructivist epistemology since it focuses on the student as an active learner. The student's voice is recognised and emphasis is placed in the development of critical thinking and collaboration, which are characteristics of student-centredness. This is further addressed in the literature review, which discusses student-centred initiatives with particular attention to student-centred assessment.

2.2.1 Constructivist learning theory

Constructivist theories can be linked to earlier theoretical approaches, including experiential learning by John Dewey, which was developed more recently by David Kolb; incremental learning, which refers to the Social Development Theory explored by Lev Vygotsky in the 1930s and more recently by David Rose, as well as Carl Rogers on the Person-Centred Approach. It has become evident over the years that there is no one defining student-centred theorist that encompasses the development of learning in individuals. However, these theorists have significantly contributed to understanding the significance of student engagement, which is central to student-centred learning theories. The literature review addresses different aspects of student-centred pedagogy, which include discussions, group activities, peer assessment, self-assessment and group projects that may influence student engagement. In addition, the literature highlights changes in Higher Education policies and the development of Teaching, Learning and Assessment policies within the Durban University of Technology.

As seen in Table 2.3 below, the elements that promote student engagement, active and autonomous learners can be identified in the Constructivist epistemology through the influence of instructional design practices. In addition to these scholarly views, the Constructivist Learning Theory engages students in the construction of their own knowledge through the active use of previously owned experience, education and understanding (Saminan, Risa and Hamid 2017: 214; Suhendi, Purwarno and Chairani 2021: 77). This theory suggests that one learns by constructing one's own understandings based upon one's experiences and the reflections thereof. The way in which one learns and what one learns are affected by what one already knows. The constructivist approach is student-centred where students are actively involved rather than passively receiving information (Huba and Freed 2000: 5; Akhter, Din and Khan 2018: 88). Saminan, Risa and Hamid (2017: 214) emphasise that students must be more active in the learning process, which involves finding solutions to their own problems, while lecturers only facilitate and monitor the learning process, which enhances the quality of teaching and learning (Warnich and Meyer 2013: 13; Bhattacharjee 2015: 68; Guillermo and Humberto 2018: 2).

Table 2.3 Instructional Design Practices between Constructivism and Objectivism
(Medsker and Holdsworth 2001 as cited in Rayanto 2021: 12-13)

No.	**Constructivism**	**Objectivism**
1.	Allow learner to set their own objectives or allow objectives to emerge.	Pre-specify learning objectives: knowledge, skills and attitudes to be learned.
2.	Create a learning environment that encourages the construction of understanding from multiple perspectives.	Use principles from psychology and media to design and sequence the instructional message, both at the macro and micro levels.
3.	Allow learners to control sequence and perspectives.	Pre-define the perspective that will be taught and the sequence of instruction.
4.	Do not focus learner attention in ways that depart from the real world.	Use real-world situations, but not at first. Start with clear-cut, simplified examples and exercises.
5.	Situate learner in real-world contexts.	Practice newly learned concepts in real-world contexts, but usually only after prerequisites are achieved.
6.	Teach through cognitive apprenticeship and individual discovery.	Teach through a variety of methods within a controlled set of learning conditions.
7.	Evaluate learning based on individual's emerging goals, using real-world criteria if possible.	Evaluate learner's progress against pre-set objectives.

The above characteristics of the Constructivist epistemology as compared to the Objectivist, indicating the shift of the role of the lecturer from the 'sage on stage' to the 'guide on the side'. This is consistent with the constructivist view that knowledge is a product of experience, investigation, and comprehension rather than something that can be imparted from lecturer/educator to student (Thompson 2000 cited by Greenier 2017: 260).

As mentioned previously, this study is positioned in constructivism. This learning theory supports the student-centred approach to learning (Cunningham, Gorman and Maher 2022: 4). It integrates the students' individual experiences and perspectives into the actual learning process, thereby offering students a sense of importance and hence increasing student learning and engagement (Al-khresheh 2022: 25). In addition, this theory contributed to the understanding on how student-centred pedagogical and assessment strategies influence, enhance and develop critical thinking, active participation and autonomous students. The constructivist learning theory focuses on students constructing their own knowledge, instead of the mere transfer of knowledge from the educator, which is in alignment with student-centred initiatives and assessments. This is of significance since the aim of the current study is to develop a framework for the provision of student-centred assessment.

2.3 Conceptual framework

A conceptual framework links the relevant theories, predictions, beliefs and empirical research (Vridhi 2023: para. 3 line 2-4). It is intended to develop, expand and arrange knowledge about interrelated concepts, theories or concerns (Rocco and Plakhotnik 2009: 128) and justifies the study (Varpio *et al.* 2020: 990). It delineates the dependant and independent variables and the cause-and-effect relationships.

2.3.1 Weimer's 'five key changes to practice

As indicated, this study is viewed through the lens of the Constructivist learning theory. Weimer's 'Five Key Changes to Practice' underpins the principles of Constructivism and is used as a conceptual framework. Research postulates that a conceptual framework identifies gaps in one's understanding of an occurrence or trend, provides reasons for the importance of this research and contributes to knowledge (Varpio *et al.* 2020: 990). Weimer's model provided an understanding of the concepts and changes in the paradigm shift from teacher-centred to student-centred teaching, learning and assessment in Higher Education (Du Plessis 2020: 3-4; Mirete *et al.* 2020: 4; Nghia, Phuong and Huong 2020: 120; Sangster 2021: 2-3), as well as gaps in the purpose and process of assesment and aspects pertaining to student-centred learning (Trinidad 2020: 1021). Weimer suggests the following educational processes,

which can be considered by lecturers as areas that could be changed from teacher-centred to a student-centred approach, namely Balance of Power, Function of Content, Role of the Teacher, Responsibility for Learning and the Purpose and Processes of Evaluation. These five aspects are the independent variables that can influence the dependant variables associated with student-centred assessment practices and initiatives.

1. Balance of power

Student-centred learning (SCL) may allow for the student and lecturer to share power, making the classroom a more democratic environment, which influences student motivation, enthusiasm and engagement (Weimer 2002: 10; Ignacio 2019: 32; Al-Rashed 2020: 68). Complete power is not awarded to the student whereby the lecturer's authority is dishonoured. However, students are given a voice to discuss or share their views (Motjolopane 2021: 36). For example, students in an SCL environment are allowed to provide input and present recommendations about assignment choices and course activities (Weimer 2002: 32; Al-Rashed 2020: 68).

2. Function of content

The key change to this educational area suggests that instructors use less time in transferring content. Instead, students are to be more engaged in the curriculum by participating in active learning activities in order to improve their learning skills, promote learning self-awareness and confidence (Motjolopane 2021: 36; Trnova 2021: 322). This aspect relates to the pressure between the quantity of content as compared to the quality of content (Black and Allen 2019: 223; Al-Rashed 2020: 69). Weimer (2002: 68) emphasises that it is difficult to cut course content and, in addition, content cannot be randomly deleted. Careful consideration must be given to the following questions: Do my students find the curriculum engaging, and can it assist with their work-life? What skills and knowledge will stand the test of time, given the dynamic nature of knowledge and information? The role of content, rather than being seen as an end in itself, should be intended to construct knowledge and understanding and build self-

efficacy, which could support student-centredness. Weimer (2002: 62) suggests that lecturers could ask students to submit a summary consisting of two or three sentences of the content presented, which could promote SCI and test their understanding of material.

3. Role of the teacher

This entails that lecturers include students in the teaching process by the lecturer designing activities such as assignments, case studies, debates, discussions, group activities, simulations and problem-solving activities that promote student participation (Weimer 2002: 76,82,86; Al-Rashed 2020: 69; de Andrade Rodrigues *et al.* 2021: 9). This necessitates the lecturer being a facilitator that promotes students' interaction and encourages queries and responses, instead of transferring knowledge only. Hence, this involves a shift from a student being a passive learner to being active.

4. Responsibility for learning

This key change relates to lecturers creating an environment that is conducive to learning and makes students responsible for their own learning (Weimer 2002: 118; Ignacio 2019: 32; Al-Rashed 2020: 69). This could be achieved by allowing students to design and manage their own time-frames in the learning process and/or the completion of tasks, as failure to do so will make them liable for their actions (Weimer 2002: 105; Petrova 2020: 2). In addition, students will understand the consequences of their passive choices and relaxed attitudes (de Andrade Rodrigues *et al.* 2021: 10).

5. Purpose and processes of evaluation

This key change addresses the use of assessments. Indeed, tests and assignments are important in order to determine the level of learning. However, Al-Rashed (2020: 69) emphasizes that learning should not end when assessments are concluded. Weimer (2002: 119) suggests that students should be involved in evaluating their own learning by being involved in self and peer assessment activities. These assessment types can assist the lecturer in

evaluating whether the student is learning (de Andrade Rodrigues *et al.* 2021: 10) and allows students to assess their own and peers' work, as well as provide feedback. These type of assessment allow students to learn from peers, promotes participation in the selected areas of the curriculum (Zaky 2021: 2), and improves on their learning (Gerdeh and Davaribina 2021: 3).

In relation to the objective of the study, the above learning theories and conceptual framework assisted in understanding the theories associated to student-centred assessment. This study had to determine the research conducted in this field that influenced and contributed to Higher Education in the area of student-centred assessment. Globalisation, international collaborations, massification of education, student exchange programmes, university rankings and technology have influenced changes in Higher Education and the policies that govern teaching, learning and assessment. Higher Education Institutions are required to adapt to these changes in order to remain relevant (Jacob and Gokbel 2018: 2) and meet the demands of the 21st century that require a labour force that has the necessary skills, which include critical thinking, autonomy, communication, collaboration, creativity, problem-solving and innovation. These skills are often referred to as 21st century skills, which can be developed through student-centred teaching, learning and assessment.

Weimer's five key changes to practice identify areas that require change and can influence student-centred learning and assessment. These five aspects are the independent variables that can influence the dependant variables associated with student-centred assessment practices and initiatives, as depicted in Figure 2.1

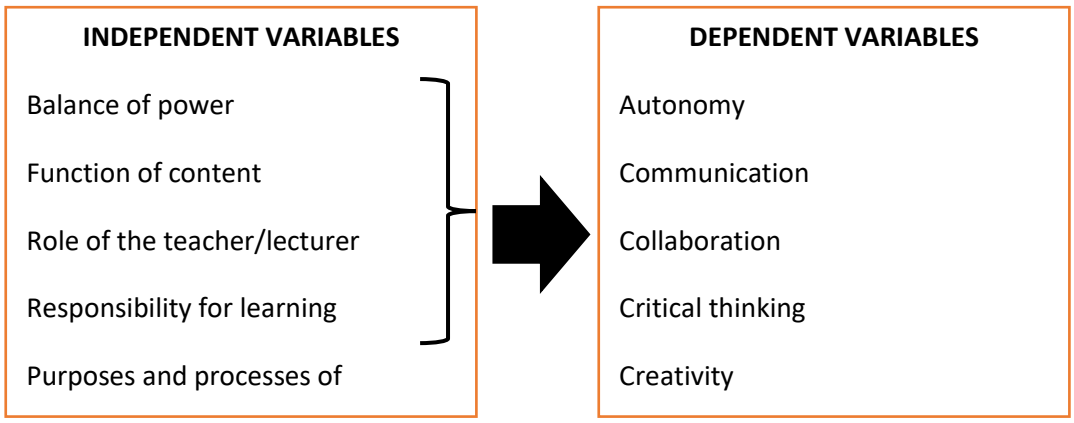


Figure 2.1 Independent variables using Weimer's model
Source: Self-generated (Ross 2023)

Higher Education Institutions view student-centred initiatives and assessment as essential components in building achievement. Achievement, in the sense that it is not solely academically related, but determines the manner in which pedagogical approaches to teaching, learning and assessment can influence students' confidence and improve communication skills, develops student autonomy (Rowley, Fook and Glazzard 2018: 36) and directs the behaviour of students to be engaged. The reviewed literature (Chapter 3) discussed how student-centred assessment attempts to achieve this and indicated that assessment drives teaching and learning, as argued by Murray (2019: 414), whereby assessment is the mainstay to effective teaching and learning strategies.

2.4 Chapter Summary

This chapter provided an overview of the different epistemologies and learning theories that were influential in 20th and 21st century education. Student-centred theories suggest that the focus of student-centredness is not restricted to the student and the way the student learns, but looks at aspects such as content, instructional activities and assessments, which are influenced by educational constructivism (Hoidn and Klemenčič 2020: 18). Weimer's model provided a conceptual framework since it is positioned in constructivism and provides areas of suggested change to influence student behaviour and engagement, allowing for autonomy, critical thinking, collaboration and higher-order thinking skills. The role of the lecturer is hence changed to facilitator, and provides students with guidance and design activities and

assessments that encourage student learning and autonomy (Cunningham, Gorman and Maher 2022: 5). In the next chapter (Literature Review), these areas, including the different ways in which students engage, absorb and understand knowledge, are discussed further. In addition, the characteristics, influences and challenges of student-centred assessment are reviewed.

3 CHAPTER THREE
LITERATURE REVIEW

3.1 Introduction

This chapter reviews the existing body of scholarly material related to student-centred assessment. This review process was aimed at addressing the critical questions and the concerns expressed in the research problem. In addition, the intention of the literature reviewed was to identify and address key areas that pertain to this study, as well as reveal gaps in the literature that are significant to student-centred assessment.

Apart from being a body of knowledge that identifies what one knows and how one knows (Byrne 2017: 2), a literature review is an important element of the study since it is used to build arguments that lead to specific research questions and/or test a particular hypothesis (McEwan 2018: 2; Xiao and Watson 2019: 93), and positions the research theoretically.

This study had to establish what research has been conducted in the field that influences and contributes to Higher Education in the area of student-centred assessment. This has led to the exploration of concepts and factors that influenced education reform and student-centred assessments. Factors that have influenced changes in Higher Education include globalisation, international collaborations, student exchange programmes, the massification of education (Borg 2018: 268), university rankings (Hazelkorn 2018: 4; Tikhonova and Raitskaya 2018: 5) and technology.

The challenge of enhancing and increasing student learning through student-centredness is a salient issue amongst Higher Education Institutions (HEIs) both nationally and internationally. Even though HEIs, government and various organisations such as the Bologna Process, the Association of Southeast Asian Nations (ASEAN), North American Free Trade Agreement (NAFTA), as well as the Organisation for Economic Co-operation and Development (OECD) and the World Economic Forum, support and encourage the use of student-centred teaching,

learning and assessment in one way or another, literature indicates that there are various challenges in its implementation. Barriers to student-centredness include massification, large class sizes and a lack of resources (Agili, Onditi and Monari 2018: 61; Bhati and Song 2019: 180). In addition, the students' expectations of how teaching, learning and assessment should be conducted can be an obstacle (Rowley, Fook and Glazzard 2018: 37) since students may resist participation in specifically student-centred learning activities, along with the notion that they should take responsibility for their own learning (Oyelana *et al.* 2018: 121; Shekhar *et al.* 2019: 7). Lecturers may also find it difficult to adopt the student-centred approach due to a heavy workload, the time required for preparation (Musarat, Farhat and Isamar 2019: 38; Trinidad 2020:1019) and the need to be trained to conduct student-centred assessment and facilitate effective learning, rather than just transmitting knowledge (Bhati and Song 2019: 180).

Student-centredness is the current focus of HEIs due to the demands of the 21st century. Nyakito and Allida (2018: 8) emphasise the importance of changes in assessment strategies that promote deeper learning, student-centredness and support educational reform for the 21st century. The backdrop to this kind of educational reform is attributed to changes in educational policy and research studies globally, whereby emphasis is placed on the role and effectiveness of the lecturer to re-define instruction as a facilitator, creator of learning opportunities or the delivery of learning experiences (Biesta 2015: 75,76; Darling-Hammond 2017: 291; Akhter, Din and Khan 2018: 90) and the significant function of assessment. However, as indicated above, various barriers may hinder its effective introduction and the use of student-centred assessment. The above concepts regarding trends in HE, which have affected education at a national and global level, will be developed further with the aim of laying the groundwork for providing a framework for student-centred assessment in Higher Education.

3.2 Paradigm shift from a teacher-centred to a student-centred approach in assessment

A paradigm shift has occurred in Higher Education from the traditional teacher-centred approach to a student-centred learning approach (McLean and Attardi 2018: 1). Student-centred, also referred to as 'learner-centred', has become a commonly used term in education globally. The literature suggests that a student-centred approach in teaching, learning and assessment is aimed at addressing distinct learning needs, as well as at improving competences and promoting active learning. In addition, importance is placed on developing life-long learners (Marín 2022: 1), and assessment or examination methods are designed to foster deeper learning and critical thinkers (Chua *et al.* 2021: 5734).

Less emphasis is placed on the 'sage on the stage'. Rather, the lecturer's role is seen as 'the guide on the side', that is as a facilitator of knowledge in order to promote student autonomy and engagement. In addition, the aim of this approach is to reverse the passive role of the student to being more active, whereby the onus is on the student to be responsible in learning and setting learning goals (Guillermo and Humberto 2018: 2; Li *et al.* 2020: 169; Butawan, Egenias and Sebastian 2021: 69). This has to be driven by the instructor's intentional effort to actively involve students (Campbell, Detres and Lucio 2019: 736). The lecturer has influence over the students' learning through teaching styles, the learning process, assessments, overall performance evaluation and feedback (Ozuah 2016: 83; Muduli, Kaura and Quazi 2018: 169).

Student-centred learning is also designed to support long-term learning and to position students to be critical thinkers by placing greater emphasis on self-discovery learning and less on didactic instruction (Warnich and Meyer 2013: 13-14; Reich *et al.* 2019: 42). Student-centred learning thus changes the focus from the lecturer to the student. In student-centredness, the lecturer (ideally) explores and creates different modes of teaching, learning and assessment that reflect the rapidly changing trends in Higher Education for the 21st century.

Literature suggests that students' interest may be captured more by the student-centred approach as compared to the traditional educational paradigm (Badilla Martínez 2020: 29). A student-centred approach is most likely to increase student

engagement, hence a paradigm shift in teaching, learning and assessment has occurred. Scholars are of the view that there are various factors that have influenced the paradigm shift, which will be explained in the literature below.

3.2.1 Factors that influenced the paradigm shift from teacher-centred to the current focus on student-centred assessment in higher education

Various factors have contributed to student-centred learning, instruction and assessment, which commenced in the early 20th century. Dovey and Fisher (2014), as cited in Oseland (2018: 6), state that the theories associated with pedagogy can be identified as three key stages, namely behaviourist, cognitivist and constructivist. Oseland (2018: 6) describes the three approaches as follows:

> *"Behaviourist approaches are traditional didactic teacher-centred pedagogy, whereas cognitivist approaches involve moving from lower-order to higher-order thinking, and constructivism is largely based on the application of knowledge in the student's world."*

As compared to the behaviourist and cognitivist approaches, the constructivist approach, which is frequently described and associated with student-centred learning, is progressively being accepted and recommended by Higher Education Institutions (Oseland 2018: 6) since student-centred approaches provide an understanding interests, accomplishments, and learning preferences of students (Akhter, Din and Khan 2018: 88). In addition, student-centred learning focuses on the strategies and methods that will assist the students to become critical thinkers by developing autonomy and control of their own learning. Assessments should demonstrate the same approach since assessment is connected to learning and instruction. It is therefore important for lecturers to integrate and align pedagogy with assessment (Christie and Morris 2021: 574), since assessment plays a pivotal purpose in the intention of learning (Nieminen and Lahdenperä 2021: 1). In a student-centred learning approach, student-centred assessment practices include peer assessment, self-assessment, project-based learning and portfolios, which are explained further in the literature below.

Lastly, apart from theorists that influenced student-centred learning, instruction and assessment, other possible reasons are the suggested dissatisfaction with the teacher-centred approach and the increasing requirement of Higher Education Institutions being able to equip graduates with the necessary knowledge and skills, such as problem-solving, teamwork and self-regulated learning, which can be used to assist the student in their chosen field or any workplace (Hoidn 2016: 446; Trinidad 2019: 8). This resulted in changes to educational policies, academic standards and the suggestion of introducing these '21st century skills'.

3.2.2 Dissatisfaction experienced with the teacher-centred approach and its influence on Student-Centred Assessment (SCA)

A teacher-centred approach may be considered unsatisfying to stakeholders like the student, instructor and employer (Guillermo and Humberto 2018: 2). The student may be discouraged due to a lack of autonomy and flexibility in this approach; the instructor may find that students fail to reach the established goals of the course; and the employer may find that students coming from this system fail to respond to professional needs.

Even though this "dissatisfaction" may be seen as a systemic Higher Education issue, Guillermo and Humberto (2018: 1) and Lynam and Cachia (2018: 225) argue that the way in which lecturers teach and impart knowledge, as well as the design and alignment of learning outcomes to assessments, have a major influence over students' learning. Thus, literature suggests that effective assessment methods that promote critical thinking, decision-making and problem-solving skills may possibly assist students with the skills required in the 21st century workplace (Lynam and Cachia 2018: 224).

Adapting to the demands of an ever-changing society, the possible introduction of what society terms as 21st century skills and addressing the frustrations of the traditional method may require a paradigm shift in Teaching, Learning and Assessment. This could lead to the possible challenges that the lecturers face in adjusting to a student-centred approach and the reluctance of the students to accept this approach, amongst other issues, which will be discussed under Challenges in Enhancing the Student-Centred approach.

3.2.3 The effect of 21st century skills in Student-Centred Learning (SCL)

The currently named '21st century skills' are intended to assist students to remain competitive in today's fast-moving, demanding and modern markets, and to be successful in a new information-driven economy (Gane, Zaidi and Pellegrino 2018: 176). These skills include critical thinking, creativity, collaboration, communication, information literacy, media literacy, technology literacy, adaptability, flexibility, leadership, initiative, productivity, social skills and the ability to work with real-world problems (Alshare and Sewailem 2018: 3 - 4; Anuyahong 2018: 676; Hilt, Riese and Søreide 2019: 384; Menggo *et al.* 2019: 750; Teo 2019: 171). Literature suggests that these 21st century soft skills could be achieved through student-centred learning (Garcia *et al.* 2020: 6338) that designs authentic/student-centred assessments to provoke these higher-order thinking and decision-making skills.

Bedir (2019: 231) highlights that 21st century education places greater importance on acquiring the necessary skills to learn and sustain learning due to globalization and the rapid development of Information and Communication Technology that continues to change the educational, business, professional and personal environment (Barrot 2019: 145). Current global interests reflect the growing importance of instructional and assessment practices that include the development and incorporation of 21st century skills, both in Western countries such as America, Australia and Canada (Lamb, Maire and Doecke 2017: 31, 40) and developing countries, which include Uganda, India (Kim, Raza and Seidman 2019: 100), Kenya (Nyakito and Allida 2018: 1) and Thailand (Prachagool and Nuangchalerm 2017: 8).

The Partnership for 21st Century Skills, also known as the 'Partnership for 21st Century Learning' or P21, was formed in 2002 in the United States of America with the intention to prepare students to be successful in work, life and citizenship (Smith and Hu 2013: 89; Aker, Herrera and Daniel 2018: 165; The Partnership for 21st Century Skills 2019a: 1). This partnership was formed with members from the business community, education leaders and policy-makers.

This partnership with policy-makers and the business community may be considered as a significant aspect of '21st century skills' *as opposed to* 'Student-centred Learning'. The inclusion of 'policy-makers' (meaning government) and the 'business community'

sets these skills apart from ideas of previous centuries which saw academic freedom and autonomy as resting within universities themselves. While advocates of '21st century skills' are generally keen to adopt many of the aspects of SCL as being advantageous for their particular interests, they restrict these skills within a particular competitive and market-driven agenda, which the researcher argues may be at odds with genuine individual freedom, autonomy and self-realisation.

3.2.3.1 Contrasting view to 21st century skills

However, there are other scholars who take a more critical stance and view this very business, government and economic focus as problematic. As stated in the above literature, various studies suggest that 21st century skills are intended to prepare students for the knowledge economy. However, there are studies that describe the 21st century skills paradigm as separating conventional and digital pedagogies, generating an ideology that serves the economy, hides difficulty and underestimates information (Hilt, Riese and Søreide 2019: 394).

Wrahatnolo (2018: 3) indicates that 21st century skills are critiqued because education emphasizes the focus on content and technology (Zain *et al.* 2020: 49). In addition, Chalkiadaki's (2018: 12) study points out that careful consideration should be given to ensuring a balance between an individual's personal and social needs and the development of their skills, which are primarily related to professional achievement.

3.2.4 Influence of Student Engagement on Student-Centred Assessment

Literature suggests that student engagement is another factor that influenced the paradigm shift to a student-centred approach (Kaput 2018: 12; Mugizi *et al.* 2021: 200; Nsenga and Andala 2022: 37) because one of the concerns of Higher Education Institutions (HEIs) is student attrition rates and the delay in the completion of studies. Valto and Nuora (2019: 166) argue that these concerns must be the focus of the departments and their academic staff in order to ensure that students are engaged and successfully complete their studies (Tight 2019: 1), as this is also a requirement of government funding (Lynch and Lungrin 2018: 69; Zepke 2018: 433). Even though it is the responsibility of the student to learn, Higher Education Institutions are responsible for creating an environment that will foster and encourage student engagement (Zhoc *et al.* 2019: 221). Assessment is an important tool that can engage

student learning. Literature suggests that student-centred assessment is considered to influence student engagement since it promotes autonomy, allowing students to be responsible for their own learning.

Tight (2019: 1) claims that student engagement is a constructive solution to the issue of student retention, the reason being that the more involved students are with their studies, the less likely it will be that they will abandon them before the completion of their qualification. Therefore, Richmond *et al.* (2019: 6) claim that the majority of HEIs are committing a significant amount of resources in order to implement a range of programmes aimed at improving student retention and academic success. Such measures may include, amongst others, first-year student experience programmes/workshops, student counselling, peer mentoring, writing assistance, and early educational warning systems (Richmond *et al.* 2019: 6; Valto and Nuora 2019: 179). Several of these measures are a feature of the selected university (Durban University of Technology), and will be discussed further below.

Valto and Nuora's (2019: 167) study revealed that by focussing on first-year students' studies, there was a substantive increase in student engagement and motivation to study when the following methods were employed:

- a thorough or detailed orientation was conducted,
- an increase in student counselling and guidance,
- a combined effort by both staff and students to work together, and
- interrelated or combined study programmes.

The above can be aligned to Vincent Tinto's theory on how HEIs can enhance retention and graduation by means of social, academic and environmental integration, as well as providing students with clear guidelines on what to do in order to succeed in, and complete, their studies (Tinto 2004: 8 - 9). Furthermore, students' experiences in class must not be ignored and an effective classroom must have clear expectations; timely support when faced with academic and social demands; feedback on assessment; and involvement or engagement of students with peers and lecturers (Tinto 2012: 4-5; 2017: 3). Mitchell *et al.* (2019: 29) agree and Xu (2018: 416, 424) concurs with Tinto's academic and social integration as being important, since it provides students with a perceived sense of connectedness to the university.

Lastly, Zepke (2018: 433) describes student engagement as:

> *"a complex construct used to identify what students do, think and feel when learning and how teachers can improve that doing, thinking and feeling in instructional settings".*

Therefore, Xu (2018: 416, 424) argues that significant aspects of student behaviour, such as their interest in learning and commitment to graduation, should not be disregarded.

Student engagement is associated with 'involvement' (Cele 2021: 69), which is the determination and attempts made by the student; and 'integration', which refers to the effort made by the university, described by Wolf-Wendell, Ward and Kinzie (2009:412-413) as cited in Tight (2019: 2), as follows:

> *"the concept of student engagement represents two key components. The first is the amount of time and effort students put into their studies and other activities that lead to the experiences and outcomes that constitute student success. The second is how institutions of higher education allocate their human and other resources and organize learning opportunities and services to encourage students to participate in, and benefit from, such activities."*

As literature indicates the significance of student engagement (Bowden, Tickle and Naumann 2021: 1207; Mugizi *et al.* 2021: 194; Singh *et al.* 2022: 1), likewise, the DUT's Teaching and Learning Strategy outlines the importance of student retention and success by applying approaches that assist in the transition from school to higher education (Durban University of Technology 2020b: 9). As mentioned earlier, first-year student experience programmes should be in place at HEIs (Richmond *et al.* 2019: 6; Valto and Nuora 2019: 179). The Durban University of Technology has adopted this approach by implementing various actions and programmes which include the First-Year Student Experience (FYSE). The FYSE programme commences at the beginning of the academic year, and is intended to support the students' transition. The university has various support structures, from writing centres to student counselling. DUT uses the Auto Scholar software to track 'at-risk students' at all levels. Academics are encouraged to utilise this software and training is provided by DUT's Centre for Excellence in Learning and Teaching (CELT) department.

DUT's Teaching and Learning Strategy intends to support students' transition and success through various initiatives which include supportive curriculum design that ensures smooth transition into higher education; programmes such as First Year Student Experience (FYSE) that integrate academic, social and cultural support of students; on-line platforms that encourage student, peer and lecturer interaction; tutorial support including extracurricular and peer mentoring; as well as a supportive Residence Educational Programme (REP) (Durban University of Technology 2020b: 9-10).

A large number of literature sources offer ways to encourage student engagement, as indicated by Tight (2019: 7):

> *"using active and collaborative learning approaches, including self and peer assessment, getting academic staff to interact more with students, and offering support programmes for those students deemed to be at-risk."*

The suggestions offered by Tight (2019: 7) are characteristics of student-centred teaching, learning and especially assessment (assignments, projects, self and peer assessment) in order to gauge students' interests and as a mechanism to encourage greater student retention (Myers and Myers 2014: 1; Meng *et al.* 2019: 171).

3.2.5 Contrasting view to student-centred initiatives

Whilst the literature generally posits a positive view in initiating student-centred activities (Li 2016: 11; Kitiashvili 2020: 553), there are opposing views as well. Fischer and Hänze (2019: 33) provide a contrasting view to student-centred instruction (SCI) and teacher-centred instruction (TCI). Instead, the author suggests that TCI is not completely passive as listening is an activity and refers to TCI as "teacher-guided methods" and SCI as "student-activating methods".

Fischer and Hänze's (2019: 26, 34) study also revealed that courses that employed the teacher-centred learning approach were beneficial and yielded an increase in students' cognitive engagement and learning as compared to student-activating methods, thus indicating that non-student-centred learning models can be effective (Wiyono, Rasyad and Maisyaroh 2021: 2) and teacher-guided methods can positively influence students' effort and creativity (Li 2021: 209). Fischer and Hänze (2019: 33)

argue that these results indicate that students in Higher Education have the ability to adapt to a teacher-guided approach since they have the ability to pay attention, perceive and model learning.

In addition, Fischer and Hänze (2019: 33) suggest that students in HE may not accept the student-centred approach due to large class sizes being challenging, as well as the difficulty in practice for the lecturer to apply student-centred approaches. This may be another reason for many students having a negative attitude towards student-centred activities. Likewise, lecturers may also view the application of student-centred assessments negatively due to time constraints and heavy workloads, amongst other issues. These could be referred to as challenges in the implementation of a student-centred approach. As previously mentioned, challenges will be discussed later in this chapter.

3.3 Assessment and its importance

A large number of literature sources and meta-analyses underscore the relevance of assessment as an integral part of learning and instruction (Kleyn and García 2019: 76; Martin *et al.* 2019: 37; Khan and Jawaid 2020: 108). Obilor (2018: 46) describes assessment as a tool that collates information in a systematic manner about what a student understands, can perform, and is discovering to do thus assisting lecturers in planning for teaching and learning. In addition, Wicaksana *et al.* (2019: 375) define assessment as a process that assists in facilitating the collection and analysis of information which can be used to determine the student's learning achievements. Ideally, assessment is considered as an integral part of instruction that facilitates, improves and commends student learning (Obilor 2018: 46; Sabbag, Garfield and Zieffler 2018: 141) by considering how students are able to apply their knowledge through the various assessment methods employed (Wicaksana *et al.* 2019: 375).

Whilst assessment is intended to achieve the above-mentioned, Hopfenbeck (2019: 2) argues that students are strategic when learning for tests and exams and would prefer to focus and prioritise activities that affect their grades or results. Thus, it is preferable to exercise caution when designing assessments, since 'assessment drives learning' and the different approaches to assessment must be considered due to the

relationship between assessment and the way in which students are defined and developed as learners (Silseth and Gilje 2019: 28).

3.3.1 Different approaches to assessment

Assessment has always been recognised as a prevalent issue and an important element of quality instruction. However, its meaning and use have been transformed over the past two decades (Webber 2012: 201; AlAsmari 2015: 38). Furthermore, there are different approaches to assessment, which include both conventional methods and current transformed methods of assessment, referred to as student-centred assessments that are concerned with student-centred learning.

Assessment can be differentiated as Assessment *of* Learning, which is also referred to as summative assessments; Assessment *for* Learning, which is formative; and Assessment *as* Learning, whereby students reflect on their work, either through self or peer assessment or both (Black and Wiliam 2018: 553; Chng and Lund 2018: 30; Obilor 2018: 46; Govaerts, van der Vleuten and Holmboe 2019: 66). In addition, the first approach is traditional in nature, whereas the latter two are referred to as being student-centred (Obilor 2018: 47). These assessment types will be elaborated upon further in this chapter.

3.3.1.1 Assessment *of* Learning (AoL)

Assessment *of* Learning (AoL) has been the predominant assessment for a number of decades with the purpose of verifying that learning has taken place through the means of summative assessments. Summative assessments were also known as the traditional or conventional method of assessment which is performed at the end of a module, term or semester. The purpose of this assessment method is to ascertain the academic achievement of the student, and whether the student will progress or not to the next module or level.

Likewise, there is a plethora of literature that maintains that summative assessments are intended to assist the lecturer to evaluate the student's understanding and knowledge of course content (Webber 2012: 201; Nilsberth and Sandlund 2021: 1) and the level to which the intended learning outcomes are achieved (Dixson and Worrell 2016: 154; Black and Wiliam 2018: 553). In addition, emphasis is placed on

students retaining a variety of facts (Kaya and Akdemir 2016: 159; Blundell 2021: 3) and learning is verified through grading (Newton, Williams and Feeney 2020: 41). This summative grading process was intended to provide students, lecturers, parents and stakeholders with feedback on the student's capabilities (Obilor 2018: 48; Croft *et al.* 2019: 2). In addition, it was used as a method to select, provide certification, promote and place students (Dixson and Worrell 2016: 154; Lau 2016: 512; Obilor 2018: 48; Han 2019: 419).

Whilst summative assessments are intended to achieve the above, scholars have challenged the use of summative assessment as a primary activity and has emphasized and supported the use of formative assessment (Silseth and Gilje 2019: 26). Since formative assessment provides feedback of where one is at a given time in one's learning, and identifies areas that students find difficulty in (Dixson and Worrell 2016: 154).

3.3.1.2 Assessment *for* Learning (AfL)

The purpose of formative assessment is to help the student and lecturer gauge what areas need to be addressed or adjusted, decisions to be taken in order to improve student learning and develop students into lifelong learners (Chng and Lund 2018: 30; Obilor 2018: 48; Govaerts, van der Vleuten and Holmboe 2019: 67; Morselli 2019: 17; Mäkipää and Hildén 2021: 2).

In comparison to summative assessments which are conducted at the end of a term, semester or completion of a section in the form of a test, essay, report and/or final examination, formative assessments occur whilst teaching and learning is taking place and is referred to as strategies that assist students to progress in their learning process, and reveal to the lecturer the way students think and the steps lecturers can take to improve teaching and learning (Lau 2016: 512; Cumming *et al.* 2018: 443; Obilor 2018: 48; Johnson, Sondergeld and Walton 2019: 2).

Some of the methods or strategies in which teaching and learning is attempted to be achieved in Assessment *for* Learning is through student-teacher interaction via questioning, teacher observation, role-play, self-assessment, peer assessment, student journals, aligning instructions, identifying students' learning needs and

adapting learning materials (Chng and Lund 2018: 33; Obilor 2018: 48; Johnson, Sondergeld and Walton 2019: 4).

Apart from the above examples, strategic questioning, effective teacher feedback and technology can also be used as part of Assessment *for* Learning. Strategic questioning makes provision for lecturers to find, amend or correct misunderstandings and gaps in knowledge, while effective teacher feedback informs the student about what they have achieved; the areas that they need to develop; and provides specific suggestions as to how they may improve (Obilor 2018: 48).

To conclude, Lau (2016: 510) argues that lecturers in Higher Education Institutions should find ways to create a link between summative and formative assessment, since both assessment types are important and contribute to meaningful, high-quality learning (Bijsterbosch, van der Schee and Kuiper 2017: 17-19; Govaerts, van der Vleuten and Holmboe 2019: 66).

Thus, both formative and summative combined may be useful to the student and other stakeholders instead of a single approach, since one will provide accreditation and the latter allows for growth, independence and critical thinking. In addition, Obilor (2018: 48) argues and Govaerts, van der Vleuten and Holmboe (2019: 66) maintain that solely relying on a single method will be counterproductive or not valid. Therefore, both formative and summative assessments need to work together (Lau 2016: 510). Hence, there should be a synergy between formative and summative assessments (Black and Wiliam 2018: 563; Obilor 2018: 49) in order to influence the student's active participation in the learning process (Lau 2016: 518, 519).

3.3.1.3 Formative Summative Assessments (FSA)

Rich Jr *et al.* (2015: 23) refer to Wininger's study, which highlights the importance of Formative Summative Assessment (FSA) on the grounds that it allows for the student and instructor to communicate; assists students to gain a better understanding of the content; and improves the quality of teaching.

Wininger (2005:164 cited in Rich *et al* 2015:23) defined 'formative summative' assessment as:

"the measurement of student progress before or during instruction for the expressed purpose of modifying instruction and improving student performance both by going over exams in class with students and garnering both quantitative and qualitative feedback from the students about their comprehension."

Lau (2016: 518, 519) maintains that if formative assessments are integrated with summative assessments, students are more likely to actively participate in the learning process and anticipate feedback, as compared to assessing using summative methods only whereby students are driven to perform due to these assessments being used for accreditation purposes. Hence, Bijsterbosch, van der Schee and Kuiper (2017: 17) aver that the combination of formative and summative assessments contribute to meaningful learning, which entails deep learning instead of surface learning.

3.3.1.4 Assessment *as* Learning

This approach emphasizes the role of the student as an active participant in their own learning by means of self-assessment. Self-assessment is regarded as a valuable assessment strategy (Morselli 2019: 19) since the student becomes a critical assessor who can understand the information received; associate or link the information to prior knowledge; and through self-reflection, learn to recognise what they need to learn or improve on (Bourke 2016: 99; Obilor 2018: 49) Therefore, Bourke (2018: 838) argues that self-assessment can be used as an initiative to incite learning.

Furthermore, becoming cognisant of one's own thought processes and understanding of subject matter is part of the metacognition process. This is aligned with the Constructivist learning theory, whereby one learns through the construction of one's own understandings, hence students are actively involved, which Warnich and Meyer (2013: 13) maintain enhances the quality of teaching and learning.

In addition, there are a vast number of literature sources which affirm that an environment which is conducive in promoting student reflection through self-assessment and/or peer assessment strengthens and encourages independent learning, self-regulation and responsibility for learning with the assistance of the lecturer (Bourke 2016: 98; Li 2016: 106; Obilor 2018: 49).

Obilor (2018: 49) asserts that in order for students to be proficient assessors and independent learners, instructors need to achieve the following:

(a) "Guide students in setting their own goals, and monitoring their progress towards them;

(b) Provide models of good practice and quality work that reflect curriculum outcomes;

(c) Work with students to develop clear criteria of good practice;

(d) Guide students in developing internal feedback or self-monitoring mechanisms to validate and question their own thinking, and to become comfortable with the ambiguity and uncertainty that is inevitable in learning anything new; and

(e) Provide regular and challenging opportunities to practise so that students can become confident, competent self-assessors."

Apart from the above guidelines, Bourke's (2018: 832) study emphasised that the student must be encouraged to reflect on their individual learning; participate in n higher-order thinking which involves analysis, evaluation and creation; and activities must be related to real-life contexts which allows for the application of knowledge.

3.3.1.5 Student-Centred Assessment (SCA)

Webber's (2012: 201) study concurs with Huba and Freed's contribution to assessment and student-centred teaching and learning. Huba and Freed (2000: 8) define assessment for student learning as:

> *"the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand, and can do with their knowledge as a result of their educational experiences; the process culminates when assessment results are used to improve subsequent learning."*

This statement roots itself within the constructivist theory of how students construct understanding for themselves through learning activities, thus also promoting individuality (Myers and Myers 2014: 3; Jeffrey and Clark 2019: 12). In addition, Croft *et al.* (2019: 1) underscore the importance of assessment to equip students with the relevant knowledge and crucial skills through the use of authentic assessment methods, which is also referred to as student-centred assessment methods.

Webber (2012: 201) asserts that the drive towards making higher education more student-centred is what gave rise to the current assessment shift, which is why related assessment practices are frequently referred to as student-centred assessment techniques. This consequently allows for a critical assessment of oneself and others to be an intrinsic part of learning and assessment, as well as to encourage collaborative learning and the growth of new skills (Nugba and Quansah 2020: 563). These student-centred activities include group work, flipped classrooms (Dori, Kohen and Rizowy 2020: 2), portfolios, project-based assessments (Flores *et al.* 2020: 379; Pereira *et al.* 2021: 10), self-assessment, peer assessment, as well as oral presentations (Webber 2012: 203).

Literature suggests that these types of student-centred assessments build confidence and critical thinking, whereas passive forms of learning and assessment do not allow for the usage of knowledge to effectively address problems in real-life contexts (Huba and Freed 2000: 5; AlAsmari 2015: 38; Rich Jr *et al.* 2015: 24; Kaya and Akdemir 2016: 159).

Thomas (2018: 25) and Cumming *et al.* (2018: 442) maintain that assessment indeed plays a fundamental role in students' learning, considering that students frequently structure or frame their learning according to their assessment tasks. Hence the detail in the design of assessments has been viewed as valuable and engaging, that emphasises and influences teaching and learning (Hutchings, Jankowski and Baker 2018: 14).

The focus on designing effective assessments that elicit student learning has a significant effect on student behaviour. Hence, lecturers play an important role in designing authentic assessments. Student-centred assessment is considered to be authentic since the focus is on critical thinking, reflection and the observation of

students' knowledge and skills (Maulidhawati, Prastikawati and Budiman 2021: 68; Ashipala, Mazila and Pretorius 2022: 2).

Wicaksana *et al.* (2019: 376) describe authentic assessment as being goal-orientated, with emphasis being placed on the student's direct learning and development of higher-order levels of thinking, as well as the ability to work in groups and/or with others. In addition, it provides for flexibility in learning and is embedded within the context, incorporated into the curriculum and is multidimensional (Bijsterbosch, van der Schee and Kuiper 2017: 17; Morselli 2019: 20). Ultimately, the aim of authentic assessment is to promote creativity, critical thinking and the student's desire to learn.

Thomas (2018: 26) suggests that Boud and Associates' Seven Propositions for Assessment Reform in Higher Education is a significant contribution to assessment principles. Boud and Associates (2010: 1) have generated seven propositions for assessment in Higher Education with the aim of guiding assessment thinking by increasing the focus on standards and addressing criticism of current practices. These guidelines were designed to develop and enrich learning achievements and experiences, since assessment impacts on the quality of learning (Boud and Associates 2010: 2).

Boud and Associates (2010: 2-3) offer the following seven propositions, i.e., assessment is most effective when:

i "… assessment is used to engage students in learning that is productive.

ii. … feedback is used to actively improve student learning.

iii. … students and teachers become responsible partners in learning and assessment.

iv. … students are inducted into the assessment practices and cultures of higher education.

v. … assessment for learning is placed at the centre of subject and program design.

vi. … assessment for learning is a focus for staff and institutional development.

vii. … assessment provides an inclusive and trustworthy representation of student achievement."

In summary, the propositions offered by Boud and Associates (2010: 2) indicate that assessments are most effective when designed to be recognised as a learning activity, which influences students to be productive. In addition, students and instructors must become responsible partners in evaluating learning and assessment (Huba and Freed 2000: 5; Boud and Associates 2010: 2) which assists in making assessment effective. Furthermore, opportunities must be provided for students to develop academic skills, perform tasks which pivot on the importance of student engagement (Boud and Associates 2010: 2) and which assist students to evaluate their own work (Boud, Lawson and Thompson 2013: 941).

In addition, Payne *et al.* (2019: 38) argue that the definition of assessment should not be confined to a test. Instead, it should be seen as a tool used to identify the student's ability to exhibit skills, competences and the level of learning outcomes achieved. Payne *et al.* (2019: 38) claims that effective assessment is built on the following characteristics:

> *"defining the expected learning; determining acceptable evidence of learning by designing tasks that require students to demonstrate the necessary skills and cognitive demands; employing a measuring device that differentiates qualities of achievement; and thoughtful analysis and evaluation of the results."*

From the above, it can be concluded that the aim of effective or authentic assessment or student-centred assessment is to afford students with opportunities to participate in authentic activities that build, use and broaden their knowledge, as well as what has become known as 21st century skills (Koh 2017: 5).

3.4 Different types of Student-Centred Assessment

Student-centred activities or assessments that stimulate critical thinking and the other stated 21st century skills include assignments, Project-based learning, Capstone projects, portfolios, self and peer assessment (Guo et al. 2020: 1; Ibarra-Sáiz, Rodríguez-Gómez and Boud 2020: 139; Alhitty and Shatnawi 2021: 6; Barak and Yuan 2021: 9). In this section, the different types of student-centred assessment will be discussed.

3.4.1 Assignments

Hutchings, Jankowski and Baker (2018: 14), researchers at the National Institute for Learning Outcomes Assessment (NILOA) at the University of Illinois (USA), indicated that much emphasis is being placed on the planning and aims of assignments, whereby particular attention is placed on the design. As indicated in Figure 3.1, when careful consideration is given to assignments, various aspects, including teaching, learning and assessment, can be clarified (Hutchings, Jankowski and Baker 2018: 14), thereby assisting lecturers to create authentic assessments that are student-centred, which will promote student development.

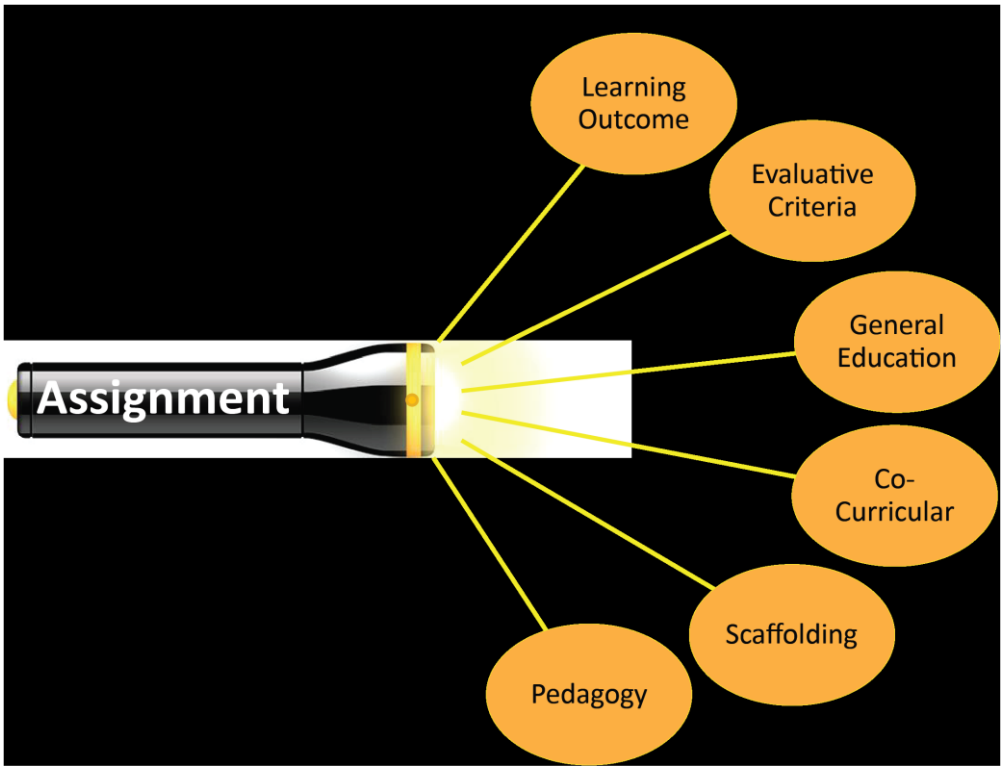


Figure 3.1 Work on the design of assignments can illuminate various aspects of teaching and learning for faculty exploration (Hutchings, Jankowski and Baker 2018: 15)

3.4.2 Project-based learning (PBL)

Project-based learning allows students to work with real-world challenges and create artefacts or solutions for these problems (MacLeod and van der Veen 2020: 363).

Literature suggests that PBL can be a useful tool in HE in order to increase student learning since it allows students to be involved in knowledge construction and foster innovative thinking by being involved in real-problem solving (Guo *et al.* 2020: 1; Barak and Yuan 2021: 9). This method of assessment is aligned with the Constructivist theory, since students are allowed to make meaning of the knowledge and apply it (Fajra and Novalinda 2020: 5). In addition, this type of assessment promotes higher level thinking and critical thinking. Critical thinking is considered important as it allows students to reason and generate various solutions (Sumarni and Kadarwati 2020: 12). Lastly, project-based learning may assist in soft skills such as teamwork and communication skills (Sapan *et al.* 2020: 16). However, some students may experience a lack of motivation to be part of a team (Guo *et al.* 2020: 2), which may be considered a challenge in implementing SCA.

3.4.3 Capstone courses and/or projects

Boud and Associates (2010: 3) imply that assessments must be a reliable indicator of students' academic progress, which will assist in informing future careers and learning. A trustworthy representation may not necessarily involve active learning assessment only, since Pereira *et al.* (2021: 11) indicate that students in undergraduate HE institutions perceived both traditional and student-centred assessments as positive and effective. However, in terms of fairness, the student-centred method was preferred as students were able to engage and use both knowledge and skills.

In order to achieve a trustworthy representation, interim outcomes can be used to improve learning, and less emphasis needs to be given to initial grades which may not be a true reflection of a student's performance because there are differences in beginner's knowledge, rate of learning and final levels of accomplishment (Boud and Associates 2010: 3). Indeed, learning is cumulative and initial assessment can provide feedback to staff and students on progress and the measures to be taken to improve results. However, Boud and Associates (2010: 3) contend that distinct low value assessments can disaggregate learning. Therefore, larger scale tasks that are interrelated and allow for students to exhibit logical, integrated learning will be more beneficial in determining the attainment of the total outcomes desired. This could be achieved or promoted through the implementation of Capstone courses. Capstone courses may require a final assignment or concluding project in the student's final year

of study, whereby they are required to apply or demonstrate knowledge that they had gained throughout the course. In addition, Capstone is intended to bridge the gap between graduate skills and employers' requirements (David *et al*. 2021: 11).

The assignments and/or projects in Capstone courses vary, depending on the discipline. In Business courses, Strategic Management has been used as the integrative Capstone course in most Higher Education Institutions, whereby students put into practice developing a mission, vision and SWOT analysis, amongst other business principles (David et al. 2021: 2). In Marketing, the development of marketing strategies for actual companies were constructed (Bartholomew, Newman and Newman 2020: 9), whereas in a neuroscience course, students studied contemporary neuroscience research articles and used the knowledge they gained during the module to process the information and presented the information in short videos (Kuoh 2020: 89) In addition, Agricultural courses used Team-Based Learning, which comprises working in small groups to make farm management decisions (McCubbins, Paulsen and Anderson 2020: 38).

Lastly, it should be noted that Capstone courses have also undergone criticism since there have been instances whereby the lecturer focussed more on theory and less time was spent on the practical component (David et al. 2021: 1). Thus, Meadows *et al.* (2021: 134) suggest that the balance between the teaching methodology in relation to students' cognitive growth and learning objectives need to be assessed in order to align and adapt teaching and assessments accordingly.

3.4.4 Portfolios

A popular form of student-centred assessment is the use of portfolios or e-portfolios (uses technology to store information). A portfolio can be described as a collection of the student's work regarding certain sections or outcomes that need to be achieved for a particular module. Scholars have indicated that this formative type of assessment is authentic since it allows for students to reflect and associate what has been taught with what they are competent in (Harun, Hanif and Choo 2021: 2; Modise and Mudau 2021: 2). This form of assessment has also been identified as promoting learner autonomy and self-regulation (Alhitty and Shatnawi 2021: 6). However, students may find this method challenging if developing and collating documents is time-consuming

and if the documents are too large (Bramley *et al.* 2021: 149). Moreover, if students use the electronic method, literature suggests that it could be easier to edit and store documents, but the student would have to be familiar with and have access to the technology used to create e-portfolios (Harun, Hanif and Choo 2021: 10; Modise and Mudau 2021: 11).

3.4.5 Peer and Self-Assessment

Peer assessment involves students assessing the work of their peers either by themselves or in teams, whilst self-assessment is the assessing of one's own work. In peer and self-assessment, an evaluation is made by the student using benchmarks or criteria or rubrics (Double, McGrane and Hopfenbeck 2020: 485; Rico-Juan, Cachero and Macià 2021: 1). These two types of assessment allow for critical thinking and reflection on one's own work and that of one's peers. In addition, it changes the role of the student from passive to being able to voice their views and take responsibility for learning (Ibarra-Sáiz, Rodríguez-Gómez and Boud 2020: 139). In peer assessment, feedback becomes a two-way process, whereby both lecturers and students are involved, which literature suggests could improve learning outcomes (Ibarra-Sáiz, Rodríguez-Gómez and Boud 2020: 140). Even though peer and self-assessment can assist students with their metacognitive skills, these formative assessments require lecturers investing a considerable amount of time in assisting students to build capacity and make evaluations (Rico-Juan, Cachero and Macià 2021: 16), as well as explaining and assisting students to understand the assessment criteria or rubric (Zheng, Wang and Chai 2021: 11).

Student-centred assessment approaches have become a focus strategy in Higher Education over the past two decades, with the intention of linking knowledge with real-world work environments (Croft *et al.* 2019: 15). Indeed, it is seen as useful for the growth and development of students in order to promote active participation, critical thinking and meaningful learning, all of which are regarded as authentic in nature. However, scholars have pointed out that these SCAs could be difficult to achieve due to the challenges that both lecturers and students may experience.

3.5 Challenges in enhancing and increasing Student-Centred Learning (SCL) and the implementation of Student-Centred Assessments (SCA)

There is a large body of research and meta-analyses emphasising the importance of student-centred teaching, learning and assessment. Akhter, Din and Khan (2018: 88) concur that the student-centred approach is beneficial but difficult to implement. Literature indicates various factors that negatively affect or influence the implementation of student-centred learning and assessment, which will be discussed below.

3.5.1 Challenges for lecturers in adapting to SCL and implementing SCA

Literature suggests that various factors attribute to lecturers not being able to implement SCL, one of which is large class sizes. Large class sizes may be difficult to manage, as well as to contain the levels of noise (Adamu, Tsiga and Zuilkowski 2020: 2). Certain student-centred initiatives may not be possible such as group discussions, but it would be easier to control in a smaller class (Jamiu and Yakubu 2020: 195; Joof 2020: 53). In addition to classroom management, seating arrangements or the design of the classroom may be another hindrance to SCL (Børte, Nesje and Lillejord 2020: 8; Kitiashvili 2020: 562).

Another aspect that lecturers may find challenging is the time required to complete the syllabus and the time needed to participate in student-centred activities. Literature suggests that the design of SCA is time-consuming, and lecturers may feel pressurised to complete the syllabus before the examination and having insufficient time to be involved in student-centred initiatives (Aladawi 2020: 17; Jamiu and Yakubu 2020: 195). Staff may view the initiatives of student-centred learning as ambitious goals if the curriculum and policies are rigid. As mentioned earlier in this chapter, government bodies and educational institutions have been in collaboration to support student-centred learning in the 21st century. This would render that changes would have to be made at institutional level. Examples of change informed by assessment are listed below, as indicated by Jankowski *et al.* (2018: 19):

- *"Modifying institutional assessment policy;*

- *Changing placement policies for developmental math and English;*
- *Revising course prerequisite policies;*
- *Changing program review processes;*
- *Modifying advising processes;*
- *Shifting the manner in which resources were deployed; and*
- *Reforming general education."*

Literature suggests that if lecturers lack the knowledge to apply SC principles, (Aladawi 2020: 17) and have the inability or limited understanding to use current technology, this may influence negative behaviour or demotivation to change. Scholars suggest that training could help alleviate these issues (Børte, Nesje and Lillejord 2020: 9), as well as staff networking and sharing their experiences. In addition, Centres for Teaching and Learning (CTL), which are housed within the university, can assist both staff and students to learn and adapt to new strategies in teaching, learning and assessment (Brenner *et al.* 2020: 2). Scholars have identified the balance of power within the classroom as a challenge within a student-centred classroom (Brenner *et al.* 2020: 4). Therefore, CTLs can assist staff with this aspect as it plays a pertinent role in SCL. As mentioned earlier in this chapter with reference to Weimer's 'Five Key Changes to Practice', the areas that are controlled by conventional instructional methods can be adapted to SCL, as literature suggests that it is a required change (Benlahcene *et al.* 2020: 206).

Training in new technology and in student-centred pedagogical practices can positively influence staff. However, poorer countries or institutions with limited funding may not have the infrastructure or may have limited resources to accommodate student-centred learning (Bhati and Song 2019: 180; Kitiashvili 2020: 562). In addition, even though training may be conducted, academics may resist SCL due to their pedagogical preferences (Trinidad 2020: 1014). Similar to lecturers, students also have a pedagogical preference on their medium of instruction, which could present itself as a challenge to lecturers.

3.5.2 Students' reluctance to accept SCL

Marlor *et al.* (2020: 2) describe student resistance to SCL as any unfavourable or negative attitude that deters the lecturer from using SCL initiatives, for example,

students may refuse to be involved and discourage others from participating. Another hindrance to SCL is that students may lack confidence in regulating their learning (Aladawi 2020: 75). In addition, students may be apprehensive about participating in interactive activities and speaking in class, whilst others may prefer to be lectured to (Trinidad 2020: 1020) instead of being an active learner (Jamiu and Yakubu 2020: 196). Students may resist working on student-centred initiatives in groups due to no or little contribution by other members (Kressler and Kressler 2020: 50). Students may also have different expectations on how teaching, learning and assessment should take place, especially if they were not exposed to student-centred learning (Rowley, Fook and Glazzard 2018: 37). Andrews *et al.* (2020: 143) offer the following strategies as indicated in Table 3.1 that can possibly reduce levels of resistance in students:

Table 3.1Strategies instructors use to reduce student resistance to active learning
(Andrews *et al.* 2020: 143)

Strategy	Examples
Explanation	Explain what students are expected to do for the activity; Explain the purpose of the activity; Discuss how the activity relates to student learning; Describe how the activity relates to graded assignments;
Facilitation	Walk around the room to assist students with the activity if needed; Encourage students to engage with the activity through demeanour, body language, or interactions with students; Approach students who are not participating in the activity; During the activity, invite students to ask questions about it; Give students points based on their participation in the activity; Lead a debrief or report-out as a whole class following the activity; Solicit feedback from students about how the activity went;
Planning	Plan the activity based on how well a similar activity worked in the past; Structure the activity with small steps that students can accomplish confidently; Specifically design the activity to maximise student engagement; Design the activity to connect with the rest of the class period or lesson plan; Use feedback from students to design the activity; Following the activity, think about what did and did not work;

3.5.3 Alignment Issues with Faculty-Designed Assessment

As described earlier, faculty-designed assessments may cause a separation between the student and his/her learning experience. Therefore, the way in which assessments are set by faculty/lecturers/instructors must be designed to create a connection between learning and assessment. Literature affirms that accurately measuring student learning requires that instruction and assessment be aligned (Abrams, Varier and Jackson 2016: 15). Indeed, there is a plethora of information relating to student-

centred assessment that can assist to form that link. However, there are barriers to implementation. The role of lecturers is important in initiating or implementing the alignment between student learning and assessment. Issues of alignment are dependent on or may be influenced by various aspects, namely the lecturer's goals, attitudes, assessment beliefs, as well teacher identity, which is generally seen as the lecturer's view of oneself as an instructor and assessor (van Lankveld *et al.* 2020: 1).

In addition, faculty's level of assessment literacy may influence assessment design since this concept refers to lecturer's knowledge and competences to design quality assessments, interpret and critique results, as well as use these results to improve and support student learning (Cumming *et al.* 2018: 433; Muhammad *et al.* 2020: 706), whilst providing accurate feedback to students. Therefore, training in this area is important and beneficial to both the student and lecturer (Sultana 2019: 3; Muhammad *et al.* 2020: 705).

3.6 Chapter summary

Globally, Higher Education is considered to be a useful tool in socioeconomic development (Agili, Onditi and Monari 2018: 61) and its success is dependent on the ability to produce students that have the necessary knowledge and skills (Hazelkorn 2018: 4) for a demanding, ever-changing society. Higher Education attempts to address these needs. however, there are challenges that require an increase in a wider knowledge-based economy due to globalisation and internationalisation (Symaco and Tee 2019: 184), which affects the role of HE and the capacity of Higher Education Intuitions (HEIs) to fulfil the demands of the 21st century.

In summary, in order to develop a framework to evaluate student-centred assessment, the need for 21st century skills to support an interconnected, global landscape that requires content knowledge aligned with the needs of the workforce were considered. Literature suggests that there should be an increase in student-centred pedagogy in order to satisfy the current changes in education for the 21st century. Student-centred assessment is an important aspect of this milieu as mentioned earlier, in that assessment drives teaching and learning. Higher Education Institutions require the use of student-centred assessment that is able to produce the required results.

However, with it arises various challenges that can hinder the introduction, implementation and process of student-centredness.

4 CHAPTER FOUR
RESEARCH METHODOLOGY

4.1 Introduction

The purpose of this chapter is to outline the research methodology used in completing the current study. The chapter begins with the paradigmatic perspectives that have influenced the research design. The research design provides a structure or strategy indicating the philosophies adopted, methods applied and instruments used (Seabi 2012: 81; Sekaran and Bougie 2020: 103), which must be concisely explained (Maree 2020: 40) since it clarifies the type of study that will be undertaken (Ferreira 2012: 34). A research design identifies the target population and sample size, including the data collection methods; how data will be analysed; its validity, actions and sequence (Brynard and Hanekom 2006: 28; Seabi 2012: 81; Kumar 2019: 47). The research approach is presented in this chapter, including the sampling techniques, sample selection, sample size, questionnaire design and administration, and data analysis. The rationale for these choices is provided and ethical considerations are discussed.

4.2 Paradigmatic perspectives

Building quality knowledge about the world requires the ability to gather, integrate and successfully apply the appropriate knowledge (Ivankova, Creswell and Plano Clark 2020: 328). Hence, conducting of accurate and thorough research involves understanding the various philosophies and paradigms that reinforce the research design. A paradigmatic perspective relates to a way of viewing the world, with the possibility for different paradigms to be relevant to a single research study, dependent on certain assumptions by the researcher's understanding of reality (Maree and van der Westhuizen 2009: 19).

Lincoln and Guba (1985:15) as cited in Nieuwenhuis (2020:58) define paradigms as follows:

> *Paradigms represent what we think about the world (but cannot prove). Our actions in the world, including the actions we take as inquirers, cannot occur without reference to those paradigms: "As we think, so we do act."*

Hence, Nieuwenhuis (2020b: 58) argues that paradigms function as a lens to understand and explain reality. Hitchcock and Hughes (1995) as cited in Maree and Westhuizen (2009: 19) suggest that the practice of research can be examined through the lens of ontological assumptions that give rise to epistemological assumptions, which co-determines the researcher's methodological considerations in selecting the research instruments and methods of data collection. Ontology relates to what one knows, the nature of reality or what can be said to exist (Nieuwenhuis 2020b: 58); whereas epistemology refers to how one comes to know (Morgan and Sklar 2012: 70; Sekaran and Bougie 2020: 23), or the form of evidence used in order to substantiate the claims one makes (Creswell 2015: 16).

For the purpose of this study, the ontological positions of positivism and interpretivist were considered. The underlying principles of positivism stipulate that the world operates by laws of cause and effect which can be understood through the use of a scientific approach to research. The positivist researcher postulates that there is an objective truth that can be discovered and established in the use of science and scientific research in order to comprehend the world, placing individuals in the position to forecast and control it (Jansen 2020: 22; Sekaran and Bougie 2020: 23). Positivist researchers focus on the accuracy and repeatability of their data, the validity of their observations, and the applicability of their conclusions (Sekaran and Bougie 2020: 23) which are considered as part of the core characteristics of scientific research (Sekaran and Bougie 2020: 17).

By contrast, the interpretivist paradigm attempts to comprehend phenomena by the meanings that individuals ascribe to them (Nieuwenhuis 2020b: 67). The nature of reality is known through the exploration of people's experiences, their perceptions of information and facts, and not the generalisation of findings (du Plooy-Cilliers 2014: 29; Jansen 2020: 23). This paradigm sees reality from a constructivist perspective and suggests that the researcher cannot be separated from the research, and neither are the research findings discovered directly but are rather 'created'.

The perspective for this study followed a positivist-interpretivist paradigm in order to ascertain the current student-centred assessment practices at the Durban University of Technology, as well as to explore staff and students' perceptions of their experiences of student-centred assessments, which were the objectives of this study. These paradigms were respectively adopted since they recognise the use of scientific collection of data, which were feedback received from staff and third-year students from the sampling frame. In addition, the value that people assign to experiences is recognised.

4.3 Research approach

The research design is dependent on the approach selected, such as the quantitative, qualitative or mixed methods approach. The current study adopted the mixed method approach, which is a combination of the quantitative and qualitative approaches. The following section describes the mixed method, quantitative and qualitative approaches and the reason for the choice of approach in this study.

4.3.1 Mixed method approach

This study adopted the mixed method approach, which combines both the qualitative and quantitative approaches (Seabi 2012: 82; Ivankova, Creswell and Plano Clark 2020: 330) and complements each other. The collective strength of combining both the approaches offers a better interpretation of the research problem than using a single approach (Creswell 2015: 2). A quantitative approach allows for generalisations due to collecting data from many participants, but it lacks in-depth analysis; whilst the qualitative approach is limited in broad conclusions but satisfies the needed aspect of in-depth understanding about a particular phenomenon (Kumar 2019: 27) through the voice, experiences and views of the participants (Creswell 2015: 5). Hence, the mixed methods approach assists in overcoming the weaknesses of both the quantitative and qualitative perspectives by utilising the strengths of each paradigm to combat the weakness of the other (Creswell 2015: 15; Kumar 2019: 28). Perry (2012: 129) adds that this method can be used to "expand or complement", "refute or challenge" the results from the other method.

The core mixed methods designs are the explanatory sequential design, the exploratory sequential design and the convergent design (Ivankova, Creswell and Plano Clark 2020: 335).

In the explanatory design, quantitative data is collected first. The collection and analysis of the qualitative data occurs after the analysis of the quantitative data. In the exploratory design, the qualitative data analysis is conducted before the quantitative aspect (Creswell 2015: 38-39; Ivankova, Creswell and Plano Clark 2020: 337). In the explanatory sequential design, the quantitative results inform the qualitative aspect whilst the qualitative component explains the quantitative results (Creswell 2015: 19, 38; Ivankova, Creswell and Plano Clark 2020: 336).

However, in the convergent mixed method design, which is commonly referred to as the triangulation design or concurrent design, the researcher collects quantitative and qualitative data simultaneously but separate from each other. On completion, both the results are converged to provide a comparison and interpretation (Ivankova, Creswell and Plano Clark 2020: 338).

In order to gain insight into the various perspectives of student-centred assessments, this study used the convergent design of the mixed methods approach to make inferences between the data collected from questionnaires and documents. This approach allowed for the enhancement of data through triangulation since both the quantitative and qualitative approaches are used, which increases the accuracy and certainty of the results (Kumar 2019: 31; Sekaran and Bougie 2020: 113).

4.3.2 Quantitative research approach

The quantitative approach engages in empirical methods to describe and give reasons to phenomena by collecting numerical data (Creswell 2005 cited in Seabi 2012: 82). This approach emphasizes the importance of the validity and reliability of the findings and expresses findings in a logical and collective manner (Kumar 2019: 16). Numerical data is used in a methodical and objective way from a sample of the

population, and the results are generalised to the entire population (Ivankova, Creswell and Plano Clark 2020: 329; Maree and Pietersen 2020a: 184).

In the current study, quantitative feature was the use of a census. A census involves all the elements in a population (Maree and Pietersen 2020e: 256). For this study, a census of all third-year students and all staff members from the Financial Accounting, Information and Corporate Management, Information Technology and Information Systems departments was conducted. An on-line questionnaire was administered to gain an understanding of the current student-centred assessment practices at DUT, as well as staff and students' perceptions of their experiences regarding student-centred assessments.

4.3.3 Qualitative research approach

The qualitative research approach focusses on the social construction of people's ideas and concepts, including how people develop relationships and the reason for their interactions. Hence, it is assumed that reality consists of an individual's conceptualizations of the objects they interact with, and how those interactions affect both the observer and the situation they are observing (Nieuwenhuis 2007: 54).

Qualitative research recognises the way in which participants interpret reality based on their experiences, and provides an in-depth understanding of phenomena (Strydom and Bezuidenhout 2014: 139; Ivankova, Creswell and Plano Clark 2020: 329). The five qualitative approach designs are narrative studies, phenomenology, grounded theory, ethnography and case study (Nieuwenhuis 2020c: 83).

The qualitative approach design of this current study is the use of a case study. The current study made use of the case study design in order to understand the phenomena from the various participants' viewpoints and establish a framework for student-centred assessment.

4.3.3.1 Case study design

Yin (1984: 23) defines the case study research method as:

> *"as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used."*

A case study provides an in-depth or comprehensive understanding of how participants, which may include people, events, institutions or even programmes, (Seabi 2012: 83; Ganesha and Aithal 2022: 6) connect and interrelate with each other in a particular circumstance (Nieuwenhuis 2007: 75). It may also include addressing a specific issue (Creswell 2015: 30) within a real-world context (Strydom and Bezuidenhout 2014: 178; Nieuwenhuis 2020c: 89).

This study focuses on understanding an in-depth phenomenon situated in a real-life context, which is student-centred assessments at the Durban University of Technology.

This design is idiographic, meaning that it explores individual differences (Morgan and Sklar 2012: 75). Creswell (2015: 70) recommends the use of "how or what" questions in qualitative research, since "why" questions are typically associated with quantitative research. The case study design assists to answer "how" and "why" questions (Yin 1994 cited in Nieuwenhuis 2020c). In this study, how student-centred assessments are being practiced while considering the perspectives and interactions of the relevant groups/participants selected from the target population are addressed. In addition, qualitative questions directed towards answering "what" affects student-centred assessments were addressed in this study. Hence, this design assisted the researcher to answer both quantitative and qualitative questions.

A case study design allows for multiple sources of data collection, namely document analysis/reviews, archival records, interviews, observations, focus groups, physical artefacts, questionnaires and/or surveys (Harrison *et al.* 2017: 13; Nieuwenhuis 2020c: 83).

The current study used two methods of data collection, that is, document analysis and on-line questionnaires, as previously mentioned. These methods will be explained further below.

4.4 Sampling procedure

The current study involved selecting a Higher Education Institution as a case, and to acquire the necessary documents and academic departments whereby individuals (staff and students) can provide the required data.

This section will address the target population, sample of the study, sampling techniques and sample size.

4.4.1 Population

A population refers to an entire group of people, objects, events or phenomena that the researcher is interested in studying or investigating in order to draw conclusions and generate new knowledge (Morgan and Sklar 2012: 69; Sekaran and Bougie 2020: 222)

The population for this study was the Faculty of Accounting and Informatics (A & I) at the Durban University of Technology (DUT). The faculty consists of six departments, namely Auditing and Taxation (AT), Financial Accounting (FA), Cost and Management Accounting (CMA), Information and Corporate Management (ICM), Information Technology (IT) and Information Systems (IS).

4.4.2 Sample

Kumar (2019: 292) and Maree and Pietersen (2020b: 214) indicate that it would be practically impossible to study or examine every element/member of the population if the size included hundreds or thousands of elements and, if it were possible, it would be exorbitant in terms of time, financial implications and human resources. For these reasons, the researcher selects a sample to conduct his/her study. A sample is referred to as a sub-set of the full population (Morgan and Sklar 2012: 69; Kumar 2019: 292; Sekaran and Bougie 2020: 223). By researching the sample, deductions can be drawn that could be applied or generalised to the population of significance (Sekaran and Bougie 2020: 223).

4.4.3 Sampling Methods

Kumar (2019: 290) explains that sampling is designed to obtain deductions in quantitative research, whereas in-depth knowledge is gained in qualitative research about the area of study from a sample drawn from the target population, with the supposition that the participant or subject selected are representative of the group and hence will offer an understanding of the group's perception. There are two types of sampling, that is probability and non-probability sampling.

4.4.3.1 Probability Sampling

In probability sampling, every element in the population has an equivalent and known chance of being selected as part of the representative sample since this technique uses randomization (Wagner, Kawulich and Garner 2012: 89; Kumar 2019: 296; Maree and Pietersen 2020b: 214). The probability sampling technique for quantitative research increases the representativeness of the sample group in terms of the population, thus increasing the generalizability of the results (Morgan and Sklar 2012: 70).

Maree and Pietersen (2020b: 214) categorize probability sampling as simple random, systematic, stratified and cluster sampling. Sekaran and Bougie (2020: 235) included area and double sampling.

4.4.3.2 Non-probability sampling

Non-probability sampling does not generalise the population (Sekaran and Bougie 2020: 232) or adapt the principles of probability sampling (Kumar 2019: 306). The probability of selecting a participant in a population group is unknown (Morgan and Sklar 2012: 70; Wagner, Kawulich and Garner 2012: 92). Non-probability sampling is used to construct an in-depth description of the findings (Morgan and Sklar 2012: 70).

Sekaran and Bougie (2020: 233) identify two non-probability sampling designs, namely convenience sampling and purposive sampling; while Kumar (2019: 313) includes quota, accidental, expert and snowball sampling.

This study used convenience and purposive sampling.

4.4.4 Selecting data sources

As mentioned above, this study used convenience and purposive sampling for the selection of programmes, participants and documents.

Convenience sampling is directed by the convenience to the researcher in terms of obtaining information from members of the population who can be reached easily, within a specific area or location, contacts are known or are willing to participate (Kumar 2019: 307; Sekaran and Bougie 2020: 233). This is considered as the most expedient form of sampling (Wagner, Kawulich and Garner 2012: 92).

Purposive sampling allows for the selection of information-rich cases that provide deep insights instead of a broad overview or generalisations. Data sources are selected based on certain criteria set by the researcher, which will assist in the answering of the research objectives and providing knowledge in the area that is being explored (du Plooy-Cilliers 2014: 142; Sekaran and Bougie 2020: 249).

The use of convenience and purposive sampling placed the researcher in an advantageous position since the researcher is a lecturer at the Durban University of Technology in the Faculty of Accounting and Informatics who is familiar with the structure and system. In addition, access to information, which includes DUT's organisational and institutional documentation, was easily arranged or obtained.

Lastly, being a lecturer as well as a representative of the Teaching, Learning and Assessment Committee within the Faculty of Accounting and Informatics prompted the researcher to conduct the study within this Faculty. Jansen (2012: 9-10) claims that even though there are practical, theoretical and emotional significances to research, Jansen (2012: 11) noticed that personal significance helps researchers become more creative and committed to their work, which has the power to change knowledge itself.

4.4.4.1 Selecting programmes

The Departments of Financial Accounting (Diploma in Accounting), Information and Corporate Management (Diploma in Business and Information Management), Information Technology (Diploma in Information and Communication Technology in Application Development) and Information Systems (Diploma in Information and Communication Technology in Business Analysis) were considered since they prepare students in very diverse fields, each of which requires specific skills, qualities and knowledge. In FA, the students are required to make business decisions based on analysing financial data; ICM has the component of soft skills and business management acumen; IT students are technologically minded and are required to create application software; whereas IS involves the use of Enterprise Resource Planning in business analysis. This variety assisted the researcher to understand the viewpoint of students with different academic skills and backgrounds, and opens up the study beyond one field.

4.4.4.2 Selecting of participants

For this study, a census was used, as mentioned previously. All third-year diploma students (final year) from the target population were included as these students would be able to provide in-depth knowledge having completed the first two years of their studies and gained greater insight, knowledge and exposure to teaching, learning and assessment compared to first- and second-year students. In addition, all lecturing staff from the target population were included in order to gain as broad an understanding of different viewpoints within a department as possible.

The Management Information Department was contacted for the total number of staff and students within the identified departments. A total of 1 119 students and 72 staff were identified for the study. In order to determine the sample size, Krejcie and Morgan's guidelines were used as provided in Sekaran and Bougie (2020: 247-248). This implies that for a population of 1 100, a sample size of 285 is acceptable and for a sample size of 72, 59 is acceptable. For this study, the student response was 310 and staff was 65, which exceeded acceptable rates.

4.4.4.3 Selection of documents

After receiving the gatekeeper's letter from the Durban University of Technology, the researcher was given permission to access data sources from the university. Organisational, institutional and programme documents were obtained from the relevant departments. These documents were accessed via the Heads of Department who provided permission to the lecturers to share documentation. As previously mentioned, purposive sampling was used. Hence, documentation pertaining to assessment was used for this study. Details of the documentation are explained in the data collection section under document analysis.

4.5 Data collection

The section below describes the method used to collect data.

4.5.1 Primary data

Ajayi (2017: 2) and Sekaran and Bougie (2020: 49) define primary data as data that has been collected by the researcher. Sources of primary data include experiments, interviews, observations and questionnaires (Ajayi 2017: 2; Walliman 2021: 92).

This study used an electronic questionnaire to gather primary data from the target population.

4.5.2 Secondary data

Secondary data refers to data that has been gathered by other individuals (Ajayi 2017: 2). Sources of secondary data include books, government publications, journals, newspapers, statistical bulletins, documentaries, video tapes and organisational records and documents (Sekaran and Bougie 2020: 49; Walliman 2021: 71).

There is a distinction between the data collected for a literature review and document analysis. The former provides an indication of the scholarship or knowledge in a particular discipline, whether past or current research, through the investigation of trends, arguments and discussions; whereas the latter is used as a data collection

method to provide information on a phenomenon that the researcher is exploring (Nieuwenhuis 2020b: 100).

For this study, secondary data used for the theoretical framework (Chapter 2) and Literature review (Chapter 3) were retrieved from the following databases/sources: ERIC (Ebsco Host), Emerald, Google Scholar, ProQuest Education Journals, Web of Science Core Collection, as well as various journals and textbooks.

The sourcing of organisational and institutional documents has been a reliable and fundamental source for numerous years in qualitative research (Bowen 2009: 27). As mentioned above, in this study, information for the document analysis was sourced from DUT's organisational and institutional documents pertaining to assessment, as explained below.

4.5.3 Measuring instruments

In the current study, the measuring instrument was an electronic questionnaire, which is discussed hereinunder.

4.5.3.1 Electronic or on-line questionnaire (e-questionnaire)

Questionnaires are regarded as an appropriate tool to collect quantitative data. However, qualitative data can be gathered through this instrument as well (Walliman 2021: 97). It is considered an efficient tool that is flexible, structured, easy to use to gather data, includes a considerable or broad geographic area, and is less time-consuming as compared to interviews (Sekaran and Bougie 2020: 143; Walliman 2021: 97).

For this study, an electronic questionnaire was used as the instrument to obtain data on the proposed research questions. An electronic questionnaire was designed for students (Appendix A) and staff (Appendix B).

- **Designing of the instrument**

The e-questionnaire was prepared by using information from the study guides and assessment papers of the respective departments indicated in the sample population, as well as information from the theoretical framework and literature reviewed (Chapters 2 and 3 respectively). The study guides were used since they are official DUT guides issued to the students, providing them with the various assessment methods for the semester and a sample of question papers. Scholarly literature was used to assist the researcher with areas pertaining to student-centred assessment and possible questions and/or areas to address. The questionnaire consisted of mostly (80%) closed-ended questions using a five-point Likert scale to elicit responses from the participants, whether in agreement or disagreement with the series of statements. A small percentage (20%) of open-ended questions were included to allow the respondents to provide a reason for their answers where necessary. The e-questionnaire was populated using Microsoft Forms.

The staff e-questionnaire comprised:

i) Biographical details;
ii) Assessment;
iii) Feedback concerning assessments; and
iv) Training and development in student-centred assessment methods.

The student e-questionnaire consisted of:

i) Biographical details;
ii) Assessment;
iii) On-line assessment; and
iv) Feedback concerning assessments.

- **Administering the e-questionnaire**

Prior to administering the e-questionnaire, permission from the respective Heads of Department was elicited and lecturers were consulted to obtain permission to distribute the questionnaires to staff and students, respectively. The letter of permission to conduct research at DUT from the Institutional Research and Innovation Committee (Appendix C) and ethical clearance number from the Institutional Research

Ethics Committee (Appendix D) were shared. In addition, the respondents were informed that participating in the study was voluntary and confidential, as outlined in the letter of information and consent (Appendix E and F).

- **Distribution of e-questionnaire to students**

The lecturers from the target population distributed the e-questionnaire link via student DUT email addresses and the Moodle classroom (Learning Management System of DUT). The researcher and respective lecturers conducted follow-up emails.

- **Distribution of e-questionnaire to staff**

The researcher sent the e-questionnaire link to the staff's DUT email account. Every fortnight, the researcher carried out a follow-up by visiting staff at their offices.

The statistician had access to the student and staff e-questionnaires on Microsoft Forms. On completion of the questionnaires, the statistician retrieved the data files from Microsoft Forms in an Excel format file.

4.5.3.2 Pre-testing of the questionnaire

Theron and Malindi (2012: 101); (Kumar 2019: 237); and Sekaran and Bougie (2020: 155) emphasise the importance of pre-testing an instrument in order to ensure that the instructions and questions asked are understandable, clear, unambiguous, appropriate and user-friendly. This assists the researcher to improve procedures and correct any problems or shortcomings before administering the questionnaire in the main study, which will help to decrease bias (Sekaran and Bougie 2020: 155). A pre-test is conducted on a small number of people and is referred to as a pilot study (Tashakkori, Johnson and Teddlie 2021: 187; Walliman 2021: 98). Pre-tests of the staff and student instruments were conducted with one staff member and two third-year students per department of the respective target populations.

4.5.3.3 Results of the pre-testing

The respondents of the pilot study found the content of the questionnaire to be understandable. No significant issues were raised during the pilot study. Minor changes were suggested to remove any ambiguity for the reader.

4.6 Document analysis

According to Nieuwenhuis (2020c: 83), a document analysis is an appropriate approach for a case study since it provides a comprehensive description and understanding of the case. It is considered unobtrusive and non-reactive (Bowen 2009: 38; Cardno 2018: 626). A document analysis also assists in triangulation, which determines if the findings of the study are dependable, meaning that it adds rigor and provides a richer understanding of the phenomena being researched (Cardno 2018: 626; Morgan 2022: 65).

For this study, the following current institutional documents were reviewed:

- DUT's Assessment Policy (2019),
- DUT's Learning and Teaching Strategy (2020),
- Curriculum Renewal at DUT: General Education Guidelines (2012),
- E-learning Policy (2016),
- DUT's ENVISION2030 Strategy, and
- Study guides, module descriptors and assessment papers from the departments of the target population (2019 – 2022).

The above policies and documents were selected since they are official DUT documentation pertaining to assessment that are approved by the following bodies of the university:

- Deputy Vice-Chancellor (Teaching and Learning),
- Executive Deans,
- Heads of Department, and
- Registrar.

All of the above official positions form the Academic Committee of the University known as Senate. In addition, the Director of CELT is responsible for the monitoring of this documentation.

The study guides were used since it is an official university document that must be designed according to criteria outlined by the Centre for Quality Promotion and Assurance (CQPA). Study guides are reviewed by the Quality Promotion Officer, Heads of Department and Programme Co-ordinators. Study guides specify the learning outcomes, assessment criteria, methods and number of assessments per module, as well as the graduate attributes. Furthermore, study guides are used as tools to provide students with the overview of the module and scheme of work that can assist students in preparation for assessments.

Module descriptors for the respective departments were also analysed. The module descriptor provides information pertaining to the purpose of the module in relation to the programme, assessment and moderation, teaching and learning activities, graduate attributes developed and/or assessed in a particular module, and feedback to students on assessment. Module descriptors are official university documents that are submitted to the South African Qualifications Authority (SAQA) prior to the approval of a programme. Once the module descriptor and details of a programme are approved by SAQA, the programme will form part of the university's offerings and/or Programme Qualification Mix (PQM).

Assessment papers were reviewed to analyse the type of assessment methods and questions used.

DUT'S ENVISION2030 Strategy delineates the four perspectives of the university, i.e. stewardship, systems and processes, sustainability and society. It highlights the type of university community, calibre of students, staff and graduates, as well as academic integrity that the university seeks to accomplish by integrating values (transparency, honesty, integrity, respect and accountability) and principles (fairness, professionalism, commitment, compassion and excellence) into the culture and ethos of the university.

These policies and documents provided the researcher with an insight into the university's viewpoint, strategy and guidelines on assessment; the promotion of student-centred assessment; and the development of adaptive graduates that are self-regulated learners with critical thinking and problem-solving skills. In addition, it provided an overview of the approaches taken in assessment practices by triangulating the results from the questionnaire and institutional documents analysed.

4.7 Data analysis methods

This study used a mixed method approach. Hence the strategies used were both deductive and inductive data analysis. The deductive data analysis strategy is preferred by the positivist paradigm, whereas inductive is preferred by the interpretive paradigm. Deductive data analysis searches for the presence of a priori themes that were revealed or established from the literature, whereas inductive data analysis allows for the developing or creation of themes, words or codes from the data itself (Maree 2020: 42).

The section below describes the methods employed to analyse the quantitative data using deductive data analysis strategies, and qualitative data using inductive strategies.

4.7.1 Quantitative analysis

The process of analysing data commences once the responses are collected. In this study, the responses to the student and staff e-questionnaires were downloaded from MS Forms and entered into an MS Excel datasheet. The quantitative data collected from the responses was analysed with the Statistical Package for the Social Sciences (SPSS) version 28.0. The results were presented using descriptive and inferential statistics, the former to provide a description and the latter for deduction purposes.

Descriptive statistics sort and summarise data in order to improve or assist in the understanding of the data properties (Maree and Pietersen 2020d: 238). Descriptive

statistics can describe data in a graphical or numerical manner. The most-commonly used numerical descriptive statistics are frequencies, modes, medians, means, ranges and standard deviations. Graphically, it is the use of charts or graphs.

Inferential statistics assist to draw conclusions/inferences or generalise findings to the larger population based on the sample (Maree and Pietersen 2020e: 242). The most commonly used inferential statistics are correlation tests, t-tests, simple linear regression and multiple linear regression.

In this study, both descriptive and inferential statistics were used. Descriptive statistics assisted with providing information about the data gathered and making inferences; whereas, inferential statistics were used to make predictions and provide reasons for a particular situation.

4.7.2 Qualitative analysis

Documents may be analysed using content analysis and/or thematic analysis (Mackieson, Shlonsky and Connolly 2019: 969). A content analysis is considered quantitative since it makes use of numbers and statistics (Morgan 2022: 65). In a content analysis, data content is systematically arranged and quantified into pre-set groups significant to the research questions of the study (Mackieson, Shlonsky and Connolly 2019: 969). This technique, with the use of software packages such as NVivo, Atlas.ti or MAXQDA (Kumar 2019: 403; Mackieson, Shlonsky and Connolly 2019: 969), identifies phrases, ideas, themes, characters or words (Sekaran and Bougie 2020: 320). A thematic analysis is considered qualitative and involves the interpreting of themes that can be applied to the research objectives.

For this study, thematic analysis was used in the document analysis. This involved the coding of data whereby a code or label is assigned to a word or sentences that represent a specific section (Sekaran and Bougie 2020: 310). After coding, all related codes are combined into themes. The data was analysed using NVivo 13 for Windows, which allowed for the creation of cluster analysis, hierarchy charts, tree maps, word clouds and word trees. The interpretation of analysed data had to support

existing theory or bring in new knowledge (Nieuwenhuis 2020a: 141), which was conducted by the researcher.

4.8 Reliability and validity in quantitative research

Reliability refers to the extent to which a measuring instrument is consistent and stable or without bias, meaning that if the same instrument is distributed to different subjects of the same population, the findings should be the consistent or the same (Maree and Pietersen 2020c: 260; Sekaran and Bougie 2020: 208).

Validity is described as the extent to which the instrument is able to measure what it is designed or intended to measure (Pandey and Pandey 2015: 21; Sekaran and Bougie 2020: 208).

In this study, as indicated in the pre-test section, the questionnaire was tested by selecting two students and a staff member per department from the population. This assisted in removing or correcting unclear, ambiguous and inappropriate questions in order to ensure that the instrument is valid.

Besides pre-testing an instrument, internal consistency reliability must be measured to ensure that all items within the same construct or concept are given the similar overall meaning by the respondents (Sekaran and Bougie 2020: 212). In this study, Cronbach's coefficient alpha was used to test the reliability of the instrument. Cronbach's coefficient alpha, which is one of the most widely used tests, suggests that the closer the test is to one, the higher the internal reliability. In this study, the test exceeded the recommended Cronbach's alpha value. This is explained in Chapter 5: Data Analysis.

4.9 Trustworthiness in qualitative research (interviews/focus groups)

Unlike quantitative research that focusses on reliability and validity, qualitative research focusses on trustworthiness.

4.9.1 Trustworthiness of interviews or focus groups

Guba (1981), as cited in Nieuwenhuis (2020a: 144), identified credibility, transferability, dependability and confirmability as the criteria to be considered regarding the trustworthiness of a study when using an interview or focus group as the measuring instrument. The table generated below describes each of the aspects associated with trustworthiness pertaining to interviews and/or focus groups.

CRITERIA	**DEFINITION**
Credibility	This involves determining whether the reader and/or participant finds the results believable and consistent with reality (Nieuwenhuis 2020a: 144).
Transferability	This refers to how the findings can be applied or related or transferred to other contexts or environments (du Plooy-Cilliers 2014: 258).
Dependability	Dependability is the same as reliability in quantitative research (Nieuwenhuis 2020a: 145). Dependability refers to the consistency of the research findings, meaning that if the same study was conducted, the results will be consistent. Hence it is important for the researcher to keep detailed records pertaining to the processes used in order for others to replicate the study (Kumar 2019: 277).
Confirmability	Confirmability refers to the extent to which the results of the study are influenced by the respondents and not by researcher bias (Lincoln and Guba 1985 as cited in Nieuwenhuis 2020a: 145).

4.9.2 Trustworthiness of document selection

Trustworthiness is a key aspect in qualitative research as there are set criteria for interviews and/or focus groups. Likewise, the selection of documents must be trustworthy and satisfy the criteria based on authenticity, credibility, representativeness and meaning, as illustrated by Morgan (2022: 71).

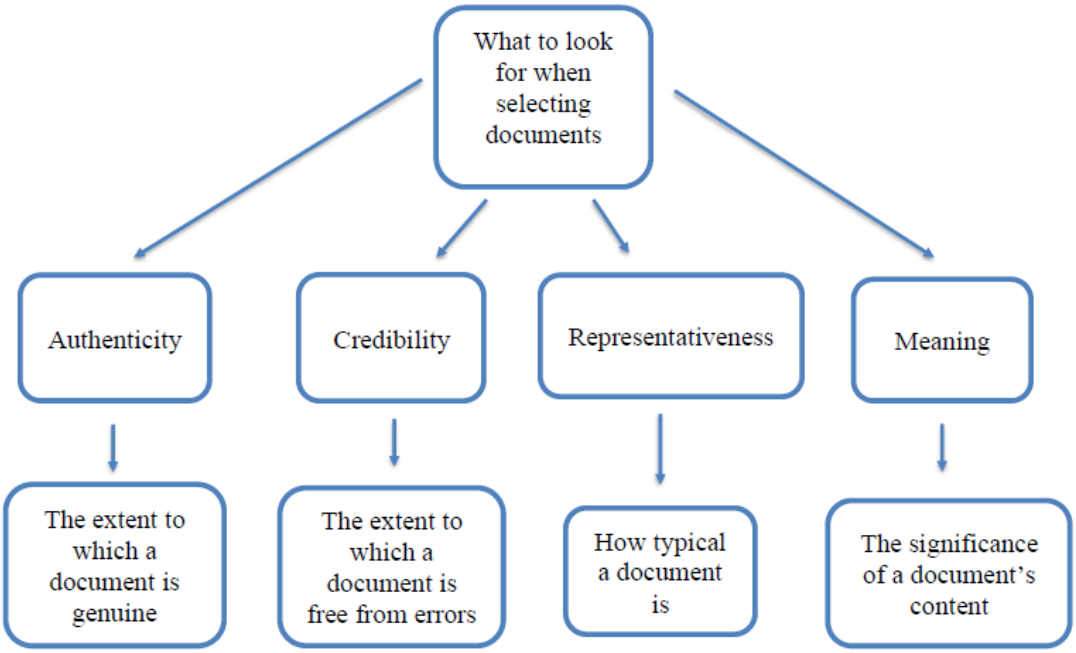


Figure 4.1 Factors to use for selecting documents (Morgan 2022: 71 sourced from Kridel 2015)

Authenticity of a document is considered: if it is official, including authorship, being dated and appropriate to the area being studied (Morgan 2022: 71). Identifying the originators or authors of the document provides an understanding of the perspective that it is written from (Dunne, Pettigrew and Robinson 2016: 382).

Credibility: if the authors of the document are dependable sources and have not distorted the details of the document (Dunne, Pettigrew and Robinson 2016: 382). For example, portraying a positive image to impress the public, as may be the case with formal documents from businesses that may want to safeguard the organisation and conceal any faults (Morgan 2022: 72).

Representativeness refers to the document illustrating or reflecting the views of other documentation relating to the same subject matter, instead of being idiosyncratic (Morgan 2022: 72).

Meaning is concerned with the importance of the subject matter of the document, which involves a literal and a descriptive analysis of the document (Dunne, Pettigrew and Robinson 2016: 383). Descriptive analysis or thematic analysis identifies and categorises patterns based on the objectives of the study.

In this study, the criteria for authenticity, credibility, representativeness and meaning have been satisfied since these documents were official DUT organisational, institutional and programme documents from the university's repository and relevant departments pertaining to assessment. These documents have been approved, dated and authors acknowledged. The authors were from the official DUT academic body termed Senate, and CELT and CQPA monitor these policies. In this study, the documents were a dossier of university material interrelated with assessment, and not individual stand-alone/unconnected documents. The significance of each document reflected the university's perspective of assessment.

4.10 Ethical considerations

Ethics in research must be at the inception of the research process and included in every step of the research design (Sekaran and Bougie 2020: 12). In addition, permission is required at different levels in order to contact individuals to contribute towards a study (Creswell 2015: 77).

This study followed the research ethics guidelines of the Durban University of Technology since it was the site of the study. A gatekeeper's letter from the Research Administration office at DUT was requested prior to the study being conducted. The letter of permission from the Institutional Research and Innovation Committee (Appendix C) and ethical clearance number from the Institutional Research Ethics Committee (Appendix D) were granted. These letters were shared with the

participants, which included the Heads of Department and lecturers of the target population.

Informed consent and voluntary participation are important issues to address in a research study. Informed consent suggests that the participants are sufficiently aware of the details of the research to be conducted in terms of the information required, why it is needed, what is expected of the participants and how it will contribute to the study (Kumar 2019: 358). Letters of information and consent (Appendices E and F) were shared with the participants, describing the study and informing them that participation in this study was voluntary, including the anonymity and confidentiality of the participants and their responses as stipulated in the consent form.

It is the researcher's responsibility to ensure confidentiality and privacy (Sekaran and Bougie 2020: 159). Hence, the student registration numbers, names and identities of staff that participated in the e-questionnaire were not published in the findings. The data analysis chapter referred to groups and not individual departments. Likewise, the thematic analysis of the study guides and module descriptors were given pseudonyms where necessary.

4.11 Conclusion

This chapter delineated the research design, highlighting the reasons for the research methods used. This chapter began with describing the epistemological and ontological position of the study, followed by the research approach and the reason for selecting a case study. The selection of participants and institutional documents were presented and justified, including the use of e-questionnaires and document analysis, which were beneficial in collating quality data that contributed to the findings of this study. Employing these two methods assisted in triangulation. Lastly, this chapter emphasised the importance of trustworthiness and adhering to research ethics in order to confirm the integrity of the study.

The next chapter addresses the findings of the research in relation to the objectives of this study.

5 CHAPTER FIVE
PRESENTATION OF RESEARCH FINDINGS

5.1 Introduction

The previous chapter provided an overview of the research design and outlined the methodology used to accomplish the current study's objectives. In addition, the chapter focused on the different data collection methods and strategies used to gather and analyse data to support the study. Ethical considerations and the issues of trustworthiness were discussed.

This chapter will focus on the presentation and interpretation of quantitative results obtained from the data from the student and staff questionnaires.

5.2 Section one: Findings from the questionnaires to students

This section focuses on the findings obtained from the student questionnaire, which was the primary tool used to collect data. This data was obtained from final-year diploma students in Business and Information Management, Financial Accounting, Information and Communication Technology: Application Development, Information, and Communication Technology: Business Analysis at the Durban University of technology.

The data collected from the responses was analysed with SPSS version 28.0. The results will 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 "$p < 0.05$".

5.2.1 The Sample

The total number of respondents required for this study as per the Krejcie and Morgan table was 285 (Sekaran and Bougie 2020: 247). In order to increase the chances of a higher response rate, non-probability sampling was used. Hence the questionnaire was distributed to the entire target population.

Instead of 285, a response of 310 students was received, which indicates a 100% response rate. To ensure that sufficient responses were obtained, numerous reminders were sent to students via their student email accounts. The lecturers also assisted by means of re-posting the e-questionnaire link to the Moodle and Teams classrooms.

5.2.2 The Research Instrument

The research instrument consisted of 15 items, with a level of measurement at a nominal or an ordinal level. The questionnaire was divided into 4 sections which measured various themes as illustrated below:

A Biographical data

B Assessment

C On-line assessments

D Feedback

5.2.3 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.

The table below reflects the Cronbach's alpha score for all the items that constituted the questionnaire.

Table 5.1Cronbach's Alpha Score

	Section	Number of Items	Cronbach's Alpha
B4	Assessment	7	0.898
B5	Types of assessment	14	0.839
B6	Types of Assessment Activities	11	0.806
B7	Balance of power	4	0.653
B10	Assessment experience in this programme	10	0.838
C11	On-line Assessment tools	7	0.855
D13	Feedback experience in this programme	3	0.604

The reliability scores for all sections exceed the recommended Cronbach's Alpha value. This indicates a degree of acceptable, consistent scoring for these sections of the research.

5.2.4 Factor Analysis

Factor analysis is a statistical technique whose main goal is data reduction (Maree and Pietersen 2020c: 264). A typical use of factor analysis is in survey research, where a researcher wishes to represent several questions with a small number of hypothetical factors. For example, as part of a national survey on political opinions, participants may answer three separate questions regarding environmental policy, reflecting issues at the local, state and national levels. Each question by itself would be an inadequate measure of attitude towards environmental policy, but *together* they may provide a better measure of the attitude. Factor analysis can be used to establish whether the three measures do, in fact, measure the same thing. If so, they can then be combined to create a new variable, a factor score variable that contains a score for each respondent on the factor. Factor techniques are applicable to a variety of situations.

A researcher may want to know if the skills required to be a decathlete are as varied as the ten events, or if a small number of core skills are needed to be successful in a decathlon. One need not believe that factors actually exist in order to perform a factor analysis, but in practice the factors are usually interpreted, given names, and spoken of as real things.

The matrix table/s is preceded by a summarised table that reflects the results of KMO and Bartlett's Test. The **KMO and Bartlett's Test** table 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. If the value is less than 0.50, the results of the factor analysis probably would not be very useful.

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.

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 5.2 KMO and Bartlett's Test

	Section	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
			Approx. Chi-Square	df	Sig.
B4	Assessment	0.913	1225.221	21	< 0.001
B5	Types of assessment	0.818	1409.394	91	< 0.001
B6	Types of Assessment Activities	0.829	742.883	55	< 0.001
B7	Balance of power	0.625	216.155	6	< 0.001
B10	Assessment experience in this programme	0.888	1116.478	45	< 0.001
C11	On-line Assessment tools	0.879	791.233	21	< 0.001
D13	Feedback experience in this programme	0.596	118.267	3	< 0.001

All of the conditions are satisfied for factor analysis. 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 5.3 Rotated Component Matrix for B4

B4	Component
	1
Students should gain knowledge from the assessments they do	0.735
Some assessments should involve case studies whereby the student applies knowledge learned in the classroom	0.757
There should be a connection between what is learned in the classroom and what is asked in the assessment	0.868
Learning outcomes that are discussed in the study guides should be linked to the assessments	0.867
Assessments should allow for educators and students to evaluate learning together	0.823
Assessments should promote learning and identify learning needs	0.835
Assessments should be used for grading purposes	0.656

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5.4 Rotated Component Matrix for B5

B5	Component			
	1	2	3	4
Preparing a brief summary of a lecture for the lecturer	-0.265	0.485	0.395	0.307
Assessment by peers	0.052	0.141	0.891	0.013
Assessment of peers	0.129	0.110	0.854	0.121
Assessment of myself	0.364	0.177	0.377	0.190
Case study	0.292	0.549	0.195	0.126
Essay	0.311	0.703	0.128	0.085
Quizzes	0.683	0.076	0.225	-0.084
Reflective journals	0.563	0.554	0.053	-0.134
Portfolios	0.100	0.791	0.093	0.122
Presentations	0.717	0.261	-0.050	0.346
Individual Assignments	0.456	0.384	-0.028	0.447
Group Assignments	0.724	0.132	0.036	0.268
Project-based learning, in which the student is required to create an artefact (eg article, product, design, object, etc)	0.043	0.431	0.163	0.640
End of a section or chapter tests	0.187	-0.040	0.112	0.809

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Table 5.5 Rotated Component Matrix for B6

B6	Component	
	1	2
Case studies	0.579	0.076
Class discussions	0.631	0.311
Directed Learning involving specific preparation and readings on related content	0.634	0.180
Group based activities	0.461	0.511
Individual based activities	0.554	-0.551
Problem based learning	0.615	-0.231
Quizzes	0.559	-0.230
Self-assessment	0.618	-0.449
Peer assessment	0.552	0.381
Solving practical problems	0.680	-0.016
Use of role play/simulations	0.557	0.115

Extraction Method: Principal Component Analysis.
a. 2 components extracted.

Table 5.6 Rotated Component Matrix for B7

B7	Component
	1
I am frequently given an opportunity to be actively involved in class discussions	0.679
I frequently engage in group work	0.732
I am allowed to present recommendations about assignment choices and course activities	0.778
I am allowed to design and manage my own timeframes in the completion of tasks	0.637

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5.7 Rotated Component Matrix for B10

B10	Component	
	1	2
The questions in the test/exam were in line with what I expected	0.648	-0.233
Assessment methods used in the programme allow me to apply the knowledge that I have learned	0.735	-0.061
Assessment practices are aligned to the learning outcomes	0.732	0.120
The methods used to mark tests and exams are clearly discussed for all assessment activities	0.626	0.089
Assignment and test instructions are clearly communicated	0.744	0.010
Assignment and test instructions are clearly understood	0.747	-0.023
I found the assessment questions straightforward and easy to understand	0.676	-0.005
The assessment methods for this programme were interesting enough to keep me engaged	0.755	0.074
I found the assessment methods for this programme challenging	0.039	0.961
The assessment methods used are successful in testing the knowledge and skills that I have learned	0.708	0.225

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

Table 5.8 Rotated Component Matrix for C11

C11	Component
	1
I found DUT's on-line LMS tools, ie Moodle and MS Teams, easy to use for assessments	0.740
Sufficient training on how to complete on-line assessment was available to me on Moodle	0.746
I found TLZ (Moodle) technical support to be helpful	0.634
I found on-line assessments simple to complete	0.766
On-line assessments allowed for a variety of question types to be used eg case study, multiple choice, short answers, etc	0.698
I found on-line assessments promoted my learning and identified my learning needs	0.768
I found assignments and quizzes easy to upload	0.770

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5.9 Rotated Component Matrix for D13

D13	Component
	1
Feedback provided after each assessment helps me to identify areas of learning that need improvement	0.815
Feedback provided after each assessment helps me to better my results	0.820
Lecturers are available for consultation to discuss academic progress and difficulties after results from each assessment are given	0.614

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

With reference to the above tables, 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 shows 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 sections B4, B7, C11 and D13 loaded perfectly along a single component. This implies that the statements that constituted these sections perfectly measured what it set out to measure.
It is noted that the variables that constituted Section B5 loaded along 4 components (sub-themes) and B6 and B10 loaded along 2 components. This means that respondents identified different trends within the section. Within the section, the splits are colour-coded.

The trends that emerged relate to the types of assessments and activities that students are expected to complete, which influence critical thinking, autonomy, responsibility, collaboration and becoming an independent learner. It included the provision of guidelines and instructions and the students' understanding of the assessment, as well as the application to the content learned. The sub-themes that emerged from the data are: individual activities, group-based activities and lecturer-directed activities.

5.2.5 Section A: Biographical Data

This section summarises the biographical characteristics of the respondents.

Table 5.10 describes the overall gender distribution.

Table 5.10 Gender composition

	Frequency	Percent
Male	140	45.2
Female	170	54.8
Total	310	100.0

The ratio of males to females is approximately 4:5 (45.2%: 54.8%) ($p = 0.088$). This is an indication that there is an increase in females registering for courses within the Faculty of Accounting and Informatics.

The racial composition of the sample is shown in Table 5.11 below.

Table 5.11 Racial composition

	Frequency	Percent
African	299	96.5
Indian	11	3.5
Total	310	100.0

There were significantly more African respondents in the sample (96.5%), with the only other race group being Indian (3.5%) ($p < 0.001$). This is in keeping with the demographics of the population of South Africa. According to Statistics South Africa (2023: para. 6 line 6), the 2022 census results indicated that Black Africans were the predominant population group (81.4%), followed by Coloureds at 8.2%, Whites at 7.3% and Indians/Asians at 2.7%.

5.2.6 Section Analysis

The section that follows analyses the scoring patterns of the respondents per variable per section. The results are first presented using summarised percentages for the variables that constitute each section. Results are then further analysed according to the importance of the statements.

5.2.6.1 Students' perceptions on assessment

This section deals with the students' perceptions on assessment. It provides an overview of what students perceive as the purpose of assessment. This question was designed to obtain feedback from student regarding how assessments should be designed and the alignment of learning outcomes and course material with assessment. In addition, it aimed to determine the view that students have towards the role that they lecturers and themselves should have in the evaluation of assessments. Table 5.12 below summarises the scoring patterns.

Table 5.12 Students' perception on assessment

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Students should gain knowledge from the assessments they do	B4.1	24	7.7%	2	0.6%	4	1.3%	73	23.5%	207	66.8%	< 0.001
Some assessments should involve case studies whereby the student applies knowledge learned in the classroom	B4.2	18	5.8%	1	0.3%	19	6.1%	131	42.3%	141	45.5%	< 0.001
There should be a connection between what is learned in the classroom and what is asked in the assessment	B4.3	15	4.8%	1	0.3%	5	1.6%	73	23.5%	216	69.7%	< 0.001
Learning outcomes that are discussed in the study guides should be linked to the assessments	B4.4	15	4.8%	0	0.0%	16	5.2%	115	37.1%	164	52.9%	< 0.001
Assessments should allow for educators and students to evaluate learning together	B4.5	14	4.5%	8	2.6%	25	8.1%	123	39.7%	140	45.2%	< 0.001
Assessments should promote learning and identify learning needs	B4.6	15	4.8%	8	2.6%	17	5.5%	112	36.1%	158	51.0%	< 0.001
Assessments should be used for grading purposes	B4.7	16	5.2%	10	3.2%	47	15.2%	106	34.2%	131	42.3%	< 0.001

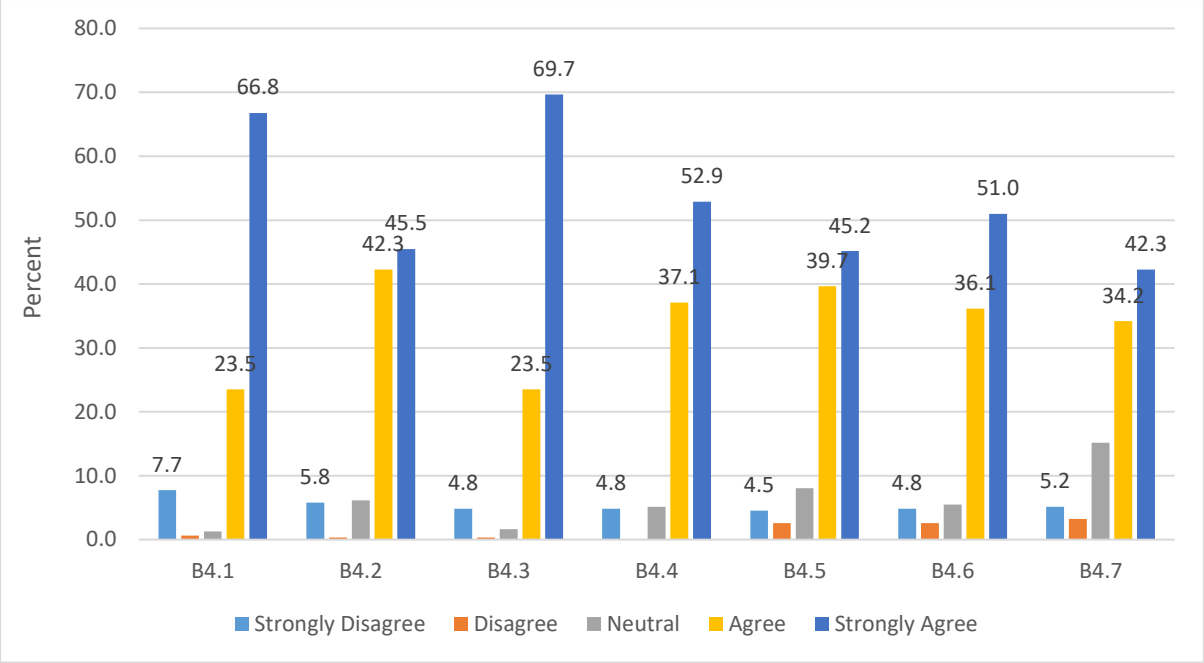


Figure 5.1 Students' perception on assessment

The following patterns are observed in Figure 5.1:

- All 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 levels of neutral scores are low across the statements; and
- The significance of the differences is tested and shown in the table.

As per the statistics in Table 5.12, there is significant agreement in the following groupings on the purpose of assessment, that is, knowledge acquisition, connection and application of knowledge, the role of the lecturer and student, the balance of power, promotion of learning and grading for summative purposes. The emerging patterns reveal that students strongly agree that assessments should increase students' knowledge; involve case studies in order to apply what is learned in the classroom; should be linked to what is learned in the classroom; be linked to the outcomes; allow for educators and learners to evaluate learning together; promote learning and identify learning needs; and be used for grading purposes. However, the groupings associated with the applicaton of knowledge and connection of assessment to class activities scored the highest.

5.2.6.2 Types of Assessments

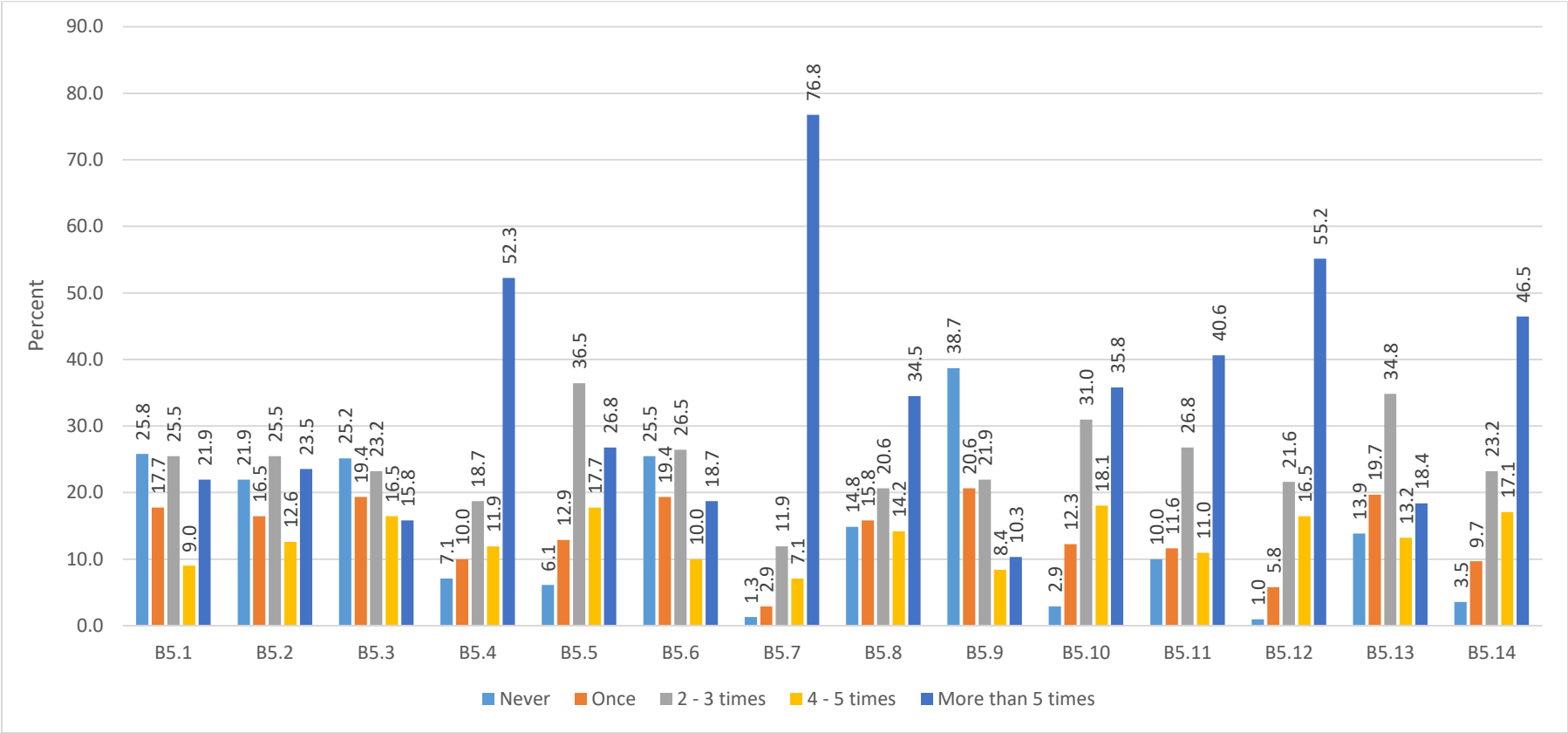
This section deals with the types of assessment students have been involved in, and it identified the different types of student-centred assessment that were part of the students' assessment plan, as well as how often these types of assessment were conducted in a semester. The findings were intended to determine the use of student-centred assessments to promote higher-order thinking skills. These themes are grouped into individual assessments and group assessments.

Table 5.13 below summarises the scoring patterns.

Table 5.13 Students' involvement in different assessment types

		Never		Once		2 - 3 times		4 - 5 times		More than 5 times		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Preparing a brief summary of a lecture for the lecturer	B5.1	80	25.8%	55	17.7%	79	25.5%	28	9.0%	68	21.9%	< 0.001
Assessment by peers	B5.2	68	21.9%	51	16.5%	79	25.5%	39	12.6%	73	23.5%	0.001
Assessment of peers	B5.3	78	25.2%	60	19.4%	72	23.2%	51	16.5%	49	15.8%	0.033
Assessment of myself	B5.4	22	7.1%	31	10.0%	58	18.7%	37	11.9%	162	52.3%	< 0.001
Case study	B5.5	19	6.1%	40	12.9%	113	36.5%	55	17.7%	83	26.8%	< 0.001
Essay	B5.6	79	25.5%	60	19.4%	82	26.5%	31	10.0%	58	18.7%	< 0.001
Quizzes	B5.7	4	1.3%	9	2.9%	37	11.9%	22	7.1%	238	76.8%	< 0.001
Reflective journals	B5.8	46	14.8%	49	15.8%	64	20.6%	44	14.2%	107	34.5%	< 0.001
Portfolios	B5.9	120	38.7%	64	20.6%	68	21.9%	26	8.4%	32	10.3%	< 0.001
Presentations	B5.10	9	2.9%	38	12.3%	96	31.0%	56	18.1%	111	35.8%	< 0.001
Individual Assignments	B5.11	31	10.0%	36	11.6%	83	26.8%	34	11.0%	126	40.6%	< 0.001
Group Assignments	B5.12	3	1.0%	18	5.8%	67	21.6%	51	16.5%	171	55.2%	< 0.001
Project-based learning, in which the student is required to create an artefact (eg article, product, design, object, etc)	B5.13	43	13.9%	61	19.7%	108	34.8%	41	13.2%	57	18.4%	< 0.001
End of a section or chapter tests	B5.14	11	3.5%	30	9.7%	72	23.2%	53	17.1%	144	46.5%	< 0.001

Figure 5.2 Students' involvement in different assessment types



As evident in Table 5.13 and reflected in Figure 5.2, a variety of assessments was used more than 5 times in a semester. This included assessment of myself (52.3%), end of a section/chapter tests (46.5), individual assignments (40.6%), presentations (35.8%) and reflective journals (34.5%). However, group assignments (55.2%) and quizzes (76.8%) scored the highest. Data further revealed that a significant number of students have 'never' prepared a summary of a lecture for the lecturer (25.8%), assessed a peer (25.2%) and completed portfolios (38.7%).

5.2.6.3 Students' perceptions on different types of assessment activities in prompting higher-order skills

This section deals with the students' perception on assessment activities. It is the students' perspective regarding the extent to which assessment activities assist in promoting/improving the students' overall learning experience. These include becoming an independent learner, taking responsibility for one's own learning, increases attention and motivates an individual to apply higher order skills. Table 5.14 below summarises the scoring patterns.

Table 5.14 Students' perceptions on different types of assessment activities in prompting higher-order skills

		Not at all / To a very small extent		To a small extent		To an average extent		To a large extent		To a very large extent		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Case studies	B6.1	8	2.6%	20	6.5%	99	31.9%	115	37.1%	68	21.9%	< 0.001
Class discussions	B6.2	5	1.6%	14	4.5%	77	24.8%	104	33.5%	110	35.5%	< 0.001
Directed Learning involving specific preparation and readings on related content	B6.3	3	1.0%	18	5.8%	84	27.1%	92	29.7%	113	36.5%	< 0.001
Group based activities	B6.4	8	2.6%	23	7.4%	78	25.2%	106	34.2%	95	30.6%	< 0.001
Individual based activities	B6.5	1	0.3%	19	6.1%	57	18.4%	98	31.6%	135	43.5%	< 0.001
Problem based learning	B6.6	6	1.9%	14	4.5%	62	20.0%	112	36.1%	116	37.4%	< 0.001
Quizzes	B6.7	4	1.3%	9	2.9%	41	13.2%	90	29.0%	166	53.5%	< 0.001
Self-assessment	B6.8	3	1.0%	21	6.8%	57	18.4%	94	30.3%	135	43.5%	< 0.001
Peer assessment	B6.9	19	6.1%	40	12.9%	118	38.1%	82	26.5%	51	16.5%	< 0.001
Solving practical problems	B6.10	3	1.0%	12	3.9%	56	18.1%	105	33.9%	134	43.2%	< 0.001
Use of role play/simulations	B6.11	17	5.5%	29	9.4%	82	26.5%	101	32.6%	81	26.1%	< 0.001

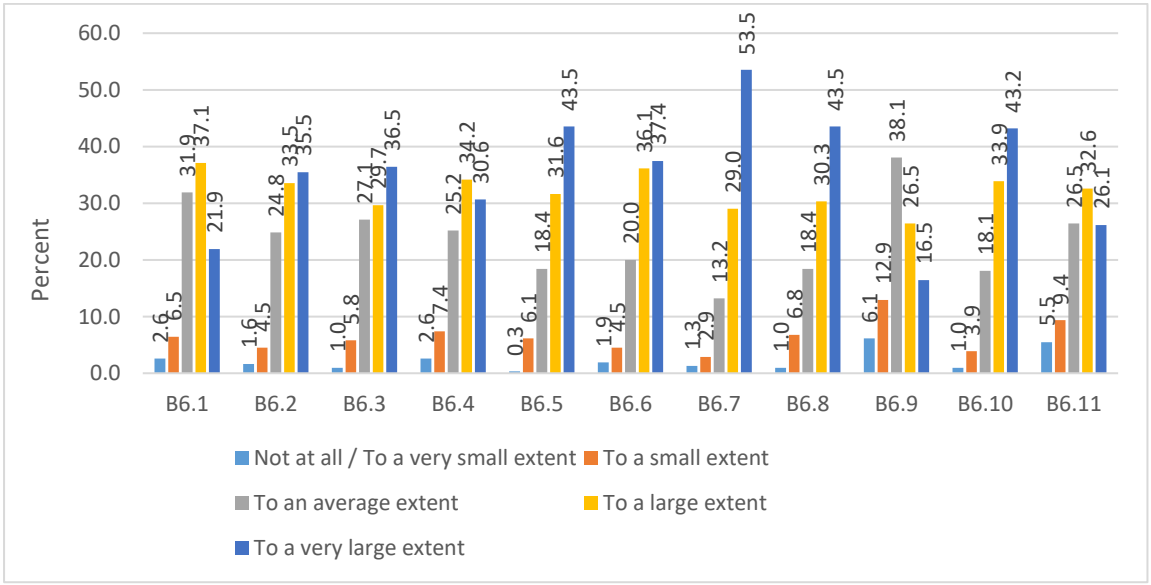


Figure 5.3 Students' perceptions on different types of assessment activities in prompting higher-order skills

Table 5.14 and Figure 5.3 indicate that two sub-themes have emerged from the factor analysis, namely individual assessment activities and group assessment activities. From the responses, it is noted that students identified individual assessment activities as significantly effective in developing their critical thinking. The most effective being quizzes (53.5%) followed by individual-based activities (43.5%), self-assessment (43.5%) and solving practical problems (43.3%). The lower scores were group-based activities (30.6%), role play/simulations (26.1%) and peer assessment scoring the least at 16.5%.

5.2.6.4 Student-centred activities

This section deals with the voice of the students in relation to making suggestions about assignment choices and course activities. This section identifies the level of power between students and the lecturers as well as group collaboration, autonomy and responsibility for learning. It identifies the role of lecturers in student-centred assessment activities and promoting a student-centred learning environment that can develop the necessary 21st century skills. Table 5.15 below summarises the scoring patterns.

Table 5.15 Student-centred activities

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
I am frequently given an opportunity to be actively involved in class discussions	B7.1	14	4.5%	7	2.3%	45	14.5%	106	34.2%	138	44.5%	< 0.001
I frequently engage in group work	B7.2	6	1.9%	3	1.0%	12	3.9%	82	26.5%	207	66.8%	< 0.001
I am allowed to present recommendations about assignment choices and course activities	B7.3	13	4.2%	30	9.7%	52	16.8%	92	29.7%	123	39.7%	< 0.001
I am allowed to design and manage my own timeframes in the completion of tasks	B7.4	20	6.5%	45	14.5%	55	17.7%	93	30.0%	97	31.3%	< 0.001

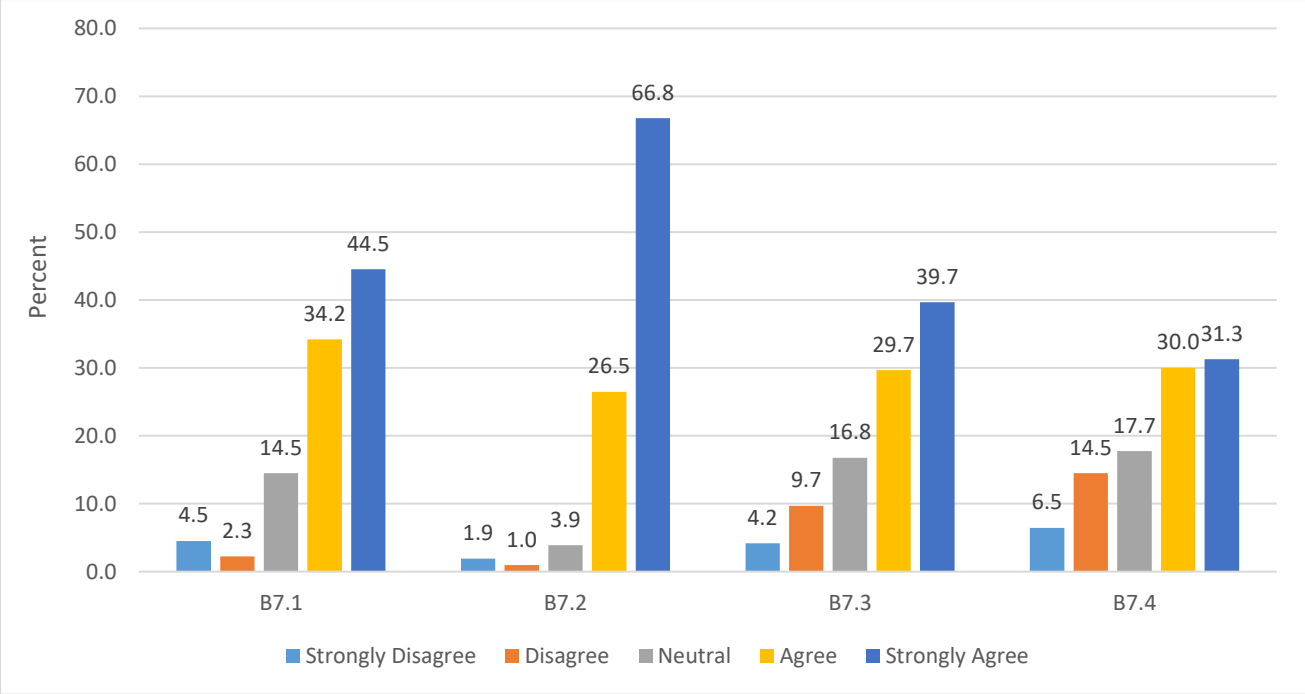


Figure 5.4 Student-centred activities

Table 5.15 and Figure 5.4 indicate a significantly high level of group work (66.8%), whereas the student's voice in presenting suggestions about assignment choices and course activities are much lower, that is 39.7%; and the designing and managing of a student's own time-frames in the completion of tasks are the lowest (31.3%).

5.2.6.5 Comparison of questioning styles during on-line assessments and contact assessments

This section deals with different types of questions students were requested to answer in tests and exams during on-line assessments (during Covid-19) and contact classes (prior to Covid-19). Table 5.16 below summarises the scoring patterns.

Table 5.16 Comparison of questioning styles during on-line assessments and contact assessments

		Less than 50%		At least 50%		Chi Square p-value
		Count	Row N %	Count	Row N %	
Fill in the blank; matching; multiple choice; one or two sentence responses; true/false	B8.1	37	11.9%	273	88.1%	< 0.001
Case studies; essays; short answers	B8.2	124	40.0%	186	60.0%	< 0.001
Fill in the blank; matching; multiple choice; one or two sentence responses; true/false	B9.1	126	40.6%	184	59.4%	0.001
Case studies; essays; short answers	B9.2	108	34.8%	202	65.2%	< 0.001

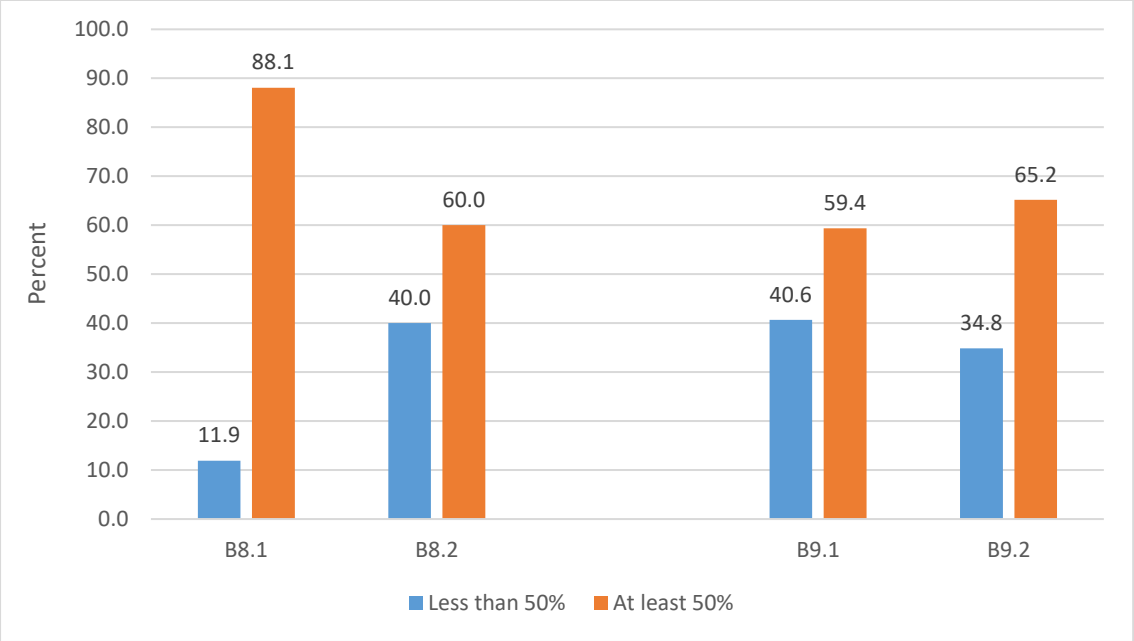


Figure 5.5 Comparison of questioning styles during on-line assessments and contact assessments

Table 5.16 and Figure 5.5 indicate that there was a significantly high usage (88.1%) of 'fill in the blank; matching; multiple choice; one or two sentence responses and true/false' questions during on-line assessments as compared to contact tests and examinations. Even though the usage of these types of questions were lower in contact tests and exams, the findings revealed that it was relatively high that is 59.4%.

The usage of case studies during on-line and contact assessments were not significantly different, at 60.0% and 65.2% respectively.

5.2.6.6 Students' assessment experiences

This section pertains to the students' assessment experiences. It identifies whether the assessments were challenging, allowed for critical thinking and the application of knowledge. In addition, it determines if the assessments were clear, understandable and aligned to learning outcomes. Table 5.17 below summarises the scoring patterns.

Table 5.17 Students' assessment experiences

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
The questions in the test/exam were in line with what I expected	B10.1	12	3.9%	9	2.9%	58	18.7%	153	49.4%	78	25.2%	< 0.001
Assessment methods used in the programme allow me to apply the knowledge that I have learned	B10.2	6	1.9%	6	1.9%	38	12.3%	150	48.4%	110	35.5%	< 0.001
Assessment practices are aligned to the learning outcomes	B10.3	7	2.3%	3	1.0%	42	13.5%	162	52.3%	96	31.0%	< 0.001
The methods used to mark tests and exams are clearly discussed for all assessment activities	B10.4	11	3.5%	32	10.3%	62	20.0%	110	35.5%	95	30.6%	< 0.001
Assignment and test instructions are clearly communicated	B10.5	4	1.3%	11	3.5%	36	11.6%	130	41.9%	129	41.6%	< 0.001
Assignment and test instructions are clearly understood	B10.6	5	1.6%	7	2.3%	48	15.5%	133	42.9%	117	37.7%	< 0.001
I found the assessment questions straightforward and easy to understand	B10.7	7	2.3%	27	8.7%	96	31.0%	127	41.0%	53	17.1%	< 0.001
The assessment methods for this programme were interesting enough to keep me engaged	B10.8	5	1.6%	9	2.9%	54	17.4%	161	51.9%	81	26.1%	< 0.001
I found the assessment methods for this programme challenging	B10.9	18	5.8%	52	16.8%	101	32.6%	95	30.6%	44	14.2%	< 0.001
The assessment methods used are successful in testing the knowledge and skills that I have learned	B10.10	5	1.6%	11	3.5%	28	9.0%	149	48.1%	117	37.7%	< 0.001

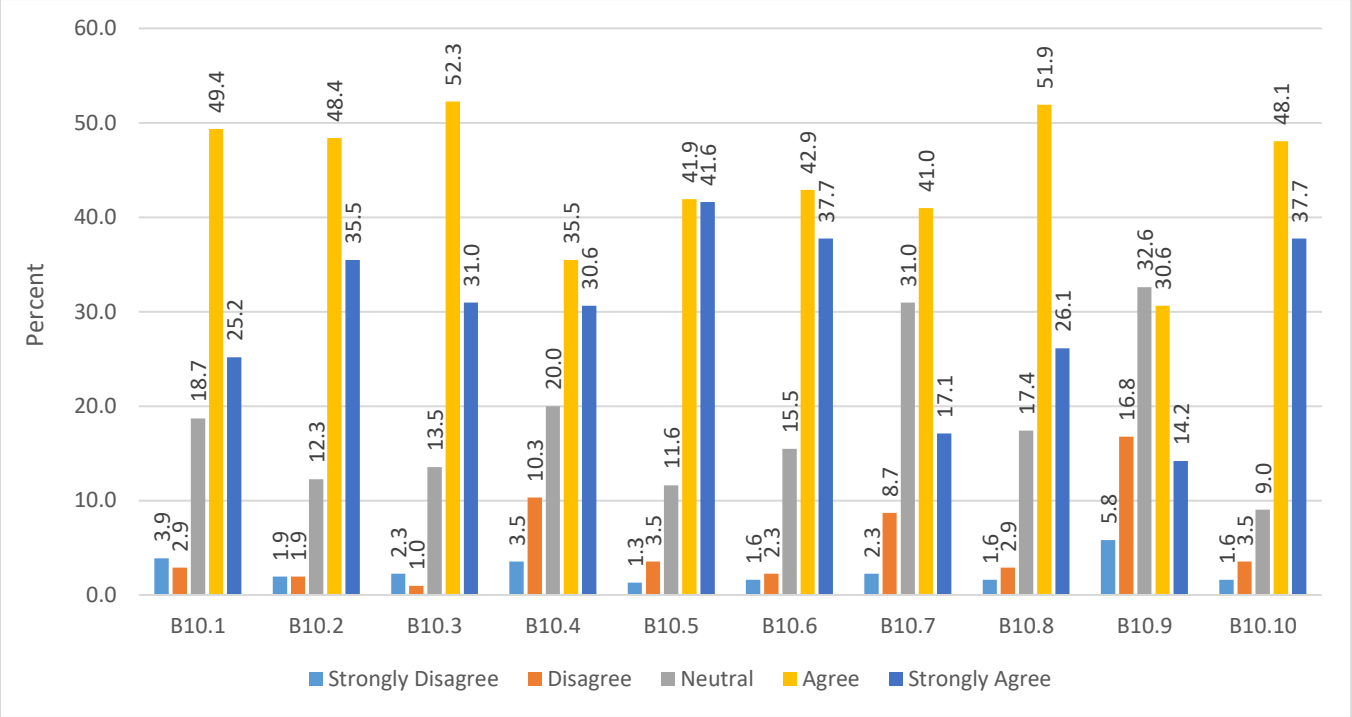


Figure 5.6 Students' assessment experiences

Table 5.17 and Figure 5.6 indicate high levels of agreement in the alignment of learning outcomes to assessment practices (52.3%), assessments were interesting and engaging (51.9%), allowed for the application of knowledge (48.4%), as well as tests and assignments were clearly communicated (41.9%) and understood (42.9%). The data further revealed that even though there was a high level of agreement in the majority of the questions, it was noted that there was a significantly high level of neutral scores in certain questions. High neutral scores were noted in assessment questions being straightforward and easy to understand (31.0%), as well as assessment methods being challenging (32.6%).

5.2.6.7 On-line assessments

This section relates to the use of on-line assessments during the Covid-19 epidemic. The intention of this section was to gauge whether students experienced on-line assessments as a tool to promote learning and if it allowed for a variety of questioning styles. This section also aims to determine if DUT's Learning Management System (LMS) tools, such as Moodle and MS Teams, were easy to use for assessment

purposes and whether adequate training and technical support was offered. Table 5.18 below summarises the scoring patterns.

Table 5.18 On-line assessments

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
I found DUT's on-line LMS tools, ie Moodle and MS Teams, easy to use for assessments	C11.1	16	5.2%	8	2.6%	22	7.1%	85	27.4 %	179	57.7 %	< 0.001
Sufficient training on how to complete on-line assessment was available to me on Moodle	C11.2	6	1.9%	12	3.9%	36	11.6 %	116	37.4 %	140	45.2 %	< 0.001
I found TLZ (Moodle) technical support to be helpful	C11.3	7	2.3%	5	1.6%	43	13.9 %	92	29.7 %	163	52.6 %	< 0.001
I found on-line assessments simple to complete	C11.4	8	2.6%	24	7.7%	47	15.2 %	114	36.8 %	117	37.7 %	< 0.001
On-line assessments allowed for a variety of question types to be used eg case study, multiple choice, short answers, etc	C11.5	7	2.3%	9	2.9%	26	8.4%	122	39.4 %	146	47.1 %	< 0.001
I found on-line assessments promoted my learning and identified my learning needs	C11.6	7	2.3%	11	3.5%	53	17.1 %	128	41.3 %	111	35.8 %	< 0.001
I found assignments and quizzes easy to upload	C11.7	6	1.9%	7	2.3%	20	6.5%	108	34.8 %	169	54.5 %	< 0.001

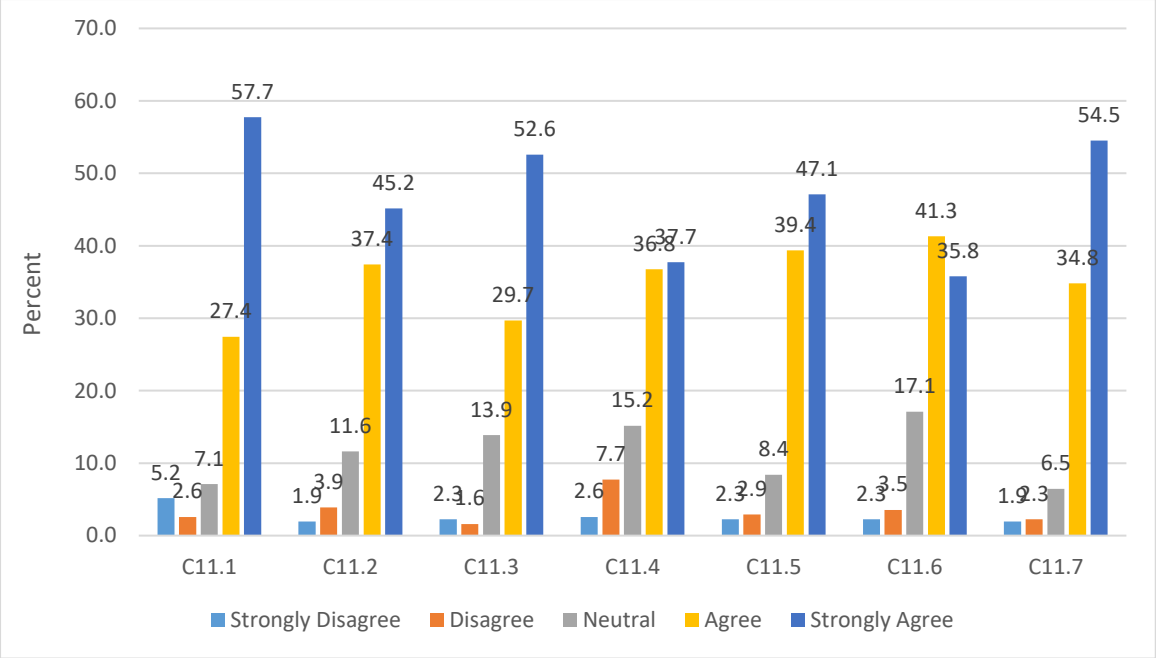


Figure 5.7 On-line assessments

The data revealed higher levels of agreement in aspects associated with on-line assessments. Students identified on-line assessments as a tool that could promote learning (35.8%), simple to complete (37.7%) and allowed for a variety of question types, which included multiple choice and case studies (47.1%). In addition, DUT's LMS was considered easy to use (57.7%), with sufficient training on how to complete on-line assessments (45.2%) and adequate technical support (52.6%).

5.2.6.8 Frequency of feedback

This section intended to identify how often students are given feedback. For this question, the chi-square goodness-of-fit-test was used. This test is a univariate test used on a categorical variable to test whether any of the response options are selected significantly more/less often that the others. Under the null hypothesis, it is assumed that all responses are equally selected. Table 5.19 below summarise the scoring patterns.

Table 5.19 Frequency of feedback

	Responses as Frequency (%)					X^2	df	p-value
	Within one week	**Within two weeks**	**Within three weeks**	**After three weeks and**	**I don't ever receive feedback from**			
How soon after submitting an assessment do you generally receive feedback?	133 (42.9%)	79 (25.5%)	57 (18.4%)	32 (10.3%)	9 (2.9%)	146.194	4	<.001*

As per Table 5.19, a significant proportion (68.4%) get assessments back within 1 or 2 weeks (1 week 42.9%; 2 weeks 25.5%).

5.2.6.9 Students' perceptions related to feedback

This section was intended to identify if students consider feedback as a useful tool in recognizing areas that need improvement

Table 5.20 Students' perceptions related to feedback

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		I don't ever receive feedback from assessment		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Feedback provided after each assessment helps me to identify areas of learning that need improvement	D13.1	14	4.5%	7	2.3%	36	11.6%	95	30.6%	140	45.2%	18	5.8%	< 0.001
Feedback provided after each assessment helps me to better my results	D13.2	5	1.6%	4	1.3%	18	5.8%	94	30.3%	169	54.5%	20	6.5%	< 0.001
Lecturers are available for consultation to discuss academic progress and difficulties after results from each assessment are given	D13.3	13	4.4%	12	4.1%	34	11.5%	103	34.9%	133	45.1%	0	0.0%	< 0.001

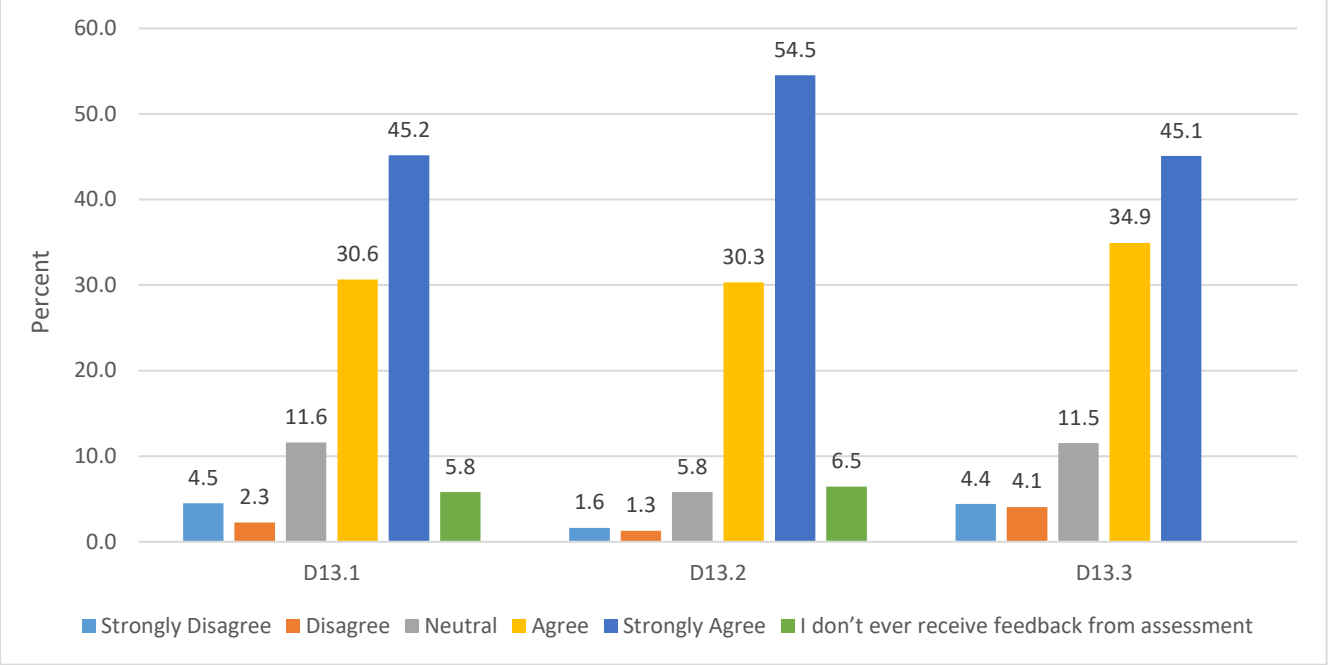


Figure 5.8 Students' perceptions related to feedback

Table 5.20 and Figure 5.8 indicate that there are higher levels of agreement related to feedback assisting in identifying areas of learning that need improvement (45.2%) and it helps to improve results (54.5%). In addition, the student data revealed that 45.1% agreed that lecturing staff were available to discuss academic progress and difficulties after each assessment.

5.2.7 Open-ended questions

The following are the open-ended questions found in section D of the student questionnaire:

5.2.7.1 Please specify the assessment type that you like best. Why?

Student data identified the following assessment types that were liked the best, which is listed in the order of frequency, quizzes, individual assignments, tests, MCQs, group assignments, case studies, project-based learning, scenario-based assessments and presentations.

MCQs were referred to as being simple, easy to complete and less time-consuming. Furthermore, individual assignments and tests were preferred due to the student being responsible for their own submission, commitment and the outcome of their results. Students indicated that case studies, scenarios and projects helped them develop and allowed for the application of knowledge. Very interestingly, students indicated that group assignments and presentations can be challenging. However, they found this type of assessment beneficial since it allowed for constructive engagement and diverse viewpoints.

Student 51 (MCQs)

"I really liked the multiple choices questions because they are less time consuming, and put no pressure."

Student 173 (Tests)

"I like tests and quiz because each and every student is responsible for his/her results."

Student 180 (Project-based learning)

"Projects, because in most cases it is like working in the real world and allows you to be able manage your time."

Student 195 (Group assignments)

"This gives an opportunity to form groups and getting to engage with different people. As much as it is not easy and it is most challenging, but having to engage in the constructive conversations is what makes us grow and appreciate diverse perspectives from our mates."

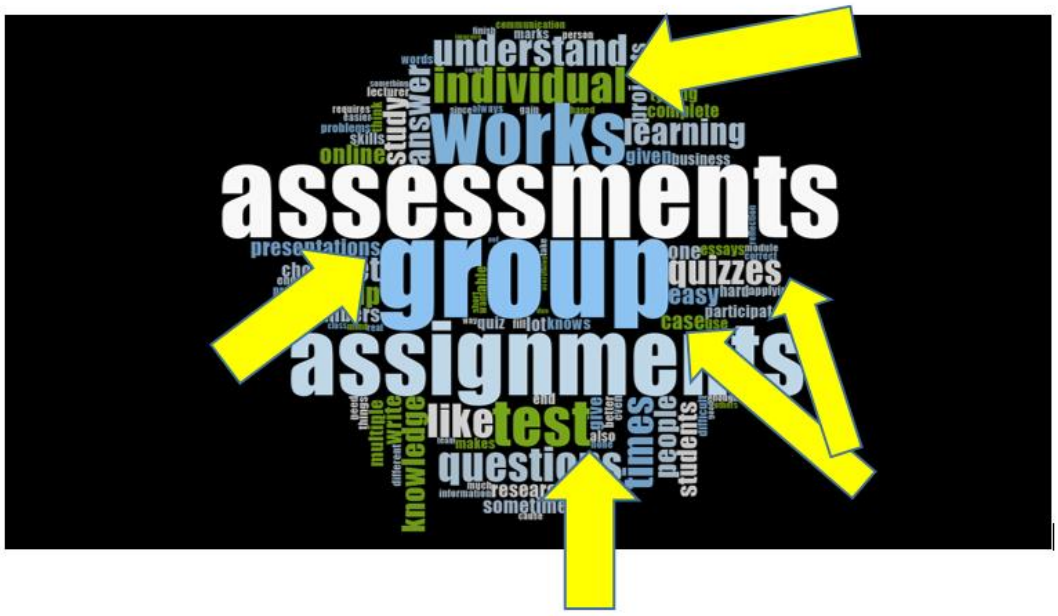


Figure 5.9 Best liked assessment types

Figure 5.9 presents the results of the themes that emanated when analysing the qualitative data from the open-ended questions using the word frequency option in NVivo. The themes grouped were individual and group assessment types that were best liked by students. The displayed words were limited to 300 words, with stemmed words being selected to allow for synonyms and variations of the words. The minimum length of three words was selected to ensure that the data generated projected the true results of the open-ended questions. The coloured arrows in Figure 5.9 refer to the assessments that students liked the best. In addition, these assessment forms are aligned to the critical question of the study.

5.2.7.2 Please specify the assessment type that you like least. Why?

The finding for this question identified a significant dislike towards group work, which consists of group assignments and group projects, with a word count of 144 as compared to the other assessment types mentioned, namely presentations, individual assignment and tests. Students indicated that group assignments were ineffective due to some students who do not contribute, whilst others dominate the conversation in the group. Students further highlighted that they prefer an individual assessment to a group assessment since the work and effort applied is towards their own mark.

Students that indicated the least preference for individual assignments and tests indicated that it was due to time constraints in completing an assignment, as well as the time allocated for a test, especially with case study questions.

Student 7

"I do not agree with group assignments as it is very difficult to get responsible group members as well as it is time consuming where we rather have individual assignments."

Student 35

"Group projects are clearly not good some students are very lazy to do the work and end up failing the entire group. Group projects should be very less."

Student 184

"Group assignments, it's not really easy to work on groups especially if the people in the group are not committed to doing their assigned portion of the work."

5.2.8 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.

If the p-value (Exact Sig. (2-sided)) < 0.05, then it implies that there is a significant relationship between the variables. If > 0.05, there is no significant relationship. The findings from this study indicated that there were no significant differences between race and gender in relationship to the responses received.

5.2.9 Correlations

Bivariate correlation was also performed on the (ordinal) data. The results are found in 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 correlation value between “Students should gain knowledge from the assessments they do” and “Assessment methods used in the programme allow me to apply the knowledge that I have learned” is 0.204. This is a directly related proportionality. Respondents indicate that the more the assessments methods allow for the application of knowledge, the more knowledge students will gain, and vice versa.

“There should be a connection between what is learned in the classroom and what is asked in the assessment” and “Assessments should promote learning and identify learning needs” is 0.487. This indicates that teaching, learning and assessment must be intertwined. Assessment should not be a silo, but should be integrated with the teaching and learning methods that occur in the classroom.

“Assessments should allow for educators and students to evaluate learning together” and “Feedback provided after each assessment helps me to identify areas of learning that need improvement” is 0.203. This highlights the importance of feedback in supporting students to improve their performance and assisting lecturers in identifying areas that students need development with.

“Case studies” and “Solving practical problems” is 0.313. This reveals that students found case studies, which is part of student-centred assessments, to be supportive in solving practical problems. Hence, it allows for the application of knowledge.

“Class discussions” and “Directed Learning involving specific preparation and readings on related content” is 0.469. Providing students with the relevant material and specific preparation before class can be concluded in class discussions. This promotes the “flipped classroom” concept, which is student-centred, since it allows students to share ideas and viewpoints, thereby assisting in promoting student engagement and higher-order thinking skills.

“Individual-based activities” and “Self-assessment” is 0.50. This underscores the importance of individual-based activities and assessments that allow students to become independent; fosters the ability to resolve a problem by oneself as compared to group-based activities; and evaluate their own learning.

5.2.10 Conclusions

As per the summary of statistics, there were significant levels of agreement in terms of the purpose of assessment and its influence in promoting learning and knowledge acquisition. Students have indicated their experiences and choice of assessments that influence them to be critical thinkers and displaying skills such as autonomy and responsibility for learning and creativity. It was also noted that students identified feedback as an important tool in identifying areas that require improvement. The following section will review data obtained from the staff questionnaire.

5.3 Section two: Findings from the questionnaires to staff

This section focuses on the findings obtained from the staff questionnaire, which was the primary tool used to collect data. This data was obtained from the lecturing staff in Business and Information Management, Financial Accounting, Information and Communication Technology: Application Development, Information, and Communication Technology: Business Analysis at the Durban University of Technology.

As presented in the student findings, the data collected from the responses was analysed with SPSS version 28.0. Similarly, the results will present the descriptive statistics in the form of graphs, cross-tabulations and other figures for the quantitative data that were collected. Inferential techniques include the use of correlations and chi square test values, which are interpreted using the p-values, as explained under section 5.2.

5.3.1 The Sample

The total number of respondents required for this study as per the Krejcie and Morgan table was 59 (Sekaran and Bougie 2020: 247). In order to increase the chances of a higher response rate, non-probability sampling was used. Hence, the questionnaire was distributed to the entire target population.

Instead of 59, a response from 65 staff was received, which indicates a 100% response rate. In order to ensure that sufficient responses were obtained, a reminder email was sent to staff every week.

5.3.2 The Research Instrument

The research instrument consisted of 23 items, with a level of measurement at a nominal or an ordinal level. The questionnaire was divided into 4 sections which measured various themes as illustrated below:

A Biographical data

B Assessment

C Feedback

D Training and development in student-centred assessment methods

5.3.3 Reliability Statistics

As mentioned previously, the reliability and validity of a research instrument are important. A measuring instrument must be reliable and valid in order to be consistent

(Maree and Pietersen 2020c: 260). As indicated in section 5.2.3, 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.

The table below reflects the Cronbach’s Alpha Score for all the items that constituted the staff questionnaire.

Table 5.21 Cronbach’s Alpha Score

	Section	Number of Items	Cronbach's Alpha
B7	Intention of assessment	8	0,826
B8	Types of assessment can assist with determining the extent to which long term learning goals have been met	12	0,774
B9	Types of activities may promote student autonomy, responsibility of learning and student engagement	13	0,792
B10	Positive outcomes of student-centred assessment	7	0,917
B13	Assessing the content of a particular module	4	0,668
B15	Challenges when attempting student-centred assessment practices face to face	9	0,792
B17	On-line assessment tools	12	0,813
B19	Methods to provide feedback	3	0,624
B20	Training and development in student-centred assessment methods	6	0,839
All items included		75	0,882

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

5.3.4 Factor Analysis

The intention of a factor analysis is to conclude which items “belong together” by using the logic that items that are similarly answered, compute the same aspects of a factor (Maree and Pietersen 2020c: 264). In the students’ findings under section 5.24, the factor analysis, including the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett’s test of sphericity was explained.

Similar to the student findings, the KMO and Bartlett's Test table was used. The table below indicates two tests that indicate the suitability of data for structure detection. Factor analysis was completed only for the Likert scale items. Certain components divided into finer components, which is explained in the rotated component matrix below.

Table 5.22 KMO and Bartlett's Test

		Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
	Section		Approx. Chi-Square	df	Sig.
B7	Intention of assessment	0,756	225,061	36	< 0.001
B8	Types of assessment can assist with determining the extent to which long term learning goals have been met	0,680	267,663	66	< 0.001
B9	Types of activities may promote student autonomy, responsibility of learning and student engagement	0,653	274,020	78	< 0.001
B10	Positive outcomes of student-centred assessment	0,876	307,577	21	< 0.001
B13	Assessing the content of a particular module	0,618	48,672	6	< 0.001
B15	Challenges when attempting student-centred assessment practices face to face	0,740	161,253	36	< 0.001
B17	On-line assessment tools	0,821	278,508	66	< 0.001
B19	Methods to provide feedback	0,629	23,686	3	< 0.001
B20	Training and development in student-centred assessment methods	0,783	165,918	15	< 0.001

All of the conditions are satisfied for factor analysis. 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 5.23 Rotated Component Matrix for B7

B7	Component	
	1	2
Focus on the acquisition of knowledge	0,620	0,245
Centred within real-life contexts	0,807	0,100
Be intertwined with teaching	0,719	0,142
Allow for educators and students to evaluate learning together	0,486	0,509
Understanding learning content	0,791	0,103
Promote learning and identify learning needs	0,666	0,450
Inform instruction methods	0,235	0,787
Inform types of questions	0,062	0,862
Grading purposes	0,184	0,747

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

Table 5.24 Rotated Component Matrix for B8

B8	Component				
	1	2	3	4	5
A brief summary of a lecture or lesson prepared by the students	0,094	0,122	0,009	0,080	0,948
Peer assessment	0,128	0,138	0,160	0,853	0,054
Self-assessment	0,231	-0,138	-0,064	0,819	0,032
Quizzes	0,000	0,756	-0,040	0,132	0,083
Reflective journals	0,674	0,177	0,299	0,244	0,061
Portfolios	0,905	-0,023	0,081	0,105	0,080
Presentations	0,724	0,268	0,325	0,210	-0,192
Individual projects	0,849	0,040	0,020	0,068	0,112
Group projects	0,143	0,104	0,831	0,141	-0,216
Project-based learning	0,218	-0,001	0,851	-0,053	0,243
End of a section or chapter tests	0,131	0,773	0,179	0,002	0,109
End of term or semester final exams	0,110	0,825	0,013	-0,130	-0,055

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 5 iterations.

Table 5.25 Rotated Component Matrix for B9

B9	Component			
	1	2	3	4
Case studies	-0,028	0,453	-0,081	0,573
Class discussions	0,025	0,514	0,027	0,488
Directed Learning, which involves specific preparation and readings on related content	-0,119	0,129	0,900	0,089
Group based activities	0,255	0,665	0,088	0,136
Individual based activities	0,410	0,147	0,721	0,185
Problem based learning	-0,013	0,875	0,138	-0,120
Quizzes	0,025	-0,013	0,350	0,697
Self-assessment	0,614	0,041	0,096	0,537
Peer assessment	0,663	0,163	-0,167	0,181
Solving practical problems	0,198	0,800	0,079	0,231
Use of role play/simulations	0,470	0,324	0,183	0,248
Students present recommendations about assignment choices and course activities	0,772	0,038	0,180	-0,091
Students design and manage their own timeframes in the completion of tasks Failure to do so will make them liable for their actions	0,839	0,074	0,007	-0,123

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 7 iterations.

Table 5.26 Rotated Component Matrix for B10

B10	Component
	1
Increases the students' motivation	0,767
Results in the student being focussed on learning	0,847
Increases students' confidence	0,810
Increases responsibility and commitment of the student	0,886
Encourages deep learning	0,872
Encourages student interaction with each other	0,788
Encourages student interaction with the lecturer	0,762

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5.27 Rotated Component Matrix for B13

B13	Component	
	1	2
Fill in the blank; matching; multiple choice; one or two sentence responses; true/false	0,007	0,915
Case studies; essays; short answers	0,849	0,136
Questions that test knowledge	0,344	0,797
Questions that test critical thinking	0,845	0,132

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 3 iterations.

Table 5.28 Rotated Component Matrix for B15

B15	Component		
	1	2	3
Rigid syllabus that does not allow for the student-centred approach and flexibility	0,238	0,010	0,876
Heavy teaching load	0,701	-0,258	0,183
Insufficient academic staff in my department	0,638	0,246	0,311
Lack of academic support from CELT	0,276	0,626	0,295
Lack of knowledge and skills about student-centred assessment	-0,026	0,836	0,126
Large class sizes	0,791	0,127	0,032
Low morale in myself	0,034	0,465	0,717
Pressure to complete the syllabus	0,557	0,311	0,343
Too much administration	0,622	0,542	-0,135

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 4 iterations.

Table 5.29 Rotated Component Matrix for B17

B17	Component		
	1	2	3
DUT's on-line LMS tools, i.e. Moodle and MS Teams were easy to understand in order to engage in multimodal assessment	0,451	0,157	0,558
Sufficient training on designing on-line assessment was offered on Moodle and MS Teams	0,417	-0,038	0,720
TLZ technical support was useful	-0,059	0,093	0,848
On-line assessments were simple to administer	0,662	0,387	-0,024
On-line assessments allowed for different types of questions	0,042	0,787	0,004
On-line assessments promote learning and identify learning needs	0,358	0,785	0,039
Assignments, quizzes and wikis were uncomplicated to design	0,231	0,792	0,157
It was simple to upload assessments	0,570	0,422	0,303
It was easy to unblock a student during a test, allowing a student a second attempt if the student was removed from the assessment in error	0,654	0,321	0,215
Marking was uncomplicated	0,760	0,148	0,225
Moderation was easy manage	0,825	0,051	0,097

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

a. Rotation converged in 5 iterations.

Table 5.30 Rotated Component Matrix for C19

C19	Component
	1
Personal feedback to a student, highlighting his/her strengths and weaknesses regarding his/her understanding and application of knowledge	0,767
Commenting on scripts or assignments	0,809
Providing general comments in class	0,699

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Table 5.31 Rotated Component Matrix for D20

D20	Component
	1
Regular teaching, learning and assessment training / development programmes are available for me to attend, should I wish to	0,768
I am informed in good time about training and development programmes	0,824
Training programmes are generally scheduled when I am available	0,587
It is easy to obtain funds to attend training	0,627
The training programmes offered assist in improving teaching and assessment methods	0,820
The training and development programmes are relevant to my needs	0,851

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

With reference to the tables above, 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 shows 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 sections B10, C19 and D20 loaded perfectly along a single component. This implies that the statements that constituted these sections perfectly measured what they set out to measure.

It is noted that the variables that constituted Sections B8 and B9 loaded along 5 and 4 components respectively, (sub-themes), B15 and B17 loaded along 3 components

and B7 and B13 loaded along 2 components. This means that respondents identified different trends within the section. Within the section, the splits are colour-coded.

The trends that emerged relate to the purpose of assessments and usefulness of particular question types in assessing content, as well as the application of knowledge. Further trends related to the types of assessments and activities that students are expected to complete which influence critical thinking, autonomy, responsibility, collaboration and becoming an independent learner. Another trend that was identified related to the challenges experienced by lecturers in implementing student-centred assessments and the use of on-line assessment methods.

The sub-themes that emerged from the data are: individual activities, group-based activities and lecturer-directed activities.

5.3.5 Section A: Biographical Data

This section summarises the biographical characteristics of the respondents.

The table below describes the current employment contract status of the lecturers at DUT.

Table 5.32 Type of employment

	Frequency	Percent
Permanent	52	80,0
Contract	13	20,0
Total	65	100,0

The table below describes the overall gender distribution.

Table 5.33 Gender composition

	Frequency	Percent
Male	36	55,4
Female	29	44,6
Total	65	100,0

The table below describes the age category in years.

Table 5.34 Age

	Frequency	Percent
26 - 30	6	9,2
31 - 35	9	13,8
36 - 40	9	13,8
41 - 50	21	32,3
> 50	20	30,8
Total	**65**	**100,0**

The table below describes number of years that staff have been employed as a lecturer at DUT.

Table 5.35 Tenure

	Frequency	Percent
< 5	21	32,3
5 - 10	8	12,3
11 - 15	9	13,8
16 - 20	7	10,8
21 - 25	10	15,4
> 25	10	15,4
Total	**65**	**100,0**

The table below indicates the highest level of education.

Table 5.36 Education status

	Frequency	Percent
Masters	45	69,2
Doctorate	20	30,8
Total	65	100,0

5.3.6 Section Analysis

Similar to the student section, the analysis of the staff data indicates the scoring patterns of the respondents per variable per section. The results are first presented

using summarised percentages for the variables that constitute each section. Results are then further analysed according to the importance of the statements.

5.3.6.1 Staff's perceptions on assessment

This section deals with the staff's perception on assessment. It provides an overview of what staff perceive as the purpose or intention of assessment, and whether it should inform instruction methods and types of questions. This question was also designed to ascertain the link between assessment, acquisition and the application of knowledge. In addition, it aimed to determine the view that staff have towards the role that the students and themselves should play in the evaluation of assessments, which is related to the balance of power as per Weimer's Student-centred Model. Table 5.37 summarises the scoring patterns.

Table 5.37 Staff's perceptions on assessment

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Focus on the acquisition of knowledge	B7.1	0	0,0%	3	4,6%	2	3,1%	34	52,3%	26	40,0%	< 0.001
Centred within real-life contexts	B7.2	0	0,0%	0	0,0%	4	6,2%	24	36,9%	37	56,9%	< 0.001
Be intertwined with teaching	B7.3	0	0,0%	0	0,0%	11	16,9%	35	53,8%	19	29,2%	0,001
Allow for educators and students to evaluate learning together	B7.4	0	0,0%	2	3,1%	12	18,5%	23	35,4%	28	43,1%	< 0.001
Understanding learning content	B7.5	0	0,0%	1	1,5%	3	4,6%	29	44,6%	32	49,2%	< 0.001
Promote learning and identify learning needs	B7.6	0	0,0%	1	1,5%	4	6,2%	31	47,7%	29	44,6%	< 0.001
Inform instruction methods	B7.7	1	1,5%	1	1,5%	14	21,5%	31	47,7%	18	27,7%	< 0.001
Inform types of questions	B7.8	1	1,5%	5	7,7%	16	24,6%	30	46,2%	13	20,0%	< 0.001
Grading purposes	B7.9	1	1,5%	11	16,9%	13	20,0%	25	38,5%	15	23,1%	< 0.001

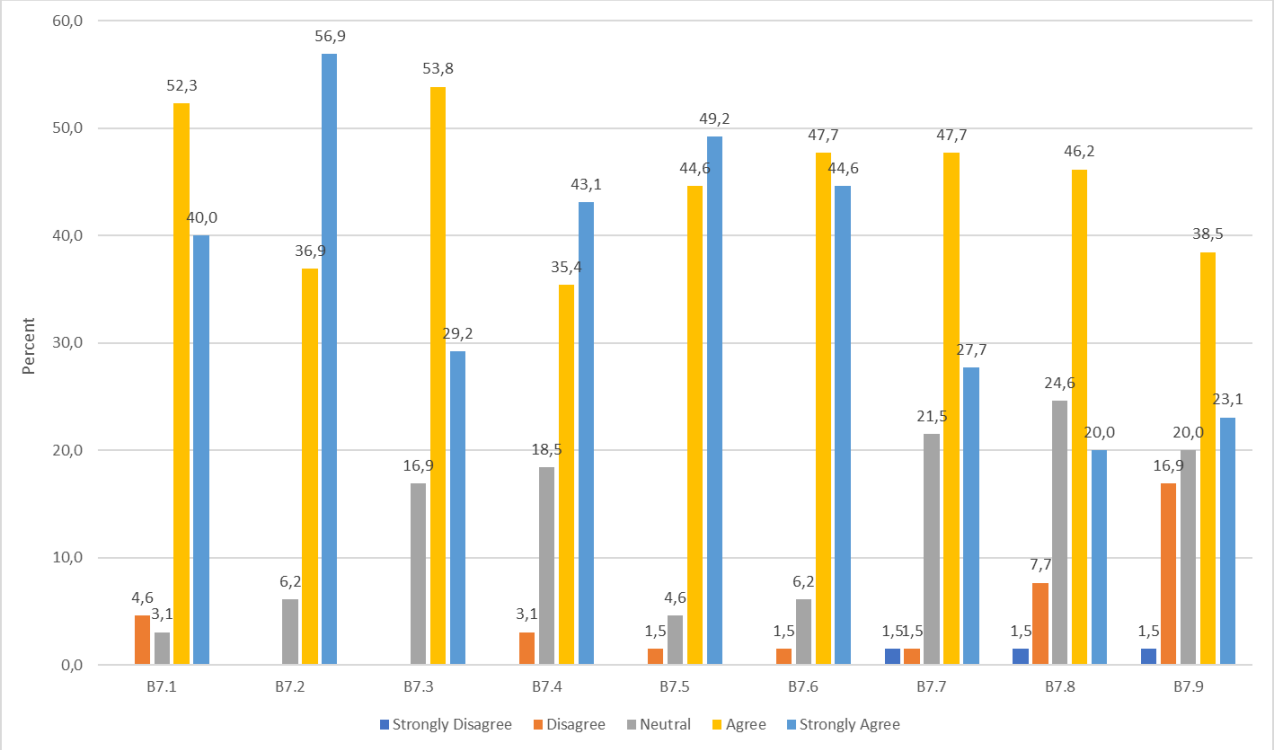


Figure 5.10 Staff's perceptions on assessment

The following patterns are observed from Figure 5.10:

- All 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 levels of neutral scores are low across the statements; and
- The significance of the differences is tested and shown in the table.

As per the statistics in Table 5.37, the emerging patterns reveal that staff's perceptions on assessment are as follows: to allow for educators and students to evaluate learning together (35.4%), grading purposes (38.5%) and centred within real-life contexts (36.9%).However, the highest scores were attributed to assessment being intertwined with teaching (53.8%), followed by the focus on the acquisition of knowledge (52.3%) and promotion of learning and identifying learning needs (47.7%), the purpose of assessments that inform instruction (47.7%) and development of question types (46.2%).

5.3.6.2 Types of assessments

This section deals with the types of assessment that staff perceive as being effective in determining the extent to which long-term learning goals have been achieved. The assessment types range from the traditional summative assessments to student-centred assessment, which include individual and group assessments. Table 5.38 below summarises the scoring patterns.

Table 5.38 Types of assessment that are perceived to achieve long-term learning goals

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
A brief summary of a lecture or lesson prepared by the students	B8.1	0	0,0%	6	9,2%	16	24,6%	38	58,5%	5	7,7%	< 0.001
Peer assessment	B8.2	0	0,0%	3	4,6%	12	18,5%	41	63,1%	9	13,8%	< 0.001
Self-assessment	B8.3	1	1,5%	6	9,2%	10	15,4%	38	58,5%	10	15,4%	< 0.001
Quizzes	B8.4	1	1,5%	3	4,6%	4	6,2%	40	61,5%	17	26,2%	< 0.001
Reflective journals	B8.5	0	0,0%	4	6,2%	12	18,5%	32	49,2%	17	26,2%	< 0.001
Portfolios	B8.6	2	3,1%	2	3,1%	11	16,9%	34	52,3%	16	24,6%	< 0.001
Presentations	B8.7	0	0,0%	2	3,1%	7	10,8%	33	50,8%	23	35,4%	< 0.001
Individual projects	B8.8	1	1,5%	2	3,1%	2	3,1%	37	56,9%	23	35,4%	< 0.001
Group projects	B8.9	0	0,0%	6	9,2%	7	10,8%	33	50,8%	19	29,2%	< 0.001
Project-based learning	B8.10	0	0,0%	1	1,5%	6	9,2%	31	47,7%	27	41,5%	< 0.001
End of a section or chapter tests	B8.11	0	0,0%	3	4,6%	15	23,1%	35	53,8%	12	18,5%	< 0.001
End of term or semester final exams	B8.12	2	3,1%	2	3,1%	10	15,4%	29	44,6%	22	33,8%	< 0.001

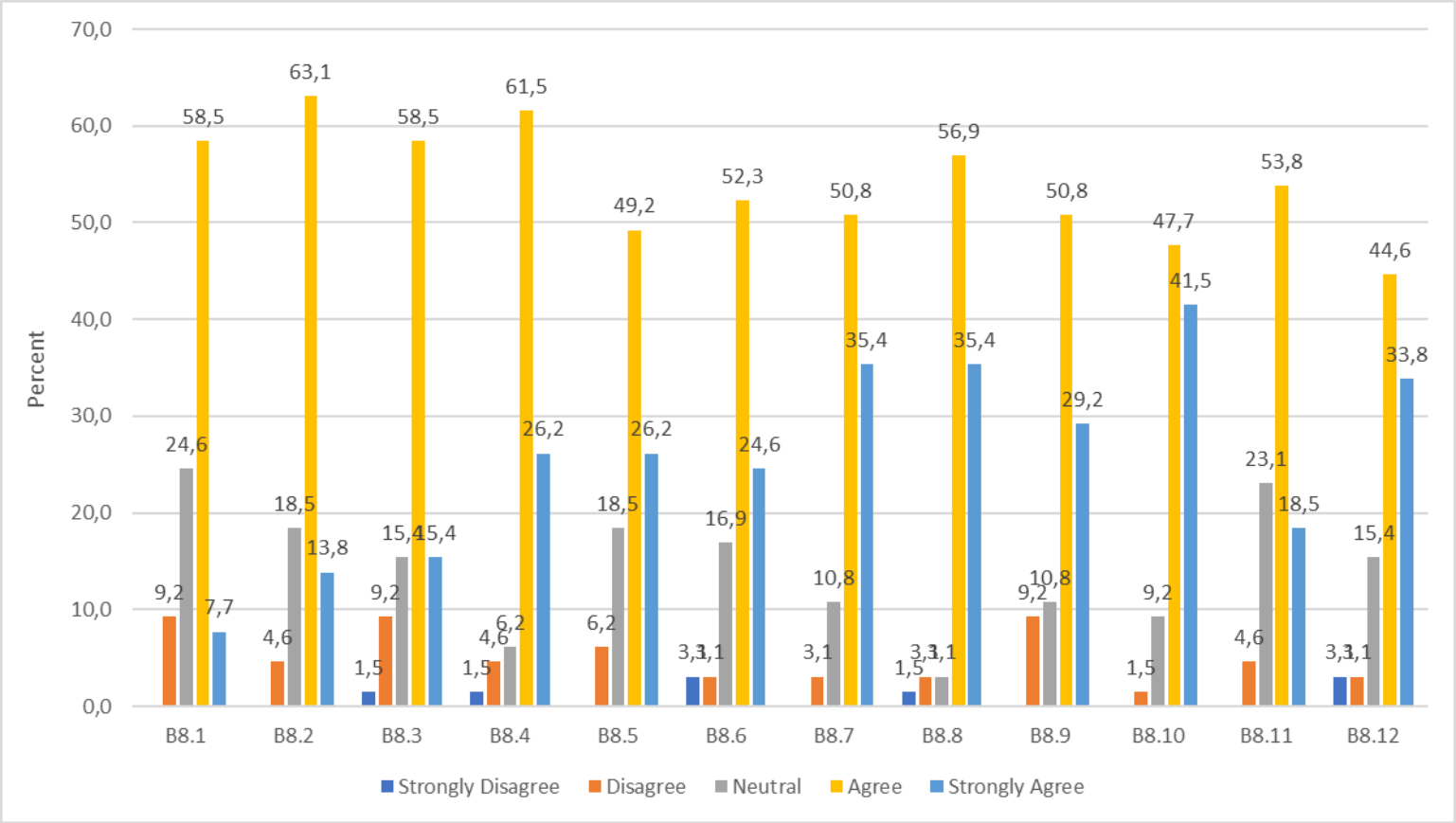


Figure 5.11Types of assessment that are perceived to achieve long-term learning goals

As per Table 5.38 and Figure 5.11, there are significantly high levels of agreement for all assessment types. For the individual and group assessment types that were student-centred, scoring ranged from 63.1% (peer assessment) to 47.7% (project-based learning). The data also revealed that high importance was placed on the traditional summative assesments, namely end of a section or chapter tests (53.8%) and end of term or semester final exams (44.6%).

5.3.6.3 Staff's perception on different types of assessment activities in promoting student autonomy, responsibility for learning and student engagement

This section deals with the staff's perception on assessment activities. It is the staff's perspective regarding the extent to which assessment activities assist in improving the students' overall learning experience. These include becoming an independent learner, taking responsibility for your own learning, increases attention and motivates you to apply higher order skills. Table 5.39 below summarises the scoring patterns.

Table 5.39 Staff's perception on different types of assessment activities in promoting student autonomy, responsibility for learning and student engagement

		Not at all / To a very small extent		To a small extent		To an average extent		To a large extent		To a very large extent		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Case studies	B9.1	0	0,0%	2	3,1%	14	21,5%	33	50,8%	16	24,6%	< 0.001
Class discussions	B9.2	0	0,0%	1	1,5%	9	13,8%	40	61,5%	15	23,1%	< 0.001
Directed Learning, which involves specific preparation and readings on related content	B9.3	1	1,5%	2	3,1%	22	33,8%	29	44,6%	11	16,9%	< 0.001
Group based activities	B9.4	0	0,0%	3	4,6%	17	26,2%	33	50,8%	12	18,5%	< 0.001
Individual based activities	B9.5	0	0,0%	2	3,1%	11	16,9%	38	58,5%	14	21,5%	< 0.001
Problem based learning	B9.6	0	0,0%	1	1,5%	5	7,7%	31	47,7%	28	43,1%	< 0.001
Quizzes	B9.7	1	1,5%	5	7,7%	22	33,8%	23	35,4%	14	21,5%	< 0.001
Self-assessment	B9.8	0	0,0%	10	15,4%	21	32,3%	21	32,3%	13	20,0%	0,120
Peer assessment	B9.9	2	3,1%	5	7,7%	26	40,0%	24	36,9%	8	12,3%	< 0.001
Solving practical problems	B9.10	0	0,0%	0	0,0%	5	7,7%	26	40,0%	34	52,3%	< 0.001
Use of role play/simulations	B9.11	3	4,6%	5	7,7%	9	13,8%	29	44,6%	19	29,2%	< 0.001
Students present recommendations about assignment choices and course activities	B9.12	5	7,7%	5	7,7%	24	36,9%	21	32,3%	10	15,4%	< 0.001
Students design and manage their own timeframes in the completion of tasks Failure to do so will make them liable for their actions	B9.13	7	10,8%	10	15,4%	17	26,2%	21	32,3%	10	15,4%	0,036

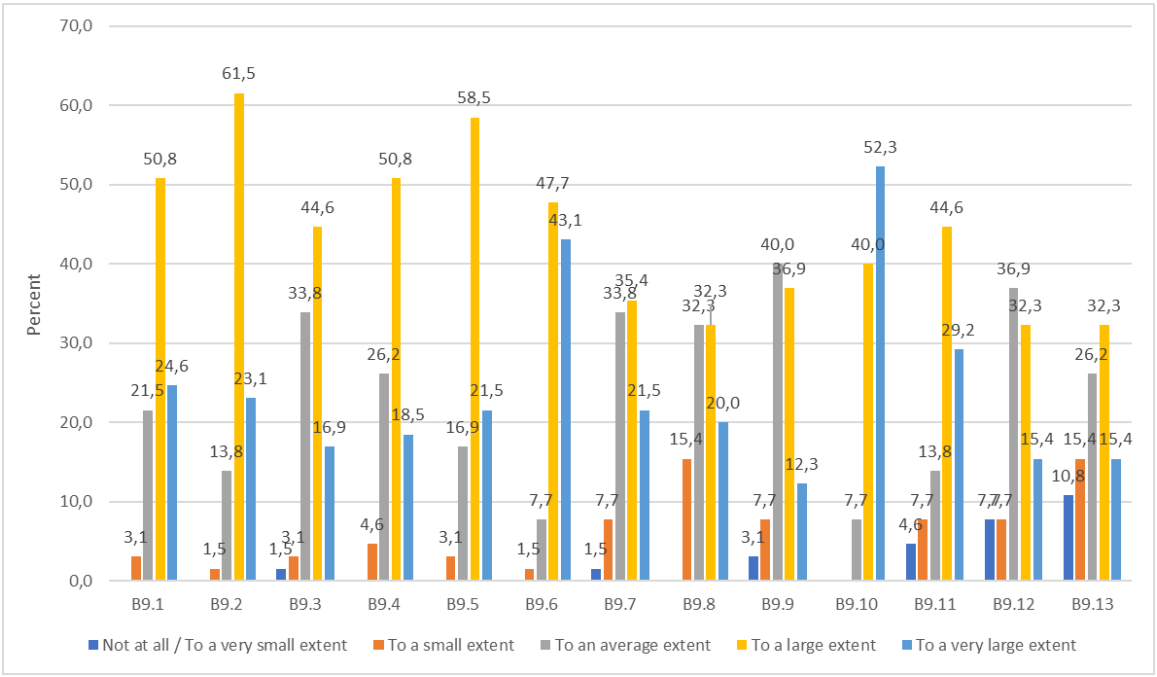


Figure 5.12 Staff's perception on different types of assessment activities in promoting student autonomy, responsibility for learning and student engagement

Table 5.39 and Figure 5.12 indicate two sub-themes that emerged from the factor analysis, namely individual assessment activities and group assessment activities. From the responses, it is noted that staff identified individual assessment activities as significantly effective in developing student autonomy, responsibility for learning and student engagement. The most effective being class discussions (61.5%) and individual-based activities (58.5%). The least effective were the following three with the same score, namely self-assessment (32.3%), students present recommendations about assignment choices and course activities (32.3%) and students design and manage their own time-frames in the completion of tasks as failure to do so will make them liable for their actions.

5.3.6.4 Staff's perception on the positive outcomes of student-centred assessments

This section relates to the staff's perception on the ability of student-centred assessment to enhance student motivation, encourage deep learning and responsibility for learning, as well as interaction between peers and the lecturers. Table 5.40 below summarises the scoring patterns.

Table 5.40 Staff's perception on the positive outcomes of student-centred assessments

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Increases the students' motivation	B10.1	0	0,0%	2	3,1%	7	10,8%	40	61,5%	16	24,6%	< 0.001
Results in the student being focused on learning	B10.2	0	0,0%	3	4,6%	10	15,4%	40	61,5%	12	18,5%	< 0.001
Increases students' confidence	B10.3	0	0,0%	2	3,1%	4	6,2%	40	61,5%	19	29,2%	< 0.001
Increases responsibility and commitment of the student	B10.4	1	1,5%	4	6,2%	6	9,2%	37	56,9%	17	26,2%	< 0.001
Encourages deep learning	B10.5	1	1,5%	4	6,2%	7	10,8%	29	44,6%	24	36,9%	< 0.001
Encourages student interaction with each other	B10.6	0	0,0%	4	6,2%	7	10,8%	37	56,9%	17	26,2%	< 0.001
Encourages student interaction with the lecturer	B10.7	1	1,5%	3	4,6%	8	12,3%	36	55,4%	17	26,2%	< 0.001

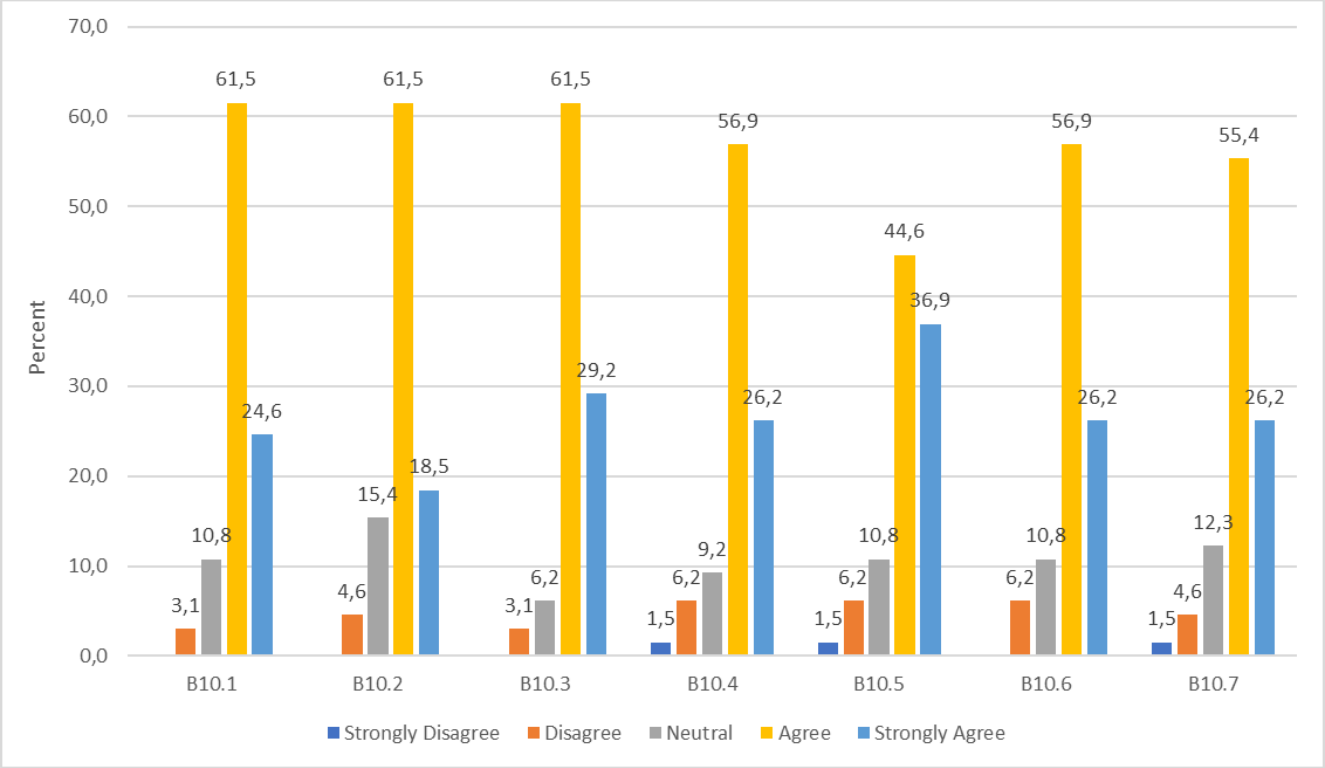


Figure 5.13 Staff's perception on the positive outcomes of student-centred assessments

As per Table 5.40 and Figure 5.13, the following patterns are observed:

- All 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 levels of neutral scores are low across the statements; and
- The significance of the differences is tested and shown in the table.

As per the statistics in Table 5.40 and mentioned above, there are significant levels of agreement that student-centred assesments could contribute positively to students' motivation, confidence, focus and encourage interaction between peers and lecturers.

5.3.6.5 Type of questions to be used for test and examination purposes

This section is designed to determine staff's view on the percentage of knowledge acquisition or application and critical thinking questions to be used in a test and/or examination. Table 5.41 below summarises the scoring patterns.

Table 5.41 Types of questions to be used for test and examination purposes

		Less than 50%		At least 50%		Chi Square p-value
		Count	Row N %	Count	Row N %	
Fill in the blank; matching; multiple choice; one or two sentence responses; true/false	B11.1	52	80,0%	13	20,0%	< 0.001
Case studies; essays; short answers	B11.2	14	21,5%	51	78,5%	< 0.001
Questions that test knowledge	B12.1	30	46,2%	35	53,8%	0,535
Questions that test critical thinking	B12.2	5	7,7%	60	92,3%	< 0.001

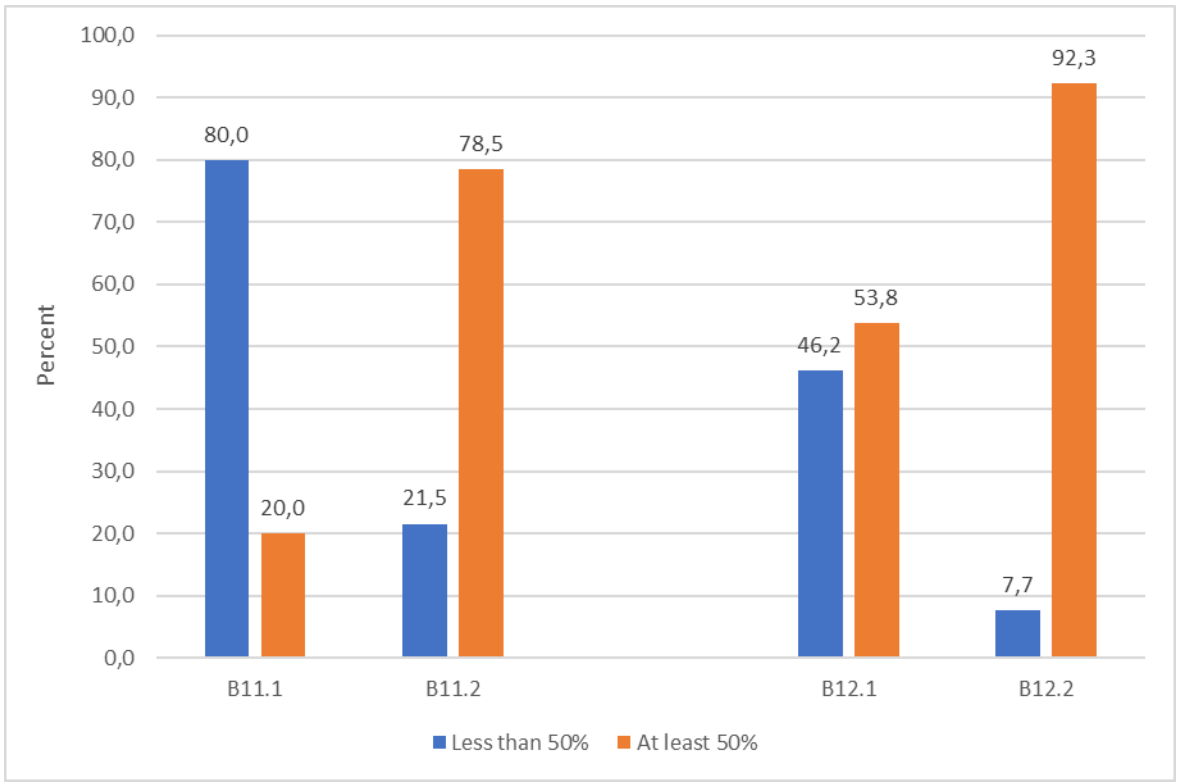


Figure 5.14 Types of questions to be used for test and examination purposes

As per the statistics in Table 5.41 and reflected in Figure 5.14, there was a significant level of agreement that at least 50% of tests and examination papers should consist of critical thinking (92.3%). Moreover, 80% of the staff believed that fill in the blank; matching; multiple choice; one or two sentence responses; true/false questions should constitute less than 50% of test and examination papers.

5.3.6.6 Usefulness of particular questioning types in assessing content

This section is designed to determine staff's view on how useful particular question types may be in assisting with the testing of content and acquisition of knowledge. Table 5.42 below summarises the scoring patterns.

Table 5.42 Usefulness of particular questioning types in assessing content

		Not at all useful		Not at all useful		Somewhat useful		Very useful		Extremely useful		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Fill in the blank; matching; multiple choice; one or two sentence responses; true/false	B13.1	5	7,7%	17	26,2%	22	33,8%	15	23,1%	6	9,2%	0,002
Case studies; essays; short answers	B13.2	2	3,1%	1	1,5%	13	20,0%	24	36,9%	25	38,5%	< 0.001
Questions that test knowledge	B13.3	1	1,5%	6	9,2%	16	24,6%	22	33,8%	20	30,8%	< 0.001
Questions that test critical thinking	B13.4	0	0,0%	3	4,6%	1	1,5%	15	23,1%	46	70,8%	< 0.001

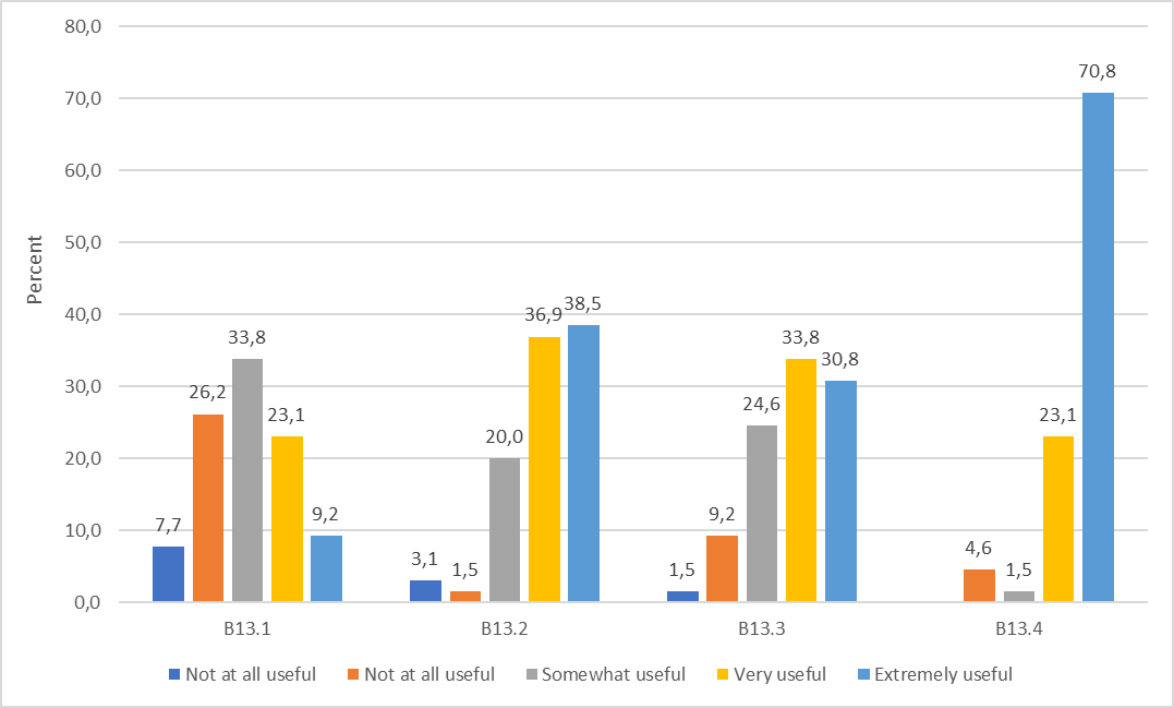


Figure 5.15 Usefulness of particular questioning types in assessing content

As per the statistics in Table 5.42 and reflected in Figure 5.15, there was a significantly high level of agreement that questions testing critical thinking were the most useful (70.8%) as compared to fill in the blank; matching; multiple choice; one or two sentence responses; true/false questions (9.2%).

5.3.6.7 Challenges associated with attempting student-centred assessment in a face-to-face/contact class

This section is designed to determine if lecturers experienced any challenges associated with conducting student-centred assessments during contact/face-to-face classes. Table 5.43 below summarises the scoring patterns.

Table 5.43 Challenges associated with attempting student-centred assessment in a face-to-face/contact class

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Rigid syllabus that does not allow for the student-centred approach and flexibility	B15.1	1	1,5%	24	36,9%	12	18,5%	25	38,5%	3	4,6%	< 0.001
Heavy teaching load	B15.2	0	0,0%	5	7,7%	6	9,2%	26	40,0%	28	43,1%	< 0.001
Insufficient academic staff in my department	B15.3	0	0,0%	3	4,6%	23	35,4%	23	35,4%	16	24,6%	< 0.001
Lack of academic support from CELT	B15.4	5	7,7%	19	29,2%	23	35,4%	14	21,5%	4	6,2%	0,001
Lack of knowledge and skills about student-centred assessment	B15.5	5	7,7%	16	24,6%	21	32,3%	21	32,3%	2	3,1%	< 0.001
Large class sizes	B15.6	0	0,0%	3	4,6%	6	9,2%	21	32,3%	35	53,8%	< 0.001
Low morale in myself	B15.7	10	15,4%	24	36,9%	14	21,5%	11	16,9%	6	9,2%	0,007
Pressure to complete the syllabus	B15.8	3	4,6%	5	7,7%	13	20,0%	29	44,6%	15	23,1%	< 0.001
Too much administration	B15.9	1	1,5%	0	0,0%	4	6,2%	20	30,8%	40	61,5%	< 0.001

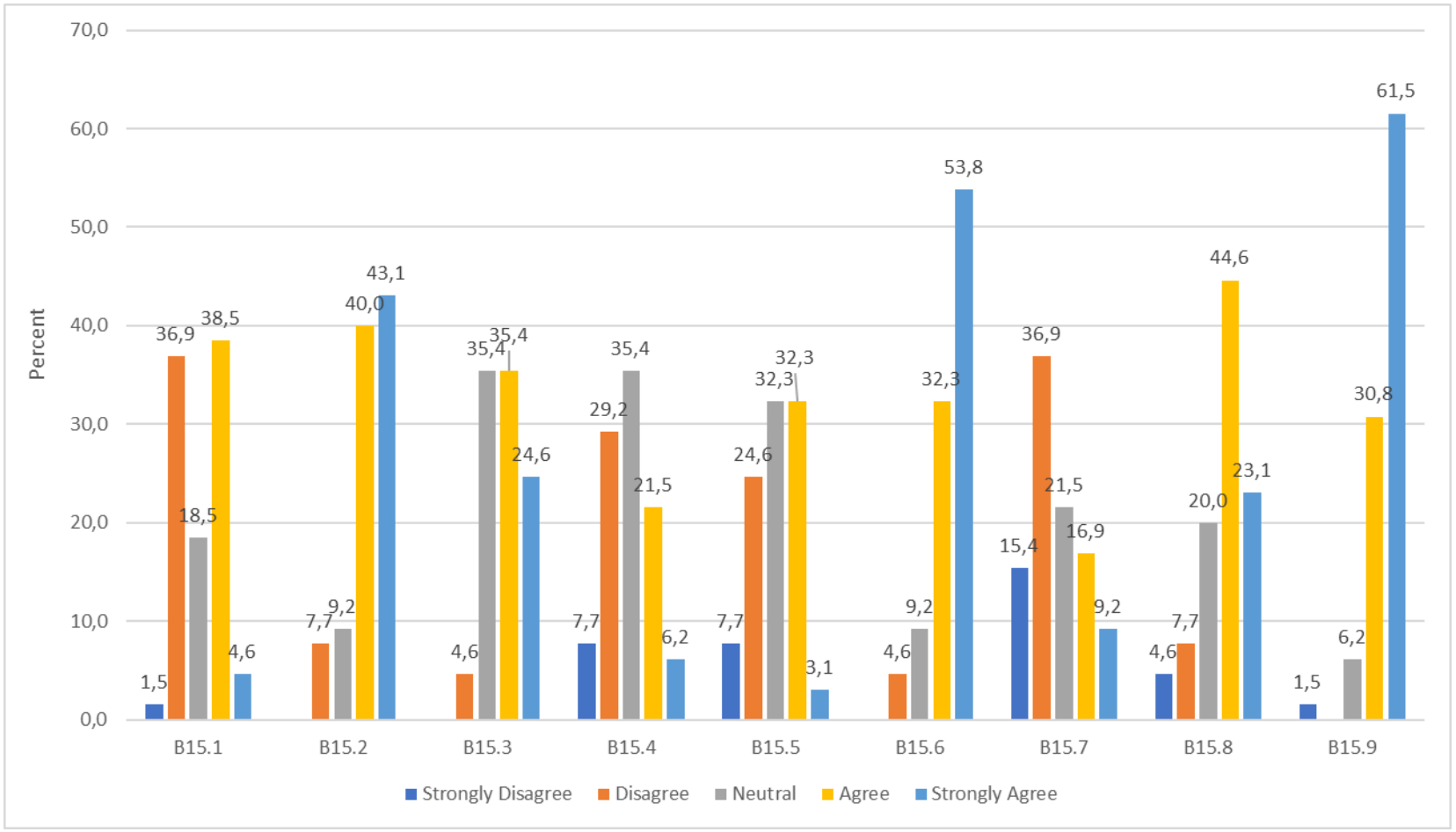


Figure 5.16 Challenges associated with attempting student-centred assessment in a face-to-face/contact class

As per the statistics in Table 5.43 and reflected in Figure 5.16, there was a significantly high level of agreement in certain questions associated with the challenges experienced in attempting student-centred assessments. Staff have indicated that all the aspects listed under this item had been challenging. However, the most challenging aspect was too much administration 92.3% (strongly agree 61.5%, agree 30.8%), large class sizes 86.1% (strongly agree 53.8%, agree 32.3%), heavy teaching load (83.1% (strongly agree 43.1%, agree 40%) pressure to complete the syllabus 67.7% (strongly agree 23.1%, agree 44.6%) and insufficient academic staff in the department 60% (strongly agree 24.6%, agree 35.4%).

A follow-up question to the challenges associated with attempting student-centred assessment in a face-to-face/contact class (B15) interestingly identified further challenges that were shared by the lecturing staff. Venue constraints (both office space and lecture venues) are not conducive to teaching, learning and assessment needs, as well as poor infrastructure and insufficient resources.

Staff 10

"Lecture venues either being too small for the number of students as well as the venues not being conducive to TLAs."

Staff 15

"Data issues with students, lack of an office working environment as I work in a 'make-shift' space shared with another staff member. No plug point, network point, proper lighting or even space to move around or store files. Very tiny make-shift office space that does not allow even a student consultation in privacy or any meeting in confidential. ZERO social distancing in my 'office' space."

Staff 41

"Lack of facilities for teaching, learning and assessment such as working data projectors, mics, well ventilated venues with good lighting and seats. Our venues are just so outdated and under-resourced."

Staff indicated that there was a significant increase in absenteeism (contact classes) due to students being accustomed to on-line learning.

Staff 16

"On-line learning has promoted absenteeism among students in terms of participation in class and on-line quiz. This means as a lecturer you cannot really be able to implement teaching and learning strategies successfully."

Findings further highlighted that staff perceived students as lacking critical thinking and responsibility for learning. In addition, **staff 44** mentioned, *"Poor assessment practices in the initial years can hinder the success rates of student-centred assessment practices in later years".*

5.3.6.8 On-line assessment tools available on DUT's LMS

This section relates to the use of on-line assessments during the Covid-19 pandemic. The intention of this section was to gauge whether staff found on-line assessment tools as a mechanism to promote learning and if it allowed for a variety of questioning styles. This section also aims to determine if DUT's LMS tools, such as Moodle and MS Teams, were easy to use for assessment purposes, and whether adequate training and technical support were offered. Table 5.44 below summarises the scoring patterns.

Table 5.44 On-line assessment tools available on DUT's LMS

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
DUT's on-line LMS tools, i.e. Moodle and MS Teams were easy to understand in order to engage in multimodal assessment	B17.1	1	1,5%	2	3,1%	6	9,2%	39	60,0 %	17	26,2 %	< 0.001
Sufficient training on designing on-line assessment was offered on Moodle and MS Teams	B17.2	0	0,0%	10	15,4 %	12	18,5 %	33	50,8 %	10	15,4 %	< 0.001
TLZ technical support was useful	B17.3	1	1,5%	8	12,3 %	17	26,2 %	30	46,2 %	9	13,8 %	< 0.001
On-line assessments were simple to administer	B17.4	0	0,0%	9	13,8 %	10	15,4 %	36	55,4 %	10	15,4 %	< 0.001
On-line assessments allowed for different types of questions	B17.5	2	3,1%	6	9,2%	12	18,5 %	34	52,3 %	11	16,9 %	< 0.001
On-line assessments promote learning and identify learning needs	B17.6	8	12,3 %	7	10,8 %	16	24,6 %	26	40,0 %	8	12,3 %	< 0.001
Assignments, quizzes and wikis were uncomplicated to design	B17.7	3	4,6%	8	12,3 %	8	12,3 %	37	56,9 %	9	13,8 %	< 0.001
It was simple to upload assessments	B17.8	2	3,1%	4	6,2%	7	10,8 %	40	61,5 %	12	18,5 %	< 0.001
It was difficult to use the different assessment tool features	B17.9	10	15,4 %	27	41,5 %	15	23,1 %	12	18,5 %	1	1,5%	< 0.001
It was easy to unblock a student during a test, allowing a student a second attempt if the student was removed from the assessment in error	B17.10	3	4,6%	11	16,9 %	19	29,2 %	26	40,0 %	6	9,2%	< 0.001
Marking was uncomplicated	B17.11	4	6,2%	8	12,3 %	6	9,2%	33	50,8 %	14	21,5 %	< 0.001
Moderation was easy manage	B17.12	4	6,2%	9	13,8 %	14	21,5 %	26	40,0 %	12	18,5 %	< 0.001

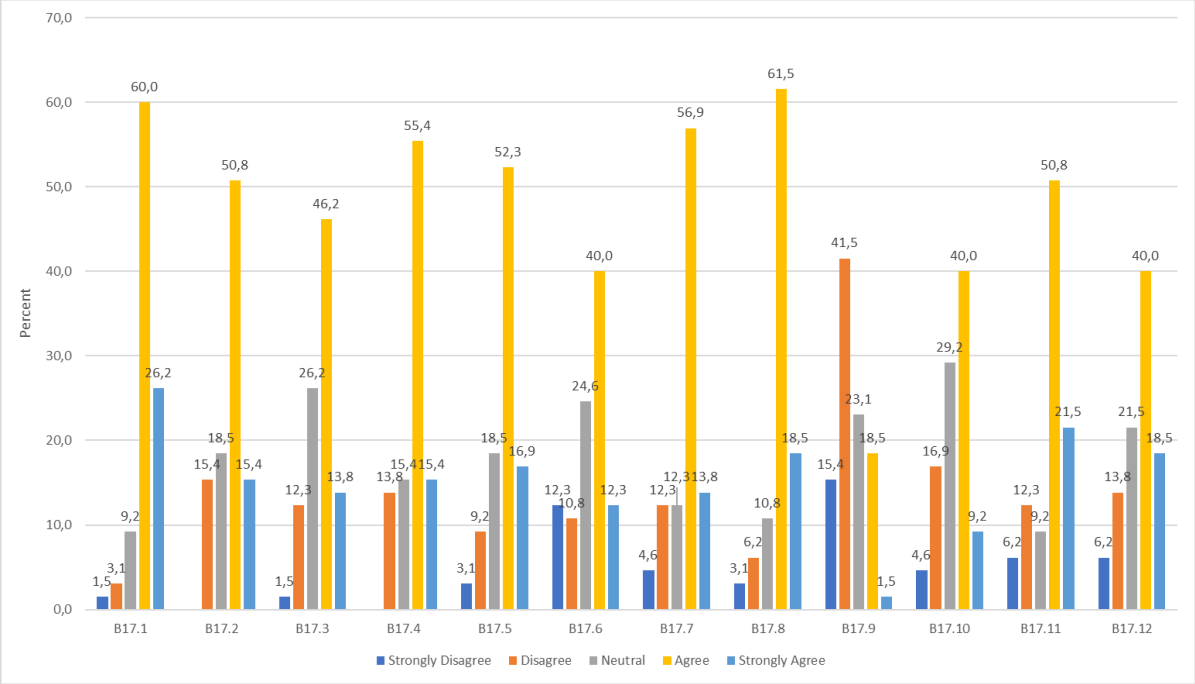


Figure 5.17 On-line assessment tools available on DUT's LMS

The statistics in Table 5.44 revealed that there was a higher level of agreement in aspects associated to on-line assessments. As reflected in Figure 5.17, staff identified on-line assessments as a tool that could promote learning, was easy to use, and allowed for a variety of questioning styles. In addition, data indicated relatively high levels of agreement that the LMS, which is Moodle, was easy to use with adequate technical support and staff training.

5.3.6.9 Frequency of feedback

This section intended to identify how often students are given feedback. For this question, the chi-square goodness-of-fit-test was used to test whether any of the response options are selected significantly more/less often that the others. Table 5.45 below summarise the scoring patterns.

Table 5.45 Frequency of feedback

	Responses as Frequency (%)				X^2	df	p-value
	Within one week	**Within two weeks**	**Within three weeks**	**More than three weeks**			
Indicate which of the following options generally applies to you regarding the time it takes you to give students feedback to assessments	21 (32.3%)	29 (44.6%)	12 (18.5%)	3 (4.6%)	23.308	3	<.001*

As per Table 5.45, a significant 76.9% give feedback to students within one or two weeks (1 week 32.3%; 2 weeks 44.6%).

5.3.6.10 Methods of feedback

This section details the different types of feedback, whether it is general or personal feedback. Table 5.46 below summarises the scoring patterns.

Table 5.46 Methods of feedback

		Never / very rarely		Rarely		Occasionally		Often		Very often / always		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Personal feedback to a student, highlighting his/her strengths and weaknesses regarding his/her understanding and application of knowledge	C19.1	0	0,0%	10	15,4%	26	40,0%	20	30,8%	9	13,8%	0,006
Commenting on scripts or assignments	C19.2	0	0,0%	1	1,5%	12	18,5%	35	53,8%	17	26,2%	< 0.001
Providing general comments in class	C19.3	0	0,0%	1	1,5%	6	9,2%	25	38,5%	33	50,8%	< 0.001

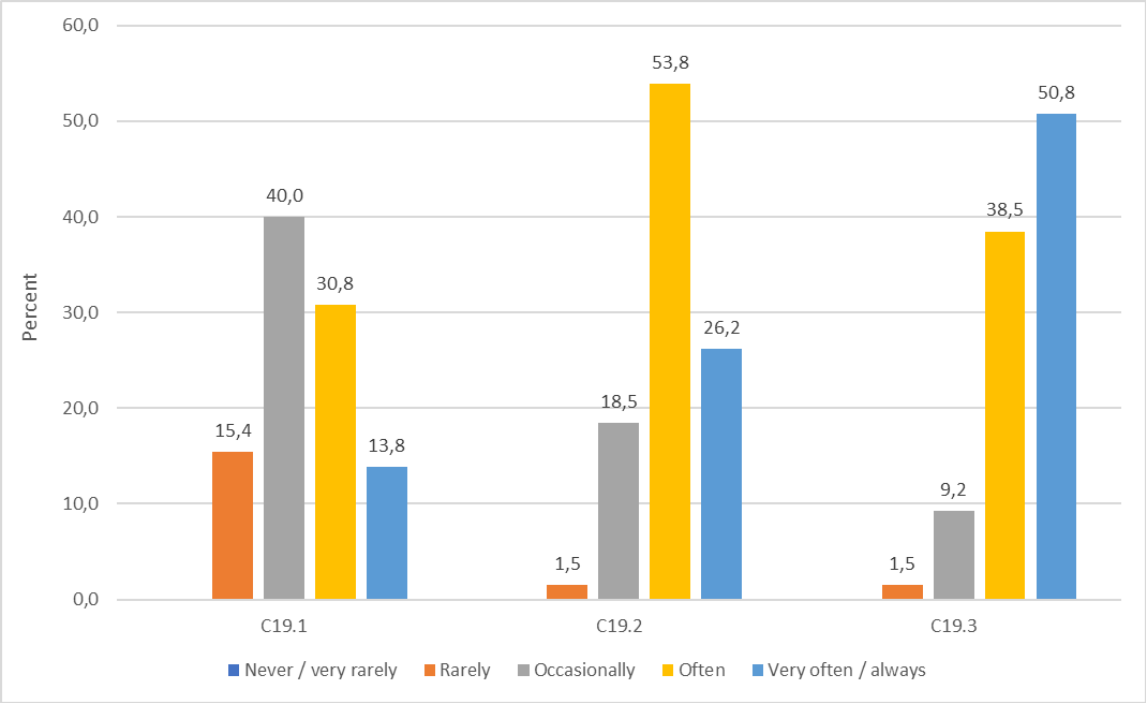


Figure 5.18 Methods of feedback

Table 5.46 and Figure 5.18 indicated that there was a strong usage of feedback in the form of commenting on scripts at 80% (Often 53.8; Very often/always 26.2) and providing general comments in class at 89.3% (Often 38.5; Very often/always 50.8), as compared to personal feedback (44.6%) (Often 30.8; Very often/always 13.8).

5.3.6.11 Training and development in student-centred assessment methods

This section is designed to determine whether lecturers have been provided with sufficient training in conducting student-centred assessment and if the training times accommodate the lecture schedule of the staff. Table 5.47 below summarises the scoring patterns.

Table 5.47 Training and development in student-centred assessment methods

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Chi Square p-value
		Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	
Regular teaching, learning and assessment training / development programmes are available for me to attend, should I wish to	D20.1	1	1,5%	4	6,2%	14	21,5 %	42	64,6 %	4	6,2 %	< 0.001
I am informed in good time about training and development programmes	D20.2	1	1,5%	9	13,8 %	17	26,2 %	33	50,8 %	5	7,7 %	< 0.001
Training programmes are generally scheduled when I am available	D20.3	8	12,3 %	26	40,0 %	19	29,2 %	12	18,5 %	0	0,0 %	0,009
It is easy to obtain funds to attend training	D20.4	11	16,9 %	18	27,7 %	25	38,5 %	10	15,4 %	1	1,5 %	< 0.001
The training programmes offered assist in improving teaching and assessment methods	D20.5	3	4,6%	6	9,2%	18	27,7 %	34	52,3 %	4	6,2 %	< 0.001
The training and development programmes are relevant to my needs	D20.6	3	4,6%	7	10,8 %	22	33,8 %	27	41,5 %	6	9,2 %	< 0.001

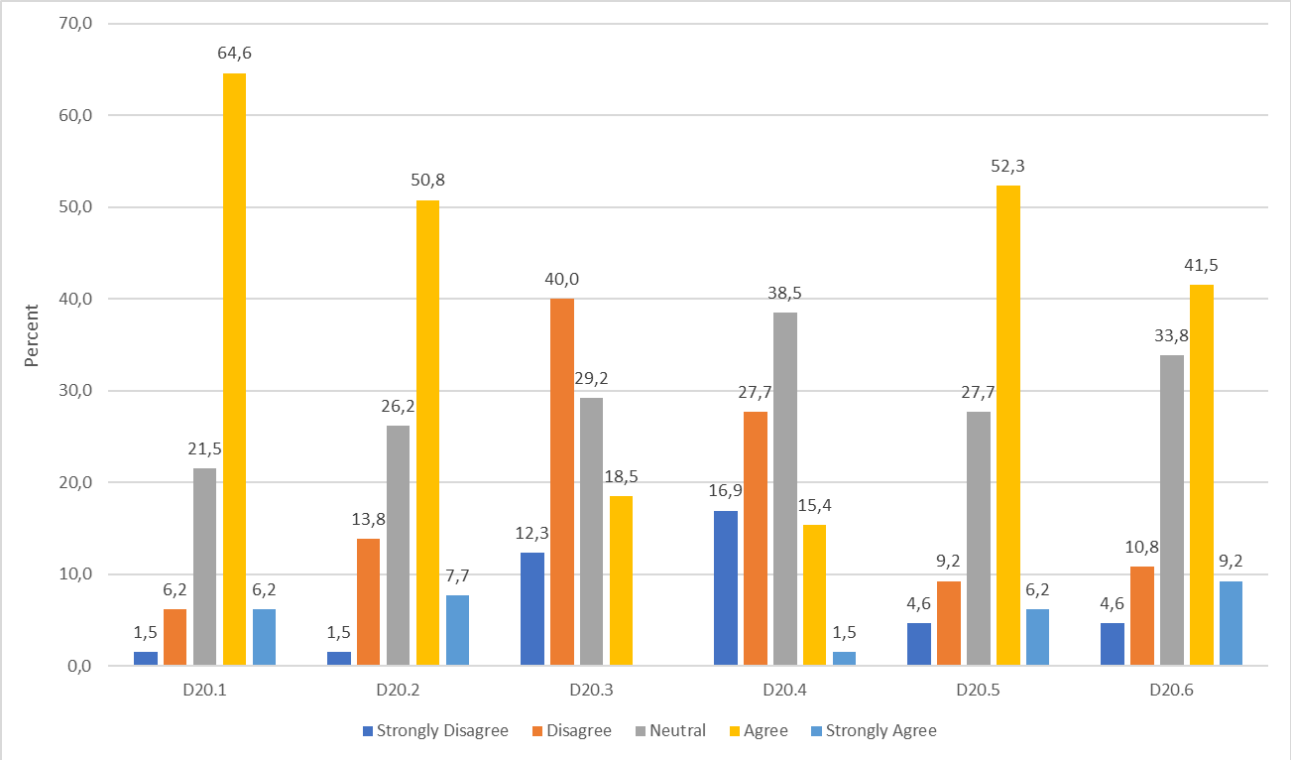


Figure 5.19 Training and development in student-centred assessment methods

The statistics from Table 5.47 as seen in Figure 5.19, revealed that there is regular training provided (64.6%), which improves teaching and assessment methods (52.3%) and are relevant to the needs of staff (41.5%). Staff are informed in advance (50.8%), but there are significantly high scores of disagreements indicating that staff are generally unavailable during that time-frame at 52.3% (disagree 40%; strongly disagree 12.3%) and it is easy in obtaining funds to attend training, which equates to 44.6% (disagree 27.7%; strongly disagree 16.9%).

5.3.7 Open-ended questions

The following are the open-ended questions found in Section D of the staff questionnaire.

5.3.7.1 Critical thinking is an important skill that students should build on. Please share how you would encourage critical thinking.

The predominant themes that have surfaced from the staff findings were the use of case studies, including scenario-based questions based on real-life contexts.

Staff 1

"Use of Case studies."

Staff 7

"I would teach a concept and give student's scenario based questions to evaluate their ability to apply the concept in this scenario."

Staff 9

"I require students to work on case studies, analysing and providing solutions to problems. I also require students to work in groups so that they can assist each other in the learning process and develop their own skills as well. I encourage students to ask questions and always look at opportunities available in real life to understand situations and problems."

The alignment and application of knowledge was seen as a critical component in enhancing critical thinking.

Staff 17

"Create assessments based on application of knowledge learnt."

Staff 37

"Practical examples that students may relate to and questions that require using content knowledge to address real-world problems can promote critical thinking."

According to the findings, critical thinking could also be stimulated through project-based learning.

Staff 36

"Through Project Based Learning."

Interestingly, the findings also revealed that self-reflection of assessments and being involved in the decision-making process regarding assessments were seen as important aspects in prompting critical thinking.

Staff 62

"*Ask students for their opinions and decision making."*

5.3.7.2 What type of assessment strategies can encourage and develop collaborative learning? Please explain.

Group work, group projects, group presentations and peer assessment have come across strongly as assessment tools that can assist students to engage in collaboration. In addition, staff indicated that students should be monitored in order to ensure that they have contributed to assessments that require group collaboration, as well as students being placed in groups by the lecturer in order to allow students to adapt and work with different students.

Staff 21

"Group assignments, group presentations, group projects, etc. as long as all students contribute in the assessment."

Staff 25

"*Role-play, simulation and group discussions."*

Staff 45

"*Peer assessments - get them to assess each other's work and provide feedback. This promotes critical thinking and collaborative learning."*

Staff 61

"Deliberately select which students will work together. Teach your students how to listen to one another. Make goals and expectations clear."

5.3.7.3 How can student engagement be encouraged through assessment?

Interestingly, the shared opinions of staff indicate similar tasks as indicated in the previous question regarding the development of collaboration. This included case studies, group work and presentations.

However, feedback about assessments has come across very strongly as compared to the previous question.

Staff B9

"By giving them feedback as soon as possible. Writing enough on their scripts and then generalizing in the lectures. Availability of a lecturer for consultation."

The importance of involving students in the assessment process by allowing students to provide their input about assessments and provide students with different assessment options was highlighted.

Staff 12

"Providing students with assessment options. Bringing students into the planning conversations around classroom-based assessment."

Apart from the assessment process, staff indicated that involving students in the learning process will eventually feed into the assessment process. Hence, the inclusion of students in learning through class activities is seen as significantly important.

Staff 20

"By stimulating students in class. Engaging students in the learning process increases their attention and focus, motivates them to practice higher-level critical thinking skills, and promotes meaningful learning experiences. Which then encourages them through assessments."

5.4 Correlations

As conducted in the student data, a bivariate correlation was also performed on the (ordinal) data. The results are found in Appendix H. These 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 correlation value between "Centred within real-life contexts" and "Case studies" is 0.258. This is a directly related proportionality. Respondents indicated that case studies should be related to real-world problems and challenges. This would assist students to practically apply knowledge that has been acquired.

"Understanding learning content" and "Promote learning and identify learning needs" is 0.564. Understanding the content of the module and making sense of it is very important as respondents indicated since this allows students to identify areas that require attention.

"Self-assessment" and "Increases responsibility and commitment of the student" is 0.536. This is indicative that self-assessment is student-centred and allows students to take responsibility for learning.

"End of term or semester final exams" and "case studies" is 0.246. This suggests that exams should include questions that allows one to identify issues within a case and apply knowledge.

“Class discussions” and “solving practical problems” is 0.450. An appropriate method to engage students and present solutions to problems can be conducted through class discussions, hence allowing students to “voice” their ideas. This assists the lecturer by ascertaining what the student understands and how they apply knowledge.

“Students present recommendations about assignment choices and course activities” and “Increases responsibility and commitment of the student” is 0.289. The respondents indicated that students being involved in assessment and course activities prompts their interests, increases their engagement and builds their responsibility for learning since they were contributors towards the selecting of activities and assignment choices.

5.5 Conclusions

Similar to the student findings, the summary of statistics indicated significant levels of agreement in terms of the purpose of assessment and its influence in promoting learning and knowledge acquisition. Staff have indicated their level of agreement with different assessment methods, activities and questioning styles. In addition, staff perceptions regarding student-centred assessments were reviewed and challenges that contributed in implementing student-centred activities and assessments. The next chapter will review the findings from the document analysis.

6 CHAPTER SIX
DOCUMENT ANALYSIS

6.1 Introduction

The previous chapter addressed the findings from the student and staff questionnaires. This chapter provides an analysis of organisational, institutional and programme documents pertaining to assessment at the Durban University of Technology.

As mentioned in the methodology (Chapter 4), the following current institutional documents were reviewed for this study:

- DUT's Assessment Policy (2019),
- DUT's Learning and Teaching Strategy (2020),
- Curriculum Renewal at DUT: General Education Guidelines (2012),
- E-learning Policy (2016),
- DUT's ENVISION2030 Strategy, and
- Assessment papers, study guides and module descriptors from the departments of the target population (2019 - 2022).

These policies and documents were explored in order to provide an insight into the promotion of or intention to promote student-centred assessment. In addition, to ensure anonymity as explained in Methodology (Chapter 4), random labels have been given to the four programmes.

6.2 Prioritising the development of student-centredness

Globally, the factors that influenced the introduction of student-centredness include a perceived need to enhance student engagement and the demands of '21st century skills', which in turn were influenced by globalisation and the increasing involvement of government and institutional bodies in educational agendas. These factors encouraged

the paradigm shift from a teacher-centred approach to a student-centred approach, as well as causing changes in education policies.

The institutional documents of DUT, which include the Assessment Policy (AP), Learning and Teaching Strategy (LTS) and the General Education Guidelines document, are evident of the global influences and current trends in Higher Education advocating a shift in teaching, learning and especially assessment, since assessment informs learning (Durban University of Technology 2012: 1; 2019: 2; 2020b: 1). The purpose of these institutional documents is to provide and influence strategies that develop students in the national and global environments. In addition, these policies encourage autonomy, critical thinking, problem-solving and self-regulated students who take responsibility for their learning.

Assessment Policy

"The policy further seeks to influence and shape practice by foregrounding assessment strategies that require students to think critically about academic issues and problems and to explore a variety of approaches to solving problems in discipline- or profession-specific contexts." (Durban University of Technology 2019: 2)

Learning and Teaching Strategy

"DUT seeks to produce graduates who are sufficiently knowledgeable and skilled to function effectively in their chosen professions in national and global contexts alike, and who will be well-rounded, critically thinking citizens with the requisite intellectual flexibility to take full responsibility for their own intellectual growth and ongoing learning." (Durban University of Technology 2020b: 1)

Curriculum Renewal at DUT: General Education Guidelines

"DUT"s curriculum and pedagogy must be intentionally designed to prepare our graduates for employment, while simultaneously preparing them for critical citizenship in an emergent and still fragile democracy." (Durban University of Technology 2012: 1)

6.3 Espoused approaches embedded in institutional documents to develop autonomy, communication, collaboration, critical thinking, creativity and problem-solving

This section describes the intention of the various DUT institutional documents in attempting to promote autonomy, communication, collaboration, critical thinking, creativity and problem-solving. These skills, which have become known as 21st century skills, are seen as important graduate skills (Al-Gaseem, Bakkar and Al-Zoubi 2020: 898). Scholars further explain that these skills can be developed through the use of student-centred assessment methods as explained in the literature review, section 3.3.2. As described in the theoretical framework (Chapter 2), these skills are dependent variables.

6.3.1 Assessment Policy (AP)

DUT's Assessment Policy clearly highlights the importance of student-centredness as part of the organisational culture that "informs and pervades" all policies, rules and procedures of the institution, as well teaching, learning and assessment (Durban University of Technology 2019: 2). This is consistent with the literature in Chapter three regarding the paradigm shift to a student-centred approach (No. 3.2), which emphasises the adaptation of student-centredness in teaching, learning and assessment.

The DUT Assessment Policy envisages this change through the following (2019: 3):

- *To offer a regulatory framework that facilitates and frames learning through the provision of explicit, accurate and usable feedback to students in order to enable them to take responsibility for their own learning.*
- *To develop students' reflection on, and self-monitoring of the quality of their own work.*
- *To ensure progression of DUT students through their learning programmes in accordance with the academic rules of the university.*

- *To encourage academic staff to use various assessment strategies for the purpose of enriching their own teaching and to provide their students with opportunities for self-directed learning and self-assessment.*
- *To foster an attitude of scholarly inquiry (research of practice) on the part of academics (staff members) into assessment as a tool for enhancing the quality of student learning.*

The AP has highlighted that students need to be autonomous learners and lecturers should use assessment strategies that can develop these skills. Emphasis has been placed on assessment as a mechanism to develop and improve student learning.

Interestingly, the General Education guidelines document embraces a similar concept and positions graduate attributes as the vehicle for assisting students to achieve the abovementioned skills.

6.3.2 Learning and Teaching Strategy (LTS)

DUT's Teaching and Learning Strategy and Strategic Plan (ENVISION2030) are guided by the South African National Development Plan 2030 that was authored by the National Planning Commission (NPC) in 2012 (Durban University of Technology 2020b: 2). In addition, DUT shares the viewpoints of the Department of Higher Education and Training (DHET) and the Council on Higher Education (CHE) 2018 framework for enhancing academics as university teachers.

LTS policy clearly stipulates that the learning and teaching strategies are established on the generic pedagogical principles of problem-based learning, reflective practice, action research, communities of practice, connectivism and constructivism (Durban University of Technology 2020b: 4). The first four pedagogical principles are discussed under assessment types in the literature review (Chapter 3) and the latter two in the theoretical framework (Chapter 2).

DUT's Learning and Teaching Strategy was intended to provide guidelines to enhance students' learning experience with the relevant teaching approaches that are specifically

aligned with assessment. The LTS clearly highlights the importance of assessment as an integral part of learning. Hence, there must be an alignment with teaching, learning and assessment practices.

"The LTS highlights the importance of adopting an approach that highlights connections between what is taught how students learn and the role of assessment in enhancing the quality of both learning and teaching." (Durban University of Technology 2020b: 5)

Assessment is seen as a mechanism to enhance quality teaching and learning. This is envisaged by placing specific measures in place to assist in achieving such aims. These include providing academics with development and training in order to improve their area of expertise in teaching and learning. Furthermore, methods adopted in teaching and learning to enhance student learning must be connected to the different approaches to assessment. Feedback is also mentioned as an important tool in formative assessment.

"provide ongoing professional development focusing on the various aspects of the scholarship of teaching and learning (SoTL)…promoting student learning based on learning outcomes and to link these with approaches to assessment…" (Durban University of Technology 2020b: 5)

"The university will encourage academic staff to select appropriate methods of teaching and promoting student learning based on learning outcomes and to link these with approaches to assessment." (Durban University of Technology 2020b: 5)

"Assessment will be used primarily to facilitate learning through timely and meaningful feedback to students on assigned formative assessment tasks. (Durban University of Technology 2020b: 5)

Lastly, the document underlines graduate attributes as being important in developing students who are prepared to engage in both local and global environments.

6.3.3 General Education Guidelines document

The General Education Guidelines are intended to be instrumental in placing "student-centredness and DUT as a locally engaged higher education institution at the centre within a wider global context (Durban University of Technology 2012)". This is envisaged with the development of graduate attributes that are aligned to specific outcomes.

These outcomes are intended to assist students in acquiring skills, attitudes and capacity in knowledge. The outcomes are related to student-centredness and the 21st century skills, as follows (Durban University of Technology 2012: 3):

1. *Intellectual and practical skills, including written and oral communicative competence in English, Mathematical and/or quantitative reasoning, analytical and critical inquiry and technology applications.*
2. *Innovative and creative initiative, including entrepreneurship and leadership.*
3. *Understanding and appreciation of diversity within a local and global context.*
4. *Social responsibility, including understanding of the physical and natural world and ethical reasoning in dealing with complex societal challenges and dilemmas.*
5. *Personal development, including self-awareness, self-directed and life-long learning.*
6. *Integrative learning strategies across general and chosen fields of study.*

The General Education Guidelines emphasise the importance of the assessment plan and the inclusion of the above objectives.

"Assessment plans should include measurement of General Education outcomes." (Durban University of Technology 2012: 4)

In addition, the graduate attributes must be aligned to the objectives. There are five broad categories of graduate attributes, namely Basic Proficiency and Competencies, Innovation, Social Responsibility, Personal Development and a Broad understanding of their chosen discipline and/or profession. These graduate attributes have been included in the study guides for all modules in the programme offerings at DUT.

6.3.4 E-learning Policy

DUT's E-learning Policy, Learning and Teaching Strategy Policy and Envision Strategy Map 2030 clearly indicate the importance of a Learning Management System (LMS) and the use of a digital environment that promotes innovative teaching, learning and assessment since it is intended to improve the calibre of graduates (Durban University of Technology 2016: 3; 2020a: 2; 2020b: 8). In addition, the Assessment Policy, emphasises the relevance of a digital platform and refers to it as being student-centred since it can be used to enhance "self-regulated and independent thinking" (Durban University of Technology 2019: 2).

DUT's E-learning Policy identifies e-learning as a tool that can assist with the growth of graduate attributes, which include workplace adaptability and competency in information and communication technology (ICT) skills (Durban University of Technology 2016: 3). Hence, DUT intends to make e-learning a standard part of its pedagogical practices.

"The University aims to embed e-learning as a core teaching and learning practice. E-learning, as an integral feature of programme design, and the general approach to learning, teaching and assessment, promotes the development of all graduate attributes, in particular workplace adaptability, proficiency in technology applications and information literacy. The pedagogical principles underlying the promotion of e-learning relate to student-centredness, and to self-directed and life-long learning." (Durban University of Technology 2016: 3)

6.4 Strategies to develop student-centred assessment

This section is intended to identify the strategies that DUT has developed in order to influence the use of student-centred assessments and activities. The researcher reviewed the study guides, module descriptors and other pertinent documentation, as listed above and in the methodology (Chapter 4).

6.4.1 Graduate attributes in assessments

For this study, the module descriptors and study guides for the Diplomas in Accounting, Business and Information Management, Information and Communication Technology in Application Development Information and Communication Technology in Business Analysis were reviewed, as explained in the methodology (Chapter 4).

Instead of broad categories, each of the module descriptors and study guides reviewed included specific graduate attributes. The word cloud below in Figure 6.1 is a diagrammatic interpretation developed in Nvivo, highlighting the graduate attributes that formed part of the module descriptors and study guides.

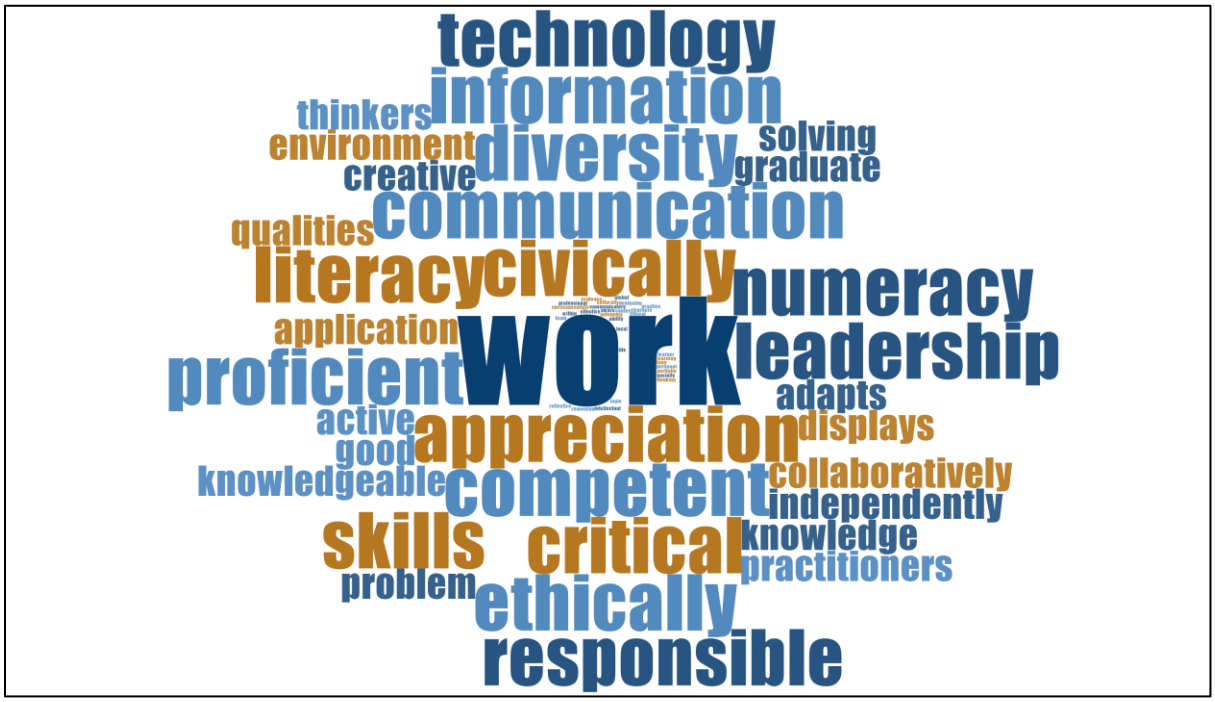


Figure 6.1 Graduate attributes in module descriptors and study guides

Figure 6.1 presents the results of the themes that emanated when analysing the study guides and module descriptors using the word frequency option in NVivo. The themes were grouped into the five broad categories of graduate attributes as specified in the General Education Guidelines document. As per Figure 6.1, the graduate attributes that

were dominant in these four programmes included problem-solving, critical thinking, leadership qualities, ethical and civically responsible, active and reflective learners, effective communicators and competence in information literacy. This resulted in 63 items being selected. The displayed words were limited to 300 words. The minimum length of three words was selected to ensure that the data generated projected the true results.

6.4.2 Maintaining values in assessment

The DUT Assessment Policy also makes mentions of values, which DUT has identified as relevant in assessment practices to build capacity in students and develop them into life-long learners.

"All modules (and where applicable short courses offered by the university) must be assessed in such a way that students are afforded the opportunity to reflect on the ethical principles, values and personal qualities that are necessary for success in their lives as citizens and professionals who are life-long learners." (Durban University of Technology 2019: 2)

In the Assessment Policy, the values have not been specific. However, it has provided an overview of what assessments should attempt to accomplish in students. The DUT ENVISION2030 Strategy Map has however underlined specific values, namely Transparency, Honesty, Integrity, Respect and Accountability. These values are based on the principles of Fairness, Professionalism, Commitment, Compassion and Excellence (Durban University of Technology 2020a: 2).

The study guides in all four programmes emphasise the importance of professional, well-structured work that is not copied or plagiarised. In addition, assessments such as assignments and projects clearly highlight the plagiarism clause and integrity of work.

"Infringement of copyright and plagiarism are considered as serious offences at DUT." (Study guide B, pg 5)

Honesty, commitment and participation in group assessments are emphasised. If a student is part of a group and does not contribute, no mark will be awarded to the student. Moreover, in certain modules, minutes of group meetings are required as evidence. In addition, students are given marks for group work and individual contribution, whether it is a group assignment or a group presentation.

"Groups need to submit comprehensive minutes of all meetings including attendance of members. Failure to submit detailed minutes will result in a penalty." (Study guide C, pg. 8)

6.4.3 Learning, teaching and assessment strategies

The Assessment Policy clearly indicates that assessment strategies must influence students to think critically, apply knowledge and consider a range of solutions to challenges in contexts particular to their subject or profession (Durban University of Technology 2019: 2). In the AP, the policy does not specify the strategies that may be used. However, there is emphasis on its importance in advancing student learning.

The module descriptor and study guide for each programme clearly indicates the type of assessment strategies that will be adopted to enhance and develop student capability. The majority of the strategies are common amongst each programme. In addition, the assessment strategies are not isolated from teaching and learning but combined with it. These assessment strategies included the lectures itself, class discussions, personal enquiry and research, debates, assignments (individual and group), discussion groups, collaborative learning, co-operative learning, discovery-based learning, problem-based learning and self-learning. Interesting to note is that there are programmes that make a distinction in large and small classes. The strategies are different , whereby a large class uses lectures only, and the smaller groups can be accommodated by tutorials and independent study.

"Large class activities – lectures. Provision of time in class for discussion in home language to clear up confusion regarding important terms …" "Small group activities – tutorials, technology mediated learning; independent study." (Module descriptor A, pg 2)

Lastly, from 2019 to 2023, the assessment strategies in the study guide have remained the same, even during Covid-19.

6.4.4 Assessment activities

The findings from the study guides and module descriptors have indicated the assessment activities, namely research, application of theory to resolving a problem, scenario-based issues, working in a team and tutorials.

6.4.5 Types of assessment

The study guides from the various programmes indicate that the inculcation of these 21st century skills are part of the learning, teaching and assessment strategies. In addition, the guides suggest that the assessments are intended to elicit these skills from students. Assessments range from tests to examinations, projects, presentations, peer assessment and group assignments, and one of the modules adopted the continuous assessment method since it was a project-based module that was conducted in phases.

6.4.6 Different types of questions used in assessment

The test and examination question papers indicate a variety of questioning styles from multiple-choice questions to short answers, essays, case studies and application questions in all four programmes. In addition, one of the programmes has a project-based assessment with characteristics of a capstone course, which entails the application of knowledge for an industry-based problem, as required in the students' final year of study.

Peer assessment is used in one of the modules and is accounted for as a percentage of the student's mark. The study guides also suggest that self-reflection is important and allows students to take responsibility for their own learning. In addition, there are modules that allow students to select, develop and implement their own projects. However, the educator decides on the appropriateness of the project to the subject matter, which is

similar to Weimer's Five Key Changes to Practice that describes the "Balance of Power" as is explained in the Theoretical Framework (Chapter 2).

6.4.7 Feedback on assessments

Feedback on assessments is an important tool that will assist students to gauge their progress in terms of the understanding and application of content. Feedback that is timely and specific can assist with student development and responsibility of learning, as emphasized in DUT's Assessment policy and Learning and Teaching Strategy. The study guides and module descriptors indicate that feedback is important and that it should be timely. However, specific time-frames are not indicated.

To offer a regulatory framework that facilitates and frames learning through the provision of explicit, accurate and usable feedback to students in order to enable them to take responsibility for their own learning. (2019: 3):

Assessment will be used primarily to facilitate learning through timely and meaningful feedback to students on assigned formative assessment tasks. (Durban University of Technology 2020b: 5)

6.4.8 E-learning

The 2019 study guides of the four programmes indicate that e-learning or the LMS was not used that extensively, and in certain instances, the LMS was used as a repository. Methods of instruction and assessment were mainly contact or on-site. However, due to Covid-19, many changes have taken place since March 2020 in South Africa, whereby lectures and assessments have moved from onsite to on-line. In June 2020, DUT commenced with synchronous instruction, which is lectures being run in real-time, whereby academics and students attend lectures at the same time, irrespective of location, using MS Teams. In addition, there is asynchronous instruction, which allows for students to access course material at different times at their own convenience, using DUT's LMS, namely Moodle.

However, upon the return to campus in June 2022, all instruction and assessments are face-to-face. None of the study guides mention on-line assessments and instruction.

6.5 Conclusion

The findings from the document analysis provides an overview of the assessment methods, strategies and activities used within these programmes. The findings from the document analysis (qualitative), student and staff questionnaires (quantitative) will be triangulated in the discussion chapter in order to ensure accuracy and credibility. The discussion chapter will address aspects that relate to the theoretical and conceptual framework as well as the objectives of the study.

7 CHAPTER SEVEN
SUMMARY, DISCUSSION OF FINDINGS, CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS OF THE STUDY

7.1 Introduction

This chapter presents the findings from both the quantitative and qualitative results. These results are discussed within the context of the theoretical framework, conceptual framework and literature to guide and support the facts and arguments. The chapter follows up with conclusions, recommendations, and implications for the study.

The aim of this study was the 'Development of a framework for the provision of student-centred assessment in Higher Education'. The critical questions generated to meet the research objectives were:

i. What are the current student-centred assessment practices at DUT?
ii. What are students' perceptions of student-centred assessments at DUT?
iii. What are staff perceptions of student-centred assessments at DUT?
iv. Which learning theories are applicable to student-centred assessment?
v. What effective framework can be developed for the provision of student-centred assessment in Higher Education?

This study has contributed to the extant body of literature relating to student-centred assessments. The purpose of assessment in alignment with students' learning was investigated through the literature reviewed, findings from the student and staff questionnaires, and document analysis. The effect of student-centred assessment in developing and promoting 21st century skills, namely autonomy, communication, collaboration, critical thinking, creativity and problem-solving, were explored.

The findings of this study reveal that even though student-centred assessments are intended to elicit the abovementioned 21st century skills, there was limited usage of such assessment types due to the challenges that staff experienced.

The findings also express the potential value of student-centred assessments in developing students as life-long learners that have the capacity to participate in national and global environments. This is significant since the role of Higher Education (HE) has evolved over the years. Greater emphasis has been placed on HE in sustainable development, economic relevance, social empowerment and capacity building by equipping individuals with the relevant skills for the 21st century, as suggested by literature. In addition, the HEIs' position is becoming more accountable, all-encompassing and holistic (Doyle and Brady 2018: 305; Symaco and Tee 2019: 184).

As a result of local, national and global demands, HE efforts are to focus on equipping students with the necessary skills and competencies to compete in the global marketplace. Higher Education Institutions are seen as operating in a multi-faceted paradigm, whereby HEs principle function is to maximise talent and increase knowledge production (Hazelkorn 2018: 17) and to be quick and reactive to societal needs (Doyle and Brady 2018). The move towards these trends and inculcating such aspects are discussed below in relation to the critical questions of this study.

7.2 Discussion of findings

This section proffers discussions related to the findings and interpretations from the results. It deliberates on the relationships between the literature, theoretical frameworks, results from the staff and student questionnaires, and document analysis. The findings are discussed in relation to the critical questions generated from the objectives of the study.

7.2.1 Current student-centred assessment practices at DUT

The first critical question was generated to address the study's objective related to student-centred assessment practices at DUT. DUT's Assessment Policy (AP) is supportive of assessments that prepare students as life-long learners who will be essential in their professional capacity and life as a citizen (Durban University of Technology 2019: 2). In addition, DUT's Strategy Map statement of intent avers that the institution seeks to foster adaptive graduates that are able to adjust to change and apply practical knowledge, which is re-iterated in DUT's Learning and Teaching Strategy (LTS) that indicates the importance of encouraging the consolidation of theory and practice (Durban University of Technology 2020a: 2; 2020b: 3).

These aspects are congruent with scholars who suggest that a University of Technology is to prepare students for the workplace who are able to adapt and respond to the demands of the labour force; to apply knowledge to specific occupations; as well as have a sense of community engagement and place importance on research (Garraway and Winberg 2019: 56; Sabela and Masuku 2020: 22; Ntshoe and Malebo 2021: 136). These are hallmarks of the 21st century which DUT embraces and intends to foster through assessments. Assessments play an important role in providing students with an opportunity to apply knowledge and encourage active learning.

The Learning and Teaching Strategy clearly indicates the intention of DUT to create graduates that are able to participate nationally and globally (Durban University of Technology 2020b: 1). Correspondingly, this intention is indicated in the ENVISION2030 Strategy Map, which refers to graduates being "glocal citizens" who are able to contribute to progress, development or innovation at national and international levels (Durban University of Technology 2020a: 2). In order to participate as a "glocal" citizen, critical thinking skills and those that are associated with 21st century learning are required. DUT's Assessment policy intends to influence pedagogical practices by using assessment strategies that can encourage students to be critical thinkers, acquire problem-solving skills and apply knowledge, which are reflected in the study guides as well.

The section below will address the findings from the student's questionnaire in order to ascertain whether there is alignment with the information from DUT's institutional documents, as discussed above and in the document analysis (Chapter 6).

7.2.2 Students' and staff perceptions of student-centred assessments

Two critical research questions were generated from the second research objective: 'to explore students' and staff perceptions of their experiences of student-centred assessment at DUT'. These two critical questions were combined to note any agreement and disagreement that surfaced from the student and staff data in order to draw correlations and conclusions. The sub-sections below are an indication of the various aspects that are integrated in student-centred assessments.

7.2.2.1 Connection and application of knowledge between assessments and class activities

Both staff and student statistics indicate that assessments should drive teaching and learning, as discussed in the literature review (Chapter 3). Staff data agrees that assessments should be used as a tool to inform further learning needs; determine the types of questions to be designed for an assessment; and that students should be included in the discussion of future assessments. In addition, the importance of assessments being intertwined with teaching came across strongly in the staff data. This would include student-centred initiatives such as discussions, individual and group activities, as well as preparing a brief summary of a lecture for the lecturer within the classroom.

The findings from the student data indicate that students were in favour of activities that promote a connection in learning and the application of knowledge. Literature indicates that the connection between class interaction and assessments is of pivotal importance, which can be supported through student-centred initiatives. This is essential in developing and influencing student confidence, communication skills, increased engagement and autonomy (Rowley, Fook and Glazzard 2018: 36).

7.2.2.2 Effect of student-centred assessments

The staff findings revealed a high level of agreement that all student-centred assessments do assist in the achievement of long-term goals in student learning. This is further reiterated in the students' findings relating to assessment types and assessment activities that promote higher-order thinking. In the staff findings, peer assessment had achieved the highest score of 63.1 %. Even though staff data highly recommended the usage of peer assessment, the student data revealed that 25.2% of students have never participated in peer assessment and 16.5% have been assessed by a peer only once. This could be linked to the challenges underlined below.

The findings from the student data revealed that a variety of assessment methods have been used, which included group and individual assessments. These included reflective journals, presentations and individual assignments. However, quizzes (76.8), group assignments (55.2) and end of section/chapter tests (summative 46.5) were predominant.

From the findings, even though staff supported various student-centred assessment methods, only certain assessment types were used often by students as indicated in the student findings. This could be associated with the challenges that staff experience in attempting student-centred activities and assessments, as discussed in the literature review (Chapter 3).

In addition, the staff data revealed that the most challenging factors or barriers to the implementation of student-centred assessments and activities were too much administration (92.3%), large class sizes (86.1%), heavy teaching loads (83.1%) and pressure to complete the syllabus (67.7%), which is congruent with previous studies (Agili, Onditi and Monari 2018: 61; Musarat, Farhat and Isamar 2019: 38; Adamu, Tsiga and Zuilkowski 2020: 2; Aladawi 2020: 17; Jamiu and Yakubu 2020: 195; Trinidad 2020:1019). When further probed in an open-ended question, staff added that venues (both office space and lecture venues) were not conducive to teaching, learning and

assessment needs, as was poor infrastructure and insufficient resources which is consistent with previous studies (Bhati and Song 2019: 180; Kitiashvili 2020: 562).

Interestingly, staff have further added that in attempting student-centred assessments, another challenge was that students lacked critical thinking and responsibility for learning which could be attributed to possible poor assessment practices in the initial years of a student.

7.2.2.3 Assessment activities that promote higher-order thinking and learning

The findings from this current study, indicated that students perceived that individual assessment activities, which include class discussions, directed learning involving specific preparation and readings on related content, individual based activities, problem-based learning, quizzes, self-assessment, and solving practical problems, have been able to improve or promote their overall learning experience. In addition, students perceived these assessment activities as promoting the necessary higher-order skills, which include autonomy, critical thinking and taking responsibility for one's own learning. The following were not preferred as effective assessments: group-based assessments, role play/simulations and peer assessments. Peer assessments could be attributed to its long usage as indicated in the previous section.

In addition, when students were further probed about the assessment types that were least liked, group-based assessments, which included group assignments and group projects, came across strongly. Students attributed this to the lack of group cohesiveness and little/no contribution by members. Hence, students highly favoured individual assessments since it is their effort that contributes to their own mark.

In comparison to the students' findings, the staff data agreed that individual assessment activities are significantly effective in developing student autonomy, responsibility for learning and student engagement, with the most effective being class discussions and

individual-based activities. Even though the staff data indicated this, the students' findings revealed that students were more frequently engaged in group (66.8) as compared to class discussions (44.5%). This could be once again attributed to the challenges in 7.2.2.2, since working with large class sizes can be limiting in terms of time and difficulty to control as compared to smaller classes (Jamiu and Yakubu 2020: 195; Joof 2020: 53).

7.2.2.4 Type of questions to be used for test and examination purposes

The findings from this study revealed that staff preferred the use of application and critical thinking questions as compared to questions that test knowledge only. In addition, the staff data indicated that critical thinking questions were more useful and should have a higher weighting in a test and/or examination. Findings from the staff data further indicated that the use of fill in the blank; matching; multiple choice; one or two sentence responses; true/false questions (which should constitute less than 50% of question paper and more than 50%) should be attributed to case studies, essays and short questions in a test and/or examination.

Even though the above were the preferred methods of assessments by staff, the findings of the student data reveal that there was a significantly high usage of fill in the blank; matching; multiple choice; one or two sentence responses; true/false questions during on-line assessments. The findings of the current study also indicated that these types of assessment questions were significantly used in contact tests and examinations, which constituted more than 50%, yet staff data indicated that it should be lower than 50%.

Besides the challenges listed in 7.2.2.2, namely workload, class sizes and resources, literature (Chapter 3) has argued that resistance and/reluctance to change is a barrier to the implementation of student-centred assessments. Factors contributing to the reluctance to change includes the lecturer's goals, attitudes and assessment beliefs (van Lankveld *et al.* 2020: 1). In addition, the lecturer's knowledge and competences to design quality assessments, interpret and critique results and use these results to improve and

support student learning was a factor (Cumming *et al.* 2018: 433; Muhammad *et al.* 2020: 706).

7.2.2.5 Students' experience of assessments

The student findings revealed that there were alignment with the learning outcomes and assessment methods. This is consistent with the study guides and requirements of the Assessment Policy, as discussed in the document analysis. Assessments did allow for the application of knowledge as well as prompted the student to be engaged. However, a significantly high percentage (32.6%) indicated neutral scores when indicating that the nature of the assessments has been challenging. This is linked to the scoring patterns of the types of questions students were required to complete in tests and examinations, which indicated that there was less use of case studies, essays and short questions. As mentioned above, this could be associated with heavy workloads, large class sizes, too much administration (7.2.2.2) and the lecturer as an assessor having to change and design assessments that are challenging (7.2.2.4), as well as the lack of knowledge and training in this area of assessment (Aladawi 2020: 17).

In relation to training, interestingly, the staff findings indicated that DUT did offer the necessary training that lecturers required. However, the training was not scheduled properly since it conflicted with the staff lecture schedule, which includes teaching and assessment time. Furthermore, funding required to attend training was also a problem.

7.2.2.6 On-line assessments

Indeed, literature suggests that the effects of Covid-19 on HE has seen an increased shift to on-line learning, which is considered to be student-centred. However, there are concerns regarding e-learning and on-line SCL challenges. These challenges include infrastructure, especially in rural areas where the network signals can be poor; students need to be trained on how to access the on-line platforms; and lecturers need to know how to use the software to conduct lectures, upload material, run assessments and assist

both students and tutors; data costs; software licence fees payable for a Learning Management System (LMS); technical glitches; the educator may find it difficult to control break-away rooms that are used to facilitate group discussions and group activities; and students may be uneasy or find it intimidating to unmute their microphones and switch on their videos (Gonçalves and Capucha 2020: 1; Marlor, Finelli and Carroll 2021: 5; Shahzad *et al.* 2021: 806).

As the literature indicated, during Covid-19, staff and students of DUT had to also adjust to e-learning. The findings from this study revealed that students and staff did experience the challenges as identified above. However, DUT's LMS tools were easy to use, with adequate training and technical support from the university.

In addition, both staff and student findings identified on-line assessments as a mechanism that could promote learning and identify student's learning needs, as well as allow for a variety of questioning styles. However, since the return to contact classes in July 2022, there is less use of the LMS, as discussed in the document analysis. In addition, all assessments are face-to face written tests, exams, as well as presentations.

Lastly, even though students mentioned that e-learning could promote learning, it was not a preferred method of assessment due to the challenges listed above.

7.2.2.7 Feedback

The findings from the current study indicated the importance of feedback after each assessment. Students appreciated feedback and identified it as a tool that assists in improving areas of difficulty and increasing learning. Both staff and students' findings indicated that feedback was given within two weeks after the assessment was conducted. Findings from the staff data indicated that general comments in class and commenting on scripts were the most preferred methods as compared to personal feedback. This once again can be linked to the challenges that lecturers face in terms of time constraints, large class sizes and heavy loads.

7.2.2.8 Training and development

As per the document analysis, DUT's Learning and Teaching Strategy envisages professional development as an important agent for excellence in teaching and learning, hence DUT intends offering "ongoing staff training and development" for academics (Durban University of Technology 2020b: 7). In addition, workshops, seminars and conference series will be offered to aid in methods of instruction and assessment as well curriculum and study guide development (Durban University of Technology 2020b: 8).

The findings from the staff data reveal that there is regular training provided which could meet the needs of staff and are suitable for the development and improvement of assessment methods, as indicated above. However, the findings have identified that barriers to training and development in student-centred methods were due to training being scheduled when lecturers are unavailable, and there is a lack of funding to attend SCA training and development programmes.

7.3 Learning theories applicable to student-centred assessment

As discussed in the theoretical framework and review of literature, the learning theory that supports this study is constructivism. There is a strong association between student-centred assessment and the principles governing constructivism. The constructivist approach views students as actively involved in the construction of their own knowledge based on their experiences and reflections. The emphasis is on the student being an active learner, whilst developing higher-order thinking skills. This is in relation to the context of student-centred assessments that influence and support these higher-order skills which have been recognised or termed as 21st century skills.

This study was also aligned with Weimer's Model, which identified five key changes to practice that relate to the constructivist learning theory. These areas as mentioned in the conceptual framework are balance of power, functions of content in student-centred instruction, role of the teacher (educator/lecturer), responsibility for learning, and the purpose and processes of evaluation.

7.3.1 Balance of power

The role of lecturers and students in assessment has been identified as a fundamental aspect in assessment. According to Weimer, in a student-centred environment, there should be a balance of power. The Balance of power is anticipated to stimulate the student's interest in the subject matter (Al-Rashed 2020: 68). This strategy is intended to promote student-centredness and participation (Hemmati and Aziz Malayeri 2022: 138), instead of lecturers working with students that are apathetic, passive and disengaged (Weimer 2002: 31). Hence, it allows for students to provide their input in assessments such as making suggestions regarding assignments, projects and time allocation in the completion of tasks. However, literature has indicated that there is a significant gap in this area (Trinidad 2020: 1026).

Both staff and student findings indicated that this was an area of importance. However, student findings placed higher importance on this area as compared to staff. This converges with what literature indicates as a gap, which was highlighted above and explained in Chapter 1. In addition, the students' findings indicated that involvement in activities that request students to present suggestions about assignment choices and course activities (39.7%) and designing and managing their own timeframes in the completion of tasks (31.3%) were very low.

7.3.2 Function of content in student-centred instruction

This aspect focuses on the activities that promote student learning and self-awareness (Motjolopane 2021: 26; Trnova 2021: 322) rather than content transfer. Weimer (2002: 68) identifies that this creates a difficult key change to adapt to since it is difficult for lecturers to arbitrarily remove content.

The findings of this study indicated that staff supported the concept of student-centred activities which included the function of content. However, the student findings indicated

low levels of engagement in this area. For example, a significant number of students have ‘never’ prepared a brief summary of a lecture for the lecturer (25.8%),

Such a scenario could be attributed to the challenge associated with completing the syllabus on time for summative assessment purposes, which includes tests and exam, as well as the pressure between the quantity and quality of content. The further concern would be that if it is content focused, do lecturers ‘teach to test’ or do they teach to develop critical thinking and the skills associated with the demands of the 21st century. Indeed, literature has argued that summative assessments are valuable for grading purposes and concluding what knowledge has been acquired (Mäkipää and Hildén 2021: 2; Wafubwa and Csíkos 2021: 984). Moreover, literature highlights the paradigm shift of Higher Education from knowledge acquisition to knowledge production and application (Al-Gaseem, Bakkar and Al-Zoubi 2020: 898).

7.3.3 Role of the teacher (educator/lecturer)

This key change refers to the lecturer’s role in designing activities and assessments that promote student participation, which includes class discussions, debates, case studies, group activities and problem-solving activities. The lecturer adopts the role of a facilitator rather than the traditional ‘sage on the stage’. Furthermore, literature argues that these activities are intended to reverse the passive role of students into active contributors to their own development and learning. This is however dependent on the lecturer’s deliberate effort to actively involve students (Campbell, Detres and Lucio 2019: 736). Besides the effort of the lecturer, it is also dependent on the student to adapt and accept active learning. Literature identifies students’ ‘reluctance to change’ as a barrier to student-centred activities and assessments (Marlor *et al.* 2020: 2), as well as some students preferring to be quiet due to their personality, whilst some may not want to participate in student-centred activities that involve group-work (Kressler and Kressler 2020: 50). As previously mentioned, group-based activities and assessments were the least liked due to lack of commitment from other members, as indicated in the student data.

7.3.4 Responsibility for learning

This aspect involves the lecturer allowing students to create and manage their own time-frames in the completion of tasks and assessments, hence making the student accountable for their own learning and understanding the consequences of their actions (de Andrade Rodrigues *et al.* 2021: 10). As mentioned in 7.3.1, the students' finding revealed that this was not a popular practice.

7.3.5 Purpose and processes of evaluation

This key change highlights the importance of learning that must continue after summative assessments. Focus should not be grades and acquisition of knowledge only, instead emphasis should be on evaluating oneself and the promotion of life-long learners. Graduate attributes which include 21st century skills and the development of life-long learners have been underlined in General Education Guidelines, E-learning Policy and Assessment Policy as key areas in learning and student development (Durban University of Technology 2012: 3; 2016: 3; 2019: 2):

Literature suggests that assessment activities and methods which include self and peer assessment can be used to ascertain whether the student is learning and enhance learning (Weimer 2002: 119; de Andrade Rodrigues *et al.* 2021: 10; Gerdeh and Davaribina 2021: 3). The student findings indicated that self-assessment was regarded as an assessment method that could promote critical thinking, whereas peer assessment was not preferred as an activity or assessment of choice. The staff findings indicated both assessment types as being beneficial in promoting critical thinking. However, the student data revealed that self-assessment was rarely conducted.

7.4 Development of a framework for the provision of Student-Centred Assessments in Higher Education

In view of the above discussions, the analysis of student and staff data, document analysis and literature reviewed, a proposed framework relating to the effective implementation of student-centred assessment is presented in Figure 7.1. This framework has been designed to support the provision of student-centred assessment whilst taking into consideration the gaps and challenges that have been identified in literature and the findings of this current study.

The framework has been developed from a constructivist worldview. As indicated in the theoretical framework, this study adopted the constructivist epistemology since emphasis is placed on the student as an active participant of his/her learning. Recognition is given to the student's voice and expansion of student learning and importance is placed in the development of higher-order thinking skills, which include critical thinking, creativity, problem-solving and autonomy. This is important for this study since student-centred assessment is influenced by educational constructivism that takes into consideration content, instructional activities and assessments that assist in student learning as explained in the theoretical framework (Hoidn and Klemenčič 2020: 18). As discussed in the theoretical framework and in this chapter, consideration was given to Weimer's model since it suggested areas of key change to influence student-centred learning and the development of critical skills.

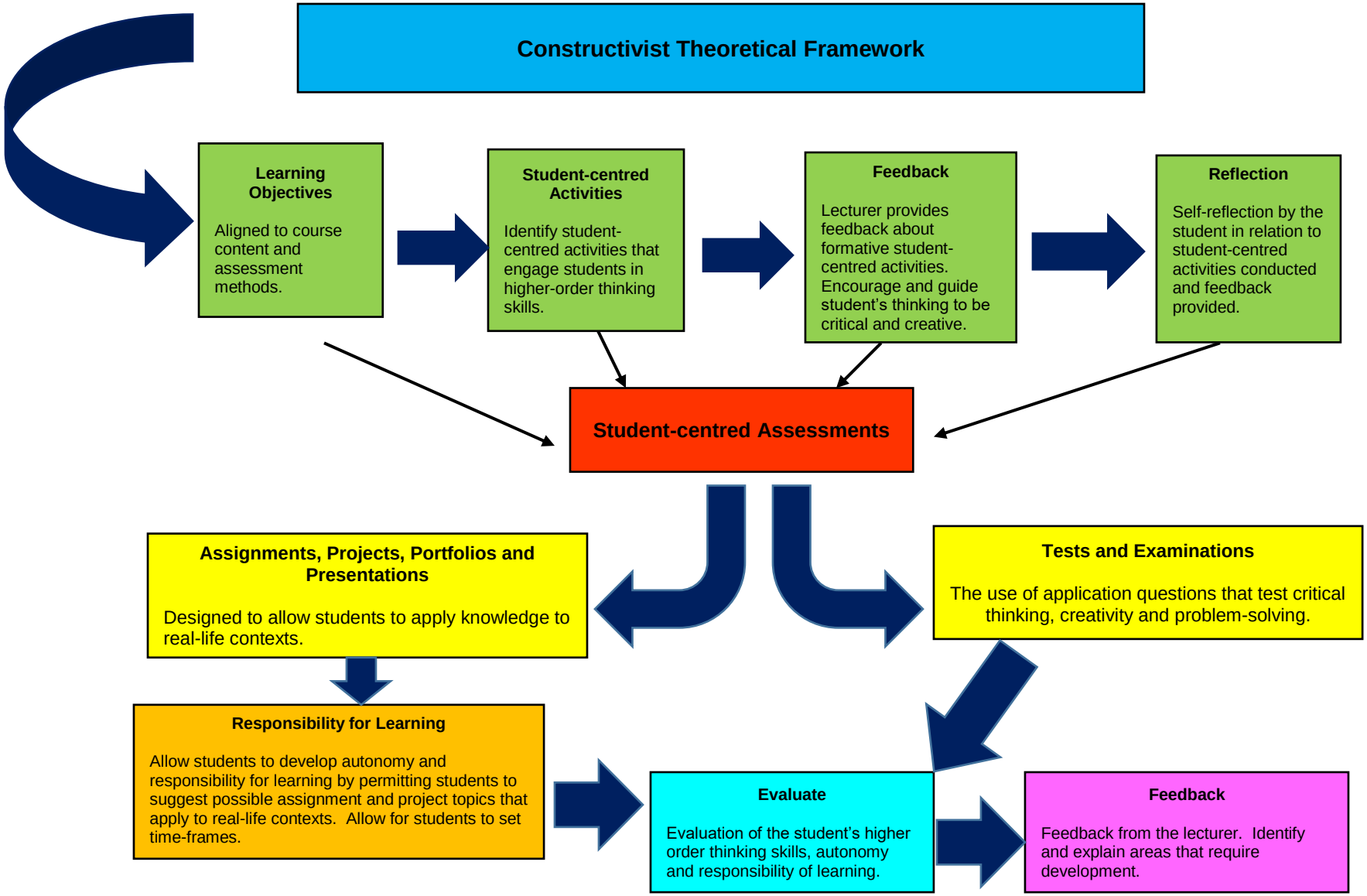


Figure 7.1 Development of a Framework for the provision of Student-Centred Assessment

Figure 7.1 is a diagrammatic view of the proposed framework for the provision of student-centred assessment (SCA) that can be used at Higher Education Institutions. As previously mentioned, this framework has been developed following the principles of Constructivism. Flowing from the **Constructivist** theoretical framework is the defining of learning objectives. This step allows for the lecturer to provide **alignment** between the course content, activities and assessment methods.

This is followed by the **student-centred activities**. It is in this step that the lecturer identifies student-centred activities that can be included in class to engage students in higher-order thinking skills, thereby allowing the student to have a "voice". This leads to the step on **feedback**, whereby the lecturer discusses with the class the outcome of the activities. The lecturer uses feedback to guide students' thinking to be critical and creative. After feedback is provided, students will be able to reflect on the outcome of the student-centred activities. **Self-reflection** will assist the student to be more conscious about their viewpoints and increases their level of understanding. It assists to identify areas that you are strong at which motivates the student and it reveals areas that require improvement which can build the students' learning.

The above four steps are part of scaffolding, which is linked to student-centred assessments, since SCA are aligned to the Constructivist principles. In addition, SCA is intended for students to reflect on their own work, hence taking ownership of it and identifying areas that require development. This supports self-regulating learning. In the proposed framework, student-centred assessments have been divided into two parts, namely a section on assessments prior to tests and examinations, and is not limited to assignments, projects, portfolios and presentations. The second part is tests and examinations. In assignments and projects, students are allowed to suggest the type of projects and assignments, for example, a community development project. Students may be allowed to choose the area.

In addition, the student can help to create time-frames for assignments and projects, which also allows for responsibility for learning. Tests and examinations must be

designed to enhance higher-order skills and should be a follow through about what has been learned and conducted in class, since assessment is an integral part of learning. This makes assessment authentic. Questions to be included in tests and examinations should allow for the application of knowledge, critical thinking, creativity and problem-solving. Hence, there should be a variety of questions that include and are not limited to case studies, scenario-based questions and even essays that allow for the application of knowledge, instead of only fill-in-the-blank, multiple choice and straight-forward questions that require the memorisation of facts.

Evaluation is a significant step. Evaluation of assessments that are conducted prior to a test and the evaluation of results after a test and/or exam are of relevance to the lecturer. It is essential to gauge whether students have achieved the learning outcomes and the necessary higher-order thinking skills. The last step is feedback relating to the assessments conducted that contribute towards the students' final marks. This is important since it is a mechanism to facilitate students' learning and development.

7.5 Recommendations

The reform of education has raised growing concerns regarding the preparation of students for the 21st century. This has led to innovative methods in teaching, learning and assessment. The incorporation of 21st century skills with content knowledge is seen as a fundamental aspect in teaching, learning and assessment (Nel and Pretorius 2019: 21). Graduate attributes, which are also known as 21st century skills, including autonomy, communication, collaboration, critical thinking, creativity and problem-solving, are a necessity for student development and being a life-long learner. These higher-order thinking skills promoting self-regulated learning and metacognition skills are facilitated through student-centred assessments.

Therefore, it is recommended that the proposed framework be tested by conducting action research. The researcher and/or lecturers within the departments from the current

study or lecturers from another faculty can test the framework, which would assist by recording any challenges and positive outcomes.

If the recommendations of the current study are taken into consideration, this could enable lecturers to enhance student development in the area of responsibility of learning, increase capacity in student learning and support the growth of higher-order thinking skills.

7.6 Contribution of the study

The results of this study have contributed to the body of literature that focuses on student-centred assessment. This includes the influence of student-centred assessment to promote higher-order thinking skills, which include autonomy, critical thinking, creativity and self-directed learning in Higher Education. The results have assisted in the development of a framework for the provision of student-centred assessment, which will assist HEIs in directing the learning and assessment activities of students. The framework will also support the lecturer in scaffolding and aligning teaching and learning to student-centred assessment, thus contributing to the development of adaptive graduates and lifelong learners.

7.7 Limitations of this study

This study was conducted in the Faculty of Accounting and Informatics only. Hence, the findings cannot be generalizable beyond this Faculty. However, the findings, recommendations and framework may be of interest and relevance to other Higher Education Institutions in South Africa.

The researcher intended to conduct a mini-delphi, requesting lecturers within the departments of the case study to participate. However, due to time constraints, this has not been conducted.

7.8 Conclusion

This chapter focussed on the findings from the quantitative and qualitative results. The findings of this study indicated that staff agree with the concept of student-centred assessments as being an effective method in contributing positively to student learning by increasing students' motivation, confidence, focus, deep learning and encouraging interaction between peers and lecturers. Likewise, students comprehend student-centred assessments as instrumental in influencing critical thinking, autonomy, responsibility for learning and higher-order thinking skills. However, the practice of student-centred activities and assessments were to a minimal due to the various challenges identified in the findings, which include large class sizes, workload, too much administration, insufficient time to complete the syllabus, insufficient resources and inadequately equipped venues. Besides the abovementioned challenges, literature has identified lecturers' and students' 'reluctance to change' as a barrier to student-centred assessments. This is attributed to lecturers' pedagogical and assessment style, as well as the students' confidence to participate and expectations of what the course should be.

DUT's institutional documents, which include the Assessment Policy (AP) and Learning and Teaching Strategy (LTS) policy, underline the importance of assessment and considers student assessment as an integral part to teaching and learning, and focus on the improvement in the quality of teaching and learning. DUT's LTS indicates various actions to be adopted, including: providing professional development to staff; motivating educators to select appropriate methods of instruction that encourage student performance and learning, which must be connected to the approaches or methods of assessment used; recognising whether the instruction methods and technologies used assist in the attainment of the aim and intended outcomes of the module; and lastly, academics are required to provide "timely and meaningful feedback" on formative assessment tasks to students (Durban University of Technology 2020b: 5).

In relation to the above, despite DUT having various policies and procedures in place, the staff findings indicated that even though training was offered by the institution, the times

that it was conducted were in conflict with the lecture schedule, as well as funding being an issue. Another aspect to improve student learning is the incorporation of technology as indicated above and in DUT's E-policy. On the other hand, staff and students' findings indicate that the institution's learning management system (LMS) has been used mainly as a repository prior to Covid-19, which led to the emergence of on-line teaching, learning and assessment. However, the return to face-to-face classes led to little use of on-line learning, which included no on-line classes on MS Teams and no on-line assessments on MS Teams or DUT's LMS, which is Moodle.

Feedback is an important tool, which has been emphasised in DUT's assessment and teaching and learning policies and guidelines, as identified in the document analysis. The findings from both staff and student questionnaires indicate the importance of feedback in assisting students to identify areas that require assistance and development. The findings revealed that the majority of students indicated that feedback was given within two weeks for summative assessments. Feedback was generalised and sometimes written on scripts, but the findings reveal that there was a lack of personal feedback.

Lastly, this study contributed to the extant body of knowledge by developing a proposed Framework for the provision of Student-Centred Assessment. In addition, this study investigated the practices of student-centred assessments at DUT, which included the perspectives of both staff and students. This study added to the body of literature regarding the concerns, gaps, implications, influences and challenges of student-centred assessments.

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APPENDICES

Appendix A: Student Questionnaire

Dear students

The purpose of this questionnaire is to explore the use of assessments and how these affect student engagement (active involvement in your own learning).

Your participation in this study will be highly appreciated and treated in confidence. Kindly answer all questions.

For each question, select the ONE option that best applies to you

Biographical Details

1. Indicate your gender

Male	Female

2. Indicate your race

Black	Coloured	Indian	White

3. Name of the Programme/ Qualification you are registered for

_____

SECTION B: ASSESSMENT

4. Indicate your agreement with the following statements regarding assessments:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
4.1 Students should gain knowledge from the assessments they do					
4.2 Some assessments should involve case studies whereby the student applies knowledge learned in the classroom					
4.3 There should be a connection between what is learned in the classroom and what is asked in the assessment					
4.4 Learning outcomes that are discussed in the study guides should be linked to the assessments					
4.5 Assessments should allow for educators and students to evaluate learning together.					
4.6 Assessments should promote learning and identify learning needs.					
4.7 Assessments should be used for grading purposes.					

5. Indicate how often you have completed or been involved in the following types of assessment in the last semester

Types of assessment	Never	Once	2 – 3 times	4 – 5 times	More than 5 times
5.1 Preparing a brief summary of a lecture for the lecturer.					
5.2 Assessment by peers.					
5.3 Assessment of peers.					
5.4 Assessment of myself.					
5.5 Case study					
5.6 Essay					
5.7 Quizzes					
5.8 Reflective journals					
5.9 Portfolios					
5.10 Presentations					
5.11 Individual Assignments					
5.12 Group Assignments					
5.13 Project-based learning, in which the student is required to create an artefact (e.g. article, product, design, object, etc)					
5.14 End of a section or chapter tests.					

6. To what extent do the following assessment activities assist in promoting/improving your overall learning experience (e.g. become an independent learner, take responsibility for your learning, increase your attention and motivate you to apply critical thinking, etc.)

Types of Assessment Activities	**Not at all / To a very small extent**	**To a small extent**	**To an average extent**	**To a large extent**	**To a very large extent**
6.1 Case studies					
6.2 Class discussions					
6.3 Directed Learning involving specific preparation and readings on related content.					
6.4 Group based activities					
6.5 Individual based activities					
6.6 Problem based learning.					
6.7 Quizzes					
6.8 Self-assessment					
6.9 Peer assessment					
6.10 Solving practical problems					
6.11 Use of role play/simulations					

7. Indicate your level of agreement with the following statements.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
7.1 I am frequently given an opportunity to be actively involved in class discussions.					
7.2 I frequently engage in group work.					
7.3 I am allowed to present recommendations about assignment choices and course activities.					
7.4 I am allowed to design and manage my own timeframes in the completion of tasks.					

8. Indicate what proportion of the on-line assessments was made up of the following types of question in the last semester:

QUESTION TYPES	**Less than 50%**	**At least 50%**
8.1 Fill in the blank; matching; multiple choice; one or two sentence responses; true/false		
8.2 Case studies; essays; short answers		

9. Indicate what proportion of **sit-down tests/exams** were, on average, made up of the following types of question **BEFOR**E COVID-19:

QUESTION TYPES	**Less than 50%**	**At least 50%**
9.1 Fill in the blank; matching; multiple choice; one or two sentence responses; true/false		
9.2 Case studies; essays; short answers		

10. Indicate your level of agreement with the following statements as they apply to your assessment experience in this programme:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
10.1 The questions in the test/exam were in line with what I expected.					
10.2 Assessment methods used in the programme allow me to apply the knowledge that I have learned.					
10.3 Assessment practices are aligned to the learning outcomes.					
10.4 The methods used to mark tests and exams are clearly discussed for all assessment activities.					
10.5 Assignment and test instructions are clearly communicated.					
10.6 Assignment and test instructions are clearly understood.					
10.7 I found the assessment questions straightforward and easy to understand.					
10.8 The assessment methods for this programme were interesting enough to keep me engaged					
10.9 I found the assessment methods for this programme challenging.					
10.10 The assessment methods used are successful in testing the knowledge and skills that I have learned.					

SECTION C: ON-LINE ASSESSMENTS

11. Due to COVID-19, Higher Education institutions had to implement on-line teaching, learning and assessment. With specific reference to assessment only, please indicate your level of agreement regarding the following:

On-line Assessment tools	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
11.1 I found DUT's on-line LMS tools, i.e. Moodle and MS Teams, easy to use for assessments.					
11.2 Sufficient training on how to complete on-line assessment was available to me on Moodle.					
11.3 I found TLZ (Moodle) technical support to be helpful.					
11.4 I found on-line assessments simple to complete.					
11.5 On-line assessments allowed for a variety of question types to be used e.g. case study, multiple choice, short answers, etc					
11.6 I found on-line assessments promoted my learning and identified my learning needs.					
11.7 I found assignments and quizzes easy to upload.					

SECTION D: FEEDBACK

12. How soon after submitting an assessment do you generally receive feedback? Select ONE option only).

Within one week	Within two weeks	Within three weeks	After more than three weeks	I don't ever receive feedback from assessments

13. Indicate your level of agreement with the following statements regarding your **assessment experience in this programme**.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	I don't ever receive feedback from assessments
13.1 Feedback provided after each assessment helps me to identify areas of learning that need improvement.						
13.2 Feedback provided after each assessment helps me to better my results.						
13.3 Lecturers are available for consultation to discuss academic progress and difficulties after results from each assessment are given.						

14. Please specify the assessment type that you like best. Why?

15. Please specify the assessment type that you like least. Why?

Thank you for your time and participation in this study.

Appendix B: Staff Questionnaire

Dear academic staff member

This study will explore the current student-centred assessment practices and staff perceptions at the Durban University of Technology (DUT).

Your participation in this study is highly appreciated and will be treated in the strictest confidence. Kindly answer all questions, as only completed questionnaires can be included in the research.

Thank you

Section A Biographical Details

1. Indicate your employment status at DUT

Permanent	Contract	Part-time

2. Indicate your gender

Male	Female

3. Indicate your age group (years)

20 – 25	26 – 30	31 – 35	36 – 40	41 – 50	> 50

4. Indicate the number of years that you are employed as an academic at DUT.

Less than 5	5 - <10	10 - <15	15 - <20	20-25	>25

5. Indicate your highest level of education

Diploma	Bachelor's degree	Honours	Masters	Doctorate

6. Specify the programme in which you lecture.

_____

Section B ASSESSMENT

Select your response according to the scale provided.

7. Indicate your agreement on what the intention of assessment should be.

Assessment should…	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
7.1 Focus on the acquisition of knowledge.					
7.2 Centred within real-life contexts.					
7.3 Be intertwined with teaching.					
7.4 Allow for educators and students to evaluate learning together.					
7.5 Understanding learning content.					
7.6 Promote learning and identify learning needs.					
7.7 Inform instruction methods.					
7.8 Inform types of questions.					
7.9 Grading purposes.					

8. Indicate your agreement that the following types of assessment can assist with determining the extent to which long term learning goals have been met:

Types of assessment	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
8.1 A brief summary of a lecture or lesson prepared by the students					
8.2 Peer assessment					
8.3 Self-assessment					
8.4 Quizzes					
8.5 Reflective journals					
8.6 Portfolios					
8.7 Presentations					
8.8 Individual Projects					
8.9 Group Projects					
8.10 Project-based learning					
8.11 End of a section or chapter tests.					
8.12 End of term or semester final exams.					

9. Indicate the extent to which the following types of activities may promote student autonomy, responsibility of learning and student engagement.

Types of Assessment Activities	Not at all / To a very small extent	To a small extent	To an average extent	To a large extent	To a very large extent
9.1 Case studies					
9.2 Class discussions					
9.3 Directed Learning, which involves specific preparation and readings on related content.					
9.4 Group based activities					
9.5 Individual based activities					
9.6 Problem based learning.					
9.7 Quizzes					
9.8 Self-assessment					
9.9 Peer assessment					
9.10 Solving practical problems					
9.11 Use of role play/simulations					
9.12 Students present recommendations about assignment choices and course activities.					
9.13 Students design and manage their own timeframes in the completion of tasks. Failure to do so will make them liable for their actions.					

10. Indicate your agreement that the following are positive outcomes of student-centred assessment:

Student-centred assessment practices could ...	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
10.1 Increases the students' motivation.					
10.2 Results in the student being focussed on learning					
10.3 Increases students' confidence.					
10.4 Increases responsibility and commitment of the student.					
10.5 Encourages deep learning.					
10.6 Encourages student interaction with each other.					
10.7 Encourages student interaction with the lecturer.					

11. In general, what percentage of a test/examination, should consist of the following question types?

QUESTION TYPES	**Less than 50%**	**At least 50%**
5.1 fill in the blank; matching; multiple choice; one or two sentence responses; true/false		
5.2 case studies; essays; short answers		

12. In general, what percentage of a test / examination should consist of the following types of questions?

QUESTION TYPES	**Less than 50%**	**At least 50%**
12.1 Questions that test knowledge		
12.2 Questions that test critical thinking		

13. How useful do you think the following types of questions are in assessing the content of a particular module?

Question type	**Not at all useful 1**	**2**	**3**	**4**	**Extremely useful 5**
13.1 fill in the blank; matching; multiple choice; one or two sentence responses; true/false					
13.2 case studies; essays; short answers					
13.3 Questions that test knowledge					
13.4 Questions that test critical thinking					

14. The proportion of marks assigned to summative assessment (end of course exams) in the majority of courses offered in the Faculty is 60%. I consider this to be:

Much too low	Too low	About right	Too high	Much too high

15. Indicate your agreement that you have experienced the following challenges when attempting student-centred assessment practices face to face.

Challenges	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
15.1 Rigid syllabus that does not allow for the student-centred approach and flexibility.					
15.2 Heavy teaching load					
15.3 Insufficient academic staff in my department					
15.4 Lack of academic support from CELT					

15.5 Lack of knowledge and skills about student-centred assessment.					
15.6 Large class sizes.					
15.7 Low morale in myself					
15.8 Pressure to complete the syllabus					
15.9 Too much administration.					
16. Please specify other challenges you have experienced that are not listed in Q15.					

17. Due to Covid 19, Higher Education institutions had to implement on-line teaching, learning and assessment. With specific reference to assessment, please indicate your agreement regarding the following:

On-line Assessment tools	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
17.1 DUT's on-line LMS tools, i.e. Moodle and MS Teams were easy to understand in order to engage in multimodal assessment.					
17.2 Sufficient training on designing on-line assessment was offered on Moodle and MS Teams.					
17.3 TLZ technical support was useful.					
17.4 On-line assessments were simple to administer.					
17.5 On-line assessments allowed for different types of questions.					
17.6 On-line assessments promote learning and identify learning needs.					

17.7 Assignments, quizzes and wikis were uncomplicated to design.					
17.8 It was simple to upload assessments.					
17.9 It was difficult to use the different assessment tool features.					
17.10 It was easy to unblock a student during a test, allowing a student a 2nd attempt if the student was removed from the assessment in error,					
17.11 Marking was uncomplicated.					
17.12 Moderation was easy manage.					

Section C FEEDBACK

18. Indicate which of the following options generally applies to you regarding the time it takes you to give students feedback to assessments:

Within one week	Within two weeks	Within three weeks	More than three weeks

19. Indicate how often you use the following methods to provide feedback

Methods of feedback	**Never / very rarely**	**Rarely**	**Occasionally**	**Often**	**Very often / always**
19.1 Personal feedback to a student, highlighting his/her strengths and weaknesses regarding his/her understanding and application of knowledge.					
19.2 Commenting on scripts or assignments.					
19.3 Providing general comments in class.					

Section D TRAINING and DEVELOPMENT IN STUDENT-CENTRED ASSESSMENT METHODS

20. Indicate your agreement with the following statements:

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
20.1 Regular teaching, learning and assessment training / development programmes are available for me to attend, should I wish to					
20.2 I am informed in good time about training and development programmes.					
20.3 Training programmes are generally scheduled when I am available.					
20.4 It is easy to obtain funds to attend training.					
20.5 The training programmes offered assist in improving teaching and assessment methods.					
20.6 The training and development programmes are relevant to my needs.					

21. Critical thinking is an important skill that students should build on. Please share how you would encourage critical thinking.

22. What type of assessment strategies can encourage and develop collaborative learning? Please explain.

23. How can student engagement be encouraged through assessment?

Thank you for your time and participation in this study

Appendix C: Letter of Permission: Institutional Research and Innovation Committee (IRIC)

APPENDIX C

Directorate for Research and Postgraduate Support
Durban University of Technology
Tromso Annexe, Steve Biko Campus
P.O. Box 1334, Durban 4000
Tel.: 031-3732576/7
Fax: 031-3732946

14th November 2018

Ms Noelene Simone Ross
c/o Department of Entrepreneurial Studies and Management
Faculty of Management Sciences
Durban University of Technology

Dear Ms Ross

PERMISSION TO CONDUCT RESEARCH AT THE DUT

Your email correspondence in respect of the above refers. I am pleased to inform you that the Institutional Research and Innovation Committee (IRIC) has granted full permission for you to conduct your research "Developing a framework to evaluate learner-centred assessments: a case study of three departments within the Faculty of Accounting & Informatics at the Durban University of Technology" at the Durban University of Technology.

The DUT may impose any other condition it deems appropriate in the circumstances having regard to nature and extent of access to and use of information requested.

We would be grateful if a summary of your key research findings can be submitted to the IRIC on completion of your studies.

Kindest regards.
Yours sincerely

PROF CARIN NAPIER
DIRECTOR (ACTING): RESEARCH AND POSTGRADUATE SUPPORT DIRECORATE

Appendix D: Clearance Number – Institutional Research Ethics Committee (IREC)

Appendix D

Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwin 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

21 October 2021

Ms N S Ross
38 Firozepore Road
Merebank
4052

Dear Ms Ross

Developing a framework to evaluate learner-centred assessments: a case study of three departments within the Faculty of Accounting & Informatics at the Durban University of Technology.
Ethical Clearance number IREC 185/18

The Institutional Research Ethics Committee acknowledges receipt of your Safety Monitoring and Annual Recertification report.

I am pleased to inform you that the study has been approved to continue.

Please note that ethical approval has been extended till **16 October 2022** if the research is not complete within this time, you will be required to apply for recertification three months before the expiry date.

Yours Sincerely

Prof J K Adam
Chairperson: IREC

Appendix E: Letter of Information

LETTER OF INFORMATION

Title of the Research Study:

Development of a framework for the provision of Student-centred Assessment in Higher Education.

Principal Investigator/s/researcher: Noelene Simone Ross

Co-Investigator/s/supervisor/s: Dr M Rajkoomar

Brief Introduction and Purpose of the Study:

This study aims to establish the staff and students' perception, exposure and usage of student-centred assessment. This study proposes a framework for the provision of student-centred assessment, which will assist academic staff in the design of student-centred assessment aimed to foster higher-order thinking skills. This will benefit the students' to becoming adaptive graduates. In addition, the findings and usage of the framework will positively contribute to student engagement, which impacts on student retention and pass rate.

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)

A separate questionnaire has been designed for staff and students. Questionnaires will be administered on-line. The results of both the staff and student questionnaire will be analysed using SPSS.

A document analysis will be conducted using institutional and organisational documents. A thematic analysis of the documents will be conducted using Nvivo. This study adopted a convergent design, hence the results from the staff and student questionnaires will be triangulated with the findings from the document analysis.

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 experience any risks or discomforts, in addition there is no physical labour or medical procedures involved in this study.

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

The envisaged study will lead to publications in accredited journals and to conference presentations that address and critically review the effectiveness and implementation of student-centred assessment.

The proposed framework will also support the lecturer in scaffolding and aligning teaching and learning to student-centred assessment. Thus contributing to development of adaptive graduates and lifelong learners.

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)
Your participation in this study is completely voluntary. There will be no negative consequences, if you refuse participation or choose to withdraw from the study at any given point.

Remuneration: (Will the participant receive any monetary or other types of remuneration?)

You will not receive any form of remuneration.

Costs of the Study: (Will the participant be expected to cover any costs towards the study?)

You will not incur any costs.

Confidentiality: (Description of the extent to which confidentiality will be maintained and how will this be maintained)

The results of this study will be presented in an anonymous manner in order to protect the identities of the participants' i.e. you and others that are part of this study. Pseudonyms will be used to replace the names of the participants. In addition, neither the report nor subsequent publications will give names and data will be aggregated.

Research-related Injury: (What will happen should there be a research-related injury or adverse reaction? Will there be any compensation?)
Since there is no physical labour or medical procedures involved, you will not incur any research-related injury. In addition, this study involves the answering of questionnaires on a voluntary basis.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher on (031 373 5649/55; 084 8565 489; my supervisor Dr M Rajkoomar (031) 373 6776 or the Institutional Research Ethics Administrator on (031) 373 2900. Complaints can be reported to the Director: Research and Postgraduate Support, Prof C Napier on (031) 373 2577 or carinn@dut.ac.za

General:

Potential participants must be assured that participation is voluntary and the approximate number of participants to be included should be disclosed. A copy of the information letter should be issued to participants. The information letter and consent form must be translated and provided in the primary spoken language of the research population e.g. isiZulu.

Appendix F: Letter of Consent

CONSENT

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, _____, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: IREC 185/18,
- I have also received, read and understood the above written information regarding the study.
- I am aware that the results of the study, including my personal details 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.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher on (031 373 5649/55; 084 8565 489; my supervisor Dr M Rajkoomar (031) 373 6776 or the Institutional Research Ethics Administrator on (031) 373 2900. Complaints can be reported to the Director: Research and Postgraduate Support, Prof C Napier on (031) 373 2577 or carinn@dut.ac.za

_____	_____	_____	_____
Full Name of Participant	**Date**	**Time**	**Signature / Right Thumbprint**

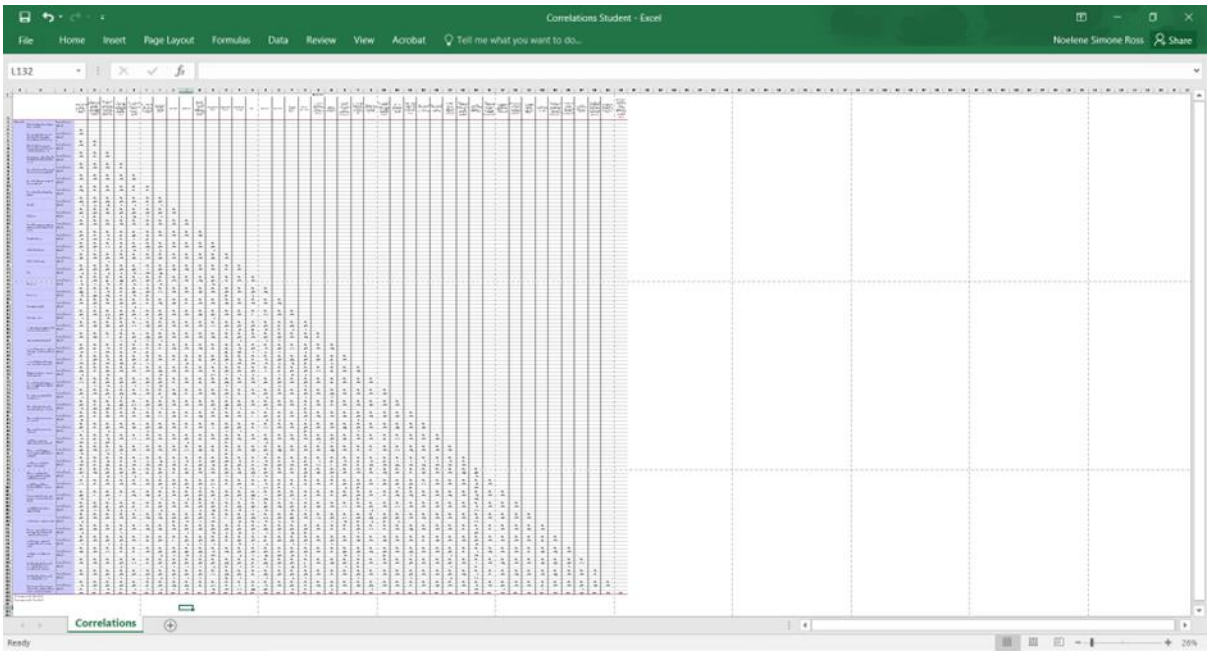
I, _____ herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

Noelene Simone Ross

_____	_____	_____
Full Name of Researcher	**Date**	**Signature**

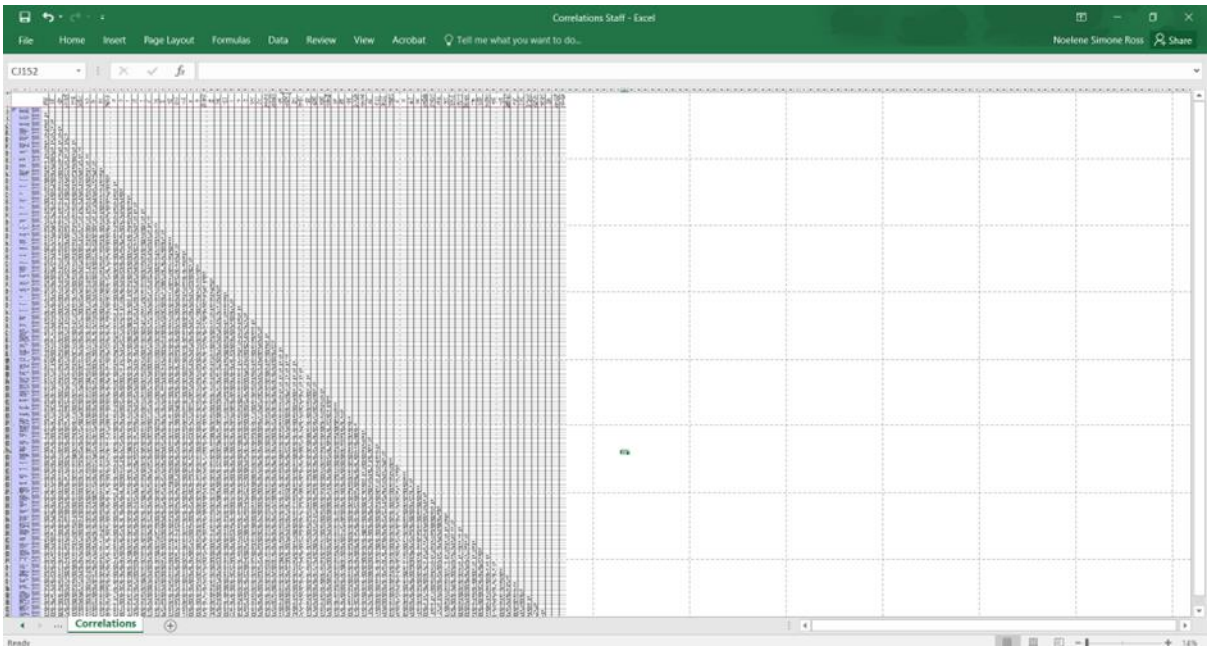
Appendix G: Student Correlations

CORRELATIONS FOR STUDENT QUESTIONNAIRE



Appendix H: Staff Correlations

CORRELATIONS FOR STAFF QUESTIONNAIRE



Appendix I: Editing Confirmation

Editing Letter

EDITING LETTER

696 Clare Road

Clare Estate

Durban

4091

27 November 2023

To: Whom it may concern

Editing of PhD: Noelene Simone Ross

Development of a framework for the provision of Student-centred Assessment in Higher Education

This letter serves as confirmation that the aforementioned thesis has been language edited. The requisite grammatical conventions have been met.

Any queries may be directed to the author of this letter.

Regards

MP MATHEWS

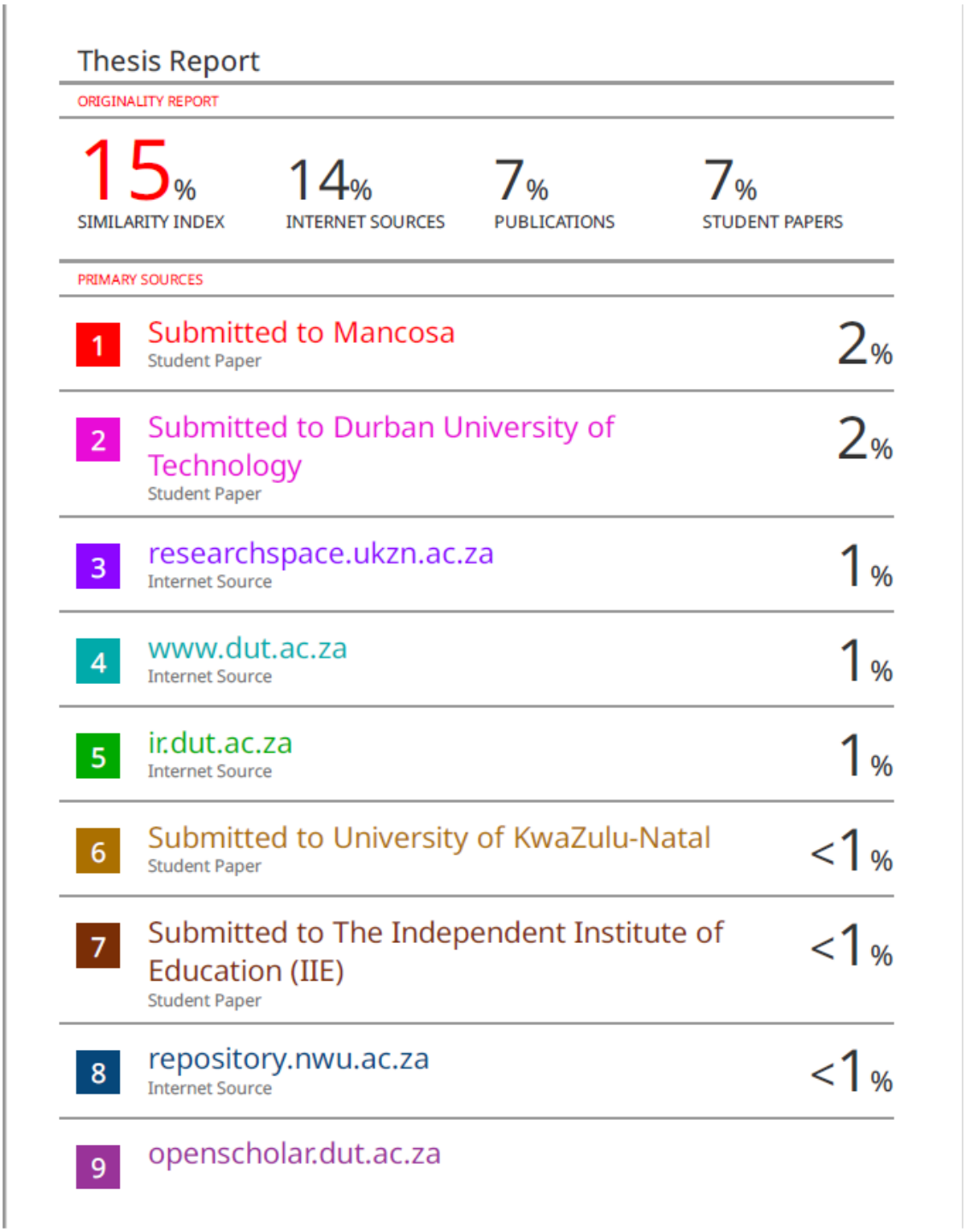
Lecturer and Language Editor

Mercimathews4@gmail.com

083 676 4778

Appendix J: Turnitin Plagiarism Report

Plagiarism Report



Thesis Report

ORIGINALITY REPORT

15%	14%	7%	7%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Mancosa Student Paper	2%
2	Submitted to Durban University of Technology Student Paper	2%
3	researchspace.ukzn.ac.za Internet Source	1%
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7	Submitted to The Independent Institute of Education (IIE) Student Paper	<1%
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